WALNUT GROVE
CONSTRUCTION PLAN

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

GENERAL NOTES

1. ZONING: "RC - DEO" PER THE 02/02/04 COMPREHENSIVE ZONING PLAN & PER THE COMP LITE ZONING REGULATION AMENDMENTS EFFECTIVE ON 7-28-06.

2. THE PREVIOUS DEPARTMENT OF PLANNING AND ZONING FILE NUMBERS: P-05-05, S-01-31 & WP-02-14 (SEE NOTE #23 BELOW).

3. FOREST STAND DELINEATION BY GUTSCHICK, LITTLE AND WEBER, APRIL 2001

4. WETLANDS DELINEATION BY EXPLORATION RESEARCH, INC. APRIL 2001

5. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.

6. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS TO ANY EXCAVATION WORK BEING DONE.

7. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.

8. TRAFFIC STUDY IS BY THE TRAFFIC GROUP, INC. MARCH/APRIL 2001

9. A NOISE STUDY IS NOT REQUIRED AS PER SECTION 5.2.9. OF THE HOWARD COUNTY VOLUME III DESIGN MANUAL.

10. WALNUT GROVE FARM IS LISTED AS SITE NO. 18 ON THE HOWARD COUNTY INVENTORY OF HISTORIC SITES. THE EXISTING HISTORIC STRUCTURES WILL REMAIN AS PART OF PRESERVATION PARCEL "A"

11. ON 10/15/01, THE HOWARD COUNTY PLANNING BOARD APPROVED THE CEMETERY BOUNDARY DOCUMENTATION AND ACCOMMODATION PLAN FOR THE PROTECTION OF THE "WATKINS CEMETERY". THE "WATKINS CEMETERY" LOCATED ON THE SITE, IS LISTED AS SITE NO. 32-4 ON THE HOWARD COUNTY CEMETERIES AND GRAVE SITES INVENTORY. THE EXISTING CEMETERY WILL BE CONTAINED WITHIN PRESERVATION PARCEL "G"

12. SHEPPARD LANE IS LISTED AS A SCENIC ROAD ON THE HOWARD COUNTY SCENIC ROADS MAP.

13. THIS PROPERTY IS NOT WITHIN THE METROPOLITAN DISTRICT.

14. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.

15. THIS DEVELOPMENT IS TO UTILIZE PRIVATE WATER IN THE FORM OF WELLS ON EACH INDIVIDUAL LOT. SEPTIC FOR LOTS 33 & 16 IS TO BE PRIVATE AND PROVIDED BY AN INDIVIDUAL SEPTIC FIELD ON EACH LOT. SEPTIC FOR THE REMAINING LOTS IS TO BE PROVIDED BY A COMMUNITY SEPTIC FIELD ON PRESERVATION PARCEL A. THE SEPTIC COLLECTION SYSTEM FOR THIS DEVELOPMENT IS TO BE PUBLIC (CONTR. NO. 40-4330-D). THE PUBLIC TREATMENT SYSTEM IS UNDER CONTRACT NO. 50-4394-D.

16. 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. 28FB AND 35A2 WERE USED FOR THIS PROJECT.

17. ALL ROADS WITHIN THIS DEVELOPMENT ARE PUBLIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS. STREET TREES WILL BE PROVIDED PER THE SUBDIVISION REGULATIONS AT THE FINAL PLAN STAGE.

18. STORM WATER MANAGEMENT FOR THIS SITE IS PROVIDED BY 5 PONDS (A, B, C, D, & E).

A. STORMWATER MANAGEMENT POND 'A' IS A WET ED POND (TYPE P3) THAT PROVIDES QUALITY CONTROL (WQv) AND QUANTITY CONTROL (CPv) FOR 33.3 ACRES OF THE PROPOSED DEVELOPMENT. WQv IS PROVIDED BY A PERMANENT POOL AND CPv IS PROVIDED BY 18-24 HOUR EXTENDED DETENTION. POND 'A' RESTS ENTIRELY UPON PRESERVATION PARCEL C. POND 'A' IS TO BE PRIVATELY OWNED AND MAINTAINED JOINTLY BY HOWARD COUNTY AND THE HOA. POND 'A' IS A MD-378 HAZARD CLASS 'A' FACILITY.

B. STORMWATER MANAGEMENT POND 'B' IS A WET ED POND (TYPE P3) THAT PROVIDES QUALITY CONTROL (WQv) AND QUANTITY CONTROL (CPv) FOR 34.2 ACRES OF THE PROPOSED DEVELOPMENT. WQv IS PROVIDED BY A PERMANENT POOL AND CPv IS PROVIDED BY 18-24 HOUR EXTENDED DETENTION. POND 'B' RESTS ENTIRELY UPON PRESERVATION PARCEL D. POND 'B' IS TO BE PRIVATELY OWNED AND MAINTAINED JOINTLY BY HOWARD COUNTY AND THE HOA. POND 'B' IS ENTIRELY WITHIN CUT AND IS A NON-MD378 FACILITY. THE OUTFALL FOR 'POND B' HAS BEEN COORDINATED WITH THE FUTURE BASSLER DEVELOPMENT TO THE NORTH. THE OUTFALL IS TO BE CARRIED TO THE STREAM VALLEY NORTH OF THE EXISTING DIRT ROAD, VIA STORM DRAIN. A 51LB (51-B6) HAS BEEN PROVIDED AT MH-B2 TO ACCEPT THE 100-YEAR DISCHARGE FROM THE FUTURE BASSLER DEVELOPMENT STORMWATER POND.

C. STORMWATER MANAGEMENT POND 'C' IS A BIORETENTION POND (TYPE F6) THAT PROVIDES QUALITY CONTROL (WQv) FOR 3.1 ACRES OF THE PROPOSED DEVELOPMENT. QUANTITY CONTROL (CPv) IS NOT REQUIRED BECAUSE THE 1-YR PEAK DISCHARGE TO STUDY POINT 3 IS LESS THEN 2 CFS. (Q-1YR = 0.52 CFS). "POND C' RESTS ENTIRELY UPON PRESERVATION PARCEL A. 'POND C' IS TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOA. 'POND C' IS A NON-MD378 FACILITY.

D. STORMWATER MANAGEMENT POND 'D' IS A WET ED POND (TYPE P3) THAT PROVIDES QUALITY CONTROL (WQv) AND QUANTITY CONTROL (CPv) FOR 25.0 ACRES OF THE PROPOSED DEVELOPMENT. WQv IS PROVIDED BY A PERMANENT POOL AND CPv IS PROVIDED BY 18-24HOUR EXTENDED DETENTION. POND 'D' RESTS ENTIRELY UPON PRESERVATION PARCEL B. POND 'D' IS TO BE PRIVATELY OWNED AND MAINTAINED JOINTLY BY HOWARD COUNTY AND THE HOA. POND 'D' IS A MD-378 HAZARD CLASS 'A' FACILITY.

E. STORMWATER MANAGEMENT POND 'E' IS A WET ED POND (TYPE P3) THAT PROVIDES QUALITY CONTROL (WQv) AND QUANTITY CONTROL (CPv) FOR 16.8 ACRES OF THE PROPOSED DEVELOPMENT. WQv IS PROVIDED BY A PERMANENT POOL AND CPv IS PROVIDED BY 18-24 HOUR EXTENDED DETENTION. POND E' RESTS ENTIRELY UPON PRESERVATION PARCEL A. 'POND E' IS TO BE PRIVATELY OWNED AND MAINTAINED JOINTLY BY HOWARD COUNTY AND THE HOA. 'POND E' IS A MD-378 HAZARD CLASS 'A' FACILITY.

19. BOUNDARY SHOWN IS FROM EXISTING DEEDS AND AVAILABLE PUBLIC RECORDS.

20. THE DESIGN OF THIS CLUSTER SUBDIVISION REFLECTS THE INTENDED PRINCIPAL USE OF THE PRESERVED AREAS, PARCEL "A" - EQUESTRIAN FARM, PARCELS "B - I"- ENVIRONMENTAL PROTECTION & SWM, PARCEL "G" - CEMETERY PRESERVATION. THE PRESERVATION AREAS, AS DESIGNED, WILL FUNCTION FOR THEIR INTENDED USE, AND THE CLUSTER LOT ARRANGEMENT WILL MINIMIZE ADVERSE IMPACTS TO PRESERVATION AREAS INCLUDING UNIQUE & SENSITIVE ENVIRONMENTAL CONDITIONS, AND EXISTING ADJACENT FARM OPERATIONS. THE LOCATION AND SHAPE OF THE PRESERVATION PARCELS WILL PRESERVE THE QUALITY OF THE LANDSCAPE, PARTICULARLY AS VIEWED FROM SCENIC SHEPPARD LANE.

21. PRESERVATION PARCEL EASEMENT HOLDERS:

BUILDABLE PRESERVATION PARCEL "A"	-	(PRIVATELY OWNED WITH HOWARD COUNTY AND THE HOA AS THE TWO EASEMENT HOLDERS)
NON-BUILDABLE PRESERVATION PARCEL "B"	-	(TO BE CONVEYED TO THE HOA WITH HOWARD COUNTY AND PATUXENT CONSERVATION CORP. AS THE TWO EASEMENT HOLDERS)
NON-BUILDABLE PRESERVATION PARCEL "C"	-	(TO BE CONVEYED TO THE HOA WITH HOWARD COUNTY AND PATUXENT CONSERVATION CORP. AS THE TWO EASEMENT HOLDERS)
NON-BUILDABLE PRESERVATION PARCEL "D"	-	(TO BE CONVEYED TO THE HOA WITH HOWARD COUNTY AND PATUXENT CONSERVATION CORP. AS THE TWO EASEMENT HOLDERS)
NON-BUILDABLE PRESERVATION PARCEL "E"	-	(PRIVATELY OWNED WITH HOWARD COUNTY AND THE HOA AS THE TWO EASEMENT HOLDERS)
NON-BUILDABLE PRESERVATION PARCEL "F"	-	(TO BE CONVEYED TO HOWARD COUNTY, MARYLAND)
NON-BUILDABLE PRESERVATION PARCEL "G"	-	(TO BE CONVEYED TO THE HOA WITH HOWARD COUNTY AND PATUXENT CONSERVATION CORP. AS THE TWO EASEMENT HOLDERS)
NON-BUILDABLE PRESERVATION PARCEL "H"	-	(TO BE CONVEYED TO HOWARD COUNTY, MARYLAND)
NON-BUILDABLE PRESERVATION PARCEL "I"	-	(TO BE CONVEYED TO HOWARD COUNTY, MARYLAND)
NON-BUILDABLE BULK PARCEL "J"	-	(FUTURE CLAY CIRCLE LAND)
NON-BUILDABLE PRESERVATION PARCEL "K"	-	(TO BE CONVEYED TO THE HOA WITH HOWARD COUNTY AND PATUXENT CONSERVATION CORP. AS THE TWO EASEMENT HOLDERS)
NON-BUILDABLE PRESERVATION PARCEL "L"	-	(PRIVATELY OWNED WITH HOWARD COUNTY AND THE HOA AS THE TWO EASEMENT HOLDERS)

22. PARCEL "J" DEDICATED TO ADJACENT PARCEL 49 FOR THE PURPOSE OF A PUBLIC ROAD. THE DENSITY FOR BULK PARCEL "J" IS UTILIZED WITHIN THIS SUBDIVISION AND WILL NOT BE TRANSFERRED TO PARCEL 49.

23. WAIVER PETITION, WP-02-14, TO WAIVE SECTION 16.116(A) TO ALLOW GRADING AND REMOVAL OF VEGETATIVE COVER WITHIN 25 FEET OF A WETLAND AND WITHIN 75 FEET OF A PERENNIAL STREAM, AND SECTION 16.115(C)(2) TO ALLOW CONSTRUCTION ACTIVITY AND DISTURBANCE WITHIN THE 100 YEAR FLOOD PLAIN, FOR THE PURPOSE OF CONSTRUCTING A PUBLIC ACCESS PLACE ROAD CROSSING TO SERVE 21 RESIDENTIAL BUILDING LOTS, WAS APPROVED SUBJECT TO CONDITIONS AS STATED IN THE WAIVER PETITION APPROVAL LETTER DATED SEPTEMBER 13, 2002

24. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH TWO FOOT CONTOUR INTERVALS PREPARED BY GLW PA. DATED: (NOV., 2002).

25. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS CARNES ASS. , IN JULY OF 2004 AND AGAIN IN JULY OF 2005 AND HAS BEEN INCLUDED WITH THIS SUBMISSION.

26. THE FLOOD PLAIN STUDY FOR REACH 1 & 2 WAS PREPARED BY GLW PA. , IN FEBRUARY 2005 AND APPROVED UNDER P-05-05. REACH 1 IS THE LARGER TRIBUTARY RUNNING SOUTH-NORTH ALONG THE WESTERN PORTION OF THE SITE. REACH 1 WAS EXTENSIVELY MODELED WITHIN THAT REPORT. REACH 2 IS THE SMALLER TRIBUTARY RUNNING SOUTH-NORTH ALONG THE WEST SIDE OF SHEPPARD LANE AT THE SOUTHEASTERN CORNER OF THE SITE. THE FLOOD PLAIN MASEL FOR REACH 2 WAS TAKEN FROM THE EXISTING HOWARD COUNTY CLYDES BRANCH STUDY APPROVED UNDER CAPITAL PROJECT D-1028 AND RE-DELINEATED USING THE LATEST AERIAL TOPOGRAPHY.

27. THE MINIMUM PRINCIPAL STRUCTURE SETBACKS FOR THESE SFD UNITS ARE:
- FRONT TO PUBLIC ROW = 30'
- SIDE TO PUBLIC ROW = 30'
- FRONT/SIDE TO OTHER = 10'
- REAR TO OTHER = 30'
- MINIMUM WIDTH AT BRL = 100'
- FRONT/SIDE/REAR TO A COLLECTOR/ARTERIAL ROAD = 75'

28. THIS SUBDIVISION IS GRANDFATHERED TO THE FOURTH EDITION OF THE SUBDIVISION REGULATIONS SINCE S-01-31 RECEIVED SIGNATURE APPROVAL PRIOR TO 10/25/01. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS/PARCELS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE BUILDING OR GRADING PERMITS.

29. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

30. EXISTING UTILITIES ARE BASED ON MISS UTILITY FIELD LOCATION, GLW FIELD SURVEY AND THE LATEST HOWARD COUNTY RECORDS.

31. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." ALL TREES SHALL BE PLACED A MINIMUM OF 20' FROM ANY STREET LIGHT.

32. TO FULFILL THE FOREST CONSERVATION OBLIGATION FOR THE DEVELOPMENT OF THIS SITE, AT LEAST 41.34± ACRES OF FOREST CONSERVATION EASEMENTS WHICH COMPRISES OF 4.65± ACRES OF NET TRACT RETENTION AND 36.69± ACRES OF SUPPLEMENTAL PLANTING (AFFORESTATION/REFORESTATION) MUST BE RECORDED AT FINAL PLAN STAGE.

33. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL REQUIRING 326 SHADE TREES AND 201 EVERGREEN TREES PROVIDED WITH LANDSCAPE SURETY IN THE AMOUNT OF $121,150.00 WITH DPW, DEVELOPER'S AGREEMENT.

34. 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.

35. THE 95% COMPACTION IN ALL FILL AREAS SHALL BE IN ACCORDANCE WITH AASHTO T-180 STANDARDS.

36. ALL SCHOOL BUS-STOP STANDING PADS SHALL BE MAINTAINED BY THE H.O.A.

37. ALL TRAFFIC ISLAND AREAS INTERIOR TO CURB SHALL BE MAINTAINED BY THE H.O.A.

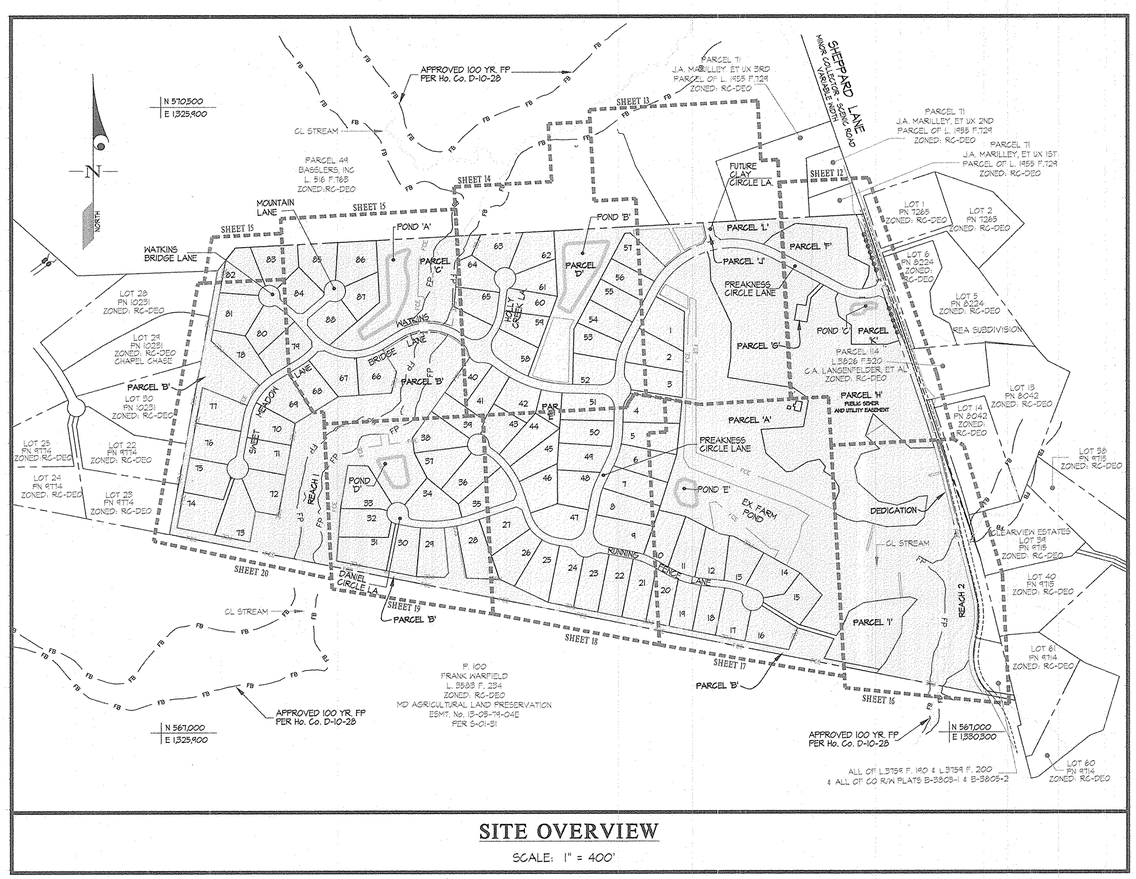
38. ALL SWALES AND ROADSIDE DITCHES ARE TO BE LINED WITH EROSION CONTROL MATTING (PER S-22-2) TO MINIMUM WIDTH OF 6' AND CENTERED ON THE SWALE UNLESS OTHERWISE NOTED.

39. SILT FENCE IMBRICATIONS TO EXTEND FOR A FULL 2' UPHILL WHEREVER IT RUNS DOWN A SLOPE.

40. STREETLIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. STREETLIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND STREET TREE.

41. THE EXISTING FARM POND SHALL BE PRIVATELY OWNED AND MAINTAINED.

42. THE ENVIRONMENTAL DISTURBANCE CREATED BY THE SWM OUTFALLS OF POND B (ON THE ADJACENT BASSLER PROPERTY) AND POND D HAVE BEEN DETERMINED TO BE NECESSARY DISTURBANCES BY HSCD IN ACCORDANCE WITH SECTION 16.116(c) OF THE SUBDIVISION REGULATIONS.



SITE OVERVIEW

SCALE: 1" = 400'

GENERAL NOTE 43 - SITE DATA TABLE

A. GROSS AREA OF PROPERTY TRACT = 202.44± AC.

B. 100-YEAR FLOOD PLAIN AREA = 8.78± AC.
AREA OF STEEP SLOPES = 2.49± AC.
(NOT WITHIN 100-YR FLOOD PLAIN)

C. NET AREA OF PROPERTY TRACT = 191.17± AC.

D. AREA OF PROPOSED PUBLIC ROAD ROW (ON SITE) = 11.40± AC.
SHEPPARD LANE ROW DEDICATION = 2.09± AC.
TOTAL AREA OF PUBLIC ROW DEDICATION = 13.49± AC.

E. AREA OF PROPOSED LOTS AND/OR PARCELS = 188.95± AC.

F.

BUILDABLE PRESERVATION PARCEL "A"	= 31.3229 AC
NON-BUILDABLE PRESERVATION PARCEL "B"	= 22.2625 AC
NON-BUILDABLE PRESERVATION PARCEL "C"	= 6.1331 AC
NON-BUILDABLE PRESERVATION PARCEL "D"	= 6.2084 AC
NON-BUILDABLE PRESERVATION PARCEL "E"	= 21,128 SF
NON-BUILDABLE PRESERVATION PARCEL "F"	= 2.6515 AC
NON-BUILDABLE PRESERVATION PARCEL "G"	= 0.2141 AC
NON-BUILDABLE PRESERVATION PARCEL "H"	= 20.6851 AC
NON-BUILDABLE PRESERVATION PARCEL "I"	= 2.9935 AC
NON-BUILDABLE BULK PARCEL "J"	= 0.1368 AC
NON-BUILDABLE PRESERVATION PARCEL "K"	= 1.6145 AC
NON-BUILDABLE PRESERVATION PARCEL "L"	= 2.0244 AC

G. BASE DENSITY = 47 LOTS
(RC-CLUSTER 1 LOT PER 4.25 AC.)

H. MAXIMUM DENSITY ALLOWED = 95 LOTS
(RC-DEO CLUSTER 1 LOT PER 2.0 ACRES)

I. DENSITY SHOWN = 84 LOTS
(1 EX. HOME OF PARCEL A + 88 PROPOSED SFD LOTS)

J. DEOS REQUIRED = 42 (84-47=42)

K. OPEN SPACE REQUIRED (NONE) = 0.00 AC.
OPEN SPACE PROVIDED (NONE) = 0.00 AC.
(PER SECTION 16.121 (a)(2)

L. TOTAL NUMBER OF PROPOSED SFD BUILDABLE LOTS = 88

TOTAL NUMBER OF BUILDABLE PRESERVATION PARCELS = 1

TOTAL NUMBER OF NON-BUILDABLE PRESERVATION PARCELS = 10

TOTAL NUMBER OF BULK PARCELS = 1

MDE PERMIT TRACKING

ALL ENVIRONMENTAL DISTURBANCES PROPOSED TO THIS DEVELOPMENT HAVE BEEN FILED AND REVIEWED BY M.D.E. AND THE ARMY CORPS. OF ENGINEERS UNDER M.D.E. PERMIT TRACKING NUMBER 200661163.

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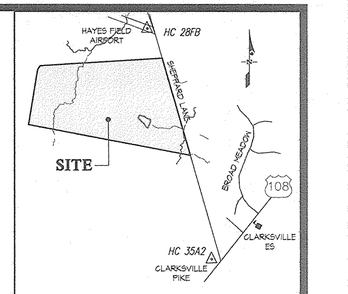


VICINITY MAP

SCALE: 1" = 2000'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/2/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153CS.dwg | DES. BJM | DRN. BJM | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

COVER SHEET

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

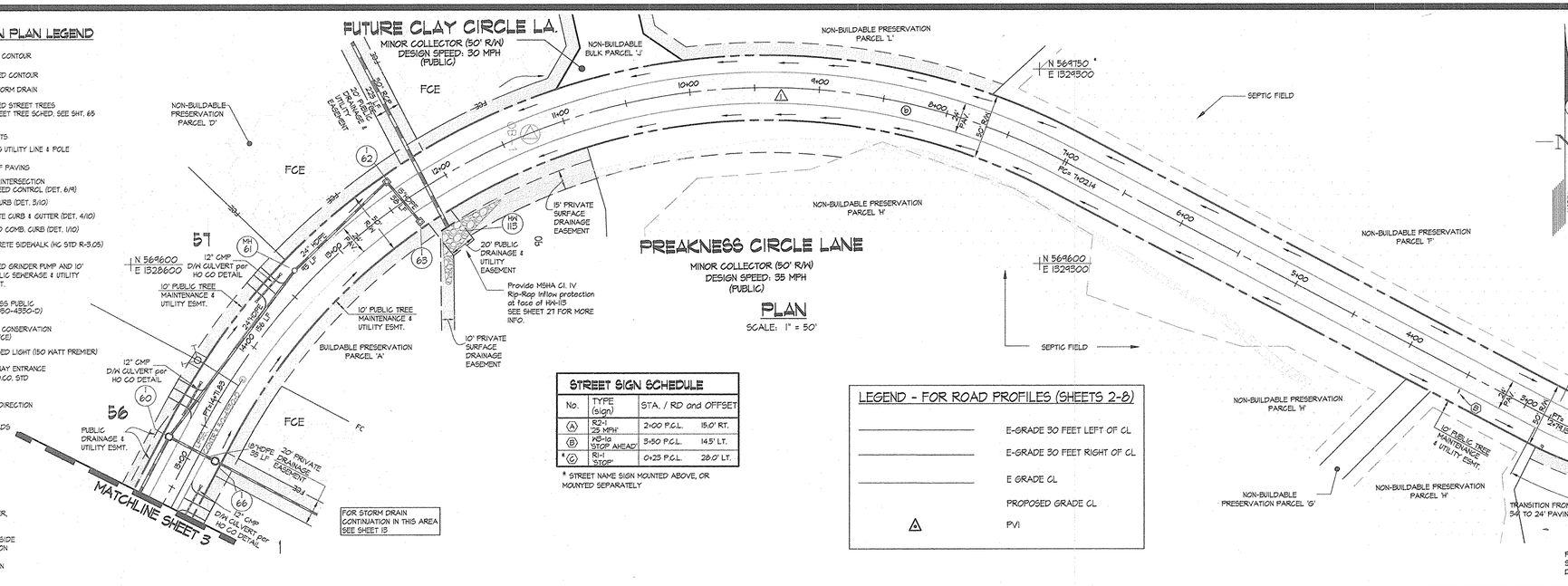
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	1 OF 78

F-06-31

ROAD CONSTRUCTION PLAN LEGEND

- 366 — EXISTING CONTOUR
- 300 — PROPOSED CONTOUR
- PROP. STORM DRAIN
- PROPOSED STREET TREES FOR STREET TREE SCHED. SEE SHT. 6.5
- EASEMENTS
- EXISTING UTILITY LINE & POLE
- EDGE OF PAVING
- RAISED INTERSECTION FOR SPEED CONTROL (DET. 6/9)
- FLUSH CURB (DET. 5/10)
- CONCRETE CURB & GUTTER (DET. 4/10)
- MODIFIED COMB. CURB (DET. 1/10)
- 5' CONCRETE SIDEWALK (HC STD R-5.05)
- PROPOSED GRINDER RAMP AND 10' x 10' PUBLIC SEWERAGE & UTILITY EASEMENT.
- PVC LP55 PUBLIC (cont.: #50-4330-D)
- FCE — FOREST CONSERVATION ESMT. (TYP.)
- PROPOSED LIGHT (150 WATT PREMIER)
- DRIVEWAY ENTRANCE PER HO.CO. STD
- DITCH FLOW DIRECTION

NOTES:
1. ALL SCHOOL BUS-STOP STANDING PADS SHALL BE H.O.A. MAINTAINED.
2. FOR DETAILS OF ROUNDABOUTS SEE SHEET 9.
3. ALL DRIVEWAY CULVERTS WILL BE 12"CMP UNLESS OTHERWISE NOTED.
4. FOR STREET NAME SIGNAGE CALL PARRIS ZIRKENBACH, TRAFFIC ENGINEER, AT 410-313-5152.
5. ALL ROAD SIDE SWALES AND ROADSIDE DITCHES ARE TO BE LINED WITH EROSION CONTROL MATTING (PER G-22-2) TO MINIMUM WIDTH OF 6' AND CENTERED ON THE SWALE UNLESS OTHERWISE NOTED.



STREET SIGN SCHEDULE

No.	TYPE (sign)	STA. / RD and OFFSET	
(A)	R2-1 '25 MPH'	2+00 P.C.L.	15.0' RT.
(B)	W3-1a 'STOP AHEAD'	3+50 P.C.L.	14.5' LT.
* (C)	R1-1 'STOP'	0+23 P.C.L.	28.0' LT.

* STREET NAME SIGN MOUNTED ABOVE, OR MOUNYED SEPARATELY

LEGEND - FOR ROAD PROFILES (SHEETS 2-8)

- E-GRADE 30 FEET LEFT OF CL
- E-GRADE 30 FEET RIGHT OF CL
- E GRADE CL
- PROPOSED GRADE CL
- PVI

STREET LIGHT SCHEDULE

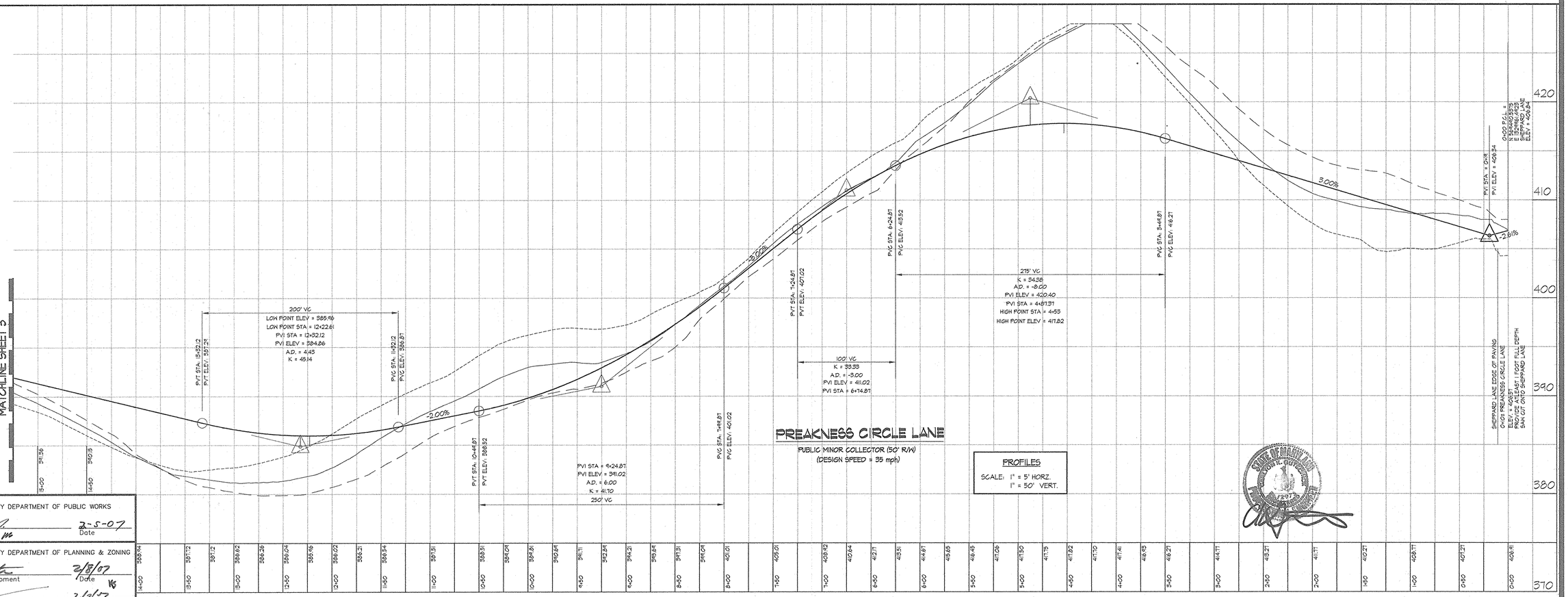
STATION/ RD. AND OFFSET	LAMP TYPE	MOUNTING	POLE TYPE
0+25.00 P.C.L. 30' RT.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS

CENTERLINE CURVE TABLE - PREAKNESS CIRCLE LANE

CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
(a)	198.82'	245.00'	105.25'	193.41'	N 85° 19' 09" W	46° 29' 46"
(b)	769.69'	490.00'	490.00'	692.96'	S 72° 359' 44" W	90° 00' 00"

SPEED CONTROL DEVICE

CURVE	PC STA.	PRC STA.	PT STA.	DEFLECTION	RADIUS
△	7+02.14	---	14+71.83	60°	490.0'



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/9/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Road.dwg | DES. BM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN D'YKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

ROAD CONSTRUCTION PLAN

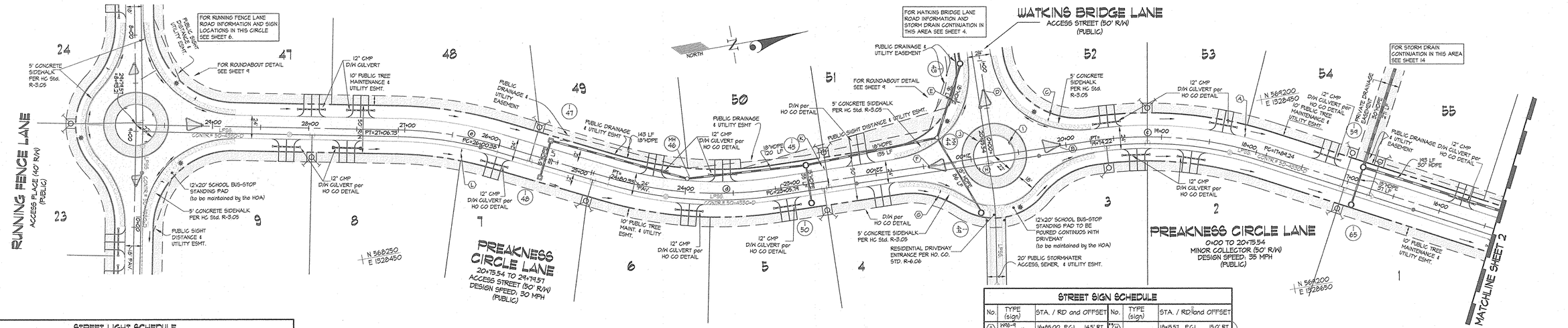
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

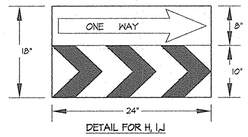
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	2 OF 78

F-06-31



PLAN

SCALE: 1" = 50'



DETAIL FOR H, I, J

STREET LIGHT SCHEDULE

STATION / RD. AND OFFSET		LAMP TYPE	MOUNTING	POLE TYPE
20+21.60 P.C.L.	38.84' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
20+56.64	51.15' Lt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
21+18.31	42.83' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
24+38.41	43.81' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
24+52.28	38.82' Lt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
8+91.11 R.P.L.	60.15' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS

NOTES:
1. FOR STREET TREE SCHEDULE SEE LANDSCAPE NOTES & DETAIL SHEET 13.
2. FOR MORE DETAIL OF ROUNDABOUTS SEE SHEET 9.

STREET SIGN SCHEDULE

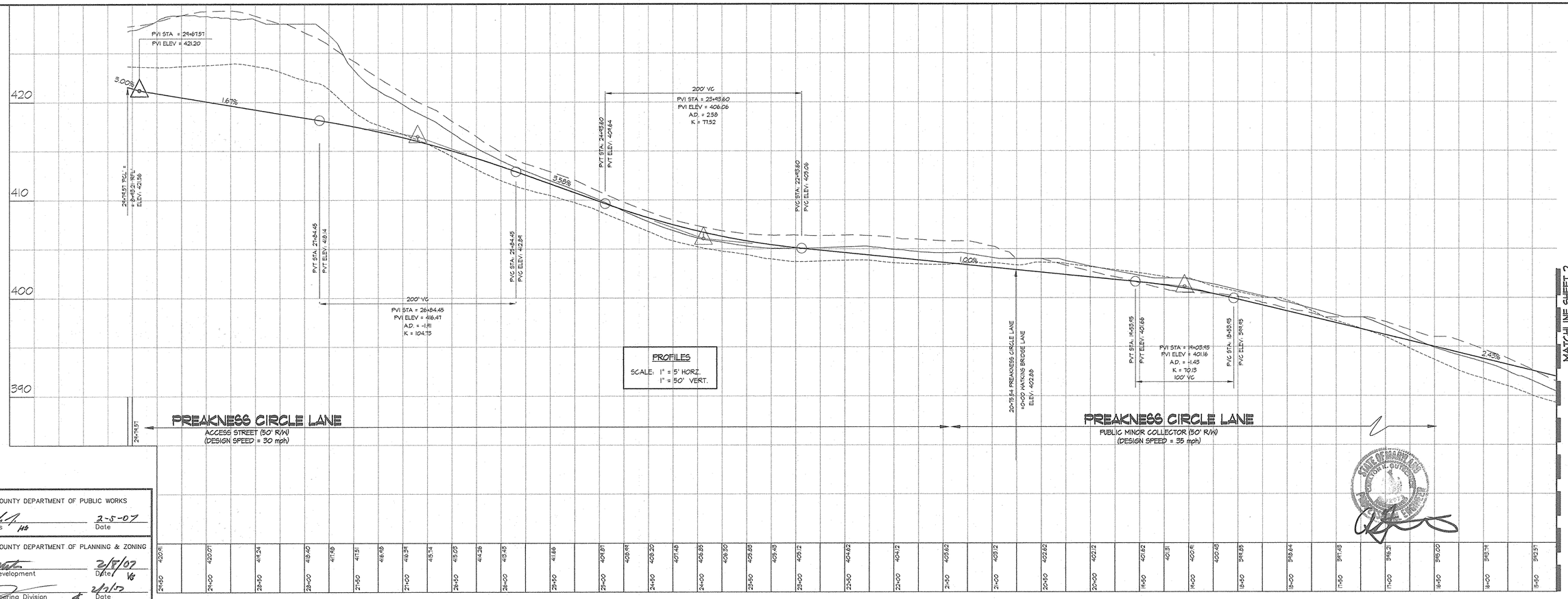
No.	TYPE (sign)	STA. / RD and OFFSET	No.	TYPE (sign)	STA. / RD and OFFSET	
(A)	W16-9 (30"x30")	16+85.00 P.C.L. 14.5' RT.	** (H)		18+15.51 P.C.L. 15.0' RT.	
*** (B)	YELLOW OM-1 (18"x18")	20+06.51 P.C.L. 1.21' RT.	** (1)		20+58.47	11.0' RT.
(C)	R1-2 (30"x30") YIELD	20+14.30 P.C.L. 28.91' RT.	** (J)		20+86.55	17.10' RT.
*** (D)	YELLOW OM-1 (18"x18")	20+76.94 P.C.L. 68.41' RT.	(K)	R2-1 25 MPH	22+53.00	14.5' RT.
(E)	R1-2 (30"x30") YIELD	21+04.24 P.C.L. 60.54' RT.	(L)	R2-1 25 MPH	26+31.68	15.0' LT.
*** (F)	YELLOW OM-1 (18"x18")	21+44.02 P.C.L. 1.04' LT.				
(G)	R1-2 (30"x30") YIELD	21+56.48 P.C.L. 28.51' LT.				

** MOUNTED 4' TO TOP OF SIGN FROM ROADWAY.
*** MOUNTED 9' TO TOP OF SIGN.

SEE DETAILS

CENTERLINE CURVE TABLE - PREAKNESS CIRCLE LANE

CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
(c)	184.98'	400.00'	94.17'	183.33'	S 14° 40' 51" W	26° 29' 46"
(d)	174.53'	400.00'	88.68'	173.15'	S 13° 55' 57" W	25° 00' 00"
(e)	106.34'	400.00'	53.49'	106.03'	S 18° 48' 54" W	15° 13' 57"



PROFILES

SCALE: 1" = 5' HORZ.
1" = 50' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/2/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
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\Drawings\00153\Final-Road\00153Road.dwg | DES. BM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN D'YKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

ROAD CONSTRUCTION PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	3 OF 78

F-06-31

STREET SIGN SCHEDULE

No.	TYPE (sign)	STA. / RD and OFFSET	No.	TYPE (sign)	STA. / RD and OFFSET
A	R2-1 '25 MPH'	3+00.00 W.B.L. 14.5' RT.	G	R1-2 (30"x30") 'YIELD'	8+92.93 W.B.L. 28.8' LT.
*** B	YELLOW OM-1 (18"x18")	7+64.51 1.30' RT.	** H		8+50.36 11.0' LT.
C	R1-2 (30"x30") 'YIELD'	7+71.87 29.63' RT.	** I		8+16.17 11.0' RT.
*** D	YELLOW OM-1 (18"x18")	8+33.60 62.44' RT.	** J		8+44.22 17.13' RT.
E	R1-2 (30"x30") 'YIELD'	8+61.44 58.54' RT.	M	W1-3L (30"x30") W13- (20 MPH)	9+75.58 14.0' LT.
*** F	YELLOW OM-1 (18"x18")	8+98.20 1.31' LT.	N	R2-1 (25 MPH)	6+15.41 15.0' LT.

SEE DETAILS ON SHEET 3

** MOUNTED 4' TO TOP OF SIGN FROM ROADWAY.
*** MOUNTED 3' TO TOP OF SIGN.

STREET LIGHT SCHEDULE

STATION / RD. AND OFFSET	LAMP TYPE	MOUNTING	POLE TYPE
20+27.60 P.C.L. 38.89' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
20+56.64 57.13' Lt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
21+18.37 42.83' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
7+90.67 W.B.L. 45.60' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
8+33.26 60.17' Lt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
8+80.20 38.93' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS

S.D. Structure Schedule

No.	Type	Width (Inside)	Top Elevation Upper	Top Elevation Lower	Inv. Elevation Upper	Inv. Elevation Lower	Standard Dtl.	Ownership & Maintenance
1-37A	Modified K	5'-0"	378.41		373.78	Terminal	See Sheet 31	Public

*For Remainder of Structures See Sheets 28-32.

CENTERLINE CURVE TABLE - WATKINS BRIDGE LANE

CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
K	385.72'	650.00'	198.72'	380.08'	N 71° 34' 03" W	34° 00' 00"
L	293.22'	300.00'	198.57'	331.16'	N 88° 04' 03" W	67° 00' 00"

NOTES:
1. FOR STREET TREE SCHEDULE SEE LANDSCAPE NOTES & DETAIL SHEET 73.
2. FOR MORE DETAIL OF ROUNDABOUTS SEE SHEET 9.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 2/8/07
Chief, Development Engineering Division — Date 2/7/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
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\Drawings\00153\Final-Road\00153Road.dwg | DES. BM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.
9-3-08	Inlet 1-37A Added & Typ. Swale Sect. For Watkins Bridge Lane Rev. From Sta. 11+48 To 12+84 (3)	WSJ	

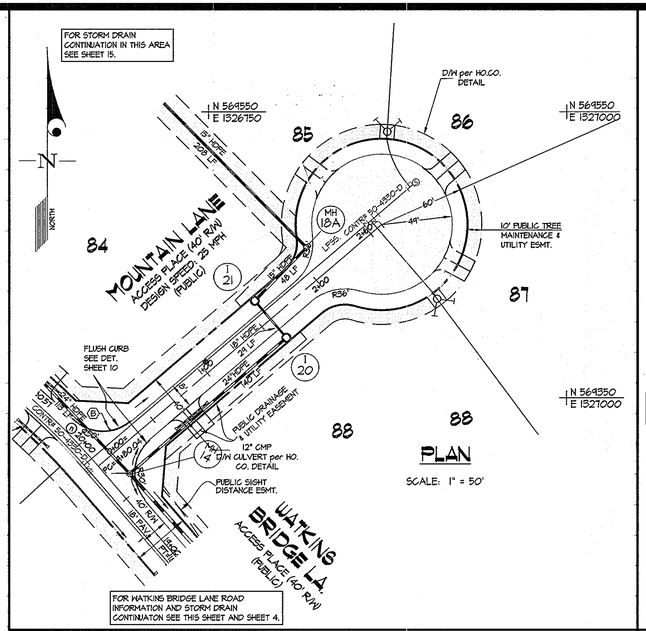
PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

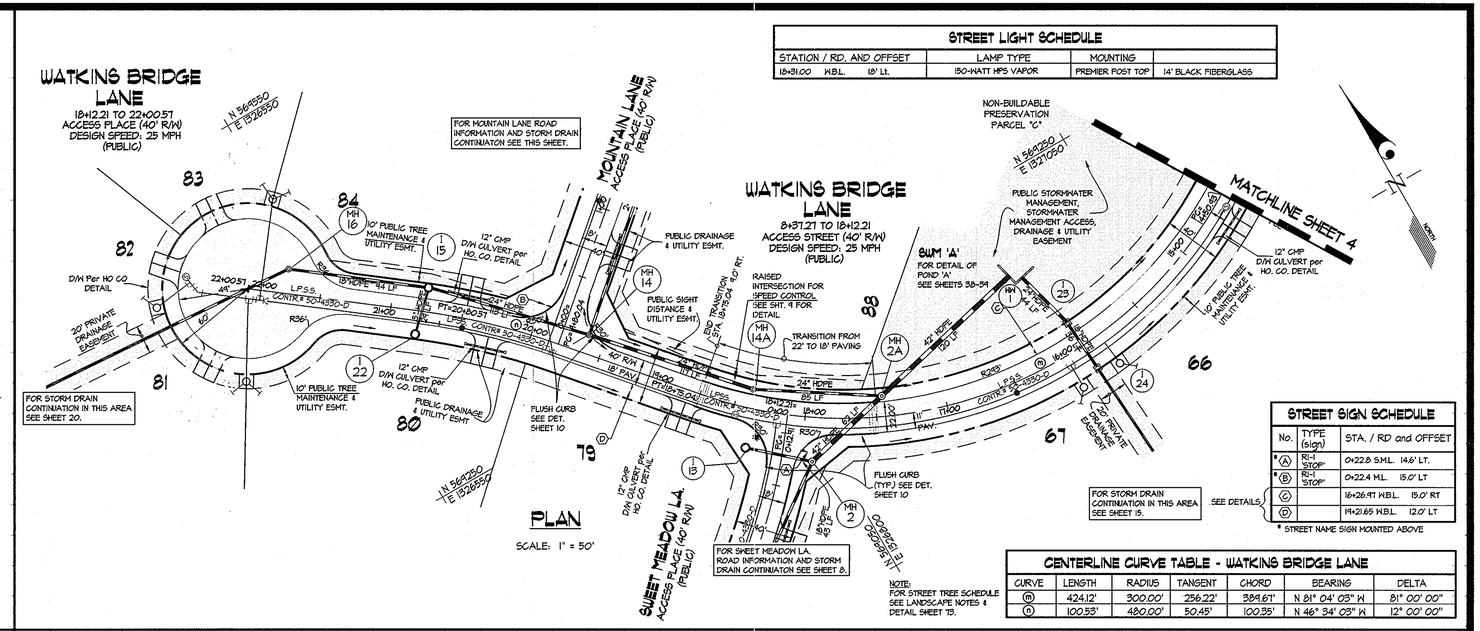
ROAD CONSTRUCTION PLAN
WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"
L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	4 OF 78

F-06-31





STREET LIGHT SCHEDULE

STATION / RD. AND OFFSET	LAMP TYPE	MOUNTING	
18+31.00 W.B.L. 18' Lt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS

STREET SIGN SCHEDULE

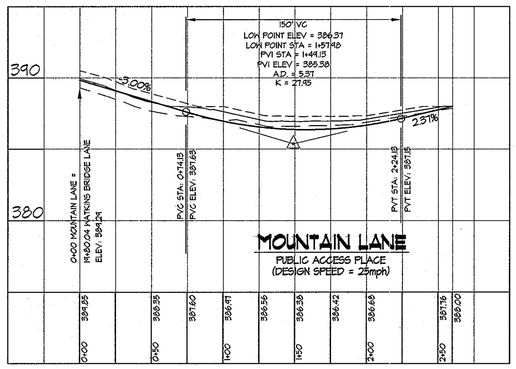
No.	TYPE (sign)	STA. / RD and OFFSET
*(A)	R1-1 "STOP"	0+22.8 S.M.L. 14.6' LT.
*(B)	R1-1 "STOP"	0+22.4 M.L. 15.0' LT
(C)		16+26.97 W.B.L. 15.0' RT
(D)		19+21.65 W.B.L. 12.0' LT

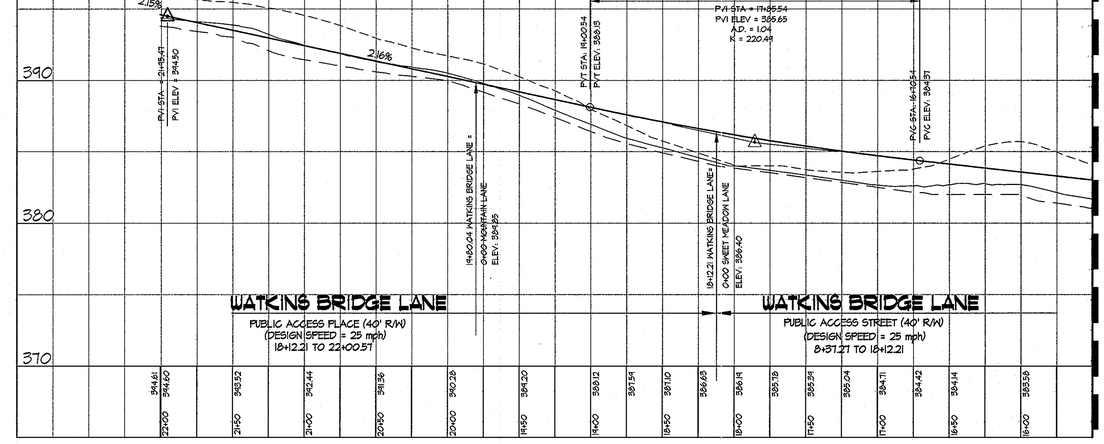
* STREET NAME SIGN MOUNTED ABOVE

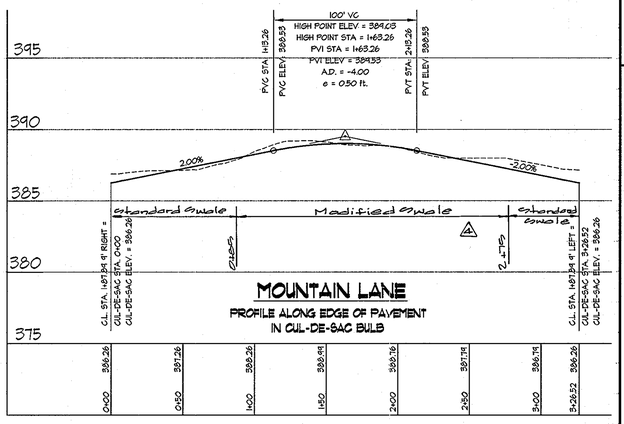
CENTERLINE CURVE TABLE - WATKINS BRIDGE LANE

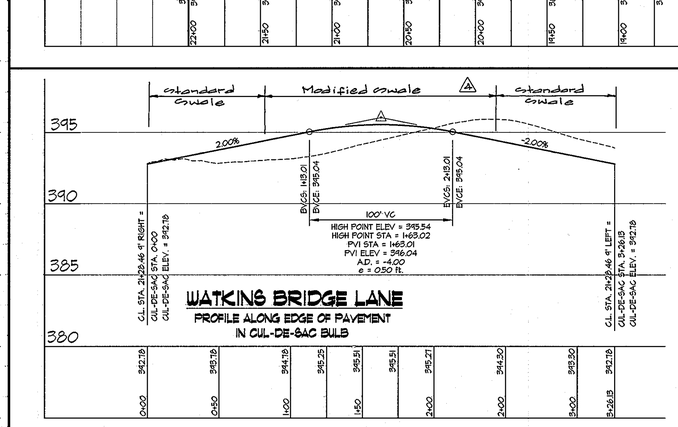
CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
(M)	424.12'	300.00'	256.22'	389.61'	N 81° 04' 08" W	81° 00' 00"
(N)	100.53'	480.00'	50.45'	100.35'	N 46° 34' 05" W	12° 00' 00"

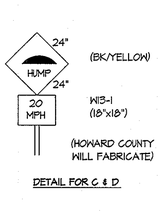
NOTE: FOR STREET TREE SCHEDULE SEE LANDSCAPE NOTES & DETAIL SHEET 13.











DETAIL FOR C & D

PROFILES
SCALE: 1" = 5' HORZ.
1" = 50' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/2/07

STATE OF MARYLAND — BRUCE K. GUTSCHICK — No. 15731 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
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TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Road.dwg | DES. BM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.
12-22-06	Type swale section in cul-de-sac Revised	WGL	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

ROAD CONSTRUCTION PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	5 OF 78

F-06-31

NOTES:
1. FOR STREET TREE SCHEDULE SEE LANDSCAPE NOTES & DETAIL SHEET 73.
2. FOR MORE DETAIL OF ROUNDABOUT SEE SHEET 9.

STREET SIGN SCHEDULE

No.	TYPE (sign)	STA. / RD and OFFSET	No.	TYPE (sign)	STA. / RD and OFFSET
A	R1-2 (30"x30") 'YIELD'	8+34.75 R.F.L. 28.65' RT.	*** F	YELLOW OM-1 (18"x18")	8+30.96 R.F.L. 1.06' RT.
*** B	YELLOW OM-1 (18"x18")	9+55.46 1.08' LT.	** G		8+76.03 10.83' RT.
C	R1-2 (30"x30") 'YIELD'	9+51.66 28.68' LT.	** H		9+10.28 11.00' LT.
*** D	YELLOW OM-1 (18"x18")	29+11.81 P.C.L. 1.05' RT.	** I		8+82.81 17.47' LT.
E	R1-2 (30"x30") 'YIELD'	8+66.84 R.F.L. 62.00' LT.			

SEE DETAILS ON SHEET 3

** MOUNTED 4' TO TOP OF SIGN FROM ROADWAY.
*** MOUNTED 3' TO TOP OF SIGN.

CENTERLINE CURVE TABLE - RUNNING FENCE LANE

CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
f	100.53'	320.00'	50.68'	100.12'	S 69° 48' 00" E	18° 00' 00"
g	205.88'	500.00'	104.42	204.42"	S 72° 35' 47" E	23° 35' 33"
h	216.42'	200.00'	120.17'	206.02'	S 49° 48' 00" E	62° 00' 00"
i	337.72'	450.00'	177.26'	173.15'	S 40° 18' 00" E	43° 00' 00"

STREET LIGHT SCHEDULE

STATION / RD. AND OFFSET	LAMP TYPE	MOUNTING	POLE TYPE
29+38.41 P.C.L. 43.87' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
29+32.28 P.C.L. 38.82' Lt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS
8+91.11 R.F.L. 60.13' Rt.	150-WATT HPS VAPOR	PREMIER POST TOP	14' BLACK FIBERGLASS

RUNNING FENCE LANE
PROFILE ALONG EDGE OF PAVEMENT
IN CUL-DE-SAC BULB

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 12/5/07
Chief, Development Engineering Division — Date 12/5/07

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. 12975, Expiration Date May 26, 2008.
11-15-07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Road.dwg | DES. bm | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.
12-22-07	4 Driveway Culvert Modified		
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT 1	DDS	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED ROAD CONSTRUCTION PLAN

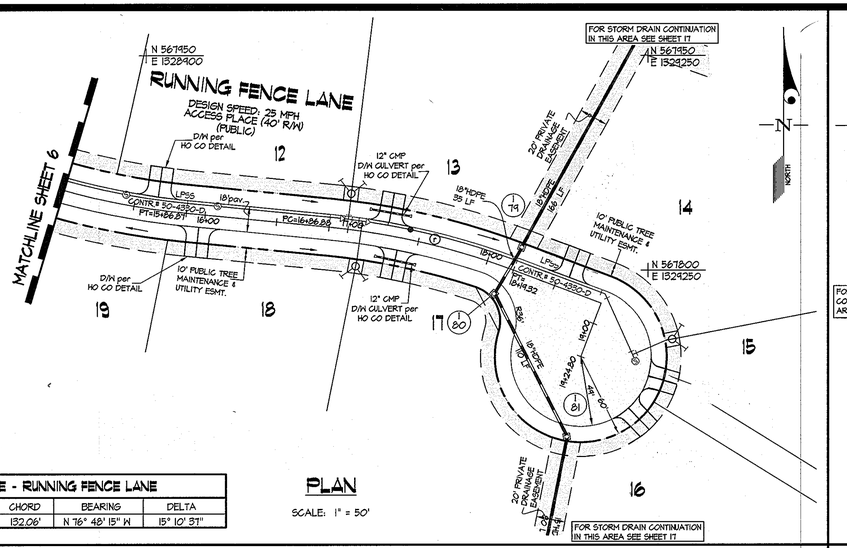
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"
L.2927 F.487

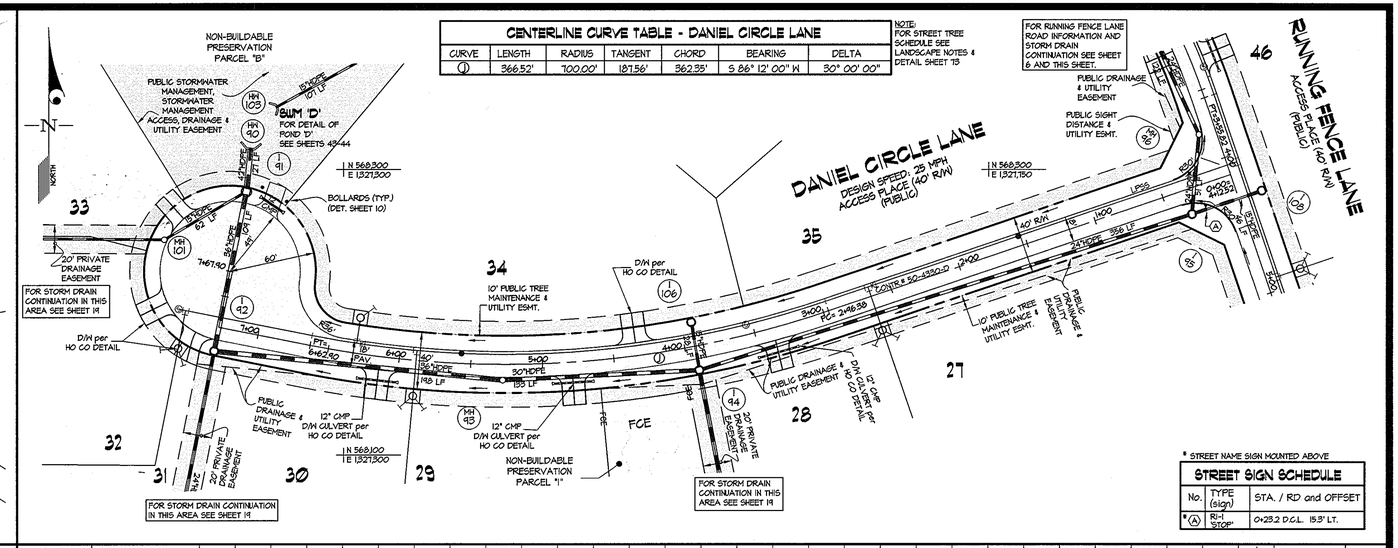
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	6 OF 78

F-06-31



CENTERLINE CURVE TABLE - RUNNING FENCE LANE						
CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
(F)	132.45'	500.00'	66.61'	132.06'	N 76° 48' 15" W	15° 10' 37"

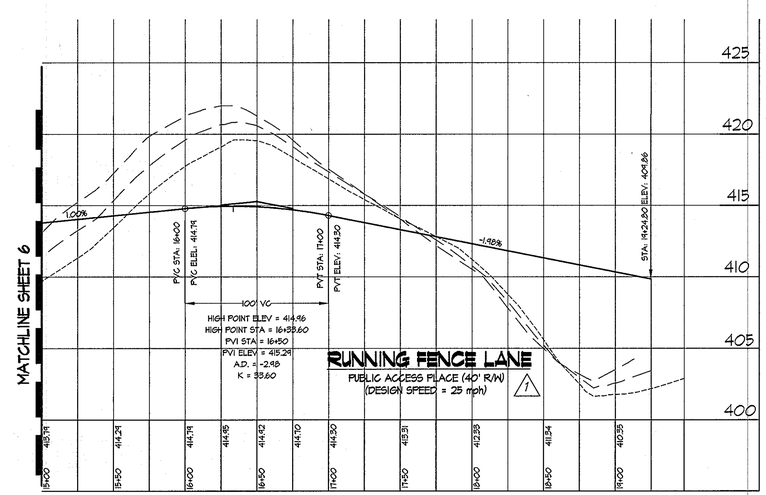


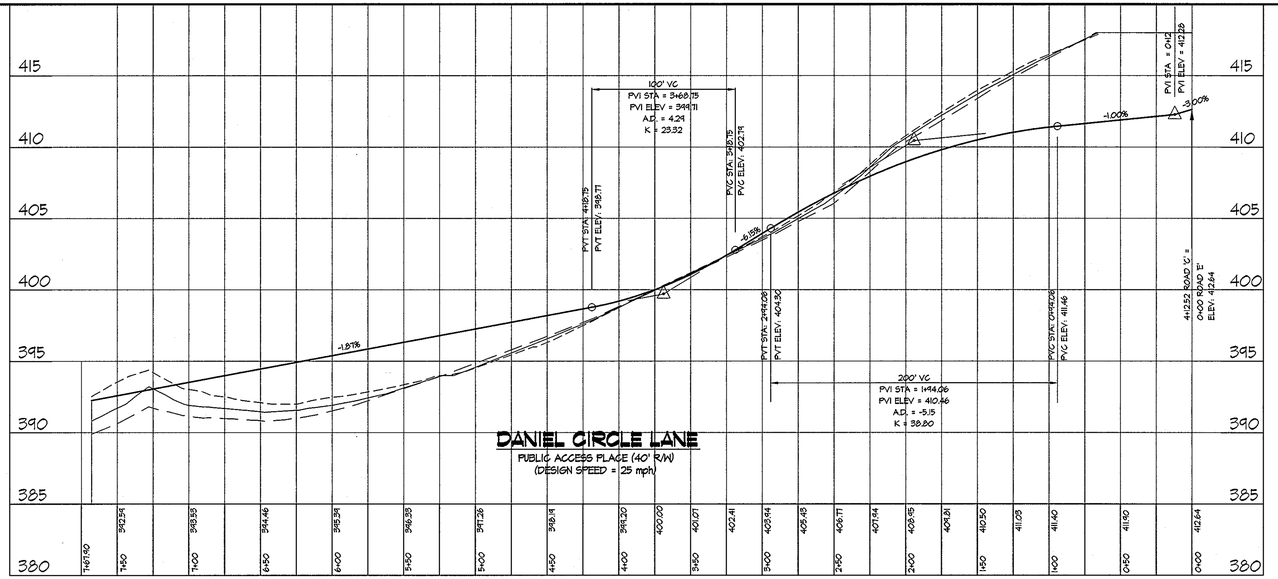
CENTERLINE CURVE TABLE - DANIEL CIRCLE LANE						
CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
(J)	366.52'	700.00'	187.56'	362.35'	S 86° 12' 00" W	30° 00' 00"

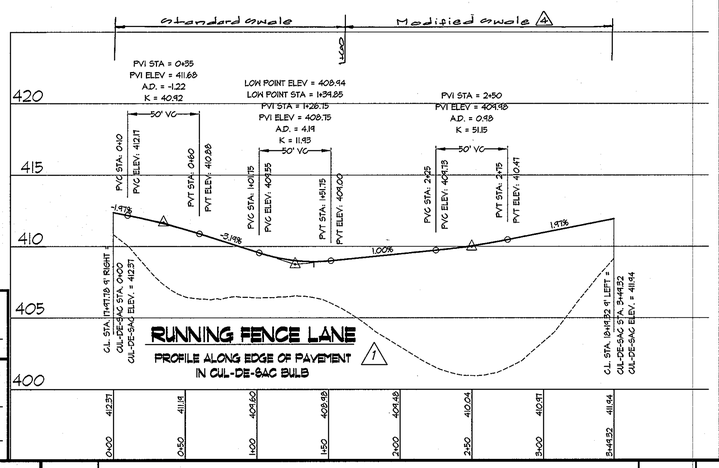
NOTE: FOR STREET TREE SCHEDULE SEE LANDSCAPE NOTES & DETAIL SHEET 13

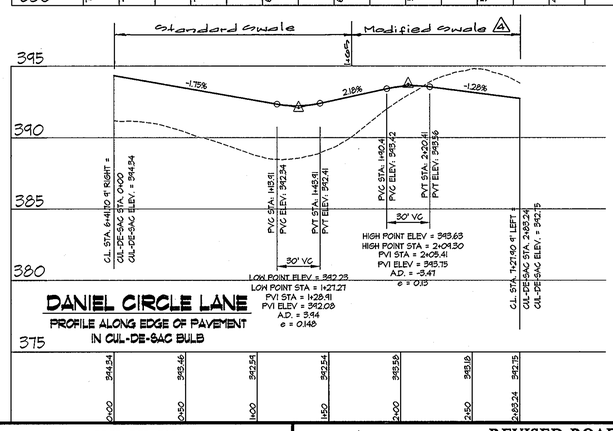
* STREET NAME SIGN MOUNTED ABOVE

STREET SIGN SCHEDULE		
No.	TYPE (sign)	STA. / RD and OFFSET
*(A)	RI-1 9"x24"	0+23.2 D.CL. 15.3' LT.









PROFILES
SCALE: 1" = 5' HORZ.
1" = 50' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 12/5/07
Chief, Development Engineering Division — Date 12/5/07

11-15-07

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. 12975, Expiration Date May 26, 2008.

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Road.dwg | DES. BM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.
12-22-09	Typ. swale section Revised	WGJ	
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT	DDS	

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED ROAD CONSTRUCTION PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	7 OF 78

F-06-31

CENTERLINE CURVE TABLE - SWEET MEADOW LANE

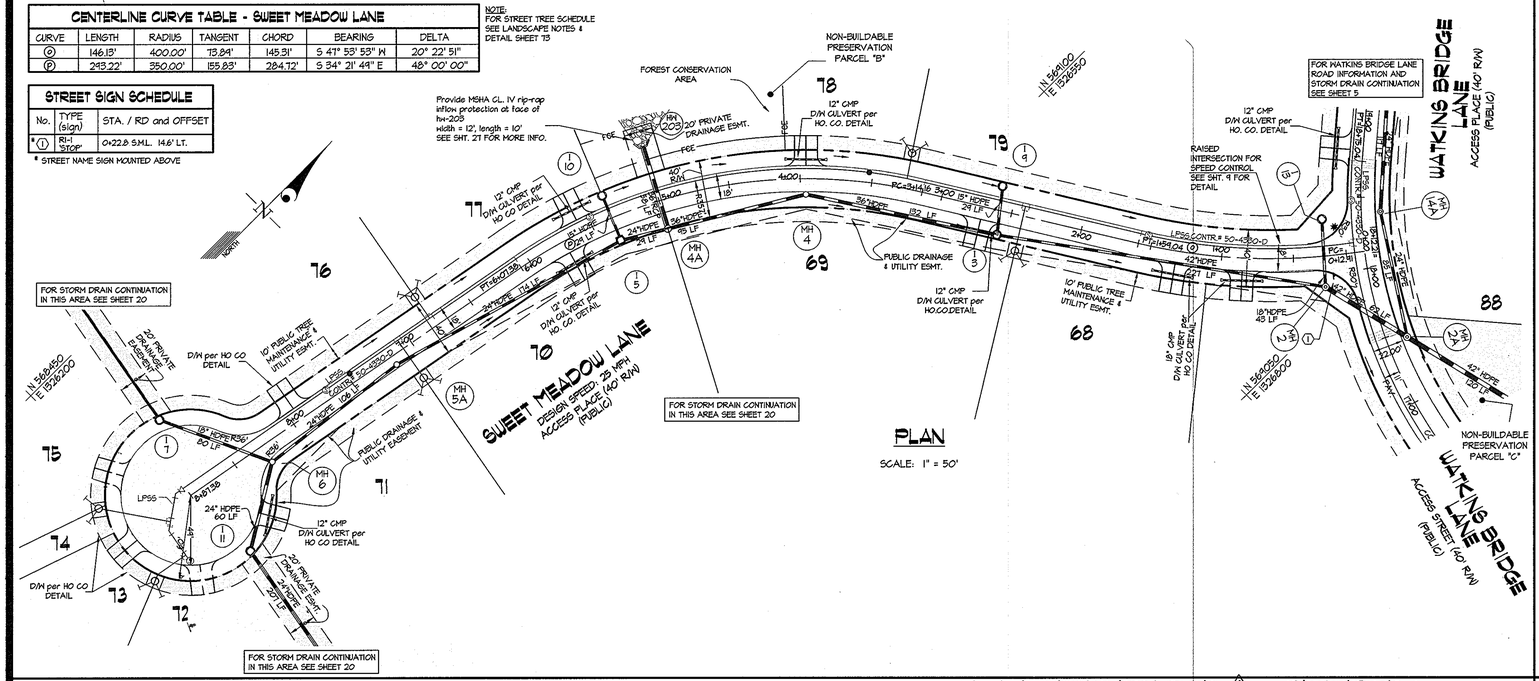
CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
Ⓞ	146.13'	400.00'	73.84'	145.31'	S 47° 55' 53" W	20° 22' 51"
Ⓟ	243.22'	350.00'	155.83'	284.72'	S 34° 21' 49" E	48° 00' 00"

NOTE:
FOR STREET TREE SCHEDULE SEE LANDSCAPE NOTES & DETAIL SHEET 73

STREET SIGN SCHEDULE

No.	TYPE (sign)	STA. / RD and OFFSET
* ①	R1-1 "STOP"	0+22.8 SML. 14.6' LT.

* STREET NAME SIGN MOUNTED ABOVE



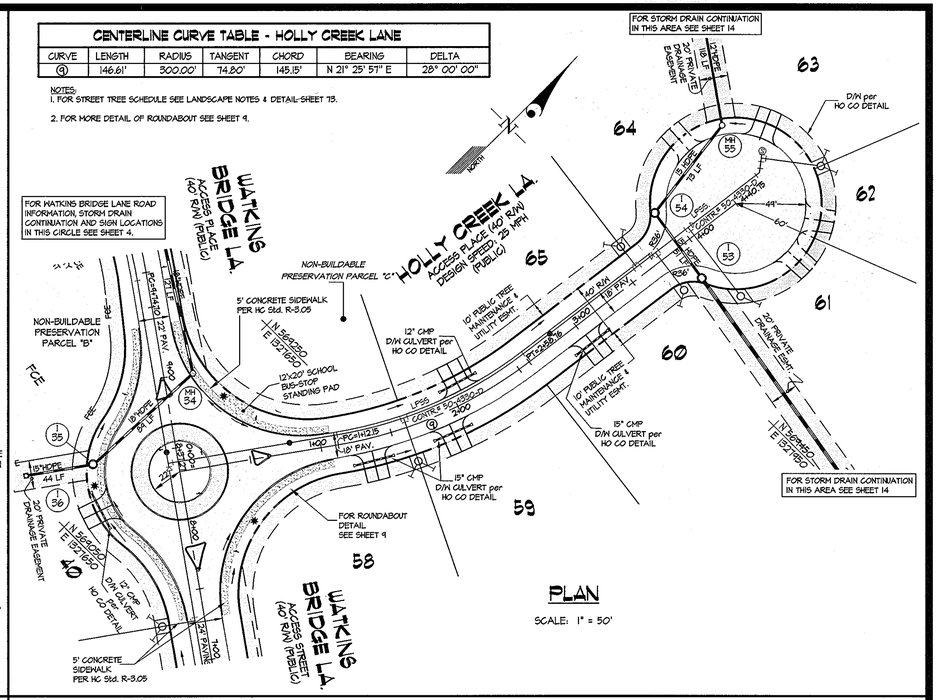
PLAN

SCALE: 1" = 50'

CENTERLINE CURVE TABLE - HOLLY CREEK LANE

CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
④	146.61'	300.00'	74.80'	145.15'	N 21° 25' 57" E	28° 00' 00"

NOTES:
1. FOR STREET TREE SCHEDULE SEE LANDSCAPE NOTES & DETAIL-SHEET 73.
2. FOR MORE DETAIL OF ROUNDABOUT SEE SHEET 9.

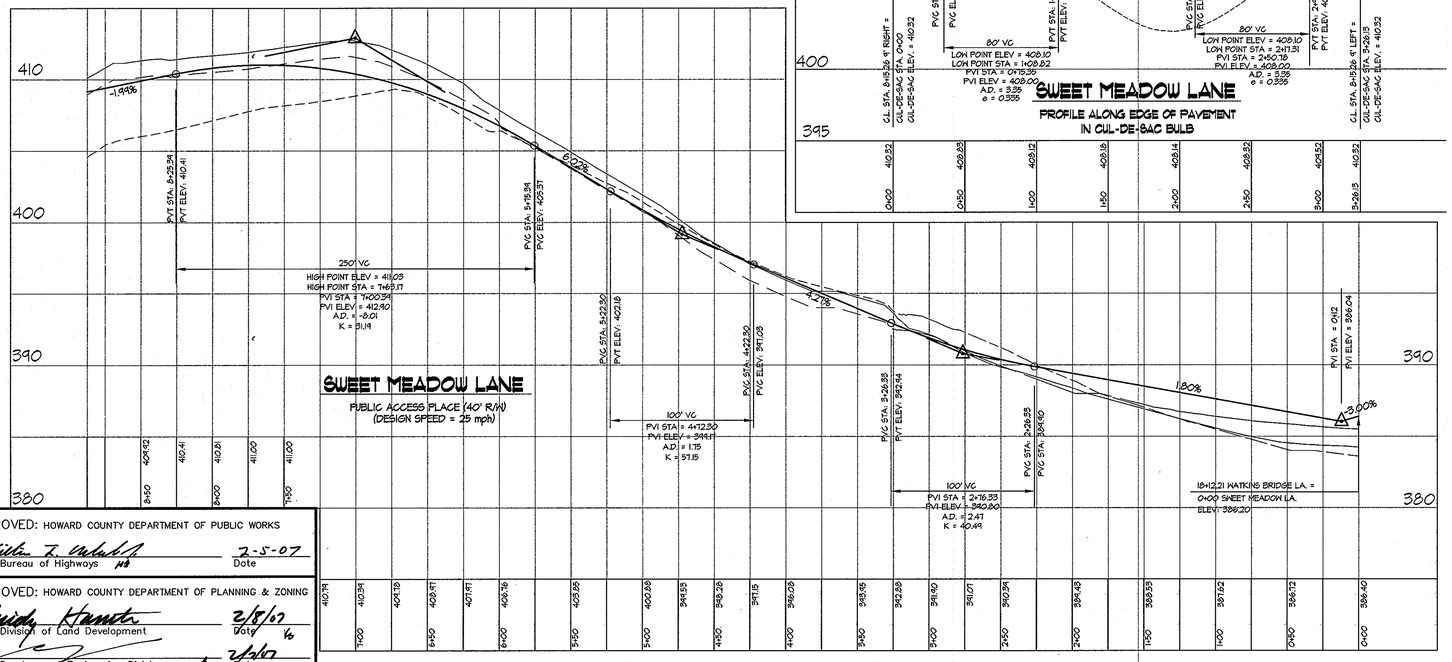


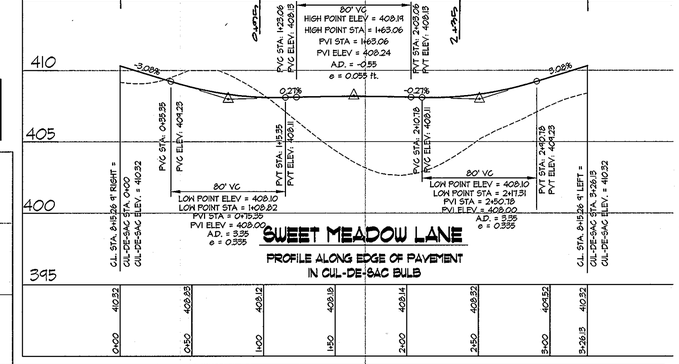
PLAN

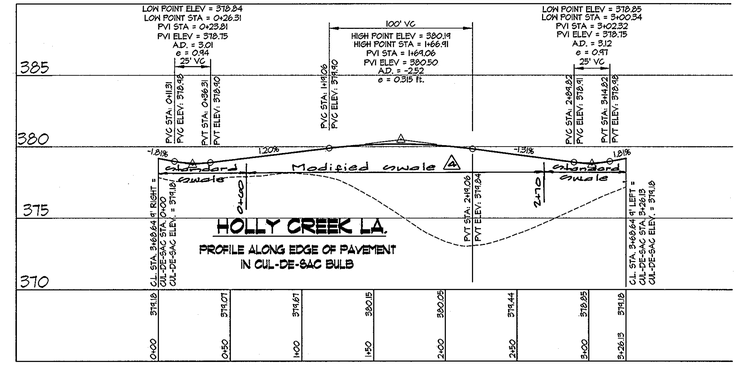
SCALE: 1" = 50'

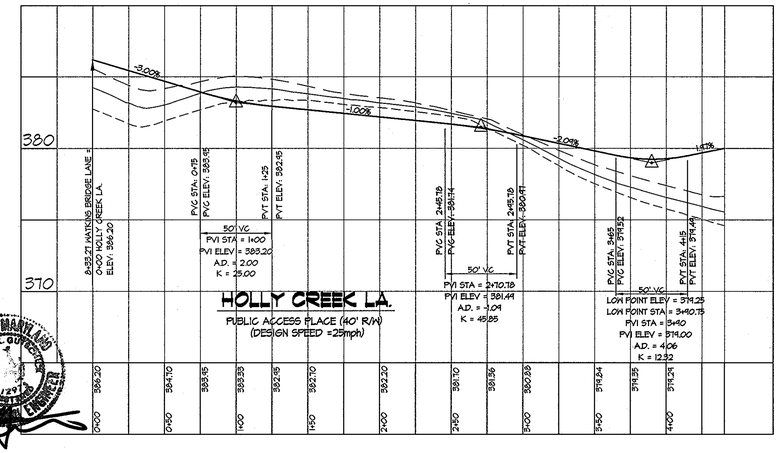
PROFILES

SCALE: 1" = 5' HORZ.
1" = 50' VERT.









APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/5/07

STATE OF MARYLAND — CLINTON K. GUTSCHICK — No. 7129 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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TEL: 301-421-4024 BALT: 410-880-1820 DC/MD: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Road.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.
12-22-09	⚠ Typ. Swale in Cul-De-Sac Revised	WSJ	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

ROAD CONSTRUCTION PLAN

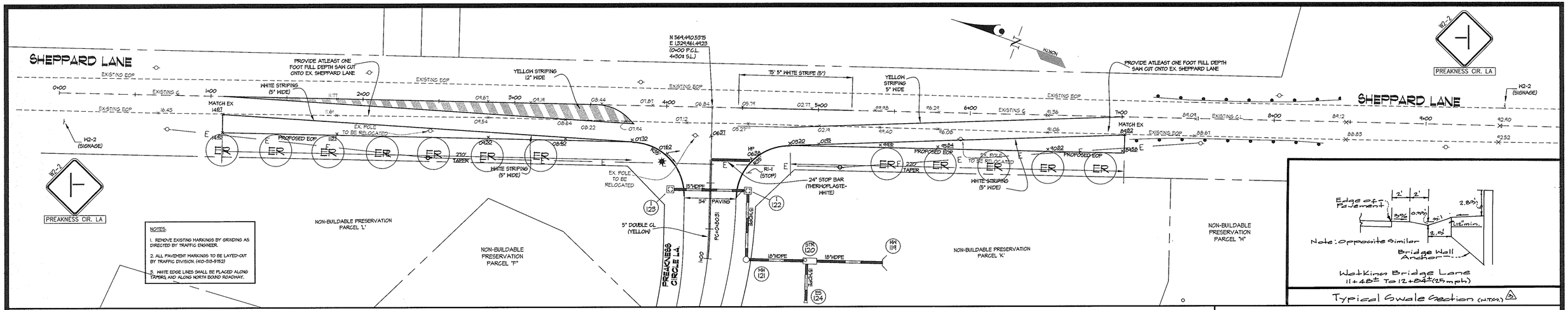
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

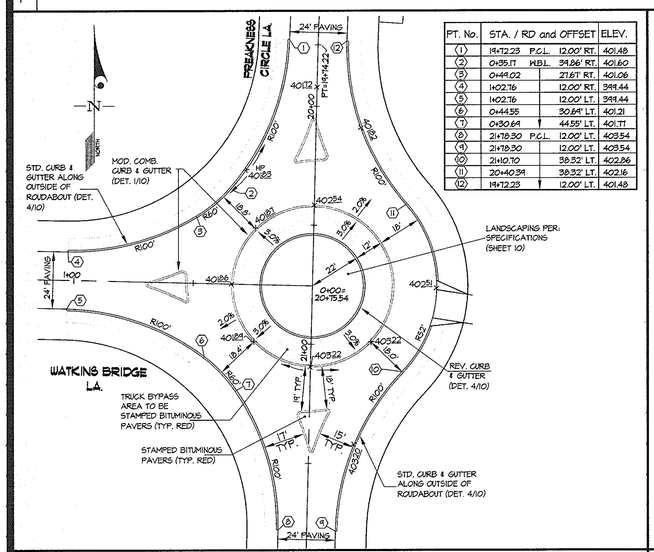
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	8 OF 78

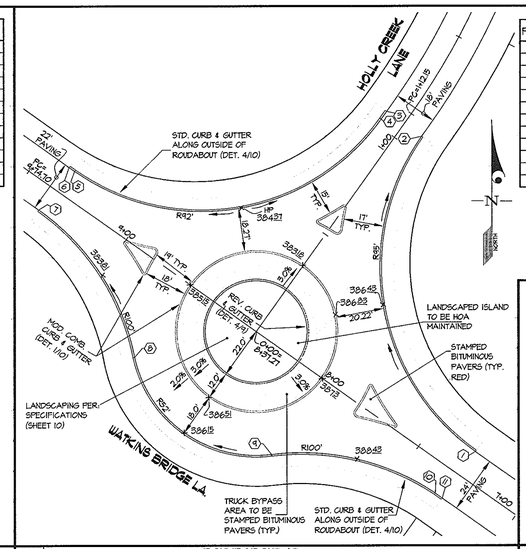
F-06-31



1 SHEPPARD LANE ENTRANCE & TURN LANE DETAIL SCALE: 1"=30'



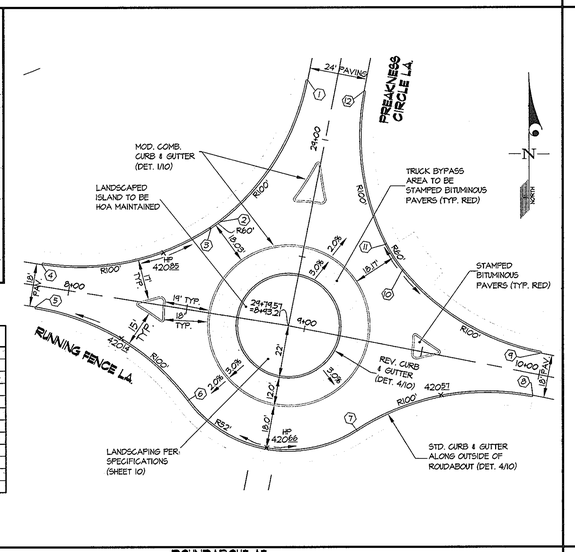
PT. No.	STA. / RD and OFFSET		ELEV.
1	19+72.23 P.C.L.	12.00' RT.	401.48
2	0+35.11 M.B.L.	34.86' RT.	401.60
3	0+49.02	21.61' RT.	401.06
4	1+02.76	12.00' RT.	399.44
5	1+02.76	12.00' LT.	399.44
6	0+44.35	30.64' LT.	401.21
7	0+30.64	44.55' LT.	401.71
8	21+78.50 P.C.L.	12.00' LT.	403.54
9	21+78.50	12.00' LT.	403.54
10	20+40.34	38.32' LT.	402.16
11	21+10.70	38.32' LT.	402.86
12	19+72.23	12.00' LT.	401.48



PT. No.	STA. / RD and OFFSET		ELEV.
1	7+24.21 M.B.L.	12.00' RT.	384.65
2	1+07.00 M.C.L.	9.00' RT.	382.93
3	1+07.00	9.00' LT.	382.93
4	1+03.00	9.00' LT.	383.00
5	9+34.21 M.B.L.	11.00' RT.	382.76
6	9+31.12	11.00' RT.	382.68
7	9+31.12	11.00' LT.	382.68
8	8+68.42	38.32' LT.	384.91
9	7+48.10	38.31' LT.	381.32
10	7+32.80	12.00' LT.	384.46
11	7+24.21	12.00' LT.	384.65

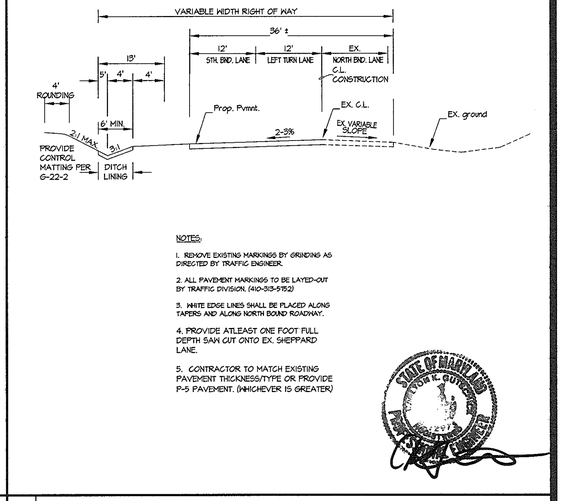
2 ROUNDABOUT AT PREAKNESS CIRCLE LA. AND WATKINS BRIDGE LA. SCALE: 1" = 30'

3 ROUNDABOUT AT WATKINS BRIDGE LA. AND HOLLY CREEK LA. SCALE: 1" = 30'



PT. No.	STA. / RD and OFFSET		ELEV.
1	28+76.81 P.C.L.	12.00' RT.	411.32
2	8+58.31 R.F.L.	38.73' LT.	420.46
3	8+54.70	35.15' LT.	420.54
4	7+87.27	9.00' LT.	419.81
5	7+87.27	9.00' RT.	419.81
6	8+56.97	37.24' RT.	420.24
7	9+29.46	37.24' RT.	420.61
8	9+49.15	9.00' RT.	420.52
9	9+49.15	9.00' LT.	420.52
10	9+55.45	31.43' LT.	421.09
11	9+26.34	41.24' LT.	420.79
12	28+76.81 P.C.L.	12.00' LT.	411.32

4 ROUNDABOUT AT PREAKNESS CIRCLE LA. AND RUNNING FENCE LA. SCALE: 1" = 30'

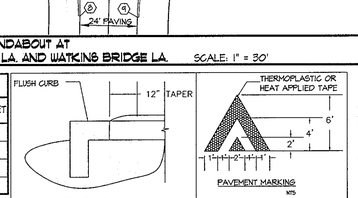


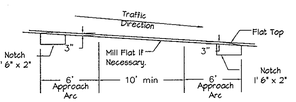
NOTES:
1. REMOVE EXISTING MARKINGS BY GRINDING AS DIRECTED BY TRAFFIC ENGINEER.
2. ALL PAVEMENT MARKINGS TO BE LAYED-OUT BY TRAFFIC DIVISION. (410-313-5152)
3. WHITE EDGE LINES SHALL BE PLACED ALONG TAPERS AND ALONG NORTH BOUND ROADWAY.
4. PROVIDE ATLEAST ONE FOOT FULL DEPTH SAW CUT ONTO EX. SHEPPARD LANE.
5. CONTRACTOR TO MATCH EXISTING PAVEMENT THICKNESS/TYPE OR PROVIDE P-5 PAVEMENT. (WHICHEVER IS GREATER)

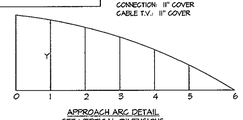
5 SHEPPARD LANE TYPICAL PAVEMENT SECTION SCALE: 1"=50'

STREET SIGN SCHEDULE		
No.	TYPE (sign)	STA. / RD and OFFSET
A	'CIRCLE AHEAD'	16+05 P.C.L. 14.5' RT.
B	R2-1 '25 MPH'	22+53 P.C.L. 14.5' RT.
C	R4-7 'KEEP RIGHT'	24+47.9 P.C.L. 0.0' LT.
D	R4-7 'KEEP RIGHT'	25+36.3 P.C.L. 0.0' LT.

* W16-10 'TO TRAFFIC IN CIRCLE' SIGN MOUNTED TO BOTTOM





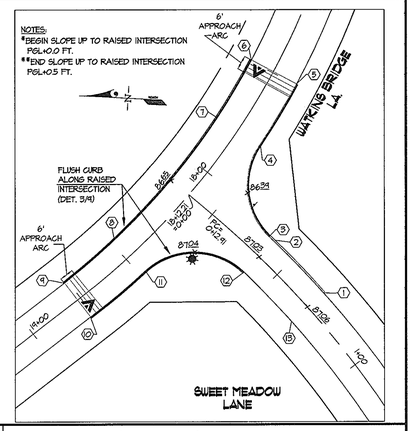


APPROACH ARC DETAIL SEE VERTICAL DIMENSIONS CHART

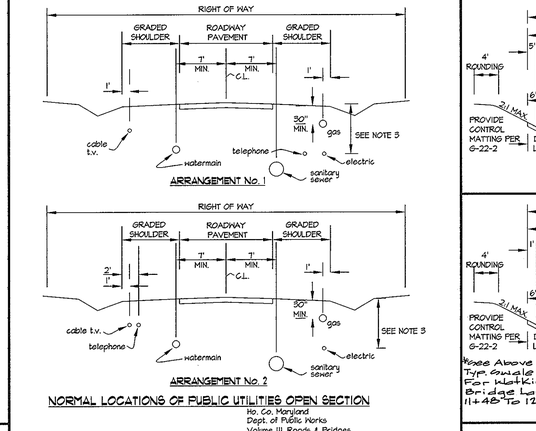
X (FT)	Y (IN)	(FT)
0	3.00	0.250
1	2.92	0.243
2	2.64	0.222
3	2.25	0.188
4	1.61	0.139
5	0.92	0.071
6	0.00	0.000

VERTICAL DIMENSIONS CHART
Tolerance ±½" (0.04)

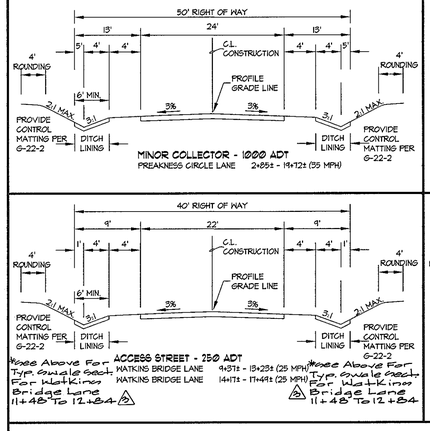
NOTES:
1. BEGIN SLOPE UP TO RAISED INTERSECTION PG 10.0 FT.
2. END SLOPE UP TO RAISED INTERSECTION PG 10.5 FT.
3. GAS, ELECTRIC AND TELEPHONE LINES MAY BE PLACED IN THE SAME TRENCH AT THE OPTION OF THE BALTIMORE, GAS, AND ELECTRIC CO. AND BELL ATLANTIC.
5. ELECTRIC: 0-600V 24" COVER, OVER 600V 36" COVER.
TELEPHONE: MAIN SERVICE 24" COVER, RESIDENTIAL CONNECTION 11" COVER
CABLE T.V.: 11" COVER



6 RAISED INTERSECTION / SPEED TABLE SCALE: 1" = 30'



NORMAL LOCATIONS OF PUBLIC UTILITIES OPEN SECTION
Ho. Co. Maryland
Dept. of Public Works
Volume III, Roads & Bridges
Figure 2.16



TYPICAL ROAD SECTIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 2/8/07
Chief, Development Engineering Division — Date 2/7/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153\Road-Det.dwg | DES. klp | DRN. klp | CHK. BJM

DATE	REVISION	BY	APP'R.
03.03.08	Typ. Swale Sect. For Watkins Bridge Lane Rev. From Sta. 11+48 To 12+84 (A)	WG	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

ROAD DETAILS

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	9 OF 78

F-06-31

E.O.P. RETURN PROFILE FOR PREAKNESS CIRCLE LA. AND WATKINS BRIDGE LA.

E.O.P. RETURN PROFILE FOR PREAKNESS CIRCLE LA. AND RUNNING FENCE LA.

E.O.P. RETURN PROFILE FOR WATKINS BRIDGE LA. AND HOLLY CREEK LA.

E.O.P. RETURN PROFILE FOR MOUNTAIN LA. AND WATKINS BRIDGE LA.

E.O.P. RETURN PROFILE FOR PREAKNESS CIRCLE LA. AND WATKINS BRIDGE LA.

E.O.P. RETURN PROFILE FOR PREAKNESS CIRCLE LA. AND RUNNING FENCE LA.

E.O.P. RETURN PROFILE FOR WATKINS BRIDGE LA. AND HOLLY CREEK LA.

E.O.P. RETURN PROFILE FOR MOUNTAIN LA. AND WATKINS BRIDGE LA.

E.O.P. RETURN PROFILE FOR SHEPPARD LA. AND PREAKNESS CIRCLE LA.

E.O.P. RETURN PROFILE FOR SWEET MEADOW LA. AND WATKINS BRIDGE LA.

E.O.P. RETURN PROFILE FOR RUNNING FENCE LA. AND DANIEL CIRCLE LA.

E.O.P. RETURN PROFILE FOR RUNNING FENCE LA. AND DANIEL CIRCLE

E.O.P. RETURN PROFILE FOR SHEPPARD LA. AND PREAKNESS CIRCLE LA.

E.O.P. RETURN PROFILE FOR SWEET MEADOW LA. AND WATKINS BRIDGE LA.

LANDSCAPING OF CENTRAL ISLAND:

COMPLETELY REMOVE ALL EXISTING ASPHALT. PROVIDE TOPSOIL WITH A MIXTURE OF 4 CUBIC YARDS OF LEAFGRO. LOOSEN THE SOIL TO ONE FOOT BEFORE ADDING THE LEAFGRO. AFTER ROTOTILLING THE ENTIRE AREA MIX THE LEAFGRO INTO THE TOP SIX TO EIGHT INCHES. AS YOU START TO LEVEL OUT THE AREA CREATE A SLIGHT CROWN IN THE CENTER OF THE ISLAND. THE OUTER 4 FEET OF THE ISLAND WILL BE COMPACTED WITH A SMALL VIBERATOR AND THEN HAVE BARN RED STONE WITH A THICKNESS OF THREE INCHES DEEP INSTALLED. THE SIZE OF THE STONE SHALL BE 3 TO 4 INCHES IN SIZE. ONCE THE ISLAND HAS BEEN PLANTED THE REMAINDER OF THE ISLAND SHALL BE COVERED IN 3 INCHES OF SHREDDED MULCH. PROVIDE LOW GROWING PLANTS AND FLOWERS THROUGHOUT THE REMAINDER OF THE ISLAND. A LIST OF ACCEPTABLE PLANTS ARE AS FOLLOWS:

LATIN NAME	COMMON NAME	QUANTITY
GROUP A		
AMSONIA TABERNAEMONTANA	BLUESTAR	18 QT.
VERTICILLATA	THREADLEAF COREOPSIS	24 GAL
LEUCANTHEMUM	SHASTA DAISY	18 QT.
GROUP B		
PENNISETUM ORIENTALE	ORIENTAL FOUNTAIN GRASS	6 x 1 GAL
JUNIPERUS CONFERTA	SHORE JUNIPER	6 x 1 GAL
VERONICA PEDUNCULARIS	GEORGE BLUE	12 GAL
BEARDSTONGUE PENSTEMON DIGITALIS	HUSKER'S RED	24 GAL

TREE LIST CHOOSE ONE (TREE SHALL BE 6 TO 8 FEET IN HEIGHT AND 1.5 INCH CALIBER)

LATIN NAME	COMMON NAME
LAGERSTROEMIA INDICA	CRAPE MYRTLE
HAMAMELIS VIRGINIANA	WITCHHAZEL
CORNUS MAS	CORNELIAN CHERRY DOGWOOD
MALUS SARGENTII COLUMNARIS	CRAB APPLE

LANDSCAPING PLANS SHALL BE APPROVED BY BUREAU OF HIGHWAYS PRIOR TO PLANTING.

5 BOLLARD DETAIL NO SCALE

* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.

1 MODIFIED COMBINATION CURB AND GUTTER NO SCALE

NOTE: ALL PROPOSED PAVING IS P-3

2 P-3 BITUMINOUS PAVING SECTIONS NO SCALE

3 FLUSH CURB NO SCALE

STANDARD COMBINATION CURB AND GUTTER

REVERSE COMBINATION CURB AND GUTTER

NOTES:
1. 50' MAX. BETWEEN EXPANSION JOINTS & 10' MAX. BETWEEN CONTROL JOINTS.
2. ALL ON-SITE CURB & GUTTER SHALL BE 6" HIGH.
3. STANDARD CURB & GUTTER SHALL BE USED WHERE THE DRIVEWAY SLOPES TOWARDS THE CURB & GUTTER. REVERSE CURB & GUTTER SHALL BE USED WHERE THE DRIVEWAY SLOPES AWAY FROM THE CURB & GUTTER.
4. PROVIDE A 5' TRANSITION TO OPEN SECTION.

4 TYPE-A CONCRETE CURB AND GUTTER (STANDARD AND REVERSE) NO SCALE

6 WORK ZONE TRAFFIC CONTROL PLAN ALONG SHEPPARD LANE SCALE: 1" = 50'

Standard Cul-De-Sac Swale Sect.

Modified Cul-De-Sac Swale Sect.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[signature] Chief, Division of Land Development — Date 2/8/07
[signature] Chief, Development Engineering Division — Date 2/7/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153\Road-Det.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.
12-22-09	1 Cul-De-Sac Swales Added	WGJ	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

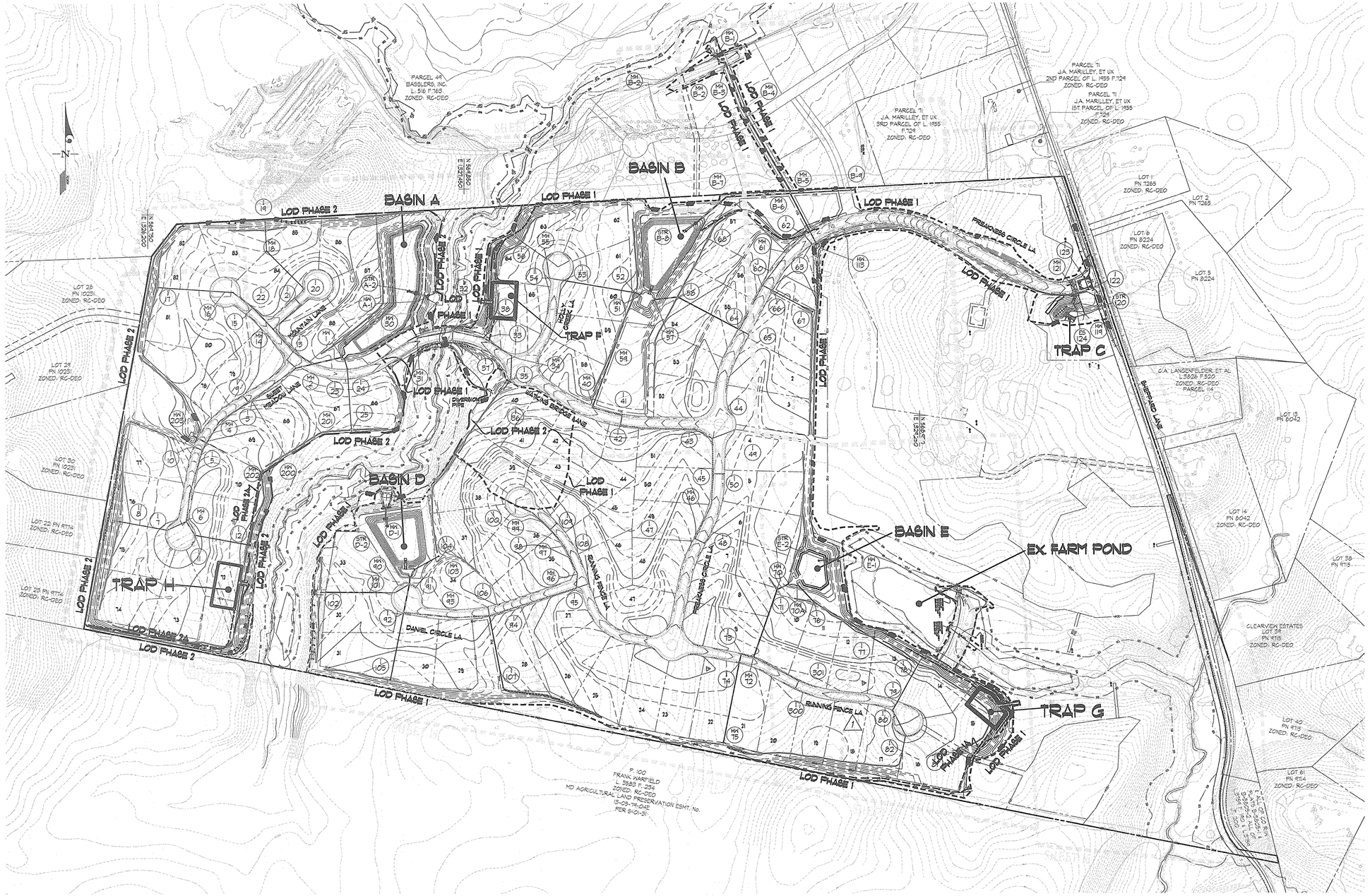
ROAD DETAILS
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"
L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	10 OF 78

F-06-31



SEQUENCE OF CONSTRUCTION

PHASE 1
GENERAL: EASTERN PORTION OF THE SITE AND THE STREAM CROSSING.

1. OBTAIN GRADING PERMIT AND ARRANGE THE PRE-CONSTRUCTION MEETING WITH THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR (SCI). (1 DAY)

2. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AND CONSTRUCT TRAP 'C'. CONSTRUCT STORM DRAIN FROM HA-120 TO ALL TERMINATIONS. (7 DAYS)

3. INSTALL SILT FENCE ALONG NORTHERN PHASE 1 LOD, BEGINNING AT HIGH POINT 4400 FREAKNESS CIRCLE LANE AND ENDING AT STREAM CROSSING. (2 DAYS)

4. CONSTRUCT THE CULVERT AT HA-113 TO HA-103 AND INSTALL CLEAN WATER DIVERSION (CWD) B2-B4, B5-B7. (7 DAYS)

5. CONSTRUCT TRAP F AND THE ASSOCIATED SWALESD SHOWN ON SHEET 24. CONSTRUCT BASIN 'B'. CONSTRUCT STORM DRAIN RUN FROM HA-57 TO ALL TERMINATIONS AND CONSTRUCT PERMANENT SWALES 46-49, 80-81. (21 DAYS)

7. INSTALL THE CWD ALONG THE SOUTHERN BORDER OF THE SITE BEGINNING NEAR LOT 18. INSTALL SILT FENCE BEGINNING NEAR LOT 16 AND ENDING NEAR BASIN 'E'. (2 DAYS)

8. CONSTRUCT TRAP G AND THE ASSOCIATED TEMPORARY EARTH DIKES SHOWN ON SHEET 24. CONSTRUCT BASIN 'E'. BRING SITE IN VICINITY OF LOTS 10-22 TO GRADE. CONSTRUCT STORM DRAIN RUN FROM HA-70 TO HA-75 AND CONSTRUCT PERMANENT SWALES 62-65. CONSTRUCT STORM DRAIN RUN FROM HA-51 TO 1-48. (21 DAYS)

9. UPON RECEIVING PERMISSION FROM THE INSPECTOR, REMOVE TRAP G AND BRING LOTS 13-16 TO GRADE. CONSTRUCT STORM DRAIN FROM HA-70A TO 1-82. INSTALL PERMANENT SWALES 66-78. LOD FOR PHASE-1A TO BE RELOCATED TO PHASE 1 LOD SHOWN SHEET 17. (7 DAYS)

10. INSTALL SILT FENCE FROM LOT 31 TO BASIN 'D'. CONSTRUCT BASIN 'D'. (14 DAYS)

11. CONSTRUCT STORM DRAIN FROM: HA-90 TO 1-102, HA-90 TO 1-105, 1-92 TO 1-107, HA-103 TO 1-104. CONSTRUCT PERMANENT SWALES 52-58. (7 DAYS)

12. UPON RECEIVING PERMISSION FROM THE INSPECTOR REMOVE TRAP F AND BRING AREA IN VICINITY OF LOTS 62-65 TO GRADE. CONSTRUCT STORM DRAIN FROM HA-51 TO 1-56. INSTALL PERMANENT SWALES 40-45. (7 DAYS)

13. UPON RECEIVING PERMISSION FROM THE INSPECTOR, MODIFY THE EXISTING STREAM CROSSING AND INSTALL ALL SILT FENCE IN VICINITY AS SHOWN ON SHEET 49. CONSTRUCT THE CONSPAN ARCH AND HEADWALLS. (14 DAYS)

14. UPON RECEIVING PERMISSION FROM THE INSPECTOR BRING REMAINING AREAS OF SITE WITHIN THE PHASE 1 LOD TO GRADE. STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION OF SCI TO PROCEED TO PHASE 2. (7 DAYS)

PHASE 2

GENERAL: WESTERN PORTION OF SITE. COMPLETE MASS GRADING AND UTILITY INSTALLATION.

15. INSTALL ALL REMAINING PERIMETER SILT FENCE CONSTRUCT BASIN 'A'. CONSTRUCT TRAP H AND THE ASSOCIATED CONTROLS SHOWN ON SHEET 25. CONSTRUCT STORM RUN FROM HA-30 TO ALL TERMINATIONS. CONSTRUCT PERMANENT SWALE 88, AND 30-31. (21 DAYS)

16. CONSTRUCT STORM DRAIN RUN FROM HA-1 TO 1-25. CONSTRUCT PERMANENT SWALES 21-24, AND 37-39. (7 DAYS)

17. UPON RECEIVING PERMISSION FROM THE INSPECTOR CONSTRUCT PERMANENT SWALE 33-36. (14 DAYS)

18. CONSTRUCT PERMANENT CWD 27-28, 25-26, 12-16, 1-7. (7 DAYS)

19. CONSTRUCT STORM DRAIN RUN FROM: HA-1 TO 1-17, HA-1 TO 1-19, HA-1 TO 1-21. CONSTRUCT PERMANENT SWALES 29-30, 31-32. (14 DAYS)

20. CONSTRUCT STORM DRAIN RUN FROM MH-2 TO ALL REMAINING TERMINATIONS. CONSTRUCT PERMANENT SWALES 8-19, 19-20, 17-19. (14 DAYS)

21. UPON RECEIVING PERMISSION FROM THE INSPECTOR, REMOVE TRAP H AND RELOCATE PH-2A LOD TO PH2 LOD SHOWN ON SHEET 20. BRING REMAINING AREAS OF SITE WITHIN THE PHASE 2 LOD TO GRADE. INSTALL REMAINING STORM DRAIN AND SEWER. INSTALL PAVEMENT, LANDSCAPING AND FOREST CON. PLANTINGS. STABILIZE ENTIRE SITE AND OBTAIN PERMISSION OF SCI TO BEGIN POND CONVERSION TO FINAL CONFIGURATION. (21 DAYS)

22. CONTRACTOR TO REMOVE ANY AND ALL NEW/OLD JUNK, DEBRIS, TRASH AND OTHER UNNATURAL ITEMS FROM WETLANDS, STREAMS, FLOODPLAIN, OPEN SPACE, FOREST CONSERVATION AREAS, AND THEIR BUFFERS

NOTES:

A. THE PERMANENT SWALES AND STORM DRAIN OF THE FINAL CONDITION ARE INTEGRAL COMPONENTS OF THIS SEDIMENT CONTROL PLAN.

B. THE DISTURBANCE REQUIRED TO CONSTRUCT THE PERMANENT AND TEMPORARY CONTROLS MUST BE MINIMIZED. GRADING OF DRAINAGE AREAS UPSTREAM OF CONTROLS NOT YET FINALIZED IS PROHIBITED.

C. ALL STORM DRAIN INLETS AND PIPES ARE TO BE FLUSHED WITH WATER AND PUMPED CLEAN UPON CONVERSION TO THE FINAL CONFIGURATION.

D. NO MORE THAN 20 ACRES MAY BE UNSTABILIZED AT ANY POINT IN TIME.

E. DUST CONTROL TO BE PROVIDED THROUGHOUT ENTIRE PROJECT.
SEE DETAIL SHEET 23

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12/5/07

Chief, Development Engineering Division — Date 12/5/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 11/15/07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 11-14-07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 11/29/07

LEGEND

- LIMIT OF DISTURBANCE PHASE 1
- LIMIT OF DISTURBANCE PHASE 2

NOTES: 1. NO MORE THAN 20 ACRES MAY BE UNSTABILIZED AT ANY POINT IN TIME.
2. A WETLAND SEED MIX IS TO BE USED TO STABILIZE ALL WETLANDS WITHIN THE LOD.

STATE OF MARYLAND — JOHN R. DUVALL — No. 12475 — REGISTERED PROFESSIONAL ENGINEER

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. 12475, Expiration Date May 26, 2008.

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SNE-OV.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.
11/16/07	RUNNING FENCE LANE LOWERED & STORM DRAIN ADDED AT NEW LOW POINT ⚠	DDS	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED SEDIMENT CONTROL OVERVIEW AND SEQUENCE OF CONSTRUCTION

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 200'	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
NOV./2007	PARCEL 74 28 - 18,17	11 OF 78

F-06-31

SITE AND SEDIMENT CONTROL LEGEND

- 366 — EXISTING CONTOUR
- 300 — PROPOSED CONTOUR
- EXISTING TREES/TREE LINES
- EX. STORM DRAIN
- PROP. STORM DRAIN
- LIMIT OF DISTURBANCE
- EASEMENTS
- SEPTIC FIELD
- WELL BOX
- × 78.0 — PROPOSED SPOT ELEVATION
- × 78.0 — EXISTING SPOT ELEVATION
- FCE — FOREST CONSERVATION ESMT. (FCE)
- PROPOSED LIGHT
- NO-WOODY VEGETATION ZONE
- BM / WB / WB / BM — WETLANDS / 25' WETLAND BUFFER (WB)
- BS / BS — STREAM
- SB / SB — STREAM BUFFER (SB)
- FP / FP — 100-YR FLOODPLAIN (FP)
- FLUSH CURB (DET. 3.10)
- RAISED INTERSECTION SPEED CONTROL (DET. 6.14)
- 5' CONCRETE SIDEWALK (HC STD. R-3.05)
- MODIFIED COMB. CURB & GUTTER (DET. 1.14)
- CONCRETE CURB & GUTTER (DET. 4.14)
- SOIL BORING LOCATION
- SEWER MANHOLE NUMBER (PUBLIC)
- 3" LPSS — PVC LPSS PUBLIC (CONTR. # 50-4330-D)
- SF / SF — Imbrication along slopes — PROPOSED SILT FENCE
- SSF / SSF — PROPOSED SUPER SILT FENCE
- GM — GABION MATTRESS INFLOW PROTECTION
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- CWD — TEMPORARY CLEAN WATER DIVERSION
- CWD — PERMANENT CLEAN WATER DIVERSION
- RPS — REMOVABLE PUMPING STATION
- TEMPORARY STOCKPILE AREA
- ROADSIDE SWALE STABILIZATION PER G-22-2
- EXISITING UTILITY LINE & POLES
- PROPOSED GRINDER PUMP AND 10' x 10' PUBLIC SEWERAGE & UTILITY EASEMENT.

NOTES:

1. ALL SIDEWALKS SHOWN ARE 5' (HC STD. R-3.05).
2. ALL PUBLIC SEWER LINE ON THIS FINAL ROAD PLAN IS 8" AND ALL SEWER HOUSE CONNECTIONS ARE 4" PER CONTR. #50-4330-D.
3. FOR SWALE INFORMATION SEE SEDIMENT CONTROL PLANS. (SHEETS 11-20)
4. ALL SWALES AND ROADSIDE DITCHES ARE TO BE LINED WITH EROSION CONTROL MATTING (PER G-22-2) TO MINIMUM WIDTH OF 6' AND CENTERED ON THE SWALE UNLESS OTHERWISE NOTED.

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/7/07

SEDIMENT TRAP C DATA TABLE

STONE OUTLET = TYPE ST-IV
W/ MODIFIED DRAW DOWN DEVICE
EXISTING DRAINAGE AREA : 2.9 AC (EX-C)
INTERIM DRAINAGE AREA : 3.1 AC (INT-3C)
WET STORAGE VOL. REQUIRED : 0.13 AC-FT
WET STORAGE VOL. PROVIDED : 0.13 AC-FT
WET STORAGE ELEV : 391.50.
DRY STORAGE REQUIRED: 0.13 AC-FT
DRY STORAGE PROVIDED = 0.13 AC-FT
DRY STORAGE WEL = 394.50
EXISTING Q-1YR = 0.14 cfs
INTERIM Q-1YR = 0.00 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 7.21 cfs
10-YR WSEL = 394.71 ft.
BOTTOM ELEVATION : 384.00
TOP OF EMBANKMENT : 400.50
OUTFALL INVERT AT RISER = 391.00
RISER WEIR CREST ELEVATION : 394.50
RISER WEIR LENGTH : 12.4' min
RISER TRASH RACK/ANTIVORTEX: N/A

ENTIRE 1-YR STORM STORED WITHIN TRAP
INTERIM CONDITION HYDROGRAPH VOLUME = 0.09 AC-FT
DRY STORAGE AVAILABLE = 0.13 AC-FT
Q1-YR = 0.0 CFS

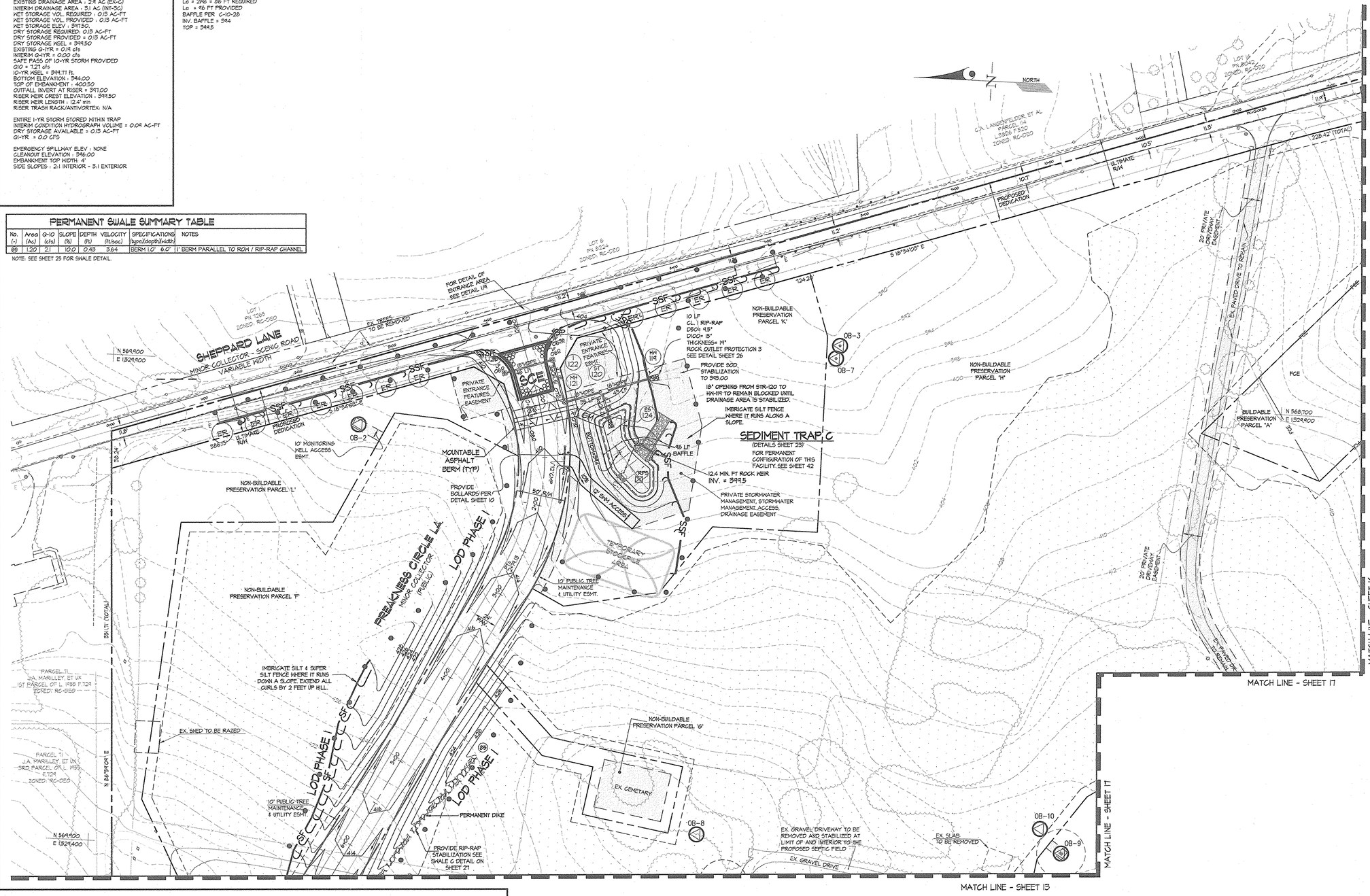
EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 396.00
EMBANKMENT TOP WIDTH: 4'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR

BAFFLE COMPUTATION
D = 60 FT.
A WET POOL = 2355 SQFT
Wo = A/D = 43
Le = 2Wo = 86 FT REQUIRED
Le = 96 FT PROVIDED
BAFFLE PER G-10-28
INV. BAFFLE = 394
TOP = 394.5

PERMANENT SWALE SUMMARY TABLE

No. (-)	Area (Ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	SPECIFICATIONS (type/depth/width)	NOTES
@@	1.20	2.1	10.0	0.43	3.64	BERM 1.0' 6.0'	1' BERM PARALLEL TO ROW / RIP-RAP CHANNEL

NOTE: SEE SHEET 25 FOR SWALE DETAIL.



DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1-25-07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

STATE OF MARYLAND — CHARLES M. GUTSCHICK — No. 7927 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
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\Drawings\00153\Final-Road\00153Grading.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

GRADING and SEDIMENT CONTROL PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	12 OF 78

F-06-31

SWALE SUMMARY TABLE

No. (-)	Area (Ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	SPECIFICATIONS (type/d.depth/b.width)	NOTES
(82)	1.00	1.7	3.0	0.42	3.25	A 1.0' 6.0'	
(83)	2.00	3.4	2.5	0.56	3.61	A 1.0' 6.0'	
(84)	4.20	7.2	3.0	0.72	4.65	A 1.0' 6.0'	
(85)	7.20	12.3	2.5	0.91	4.97	A 1.5' 9.0'	
(86)	8.70	14.9	4.5	1.06	4.42	A 1.5' 9.0'	RIP-RAP STABILIZED
(87)	1.20	2.1	10.0	0.45	5.64	BERM 1.0' 6.0'	1' BERM PARALLEL TO R.O.W. / RIP RAP STABILIZED
(88)	2.60	4.5	3.0	0.60	4.12	A 1.0' 6.0'	
(89)	3.30	5.6	6.0	0.70	3.87	A 1.0' 6.0'	RIP-RAP STABILIZED

NOTE: SEE SHEET 21 FOR SWALE DETAIL.

MATCH LINE - SHEET 12

MATCH LINE - SHEET 17

MATCH LINE - SHEET 18

MATCH LINE - SHEET 14

EX. SHEDS AND TRAILER TO BE REMOVED

N 570,000 E 1324,250

PARCEL 11 J.A. MARILLEY, ET UX 3RD PARCEL OF L. 1856 F. 124 ZONED: RC-DEO

NORTH

EX. STRUCTURES TO BE REMOVED

Off-Site Well OBS. WELL

FUTURE CLAY CIRCLE LA. MINOR COLLECTOR (PUBLIC)

PARCEL 48 BASSLER, INC. L. 516 F. 165 ZONED: RC-DEO

N 570,000 E 1326,750

FUTURE BASSLER PROPERTY SUBDIVISION SP-06-07

IMBRICATE SILT & SUPER SILT FENCE WHERE IT RUNS DOWN A SLOPE. EXTEND ALL CURLS BY 2 FEET UP HILL

MINOR REGRADING OF EX. DIRT ROAD TO BE RESURFACED WITH EQUIVALENT MATERIAL AND FEATHERED INTO EXISTING GRADE.

20' PUBLIC DRAINAGE & UTILITY EASEMENT

20' SURFACE DRAINAGE & UTILITY EASEMENT

EX. CULVERT

APPROVED 100 YR. FLOOD PLAN PER No. CO. CAPITAL PROJECT D-0228

Future Road

NON-BUILDABLE PRESERVATION PARCEL 'F'

EX. DIRT/GRAVEL DRIVE

EX. WELL TO BE CAPPED

EX. SHED TO BE REMOVED

EX. HOUSE TO BE REMOVED

EX. PAVED DRIVE

EX. SHED TO REMAIN

10' PUBLIC TREE MAINTENANCE & UTILITY ESMT.

PERMANENT DIKE

LOD PHASE I

FREAKNESS CIRCLE LA. MINOR COLLECTOR (PUBLIC)

EX. DRIVEWAY TO BE REMOVED AND STABILIZED AT LIMIT OF AND INTERIOR TO THE PROPOSED SEPTIC FIELD

N 568,850 E 1324,250

NON-BUILDABLE PRESERVATION PARCEL 'L'

PROVIDE RIP-RAP STABILIZATION SEE SWALE C DETAIL ON SHEET 21

NON-BUILDABLE PRESERVATION PARCEL 'H'

PERMANENT SWALE

EX. FENCE TO BE REMOVED

PUBLIC SEWER AND UTILITY EASEMENT

TREAMENT SYSTEM PER CONTR. No. 50-4286-D

NON-BUILDABLE BULK PARCEL 'J'

15' PRIVATE SURFACE DRAINAGE ESMT.

10' MONITORING WELL ACCESS ESMT.

OB-1

PROVIDE RIP INFLOW PROTECTION per B-6-2 FROM INVERT TO 382 (SHEET 21)

PROVIDE RIP-RAP STABILIZATION SEE SWALE C DETAIL ON SHEET 21

20' PUBLIC DRAINAGE & UTILITY EASEMENT

BUILDABLE PRESERVATION PARCEL 'A'

10' PRIVATE SURFACE DRAINAGE ESMT.

EX. BLDG. TO BE REMOVED

PRIVATE SURFACE DRAINAGE ESMT.

20' PRIVATE DRAINAGE EASEMENT

10' PUBLIC TREE MAINTENANCE UTILITY ESMT.

PUBLIC DRAINAGE & UTILITY EASEMENT

PUBLIC SEWER, WATER ACCESS & UTILITY EASEMENT

30 LF MSHA CL. IV RIP RAP @ 0% WIDTH AT END = 14' D50 = 9.5" THICKNESS = 14"

TEMPORARY EARTH DIKE

NON-BUILDABLE PRESERVATION PARCEL 'D'

BILLY GOAT TRAIL

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1-25-07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

STATE OF MARYLAND — CHRISTOPHER R. GUTSCHICK — No. 12727 — REGISTERED PROFESSIONAL ENGINEER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/5/07

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153Grading.dwg | DES. BJM | DRN. klP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

GRADING and SEDIMENT CONTROL PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	13 OF 78

F-06-31

SWALE SUMMARY TABLE

No. (-)	Area (ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	STABILIZATION (type)/(depth)/(width)	NOTES
(60)	0.30	0.5	25	0.28	2.24	A 1.0' 6.0'	
(61)	0.30	0.5	25	0.28	2.24	A 1.0' 6.0'	
(62)	0.90	1.5	2.0	0.43	1.03	A 1.0' 6.0'	
(63)	1.40	2.4	2.0	0.51	5.03	A 1.0' 6.0'	
(64)	0.70	1.2	2.5	0.36	2.71	A 1.0' 6.0'	
(65)	2.00	2.1	2.0	0.54	3.14	A 1.0' 6.0'	
(66)	0.60	1.0	2.0	0.37	2.46	A 1.0' 6.0'	
(67)	1.30	2.2	2.5	0.48	3.24	A 1.0' 6.0'	
(68)	1.40	3.3	2.5	0.56	3.56	A 1.0' 6.0'	
(69)	2.20	3.8	5.0	0.51	4.76	A 1.0' 6.0'	
(70)	0.50	0.9	4.0	0.25	4.67	A 1.0' 6.0'	

NOTE: SEE SHEET 21 FOR SWALE DETAIL.

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1-25-07

ENGINEER'S CERTIFICATE

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ENGINEER'S SIGNATURE — DATE 1-25-07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/2/07

SEDIMENT BASIN B DATA TABLE

PRECAST RISER OUTLET SEDIMENT BASIN

EXISTING DRAINAGE AREA : 40.4 AC (EX-B)
INTERIM DRAINAGE AREA : 54.2 AC (INT-2B)

WET STORAGE VOL. REQUIRED : 1.41 AC-FT
WET STORAGE VOL. PROVIDED : 1.45 AC-FT
WET STORAGE ELEV : 364.00
DRY STORAGE REQUIRED: 1.41 AC-FT
DRY STORAGE PROVIDED = 4.58 AC-FT
DRY STORAGE WSEL = 364.50
EXISTING Q-1YR = 2.45 cfs
INTERIM Q-1YR = 1.56 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 74.58 cfs
10-YR WSEL = 370.76 ft.
BOTTOM ELEVATION : 362.00
TOP OF EMBANKMENT : 373.50
OUTFALL: 154 LF 36" RCP @ 1.3%
RISER/WEIR DIAMETER = 6.34' x 6.34' PRECAST STR.
RISER WEIR CREST ELEVATION : 364.50
RISER WEIR LENGTH : 20'
RISER TRASH RACK/ANTIVORTEX: N/A

DEWATERING DEVICE = 12" PERFORATED PVC
-WITH 12" PVC BARREL AT 0.0%
DEWATERING INVERT AT 12" RISER = 363.50
INVERT FIRST PERFORATION = 364.00
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 3" C-C=
14 HOLES PER CIRCUMFERENTIAL ROW.
33 HOLES RUNNING VERTICALLY.
621 HOLES TOTAL.

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 363.50
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR

BAFFLE COMPUTATION

D = 226 FT.
A WET POOL = 35,211 SQFT
We = A/D = 156
Le = 2We = 312 FT REQUIRED
Le = 335 FT PROVIDED

GLW GUTSCHICK LITTLE & WEBER, P.A.
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\Drawings\00153\Final-Road\00153Grading.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.
12-22-07	⚠1 Lots C101, 102 & 104 Driveway Culverts Removed	WGJ	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

GRADING and SEDIMENT CONTROL PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A",
NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND
NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	14 OF 78

F-06-31

MATCH LINE B-B (SEE THIS SHEET)

MATCH LINE C-C (SHEET 20)

N 569,750
E 1326,500

UTILITY TO PAD

PARCEL 44
BASSLERS, INC.
L. 516 F. 149
ZONED: RC-DEO

N 26°34'06" E

OUTLET 2
36'LF CLASS I
RIP RAP

20' PRIVATE SURFACE DRAINAGE EASEMENT

PERMANENT SWALE

N 569,750
E 1326,200

N 10°21'49" E
800.20' (TOTAL)

LOT 28
FN 10231
ZONED: RC-DEO

NORTH

SEDIMENT BASIN A DATA TABLE

PRECAST RISER OUTLET SEDIMENT BASIN

EXISTING DRAINAGE AREA : 55.2 AC (EX-A)
INTERIM DRAINAGE AREA : 57.1 AC (INT-1A)

WET STORAGE VOL. REQUIRED : 2.36 AC-FT
WET STORAGE VOL. PROVIDED : 3.25 AC-FT
WET STORAGE ELEV : 372.50
DRY STORAGE REQUIRED: 2.36 AC-FT
DRY STORAGE PROVIDED = 3.27 AC-FT
DRY STORAGE WSEL = 375
EXISTING Q-1YR = 11.61 cfs
INTERIM Q-1YR = 7.01 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 131.92 cfs
10-YR WSEL = 376.19 ft.
BOTTOM ELEVATION : 364.50
TOP OF EMBANKMENT : 378.00
OUTFALL: 40 LF 2 NO. 30" RCP @ 0.5%
RISER/WEIR DIAMETER = 11.66' x 6.34' PRECAST STR.
RISER WEIR CREST ELEVATION : 375
RISER WEIR LENGTH : 40'
RISER TRASH RACK/ANTIVORTEX: N/A

DEWATERING DEVICE = 12" PERFORATED PVC
-WITH 12" PVC BARREL AT 0.0%
DEWATERING INVERT AT 12" RISER = 372.5
INVERT FIRST PERFORATION = 372.5
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 2" C-O-C.
16 HOLES PER CIRCUMFERENTIAL ROW.
27 HOLES RUNNING VERTICALLY.
285 HOLES TOTAL.

EMERGENCY SPILLWAY ELEV. : NONE
CLEANOUT ELEVATION : 370.50
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR

BAFFLE COMPUTATION
D = 5.94 FT.
A WET POOL = 54,252 SQFT
Ho = A/D = 101
Lo = 2Ho = 202 FT REQUIRED
D > Lo: NO BAFFLES REQUIRED

MATCH LINE - SHEET 14

PUBLIC DRAINAGE & UTILITY EASEMENT

100-YR FLOOD PLAIN
SEE HO.CO.-CAPITAL PROJECT D-1028

NORTH

N 569,850
E 1327,450

25' WETLAND BUFFER

100-YR FLOOD PLAIN PER PER. P-05-05

PARCEL 26
BASSLERS, INC.
L. 516 F. 163
ZONED: RC-DEO

LOD PHASE 2

15' NON-WOODY VEGETATION ZONE

SEDIMENT BASIN A
(DETAILS SHEET 25)
FOR PERMANENT CONFIGURATION OF THIS FACILITY SEE SHEETS 38 & 39

4-3

12 inch diameter PVC riser with 1" perforations at 2" C-C. (SEE DETAILS SHEET 25)

POND DRAIN (delayed)

BOTTOM ×364.50

NON-BUILDABLE PRESERVATION PARCEL 'O'

PERMANENT DIKE/SWALE TO IMPROVE DEFINITION OF EXISTING SWALE

PUBLIC STORMWATER MANAGEMENT ACCESS, STORMWATER MANAGEMENT ACCESS, DRAINAGE & UTILITY EASEMENT

LOD PHASE 2

WATKINS BRIDGE LANE ACCESS PLACE (PUBLIC)

PERMANENT SWALE

40

39

100-YR FLOOD PLAIN PER PER. P-05-05

NON-BUILDABLE PRESERVATION PARCEL 'B'

48" X 11' CONSPAN ARCH AND HEADWALL SYSTEM SEE SHEETS 44-62

25' WETLAND BUFFER

RESIDENTIAL DRIVEWAY ENTRANCE PER HO. CO. STD. R-6.06

LOD PHASE 2

PROPOSED 18" RCP STORM DRAIN

LANDING RD. PROJECT

WATKINS BRIDGE LANE ACCESS PLACE (PUBLIC)

10' PUBLIC TREE MAINTENANCE & UTILITY ESMT.

PERMANENT SWALE

66

67

68

20' PRIVATE DRAINAGE EASEMENT

15' STREAM BUFFER

87

86

88

85

84

83

79

LOD PHASE 2

MOUNTAIN LANE ACCESS PLACE (PUBLIC)

SWEET MEADOW LANE ACCESS PLACE (PUBLIC)

MATCH LINE A-A (SHEET 20)

MATCH LINE B-B (SEE THIS SHEET)

WATKINS BRIDGE LA. ACCESS PLACE (PUBLIC)

MATCH LINE - SHEET 19

SWALE SUMMARY TABLE

No. (-)	Area (ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	STABILIZATION (type)/(depth)/width)		NOTES
27	3.10	5.5	2.0	0.64	3.10	A	1.0' 6.0'	
28	3.20	5.5	4.0	0.61	4.84	A	1.0' 6.0'	42 LF CL-I RR AT OUTFALL
29	1.60	2.74	3.5	0.49	3.87	A	1.0' 6.0'	
30	0.60	1.0	2.0	0.31	2.46	A	1.0' 6.0'	
31	0.50	0.9	4.0	0.31	3.05	A	1.0' 6.0'	
32	0.30	2.2	2.5	0.28	2.24	A	1.0' 6.0'	
33	0.60	1.0	4.5	0.28	4.41	A	1.0' 6.0'	36 LF CL-I RR AT OUTFALL
34	0.40	0.7	13.5	0.22	4.55	A	1.0' 6.0'	
35	0.50	0.9	12.5	0.24	4.67	BERM	1.0' 6.0'	
37	1.00	1.7	2.0	0.45	2.79	A	1.0' 6.0'	
38	1.80	3.1	3.0	0.52	3.16	A	1.0' 6.0'	GM PROTECTION---
39	0.80	1.0	6.5	0.65	3.82	A	1.0' 6.0'	--- FOREBAY POND 'A'
50	0.50	0.9	4.0	0.29	4.67	A	1.0' 6.0'	
51	2.00	3.4	5.5	0.55	3.42	A	1.0' 6.0'	
69	0.50	0.9	3.0	0.32	2.73	A	1.0' 6.0'	

NOTE: SEE SHEET 21 FOR SWALE DETAIL.

42 LF CLASS I RIP RAP

STATE OF MARYLAND — CHARLES K. MAY — 13971 — REGISTERED PROFESSIONAL ENGINEER

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

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

USDA / NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/2/07

ENGINEER'S CERTIFICATE

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ENGINEER'S SIGNATURE — 1-25-07 DATE

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SIGNATURE OF DEVELOPER/BUILDER — 1-25-07 DATE

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CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153Grading.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.
12.22.06	⚠ Lots 85 & 87 Driveway Culverts	WGJ	
11.3.06	Inlet 1-9A Added & Typ. swale each For Watkins Bridge Lane Rev From sht. 11+48 To 12+80 ⚠	WGJ	

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OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
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GRADING and SEDIMENT CONTROL PLAN

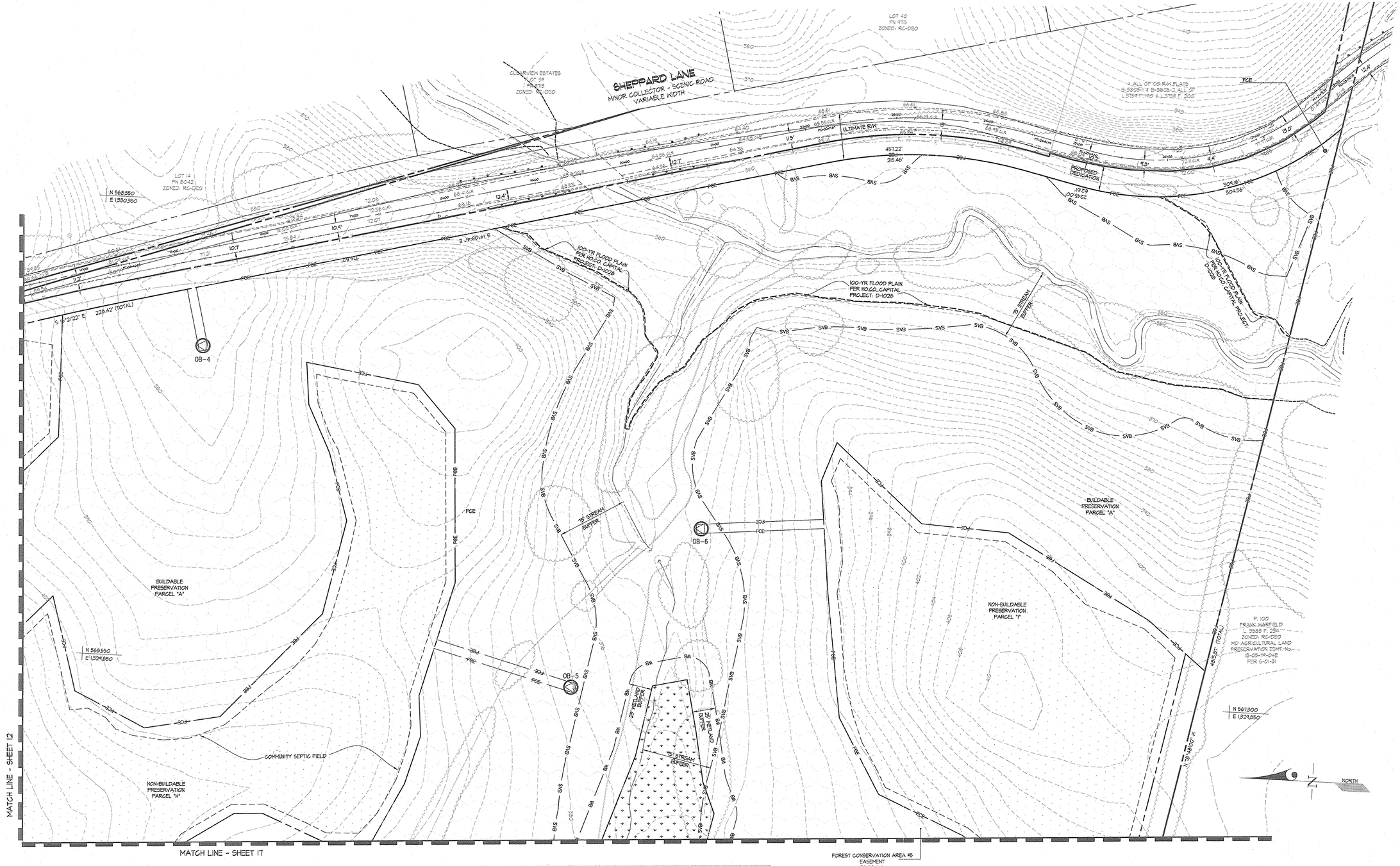
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	15 OF 78

F-06-31



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

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USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

THESE PLANS FOR SMALL-POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

STATE OF MARYLAND — JOHN R. GUTSCHICK — 10724 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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DATE	REVISION	BY	APP'R.

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WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
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WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	16 OF 78

F-06-31

MATCH LINE - SHEET 12 | MATCH LINE - SHEET 16

MATCH LINE - SHEET 12

MATCH LINE - SHEET 13

MATCH LINE - SHEET 18

SEDIMENT BASIN E DATA TABLE

PRECAST RISER OUTLET SEDIMENT BASIN.

EXISTING DRAINAGE AREA : 28.9 AC (EX-E)
INTERIM DRAINAGE AREA : 28.9 AC (INT-SE)

WET STORAGE VOL. REQUIRED : 1.11 AC-FT
WET STORAGE VOL. PROVIDED : 1.23 AC-FT
WET STORAGE ELEV : 345.00
DRY STORAGE REQUIRED : 1.91 AC-FT
DRY STORAGE PROVIDED : 1.83 AC-FT
DRY STORAGE ELEV : 349.00
EXISTING Q-1YR : 5.16 cfs (STUDY POINT 5)
INTERIM Q-1YR : 4.23 cfs (STUDY POINT 5)
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 76.90 cfs
10-CHANNEL = 199.15ft.
BOTTOM ELEVATION : 341.00
TOP OF EMBANKMENT : 402.00
OUTFALL: 40 LF 24" SCH-RCP @ 0.5%
RISER/HEIR DIAMETER = 15' x 5' PRECAST STR.
RISER-HEIR CREST ELEVATION : 344.00
RISER HEIR LENGTH : 52.00'
RISER TRASH RACK/ANTI-VORTEX: N/A

DEWATERING DEVICE = 12" PERFORATED PVC WITH 12" PVC BARREL AT 0%
DEWATERING INVERT AT 12" RISER = 343.00
INVERT FIRST PERFORATION = 345.00
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 2" C-C
10 HOLES PER CIRCUMFERENTIAL ROW.
24 HOLES RUNNING VERTICALLY.
240 HOLES TOTAL.

EMERGENCY SPILLWAY ELEV. : NONE
CLEANOUT ELEVATION : 343.00
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 3:1 & 2:1 INTERIOR - 3:1 EXTERIOR

BAFFLE COMPUTATION
D = 6.9 FT.
A WET POOL = 16749 SQFT
We = A/D = 1.92
Le = 2We = 3.84 FT REQUIRED
Le = 341 FT PROVIDED

SWALE SUMMARY TABLE

No. (-)	Area (Ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	STABILIZATION (type/depth/width)
(62)	0.61	1.04	1.50	0.40	2.21	A 1.0' 6.0'
(63)	1.14	2.58	2.00	0.56	3.20	A 1.0' 6.0'
(64)	1.71	2.42	2.00	0.55	3.18	A 1.0' 6.0'
(67)	0.36	0.62	1.33	0.33	1.86	A 1.0' 6.0'
(68)	0.42	1.57	1.33	0.41	2.34	A 1.0' 6.0'
(69)	1.15	1.97	1.33	0.51	2.48	A 1.0' 6.0'
(70)	0.31	0.53	2.0	0.29	2.08	A 1.0' 6.0'
(71)	0.30	0.51	2.0	0.29	2.06	A 1.0' 6.0'
(72)	0.65	1.06	2.0	0.38	2.44	A 1.0' 6.0'
(73)	1.33	2.27	2.0	0.50	2.91	A 1.0' 6.0'
(74)	0.71	1.32	4.0	0.36	3.34	A 1.0' 6.0'
(75)	0.51	0.87	2.0	0.35	2.36	A 1.0' 6.0'
(76)	0.80	1.57	2.0	0.42	2.64	A 1.0' 6.0'
* (77)	0.90	1.5	5.0	0.37	3.83	A 1.0' 6.0'
** (78)	0.60	1.0	2.0	0.37	2.46	A 1.0' 6.0'
(80)	2.20	3.8	2.5	0.37	3.83	A 1.0' 6.0'

NOTES for swale summary table:
SEE SHEET 21 FOR SWALE DETAIL
* GABION MATTRESS PROTECTION INTO ---
** --- FOREBAY OF SWM POND 'E'

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

HOWARD SOIL CONSERVATION DISTRICT — 11/29/07 DATE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — 11-14-07 DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — 11/15/07 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — 12-3-07 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — 12/5/07 Date
Chief, Development Engineering Division — 12/5/07 Date

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 12975, Expiration Date May 26, 2008.

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Grading.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.
12-22-09	Lots 14,15 & 16 Driveway Culverts Removed	WGJ	
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT	DDS	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED GRADING and SEDIMENT CONTROL PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	17 OF 78

F-06-31

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. 12975, Expiration Date May 26, 2008.

SWALE SUMMARY TABLE

No. (-)	Area (Ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	STABILIZATION (type)/depth/width)			NOTES
A2	0.81	1.04	1.50	0.40	2.21	A	1.0'	6.0'	
A3	1.74	2.98	2.00	0.56	3.20	A	1.0'	6.0'	
A4	1.71	2.92	2.00	0.55	3.19	A	1.0'	6.0'	
A7	0.56	0.82	1.33	0.33	1.86	A	1.0'	6.0'	
A8	0.92	1.51	1.33	0.41	2.34	A	1.0'	6.0'	
A9	1.15	1.97	1.33	0.51	2.48	A	1.0'	6.0'	
A10	0.31	0.53	2.0	0.24	2.08	A	1.0'	6.0'	
A11	0.130	0.51	2.0	0.29	2.06	A	1.0'	6.0'	
A12	0.63	1.08	2.0	0.38	2.49	A	1.0'	6.0'	
A13	1.33	2.27	2.0	0.50	2.99	A	1.0'	6.0'	
A14	0.77	1.32	4.0	0.36	3.34	A	1.0'	6.0'	
A15	0.51	0.87	2.0	0.35	2.36	A	1.0'	6.0'	
A16	0.80	1.37	2.0	0.42	2.64	A	1.0'	6.0'	
A17	0.90	1.5	5.0	0.37	3.83	A	1.0'	6.0'	GABION MATTRESS PROTECTION INTO ---
A18	0.60	1.0	2.0	0.37	2.46	A	1.0'	6.0'	--- FOREBAY OF SWM POND 'E'
A19	2.20	3.8	2.5	0.51	3.83	A	1.0'	6.0'	
A20	7.90	13.5	2.5	1.14	5.46	A	1.5'	9.0'	RIP-RAP STABILIZED
A21	10.46	17.8	5.5	0.91	3.68	A	1.5'	9.0'	
A23	1.74	2.98	2.0	0.56	3.20	A	1.0'	6.0'	
A24	13.98	23.91	2.0	1.32	3.66	B	1.5'	10.0'	RIP-RAP STABILIZED
A25	1.24	2.24	2.50	0.48	3.26	A	1.0'	6.0'	ROCK STABILIZED AT HEADWALL
A26	1.40	2.4	2.0	0.5	3.03	A	1.0'	6.0'	

NOTE: SEE SHEET 21 FOR SWALE DETAIL.

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 11/15/07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 11-14-07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 11/29/07

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL-EROSION AND SEDIMENT CONTROL.

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12/5/07

Chief, Development Engineering Division — Date 12/5/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Grading.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT ⚠	DDS	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED GRADING and SEDIMENT CONTROL PLAN

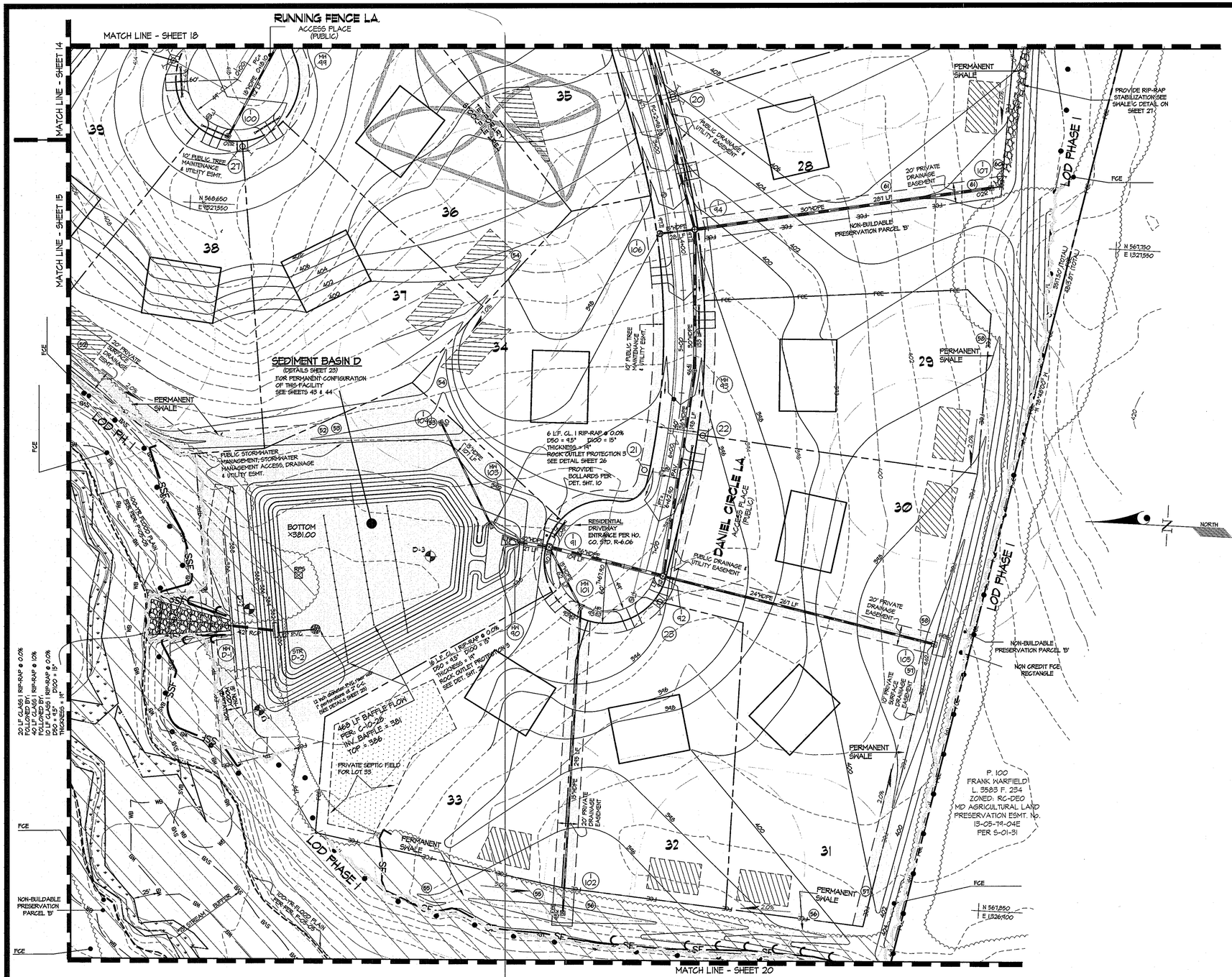
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	18 OF 78

F-06-31



SWALE SUMMARY TABLE

No. (-)	Area (Ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	STABILIZATION (type)/depth/width)		NOTES
55	0.80	1.5	2.0	0.44	2.72	A	1.0'	6.0'	
56	1.20	2.1	2.0	0.48	2.92	A	1.0'	6.0'	
57	0.80	1.5	6.5	0.35	4.28	A	1.0'	6.0'	
58	0.30	0.5	4.0	0.25	2.67	A	1.0'	6.0'	
59	1.10	1.9	3.0	0.43	3.32	A	1.0'	6.0'	
60	2.00	3.4	3.0	0.54	3.86	A	1.0'	6.0'	
61	2.90	5.0	2.0	0.61	3.64	A	1.0'	6.0'	
62	10.40	11.8	3.5	0.91	3.62	A	1.5'	9.0'	
101	0.90	1.5	2.0	0.43	2.71	A	1.0'	6.0'	

NOTE: SEE SHEET 27 FOR SWALE DETAIL.

SEDIMENT BASIN D DATA TABLE

PRECAST RISER OUTLET SEDIMENT BASIN

EXISTING DRAINAGE AREA : 29.6 AC (EX-D)
INTERIM DRAINAGE AREA : 34.3 AC (INT-ID)

WET STORAGE VOL. REQUIRED : 1.42 AC-FT
WET STORAGE VOL. PROVIDED : 2.00 AC-FT
WET STORAGE ELEV : 384.00
DRY STORAGE REQUIRED: 1.42 AC-FT
DRY STORAGE PROVIDED = 2.34 AC-FT
DRY STORAGE WSEL = 386.92
EXISTING Q-YR = 1.23 cfs
INTERIM Q-YR = 1.03 cfs
SAFE PASS OF 10-YR STORM PROVIDED
QIO = 11.80 cfs
10-YR WSEL = 387.94 ft.
BOTTOM ELEVATION : 381.00
TOP OF EMBANKMENT : 390.00
OUTFALL: 41 LF 42" RCP @ 0.5%
RISER/WEIR DIAMETER = 5' x 5' PRECAST STR.
RISER WEIR CREST ELEVATION : 386.92
RISER WEIR LENGTH : 32.0'
RISER TRASH RACK/ANTIVORTEX: N/A

DEWATERING DEVICE = 12" PERFORATED PVC
-WITH 12" PVC BARREL AT 0.0%
DEWATERING INVERT AT 12" RISER = 382.0
INVERT FIRST PERFORATION = 384.00
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 2" C-C-C
19 HOLES PER CIRCUMFERENTIAL ROW.
18 HOLES RUNNING VERTICALLY.
342 HOLES TOTAL.

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 385.00
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR

BAFFLE COMPUTATION
D = 196 FT.
A WET POOL = 32,201 SQFT
Ho = A/D = 164
Lo = 2Ho = 328 FT REQUIRED
Lo = 468 FT PROVIDED

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/15/07

Chief, Development Engineering Division — Date 2/2/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1.25.07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

STATE OF MARYLAND — ROBERT L. GUTSCHICK — 12907 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Grading.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.
12-22-07	Δ Lot 33 Driveway Culvert Removed		

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

GRADING and SEDIMENT CONTROL PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	19 OF 78

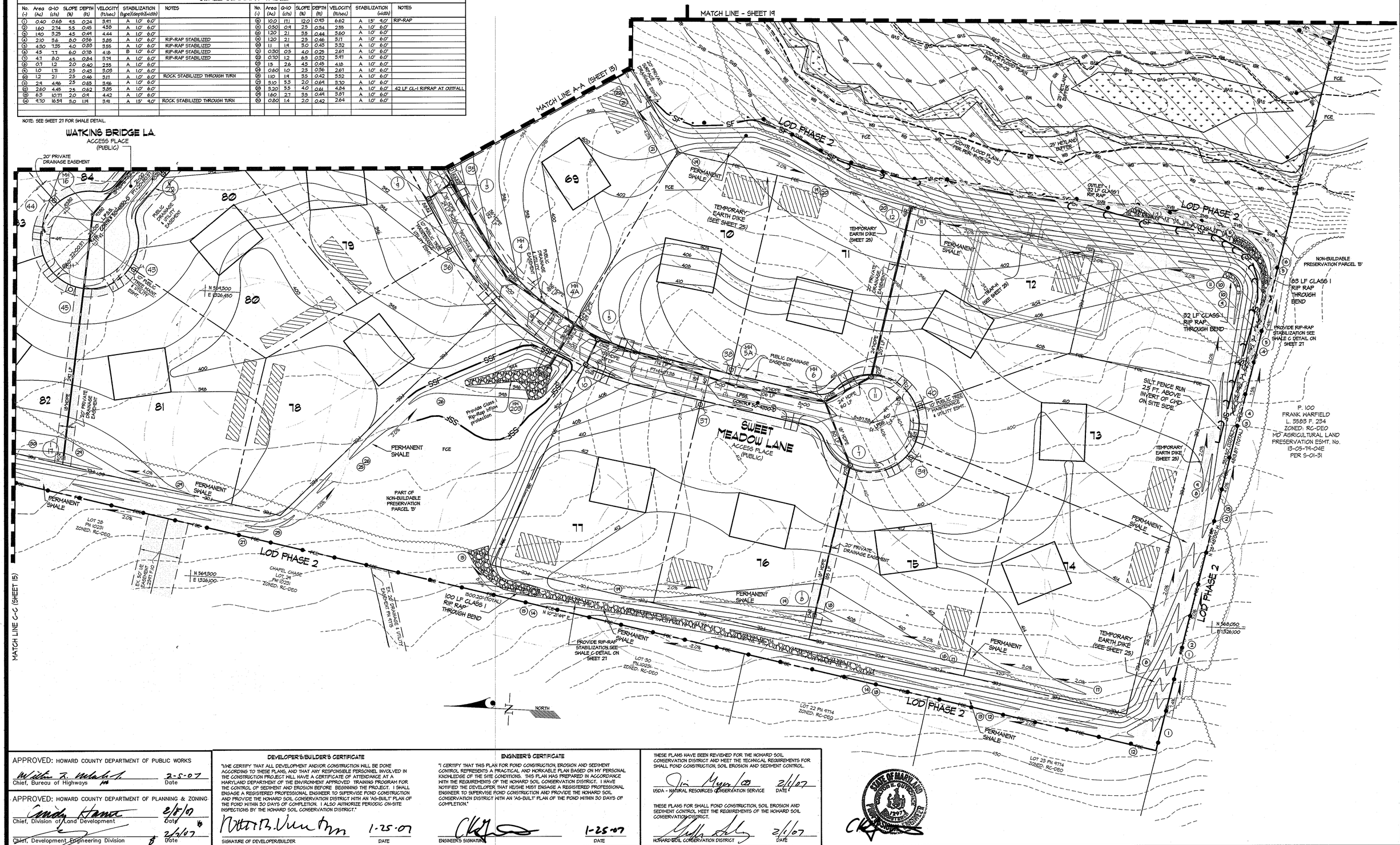
F-06-31

SWALE SUMMARY TABLE

No. (-)	Area (ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	STABILIZATION (type)(depth)(width)	NOTES
①	0.40	0.88	4.5	0.24	3.47	A 1.0' 6.0'	
②	1.60	2.74	5.5	0.45	4.58	A 1.0' 6.0'	
③	1.80	3.25	4.5	0.49	4.44	A 1.0' 6.0'	
④	2.10	3.6	8.0	0.56	5.86	A 1.0' 6.0'	RIP-RAP STABILIZED
⑤	4.30	7.35	4.0	0.88	5.55	A 1.0' 6.0'	RIP-RAP STABILIZED
⑥	4.5	7.7	6.0	0.78	6.18	B 1.0' 6.0'	RIP-RAP STABILIZED
⑦	4.7	8.0	4.5	0.84	5.74	A 1.0' 6.0'	RIP-RAP STABILIZED
⑧	0.7	1.2	2.0	0.40	2.55	A 1.0' 6.0'	
⑨	1.0	1.71	2.5	0.45	3.08	A 1.0' 6.0'	
⑩	1.2	2.1	2.5	0.46	3.17	A 1.0' 6.0'	ROCK STABILIZED THROUGH TURN
⑪	2.9	4.96	2.5	0.65	3.96	A 1.0' 6.0'	
⑫	2.60	4.45	2.5	0.62	3.85	A 1.0' 6.0'	
⑬	6.3	10.71	2.0	0.9	4.42	A 1.0' 6.0'	
⑭	9.70	16.59	3.0	1.19	5.41	A 1.5' 9.0'	ROCK STABILIZED THROUGH TURN

No. (-)	Area (ac)	Q-10 (cfs)	SLOPE (%)	DEPTH (ft)	VELOCITY (ft/sec)	STABILIZATION (width)	NOTES
⑮	10.0	17.1	12.0	0.93	6.62	A 1.5' 9.0'	RIP-RAP
⑰	0.30	0.9	2.5	0.24	2.55	A 1.0' 6.0'	
⑱	1.20	2.1	3.5	0.44	3.60	A 1.0' 6.0'	
⑲	1.20	2.1	2.5	0.46	3.17	A 1.0' 6.0'	
⑳	1.1	1.9	3.0	0.43	3.32	A 1.0' 6.0'	
㉑	0.30	0.5	4.0	0.25	2.67	A 1.0' 6.0'	
㉒	0.70	1.2	6.5	0.32	3.97	A 1.0' 6.0'	
㉓	1.5	2.6	4.5	0.45	4.18	A 1.0' 6.0'	
㉔	0.60	1.0	2.5	0.36	2.67	A 1.0' 6.0'	
㉕	1.10	1.9	3.5	0.42	3.52	A 1.0' 6.0'	
㉖	3.10	5.3	2.0	0.64	3.10	A 1.0' 6.0'	
㉗	3.20	5.5	4.0	0.61	4.84	A 1.0' 6.0'	42 LF CL-1 RIPRAP AT OUTFALL
㉘	1.60	2.7	3.5	0.44	3.87	A 1.0' 6.0'	
㉙	0.80	1.4	2.0	0.42	2.64	A 1.0' 6.0'	

NOTE: SEE SHEET 21 FOR SWALE DETAIL.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/5/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1-25-07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

STATE OF MARYLAND — CHARLES E. GUTSCHICK — No. 10973 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153Grading.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.
12-22-09	Lots 72 & 75, Driveway Culverts Removed ⚠	WJJ	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

GRADING and SEDIMENT CONTROL PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

L. 2927 F. 487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	20 OF 78

F-06-31

STUDY POINT SUMMARY TABLES

PROPERTY BOUNDARY STUDY POINTS

Study Point (No.)	Qex-1YR (cfs)
1	14.42
2	2.44
3	0.67
4	0.37
5	5.16

BASIN/TRAP OUTFALL STUDY POINTS

Study Point (No.)	Qex-1YR (cfs)
A	11.95
B	2.45
C	0.19
D	1.23
E	1.73
F	0.28
G	0.26
H	1.41

Note: Temporary Stormwater Management has been provided in the form of 1-yr attenuation at the Study Points along the property line as well as at all basin/trap outfalls. The natural drainage areas have been analyzed at the property boundary. The interim/disturbed drainage areas to each outfall have been modeled as meadow and anlyzed accordingly.

LEGEND

- SOILS DELINEATION LINE
- 'B' SOIL
- 'C' SOIL
- 'D' SOIL
- EX./DISTURBED DRAINAGE DIVIDE TO OUTFALL
- NATURAL DRAINAGE AREA DIVIDE TO STUDY POINT
- TC PATH

HOWARD CO. 5' TOPOGRAPHY

N 510400 E 1326200

LIMIT OF 2' AERIAL TOPOGRAPHY

AERIAL PHOTOGRAPHY PER FCC

N 510400 E 1329800

HOWARD CO. 5' TOPOGRAPHY

STUDY POINT 1

STUDY POINT 2

STUDY POINT 3

STUDY POINT 4

STUDY POINT 5

AREA B-EX
OUTFALL STUDY POINT
POND 'B'
AREA = 40.4 acres
CN = 59
Tc = 0.31 hrs

OUTLET-2
$Q10_{ex}$ = 3.15 cfs

AREA A-EX
OUTFALL STUDY POINT
BASIN 'A'
AREA = 93.2 acres
CN = 66
Tc = 0.43 hrs

900' OPEN CHANNEL FLOW AVERAGE VELOCITY FROM HECRAS

AREA F-EX
OUTFALL STUDY POINT
TRAP 'F'
AREA = 6.2 acres
CN = 59
Tc = 0.36 hrs

EX. TC TO TRAP-F OUTFALL

450' SC @ 3%

100' OL @ 3%

2300 FT. SC FLOW @2.0%

100' OL @ 2.0%

AREA = 40.3 ac
CN = 59
2 TC = 0.368 hrs

1600 FT. SC FLOW @ 4.5%

100' OL @ 2.0%

AREA D-EX
OUTFALL STUDY POINT
BASIN 'D'
AREA = 29.6 acres
CN = 58
Tc = 0.431 hrs

AREA H-EX
OUTFALL STUDY POINT
TRAP 'H'
AREA = 0.30 acres
CN = 62
Tc = 0.25 hrs

EX. TC TO TRAP-H OUTFALL

545' SC @ 4%

100' OL @ 5%

100' OL @ 4.0%

EX. TC TO HA-201 OUTFALL
1650' OL @ 10%

100' OL @ 9%

EX. TC TO OUTLET-1
1100' OL @ 6%

OUTLET-1
$Q10_{ex}$ = 6.23 cfs

AREA = 177.7 ac
CN = 64
1 TC = 0.884 hrs

2000 FT. SC FLOW @ 3.0%

DISCHARGE OMITTED TO AVOID DILUTION OF THE HYDROGRAPH AND ENABLE AN EQUITABLE COMPARISON.

LIMIT OF 2' AERIAL TOPOGRAPHY

HOWARD CO. 5' TOPOGRAPHY

1600 FT. SC FLOW @ 2.0%

100' OL @ 2.0%

100' OL @ 2.0%

N 561000 E 1329800

STEPHANIE LANE

100' OL @ 8.0%

AREA = 12.9 ac
CN = 58
3 TC = 0.238 hrs

450' SC @ 2.0%

AREA G-EX
OUTFALL STUDY POINT
TRAP 'G'
AREA = 2.9 acres
CN = 58
Tc = 0.181 hrs

100' OL @ 3.0%

550 FT. SC @ 7.0%

AREA = 7.1 ac
CN = 58
4 TC = 0.248 hrs

100' OL @ 3.0%

150 FT. SC @ 8.0%

AREA E-EX
OUTFALL STUDY POINT
BASIN 'E'
AREA = 28.9 acres
CN = 59
Tc = 0.38 hrs

TC ASSUMED 0 HRS.

450 FT.

1000 FT. SC FLOW @ 3.0%

AREA = 73.8 ac
CN = 60
5 TC = 0.481 hrs

EX. TC TO TRAP-G OUTFALL

545' OL @ 4%

100' OL @ 5%

AREA G-EX
OUTFALL STUDY POINT
TRAP 'G'
AREA = 5.4 acres
CN = 58
Tc = 0.33 hrs

PARCEL 'H' BASELINE, INC. L. 5161 F. 169 ZONED: RC-DEO

PARCEL 'I' J.A. MARILLEY, ET UX 3RD PARCEL OF L. 1955 F.729 ZONED: RC-DEO

PARCEL 'I' J.A. MARILLEY, ET UX 2ND PARCEL OF L. 1955 F.729 ZONED: RC-DEO

PARCEL 'I' J.A. MARILLEY, ET UX 1ST PARCEL OF L. 1955 F.729 ZONED: RC-DEO

LOT 6 PN 7265 ZONED: RC-DEO

LOT 5 PN 7265

LOT 6 PN 8224 ZONED: RC-DEO

J.A. MARILLEY, ET AL 5936 F.605 ZONED: RC-DEO PARCEL 'ID'

GLENRIEN ESTATES LOT 1 PN 7178 ZONED: RC-DEO

LOT 14 PN 8043 ZONED: RC-DEO

LOT 15 PN 8043

LOT 16 PN 8043 ZONED: RC-DEO

LOT 40 PN 9713 ZONED: RC-DEO

LOT 41 PN 9713 ZONED: RC-DEO

LOT 30 PN 10231 ZONED: RC-DEO

LOT 29 PN 10231 ZONED: RC-DEO

LOT 28 PN 10231 ZONED: RC-DEO

LOT 23 PN 10231 ZONED: RC-DEO

P. CO. FRANK MARFIELD 358 F. 234 ZONED: RC-DEO MD AGRICULTURAL LAND PRESERVATION EASMT. No 19-0078-025 - PER SDAT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/2/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153SWM-DAMex.dwg | DES. BJM | DRN. KLP | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

EXISTING CONDITION SEDIMENT AND EROSION CONTROL DRAINAGE AREA MAP

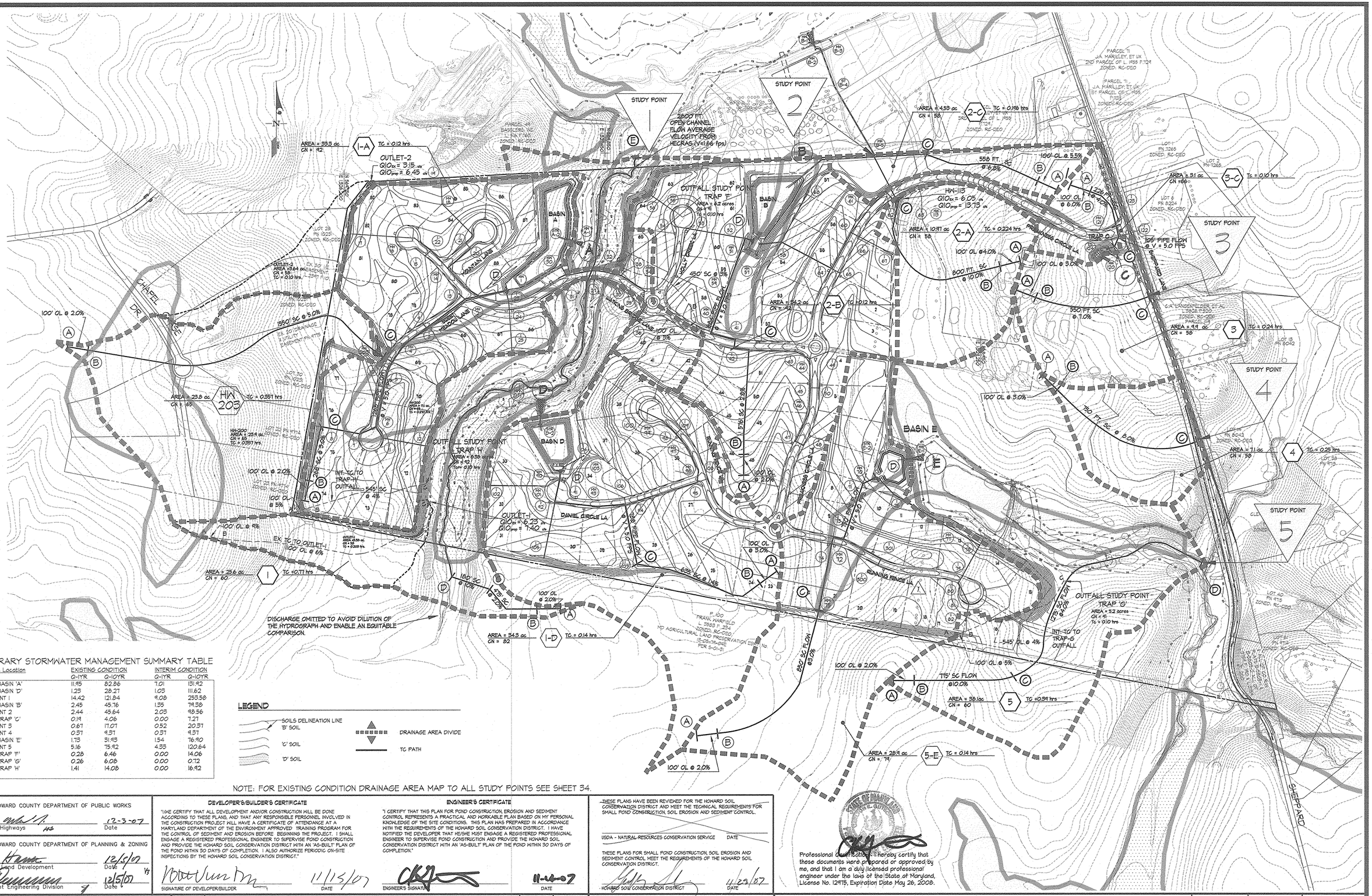
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=200'	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	21 OF 78

F-06-31



TEMPORARY STORMWATER MANAGEMENT SUMMARY TABLE

Study Point Location	EXISTING CONDITION Q-1YR	EXISTING CONDITION Q-10YR	INTERIM CONDITION Q-1YR	INTERIM CONDITION Q-10YR
OUTFALL BASIN 'A'	11.95	82.86	7.01	131.92
OUTFALL BASIN 'D'	1.23	28.27	1.03	111.62
STUDY POINT 1	14.42	121.94	9.08	253.58
OUTFALL BASIN 'B'	2.45	45.76	1.35	114.38
STUDY POINT 2	2.44	45.64	2.03	98.56
OUTFALL TRAP 'C'	0.19	4.06	0.00	7.21
STUDY POINT 3	0.67	17.07	0.52	20.37
STUDY POINT 4	0.37	9.31	0.37	9.31
OUTFALL BASIN 'E'	1.13	31.93	1.54	76.90
STUDY POINT 5	5.16	75.92	4.33	120.64
OUTFALL TRAP 'F'	0.28	6.46	0.00	14.06
OUTFALL TRAP 'G'	0.26	6.08	0.00	0.72
OUTFALL TRAP 'H'	1.41	14.08	0.00	16.42

LEGEND

- SOILS DELINEATION LINE
- 'B' SOIL
- 'C' SOIL
- 'D' SOIL
- DRAINAGE AREA DIVIDE
- TC PATH

NOTE: FOR EXISTING CONDITION DRAINAGE AREA MAP TO ALL STUDY POINTS SEE SHEET 34.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12/5/07

Chief, Development Engineering Division — Date 12/5/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 11/15/07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 11-6-07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/29/07

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. 12975, Expiration Date May 26, 2008.

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153SnE-DAM.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT ⚠	DDS	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED SEDIMENT CONTROL INTERIM CONDITION DRAINAGE AREA MAP

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 200'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	22 OF 78

F-06-31

SEDIMENT BASIN A DATA TABLE

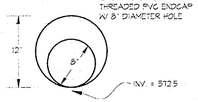
PRECAST RISER OUTLET SEDIMENT BASIN

EXISTING DRAINAGE AREA : 55.2 AC (EX-A)
INTERIM DRAINAGE AREA : 57.1 AC (INT-A)

WET STORAGE VOL. REQUIRED : 2.36 AC-FT
WET STORAGE VOL. PROVIDED : 5.25 AC-FT
WET STORAGE ELEV : 372.50
DRY STORAGE REQUIRED: 2.36 AC-FT
DRY STORAGE PROVIDED = 5.27 AC-FT
DRY STORAGE WSEL = 375
EXISTING Q-1YR = 11.85 cfs
INTERIM Q-1YR = 11.01 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 151.92 cfs
10-YR WSEL = 376.19 ft.
BOTTOM ELEVATION : 368.50
TOP OF EMBANKMENT : 378.00
OUTFALL: 40 LF 2 NO. 30" RCP @ 0.5%
RISER/WEIR DIAMETER = 17.88' x 8.34' PRECAST STR.
RISER WEIR CREST ELEVATION : 375
RISER WEIR LENGTH : 40
RISER TRASH RACK/ANTIVORTEX: N/A

DEWATERING DEVICE = 12" PERFORATED PVC
WITH 12" PVC BARREL AT 0.0%
DEWATERING INVERT AT 12" RISER = 372.5
INVERT FIRST PERFORATION = 372.5
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 2" C-C-C.
18 HOLES PER CIRCUMFERENTIAL ROW.
27 HOLES RUNNING VERTICALLY.
285 HOLES TOTAL.

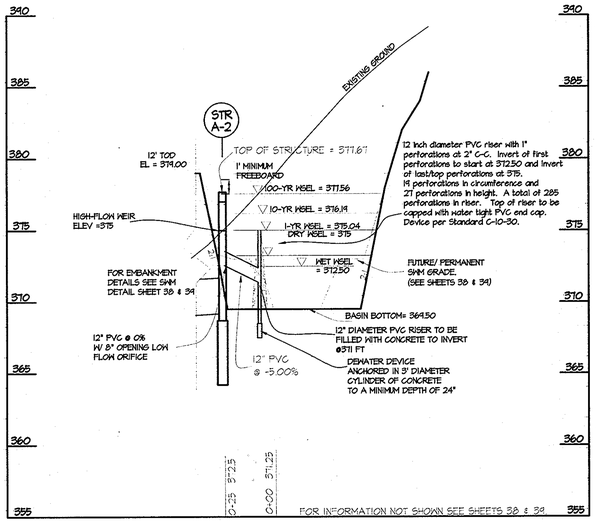
EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 370.50
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR



12" PVC TO PROTRUDE THROUGH RISER
TO ENABLE CAP TO BE SCREWED ON.

NOTE: ORIFICE CONFIGURATION DIFFERENT DURING FINAL CONDITIONS. SEE SWM DETAILS.

BASIN A ORIFICE DETAIL NTS



SEDIMENT BASIN A - PROFILE THROUGH PRINCIPLE SPILLWAY
SCALE: (H) 1" = 50'
(V) 1" = 5'

SEDIMENT BASIN B DATA TABLE

PRECAST RISER OUTLET SEDIMENT BASIN

EXISTING DRAINAGE AREA : 40.4 AC (EX-B)
INTERIM DRAINAGE AREA : 34.2 AC (INT-2B)

WET STORAGE VOL. REQUIRED : 1.41 AC-FT
WET STORAGE VOL. PROVIDED : 1.45 AC-FT
WET STORAGE ELEV : 364.00
DRY STORAGE REQUIRED: 1.41 AC-FT
DRY STORAGE PROVIDED = 4.58 AC-FT
DRY STORAGE WSEL = 369.50
EXISTING Q-1YR = 2.45 cfs
INTERIM Q-1YR = 1.39 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 78.38 cfs
10-YR WSEL = 370.76 ft.
BOTTOM ELEVATION : 362.00
TOP OF EMBANKMENT : 373.50
OUTFALL: 154 LF 36" RCP @ 1.3%
RISER/WEIR DIAMETER = 6.34' x 6.34' PRECAST STR.
RISER WEIR CREST ELEVATION : 369.50
RISER WEIR LENGTH : 20'
RISER TRASH RACK/ANTIVORTEX: N/A

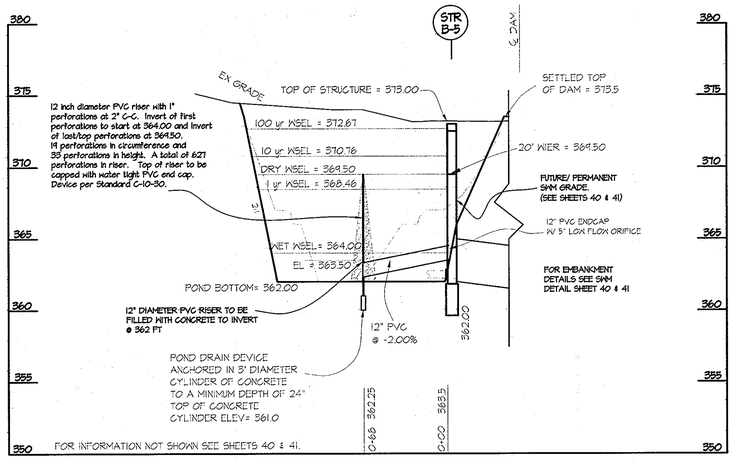
DEWATERING DEVICE = 12" PERFORATED PVC
WITH 12" PVC BARREL AT 0.0%
DEWATERING INVERT AT 12" RISER = 365.50
INVERT FIRST PERFORATION = 364.00
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 2" C-C-C.
19 HOLES PER CIRCUMFERENTIAL ROW.
33 HOLES RUNNING VERTICALLY.
627 HOLES TOTAL.

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 365.50
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR

12" PVC TO PROTRUDE THROUGH RISER
TO ENABLE CAP TO BE SCREWED ON.

NOTE: ORIFICE CONFIGURATION DIFFERENT DURING FINAL CONDITIONS. SEE SWM DETAILS.

BASIN B ORIFICE DETAIL NTS



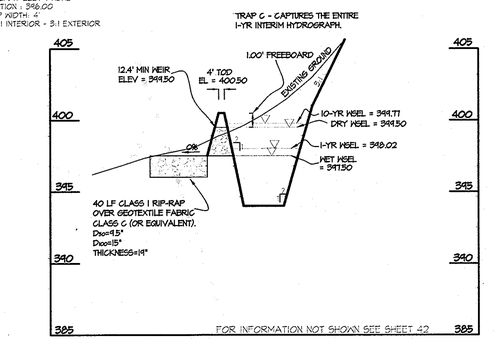
SEDIMENT BASIN B - PROFILE THROUGH PRINCIPLE SPILLWAY
SCALE: (H) 1" = 50'
(V) 1" = 5'

SEDIMENT TRAP C DATA TABLE

STONE OUTLET - TYPE ST-1V
W/ MODIFIED DRAIN DOWN DEVICE
EXISTING DRAINAGE AREA : 2.9 AC (EX-C)
INTERIM DRAINAGE AREA : 5.1 AC (INT-3C)
WET STORAGE VOL. REQUIRED : 0.13 AC-FT
WET STORAGE VOL. PROVIDED : 0.13 AC-FT
WET STORAGE ELEV : 391.50
DRY STORAGE REQUIRED: 0.13 AC-FT
DRY STORAGE PROVIDED = 0.13 AC-FT
DRY STORAGE WSEL = 399.50
EXISTING Q-1YR = 0.18 cfs
INTERIM Q-1YR = 0.00 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 7.21 cfs
10-YR WSEL = 399.71 ft.
BOTTOM ELEVATION : 394.00
TOP OF EMBANKMENT = 402.50
OUTFALL INVERT AT RISER = 397.00
RISER WEIR CREST ELEVATION : 399.50
RISER WEIR LENGTH : 12.4' min
RISER TRASH RACK/ANTIVORTEX: N/A

ENTIRE 1-YR STORM STORED WITHIN TRAP
INTERIM CONDITION HYDROGRAPH VOLUME = 0.09 AC-FT
DRY STORAGE AVAILABLE = 0.13 AC-FT
01-YR = 0.0 CFS

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 398.00
EMBANKMENT TOP WIDTH: 4'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR



SEDIMENT TRAP C - PROFILE THROUGH PRINCIPLE SPILLWAY
SCALE(H) 1" = 50'
(V) 1" = 5'

SEDIMENT BASIN D DATA TABLE

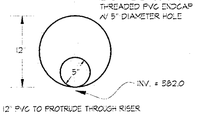
PRECAST RISER OUTLET SEDIMENT BASIN

EXISTING DRAINAGE AREA : 29.6 AC (EX-D)
INTERIM DRAINAGE AREA : 54.5 AC (INT-1D)

WET STORAGE VOL. REQUIRED : 1.42 AC-FT
WET STORAGE VOL. PROVIDED : 2.00 AC-FT
WET STORAGE ELEV : 384.00
DRY STORAGE REQUIRED: 1.42 AC-FT
DRY STORAGE PROVIDED = 2.54 AC-FT
DRY STORAGE WSEL = 386.92
EXISTING Q-1YR = 1.22 cfs
INTERIM Q-1YR = 1.08 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 111.82 cfs
10-YR WSEL = 387.94 ft.
BOTTOM ELEVATION : 381.00
TOP OF EMBANKMENT : 390.00
OUTFALL: 41 LF 42" RCP @ 0.5%
RISER/WEIR DIAMETER = 9' x 9' PRECAST STR.
RISER WEIR CREST ELEVATION : 386.92
RISER WEIR LENGTH : 32.0'
RISER TRASH RACK/ANTIVORTEX: N/A

DEWATERING DEVICE = 12" PERFORATED PVC
WITH 12" PVC BARREL AT 0.0%
DEWATERING INVERT AT 12" RISER = 382.0
INVERT FIRST PERFORATION = 384.00
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 2" C-C-C.
18 HOLES PER CIRCUMFERENTIAL ROW.
18 HOLES RUNNING VERTICALLY.
342 HOLES TOTAL.

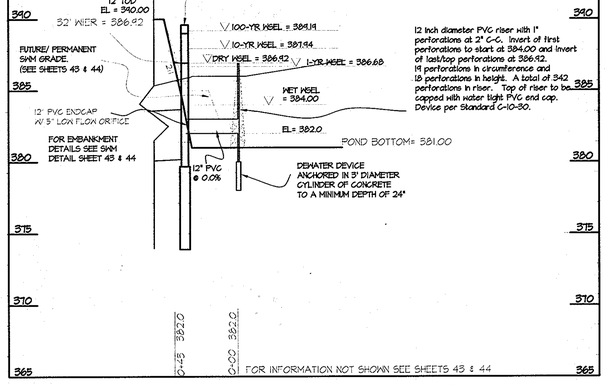
EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 383.00
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR



12" PVC TO PROTRUDE THROUGH RISER
TO ENABLE CAP TO BE SCREWED ON.

NOTE: ORIFICE CONFIGURATION DIFFERENT DURING FINAL CONDITIONS. SEE SWM DETAILS.

BASIN B ORIFICE DETAIL NTS



SEDIMENT BASIN D - PROFILE THROUGH PRINCIPLE SPILLWAY
SCALE: (H) 1" = 50'
(V) 1" = 5'

SEDIMENT BASIN E DATA TABLE

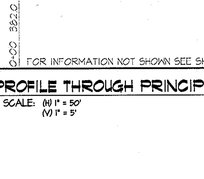
PRECAST RISER OUTLET SEDIMENT BASIN

EXISTING DRAINAGE AREA : 38.9 AC (EX-E)
INTERIM DRAINAGE AREA : 28.9 AC (INT-5E)

WET STORAGE VOL. REQUIRED : 1.19 AC-FT
WET STORAGE VOL. PROVIDED : 1.23 AC-FT
WET STORAGE ELEV : 349.00
DRY STORAGE REQUIRED: 1.19 AC-FT
DRY STORAGE PROVIDED = 1.85 AC-FT
DRY STORAGE WSEL = 349.00
EXISTING Q-1YR = 5.16 cfs (STUDY POINT 5)
INTERIM Q-1YR = 4.45 cfs (STUDY POINT 5)
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 84.01 cfs
10-YR WSEL = 344.83 ft.
BOTTOM ELEVATION : 341.00
TOP OF EMBANKMENT : 402.00
OUTFALL: 40 LF 2x 30" RCP @ 0.5%
RISER/WEIR DIAMETER = 15' x 5' PRECAST STR.
RISER WEIR CREST ELEVATION : 399.00
RISER WEIR LENGTH : 32.00'
RISER TRASH RACK/ANTIVORTEX: N/A

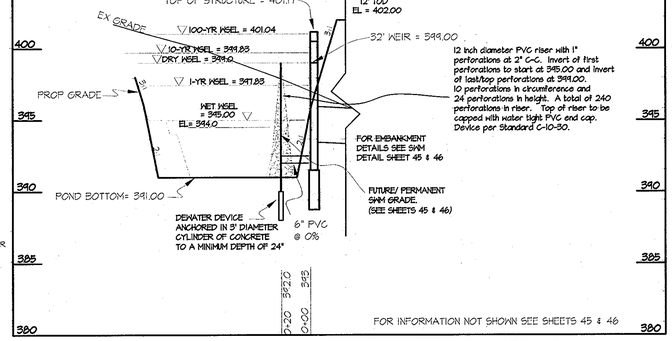
DEWATERING DEVICE = 12" PERFORATED PVC
WITH 12" PVC BARREL AT 0%
DEWATERING INVERT AT 12" RISER = 343.00
INVERT FIRST PERFORATION = 349.00
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 2" C-C-C.
10 HOLES PER CIRCUMFERENTIAL ROW.
24 HOLES RUNNING VERTICALLY.
240 HOLES TOTAL.

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 345.00
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 3:1 & 2:1 INTERIOR - 3:1 EXTERIOR



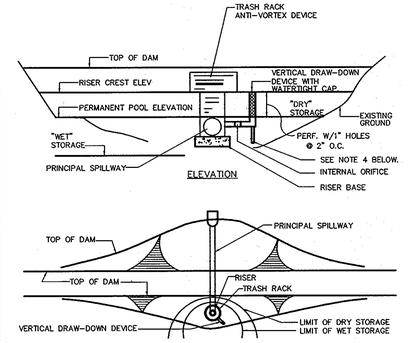
6" PVC TO PROTRUDE THROUGH RISER AT A SLOPE OF 1:1
No Cap Required. SEE SWM DETAILS FOR FINAL CONFIGURATION

BASIN E ORIFICE DETAIL NTS



SEDIMENT BASIN E - PROFILE THROUGH PRINCIPLE SPILLWAY
SCALE: (H) 1" = 50'
(V) 1" = 5'

BASIN DRAWDOWN SCHEMATIC
VERTICAL DRAW-DOWN DEVICE



CONSTRUCTION SPECIFICATIONS

1. Perforations in the draw-down device may not extend into the wet storage.
2. The total area of the perforations must be greater than 4 times the area of the internal orifice.
3. The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
4. Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 10 - 30	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/5/07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/1/07

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

HOWARD SOIL CONSERVATION DISTRICT — 2/1/07

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SIGNATURE OF DEVELOPER/BUILDER — DATE 1.25.07

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ENGINEER'S SIGNATURE — DATE 1-25-07

STATE OF MARYLAND — CHARLES E. GUTSCHICK — No. 7971 — REGISTERED PROFESSIONAL ENGINEER

THIS PLAN IS FOR SEDIMENT CONTROL PURPOSES ONLY!

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SNE-DET.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

SEDIMENT CONTROL DETAILS

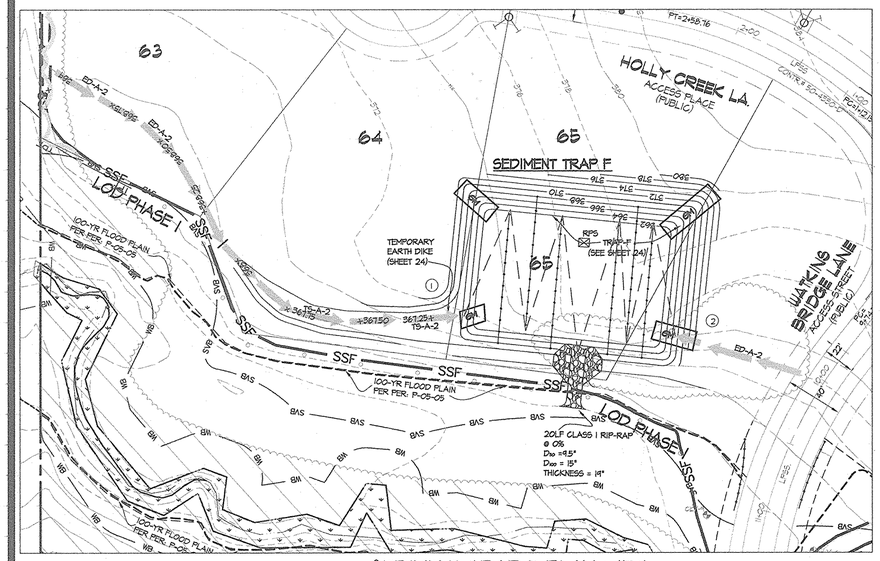
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	23 OF 78

F-06-31



SEDIMENT TRAP F PLAN VIEW

SCALE: 1" = 50'

SEDIMENT TRAP F DATA TABLE

SEDIMENT TRAP TYPE ST-IV
EXISTING DRAINAGE AREA : 6.21 AC (EX-F)
INTERIM DRAINAGE AREA : 6.21 AC (INT-F)

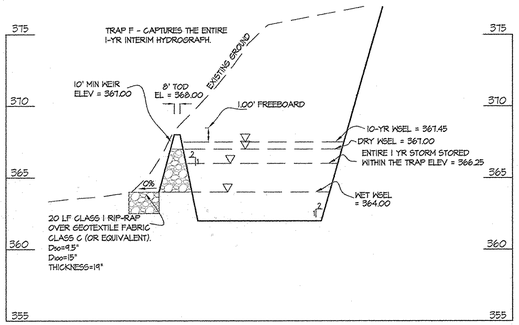
WET STORAGE VOL. REQUIRED : 0.26 AC-FT
WET STORAGE VOL. PROVIDED : 0.33 AC-FT
WET STORAGE ELEV. : 364.00
DRY STORAGE REQUIRED : 0.26 AC-FT
DRY STORAGE PROVIDED = 0.99 AC-FT
DRY STORAGE WSEL = 361.00
EXISTING Q-1YR = 0.28 cfs (STUDY POINT F)
INTERIM Q-1YR = 0.00 cfs (STUDY POINT F)
SAFE PASS OF 10-YR STORM PROVIDED
QI0 = 14.08 cfs
10-YR WSEL = 367.45ft.
BOTTOM ELEVATION : 362.00
TOP OF EMBANKMENT : 368.00
OUTFALL: 20 LF CLASS I RIP-RAP @ 0%
RISER/WIER DIAMETER = N/A
WEIR CREST ELEVATION : 367.00
WEIR LENGTH : 10.00'
RISER TRASH RACK/ANTIVORTEX: N/A

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 368.00
EMBANKMENT TOP WIDTH: 8'
SIDE SLOPES : 2:1

BAFFLE COMPUTATION

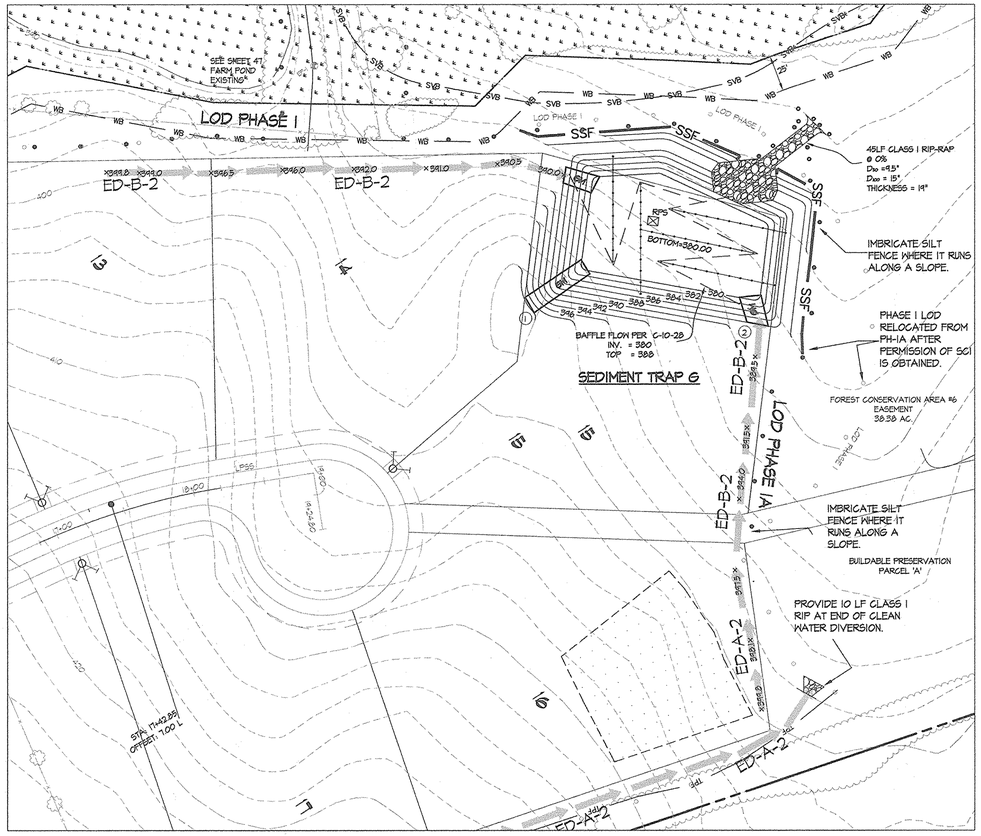
① D = 8.4 FT.
A WET POOL = 12,825 SQFT
Wo = A/D = 1.44
Lo = 2Wo = 288 FT REQUIRED
Lo = 353 FT PROVIDED

② D = 7.4 FT.
A WET POOL = 12,825 SQFT
Wo = A/D = 1.73
Lo = 2Wo = 346 FT REQUIRED
Lo = 366 FT PROVIDED



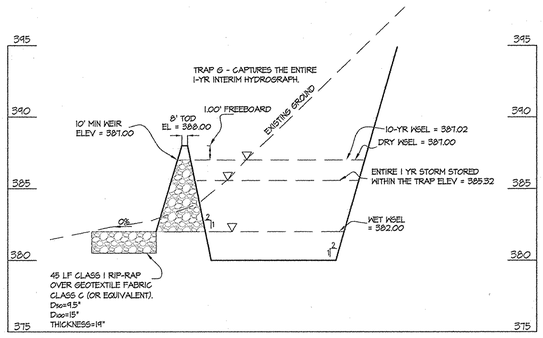
SEDIMENT TRAP F - PROFILE THROUGH PRINCIPLE SPILLWAY

SCALE(H) 1" = 50'
(V) 1" = 5'



SEDIMENT TRAP G - PLAN

SCALE: 1" = 50'



SEDIMENT TRAP G - PROFILE THROUGH PRINCIPLE SPILLWAY

SCALE(H) 1" = 50'
(V) 1" = 5'

SEDIMENT TRAP G DATA TABLE

SEDIMENT TRAP TYPE ST-IV

EXISTING DRAINAGE AREA : 5.90 AC (EX-G)
INTERIM DRAINAGE AREA : 5.20 AC (INT-G)

WET STORAGE VOL. REQUIRED : 0.21 AC-FT
WET STORAGE VOL. PROVIDED : 0.42 AC-FT
WET STORAGE ELEV : 382.00.
DRY STORAGE REQUIRED: 0.21 AC-FT
DRY STORAGE PROVIDED = 1.41 AC-FT
DRY STORAGE WSEL = 381.00
EXISTING Q-1YR = 0.26 cfs (STUDY POINT G)
INTERIM Q-1YR = 0.0 cfs (STUDY POINT G)
SAFE PASS OF 10-YR STORM PROVIDED
QI0 = 0.12 cfs
10-YR WSEL = 381.02ft.
BOTTOM ELEVATION : 380.00
TOP OF EMBANKMENT : 388.00
OUTFALL: 45 LF CLASS I RIP-RAP @ 0%
RISER/WEIR DIAMETER = N/A
WEIR CREST ELEVATION : 381.00
WEIR LENGTH : 10.00'
RISER TRASH RACK/ANTIVORTEX: N/A

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 381.00
EMBANKMENT TOP WIDTH: 8'
SIDE SLOPES : 2:1

BAFFLE COMPUTATION

① D = 11.2 FT.
A WET POOL = 10,035 SQFT
Wo = A/D = 9.0
Lo = 2Wo = 180 FT REQUIRED
Lo = 190 FT PROVIDED

② D = 8.7 FT.
A WET POOL = 10,035 SQFT
Wo = A/D = 11.5
Lo = 2Wo = 230 FT REQUIRED
Lo = 260 FT PROVIDED

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/1/07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/1/07

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

HOWARD SOIL CONSERVATION DISTRICT — 2/1/07

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SIGNATURE OF DEVELOPER/BUILDER — DATE 1-25-07

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ENGINEER'S SIGNATURE — DATE 1-25-07

STATE OF MARYLAND — KEVIN R. GUTSCHICK — No. 21431 — PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
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\Drawings\00153\Final-Road\00153-SNE-TRAP-FGH.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

TEMPORARY SEDIMENT TRAP F & G DETAILS

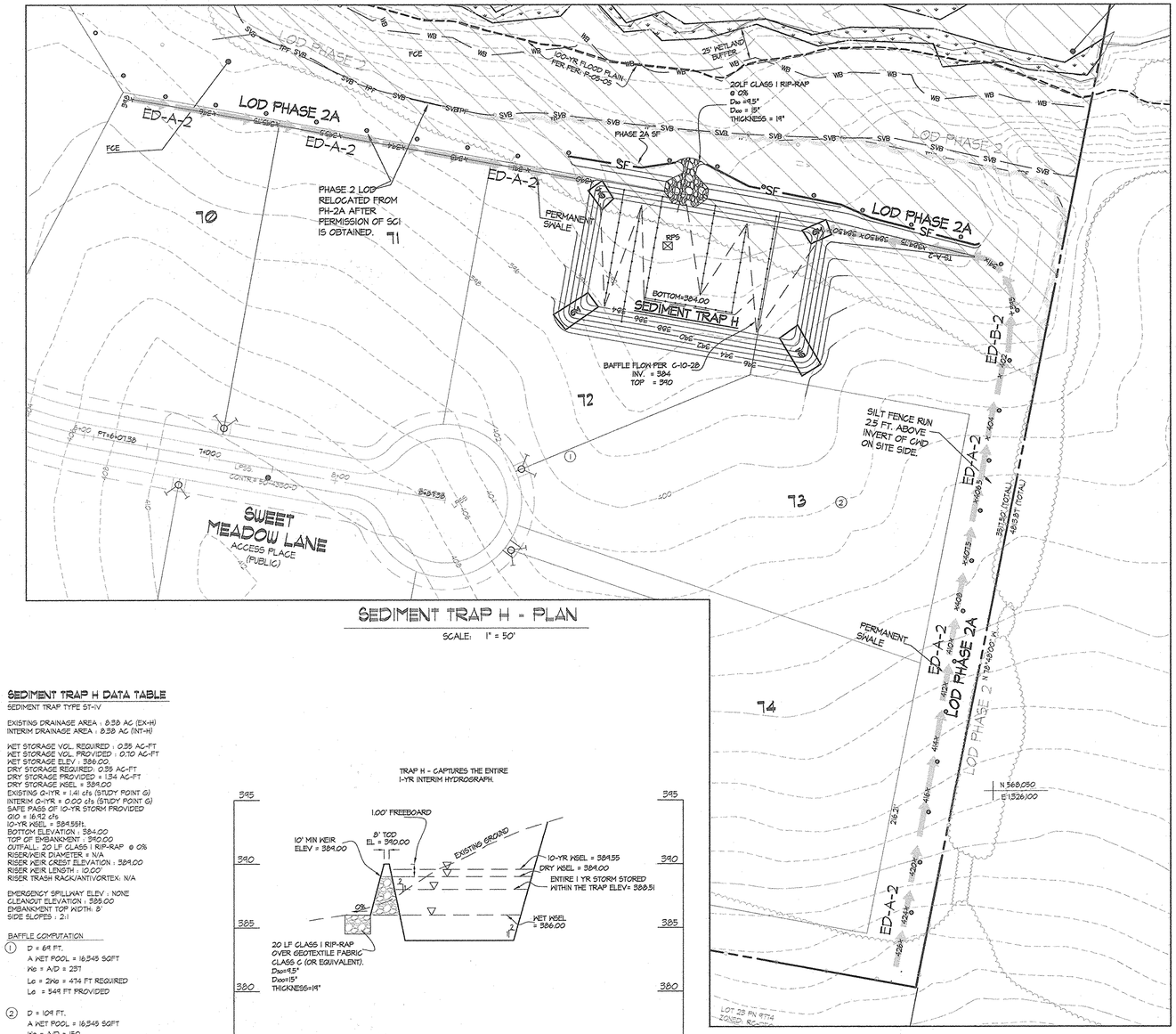
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	24 OF 78

F-06-31



SEDIMENT TRAP H - PLAN

SCALE: 1" = 50'

SEDIMENT TRAP H DATA TABLE

SEDIMENT TRAP TYPE ST-IV

EXISTING DRAINAGE AREA : 8.38 AC (EX-H)
INTERIM DRAINAGE AREA : 8.38 AC (INT-H)

WET STORAGE VOL. REQUIRED : 0.35 AC-FT
WET STORAGE VOL. PROVIDED : 0.70 AC-FT
WET STORAGE ELEV : 386.00
DRY STORAGE REQUIRED: 0.35 AC-FT
DRY STORAGE PROVIDED = 1.34 AC-FT
DRY STORAGE WSEL = 384.00
EXISTING Q-1YR = 1.41 cfs (STUDY POINT G)
INTERIM Q-1YR = 0.00 cfs (STUDY POINT G)
SAFE PASS OF 10-YR STORM PROVIDED
QIO = 16.92 cfs
10-YR WSEL = 384.55ft.
BOTTOM ELEVATION : 384.00
TOP OF EMBANKMENT : 390.00
OUTFALL: 20 LF CLASS I RIP-RAP @ 0%
RISER/WEIR DIAMETER = N/A
RISER WEIR CREST ELEVATION : 389.00
RISER WEIR LENGTH : 10.00'
RISER TRASH RACK/ANTIVORTEX: N/A

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 386.00
EMBANKMENT TOP WIDTH: 8'
SIDE SLOPES : 2:1

BAFFLE COMPUTATION

(1) D = 64 FT.
A WET POOL = 16,345 SQFT
Ko = A/D = 257
Lo = 2Ko = 474 FT REQUIRED
Lo = 549 FT PROVIDED

(2) D = 104 FT.
A WET POOL = 16,345 SQFT
Ko = A/D = 150
Lo = 2Ko = 300 FT REQUIRED
Lo = 355 FT PROVIDED

TRAP H - CAPTURES THE ENTIRE 1-YR INTERIM HYDROGRAPH.

SEDIMENT TRAP H - PROFILE THROUGH PRINCIPLE SPILLWAY

SCALE(H) 1" = 50'
(V) 1" = 5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

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ENGINEER'S SIGNATURE — DATE 1-25-07

STATE OF MARYLAND — ROBERT B. GUTSCHICK — 12907 — REGISTERED PROFESSIONAL ENGINEER

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\Drawings\00153\Final-Road\00153-SNE-TRAP-FGH.dwg | DES. BJM | DRN. klP | CHK. MJT

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WALNUT GROVE

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NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND
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ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
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JAN./2007	PARCEL 74 28 – 18,17	25 OF 78

F-06-31

MGWC 1.5: Sandbag/Stone Channel Diversion

Temporary measure for dewatering in-channel construction sites

Description

The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel.

Effective Uses & Limitations

Diversions are used to isolate work areas from flow during the construction of in-stream projects. Diversions which have an insufficient flow capacity can fail and severely erode the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low rainfall. This temporary measure may not be practical in large channels.

Material Specifications

Materials for sandbag and stone stream diversions should meet the following requirements:

- *Riprap*: Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).
- *Sandbags*: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.).
- *Sheeting*: Sheeting should consist of polyethylene or other materials which are impervious and resistant to puncture and tearing.

Installation Guidelines

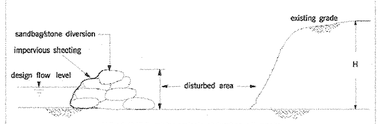
All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Sandbag/stone diversions can be used independently or as components of other stream diversion techniques. Installation of this measure should proceed as follows (refer to Detail 1.5):

1. The diversion structure should be installed from upstream to downstream.
2. The height of the sandbag/stone diversion should be a function of the duration of the project in the stream reach. For projects with a duration less than 2 weeks, the height of the diversion should be one half the streambank height, measured from the channel bed, plus 1 foot (0.3 meters) or bankfull height, whichever is greater. For projects of longer duration, the top of the sandbag or stone diversion should correspond to bankfull height. For diversion structures utilizing sandbags, the stream bed should be hand prepared prior to placement of the base layer of sandbags in order to ensure a water tight fit. Additionally, it may be necessary to prepare the bank in a similar fashion.
3. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
4. Sediment-laden water from the construction area should be pumped to a dewatering basin.

Maryland's Guidelines To Waterway Construction

DETAIL 1.5: SANDBAG/STONE DIVERSION



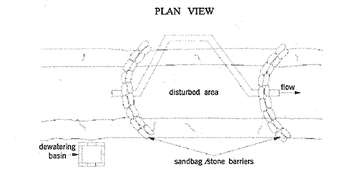
Temporary Instream Construction Measures	*Revised November 2000* *Page 1.5 - 2*	Maryland Department of the Environment Water Management Administration

MGWC 1.5: Sandbag/Stone Channel Diversion

5. Sheeting on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.
6. Sandbag or stone diversions should not obstruct more than 45% of the stream width. Additionally, bank stabilization measures should be placed in the constricted section if accelerated erosion and bank scour are observed during the construction time or if project time is expected to last more than 2 weeks.
7. Prior to removal of these temporary structures, any accumulated sediment should be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.
8. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

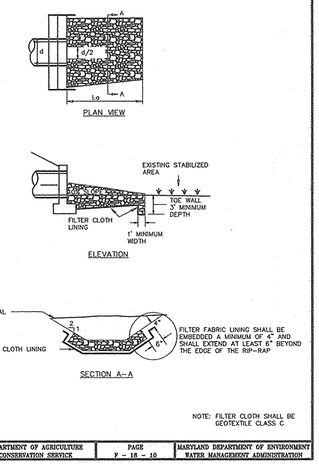
Maryland's Guidelines To Waterway Construction

DETAIL 1.4: DIVERSION PIPE



Temporary Instream Construction Measures	*Revised November 2000* *Page 1.4 - 2*	Maryland Department of the Environment Water Management Administration

DETAIL 27 – ROCK OUTLET PROTECTION III



NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

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ROCK OUTLET PROTECTION III

Construction Specifications

1. 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.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip–rap or filter.
3. Geotextile shall be protected from punching, cutting,or tearing. ny damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
4. Stone for the rip–rap or gabion outlets may be placed by equipment. They shall 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 ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip–rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

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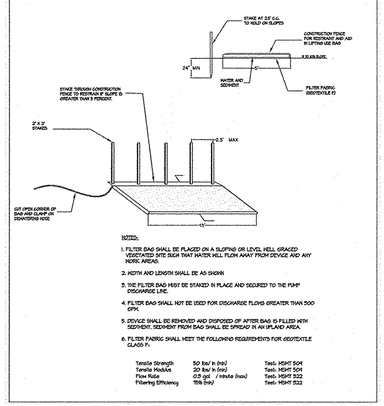
FILTER BAG
Temporary Erosion Control Measure



NOTES:

1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL HILL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
2. WIDTH AND LENGTH SHALL BE AS SHOWN
3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 500 GPM.
5. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.
6. FILTER FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

Tensile Strength	50 lbs/ in (min)	Test: MSMT 509
Tensile Modulus	20 lbs/ in (min)	Test: MSMT 509
Flow Rate	0.3 gal / minute (max)	Test: MSMT 322
Filtering Efficiency	75% (min)	Test: MSMT 322

MGWC 1.4: Diversion Pipe

Temporary measure for dewatering in-channel construction sites

Description

The work should consist of installing flow diversion pipes in combination with sandbag or stone diversions when construction activities occur within the stream channel.

Effective Uses & Limitations

Diversion pipes with an insufficient flow capacity can cause the channel diversion to fail thereby resulting in severe erosion of the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low flow.

Material Specifications

Materials for stream diversions should meet the following requirements:

- *Riprap*: Stone should be washed and have a minimum diameter of 6 inches (15 centimeters).
- *Sandbags*: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
- *Sheeting*: Sheeting should consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

Installation Guidelines

All erosion and sediment control devices including mandatory dewatering basins should be installed as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during low flow conditions. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Diversion pipes with sandbag or stone barriers should be completed as follows (refer to Detail 1.4):

1. Sandbag/stone barriers should be sized and installed as detailed in MGWC 1.5: Sandbag/Stone Diversion. The materials should be sized to withstand baseflow velocities.
2. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
3. Sediment-laden water from the construction area should be pumped to a dewatering basin.
4. The diversion pipe should have a minimum capacity sufficient to convey the 2-year flow for projects with a duration of two weeks or greater. For projects of shorter duration, the capacity of the pipe can be reduced accordingly.
5. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.
6. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1-25-07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/2/07

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

USDA - NATURAL RESOURCE CONSERVATION SERVICE — 2/1/07

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

HOWARD SOIL CONSERVATION DISTRICT — 2/1/07

THIS PLAN IS FOR SEDIMENT CONTROL PURPOSES ONLY!

GLW Gutschick Little & Weber, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

\Drawings\00153\Final-Road\00153SNE-DET.dwg | DES. BJM | DRN. BJM | CHK. DDS

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

SEDIMENT CONTROL DETAILS

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	26 OF 78

F-06-31

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREA NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING (UNLESS PREVIOUSLY LOOSENED).

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES

1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQUARE FEET) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT).

2) ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING (UNLESS PREVIOUSLY LOOSENED).

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ.FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED, WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION. (410) 313-1855.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES AND PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. I, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS, SOD, TEMPORARY SEEDING AND MULCHING (SEC. G). TEMPORARY STABILIZATION, WITH MULCH ALONE, CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:

TOTAL AREA OF SITE	:	202.44 ACRES±
AREA DISTURBED	:	124.53 ACRES±
AREA TO BE ROOFED OR PAVED	:	14.0 ACRES±
AREA TO BE VEGETATIVELY STABILIZED	:	110.53 ACRES±
TOTAL CUT	:	30,000 Cu. Yds.
TOTAL FILL	:	30,000 Cu. Yds.
WASTE BORROW AREA	:	N/A

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY DPW SEDIMENT CONTROL INSPECTOR.

10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO 3 PIPE LENGTHS OR THAT WHICH SHALL BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

CONSTRUCTION AND MATERIAL & TOPSOIL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE RESPECTIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

A. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY A AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

B. TOPSOIL MUST BE FREE OF PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

C. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE IF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

A. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS (OR SEE SEEDING NOTES).

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

A. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER & LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

1. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
2. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
3. TOPSOIL HAVING SOLUBLE SALT GREATER THAN 500 PARTS PER MILL SHALL NOT BE USED.
4. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHOTO-TOXIC MATERIALS.

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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. ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 1·25·07
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 1-25-07
ENGINEER'S SIGNATURE — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-5-07
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 2/8/07
Chief, Division of Land Development — Date

[signature] 2/2/07
Chief, Development Engineering Division — Date

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

[signature] 2/1/07
USDA - NATURAL RESOURCES CONSERVATION SERVICE

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

[signature] 2/1/07
HOWARD SOIL CONSERVATION DISTRICT

DETAIL 10A
STONE / RIP-RAP OUTLET SEDIMENT TRAP-ST IV

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STONE / RIP-RAP OUTLET SEDIMENT TRAP - ST IV

Construction Specifications

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.

2. The fill material for the embankment shall be free of roots or 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. Maximum height of embankment shall be 4', measured at centerline of embankment.

3. All cut and fill slopes shall be 2:1 or flatter.

4. Elevation of the top of any dike directing water into trap must equal or exceed the height of trap embankment.

5. Storage area provided shall be figured by computing the volume measured from top of excavation. (For storage requirements see Table 9).

6. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6" into existing ground at entrance of outlet channel.

7. 4" – 7" stone shall be used to construct the weir and 4" – 12" or Class I rip-rap shall be used to construct the outlet channel.

8. Outlet – An outlet shall include a means of conveying the discharge in an erosion free manner to an existing stable channel. Protection against scour at the discharge point shall be provided as necessary.

9. Outlet channel must have positive drainage from the trap.

10. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 of the wet storage depth of the trap (900 cf/ac). Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

11. The structure shall be inspected periodically after each rain and repaired as needed.

12. 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 concentrated 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.

13. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

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DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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DETAIL 18 - SEDIMENT BASIN BAFFLES

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DETAIL 22 - SILT FENCE

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft² / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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DETAIL 33 - SUPER SILT FENCE

Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft² /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

DETAIL 5 - RIP-RAP INFLOW PROTECTION

Construction Specifications

1. 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". (SHA Class I or recycled concrete equivalent).

2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.

3. Entrance and exit sections shall be installed as shown on the detail section.

4. 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.

5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.

6. Rip-rap should blend into existing ground.

7. 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 6 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 6 - GABION INFLOW PROTECTION

Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.

2. Geotextile Class C shall be installed under all gabion baskets.

3. The stone used to fill the gabion baskets shall be 4" – 7".

4. Gabions shall be installed in accordance with manufacturers recommendations.

5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 7 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 36 - TEMPORARY ACCESS CULVERT

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 29 - 12	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TEMPORARY ACCESS CULVERT

Construction Specifications

1. Restrictions – No Construction or removal of a temporary access culvert will be permitted between October 1 through April 30 for Class III and Class IV Trout Waters or between March 1 through June 15 for non-trout waterways.

2. Culvert Strength – All culverts shall be strong enough to support their cross sectional area under maximum expected loads.

3. Culvert Size – The size of the culvert pipe shall be the largest pipe diameter that will fit into the existing channel without major excavation of the waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe. In all cases, the pipe(s) shall be large enough to convey normal stream flows.

4. Culvert Length – The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe to the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.

5. Filter Cloth – Filter cloth shall be placed on the stream bed and stream banks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the stream bed and extend a minimum six inches and a maximum one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.

6. Culvert Placement – The invert elevation of the culvert shall be installed on the natural stream bed grade to minimize interference with fish migration (free passage of fish).

7. Culvert Protection – The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used they shall be separated by at least 12" of compacted aggregate fill.

8. Stabilization – All areas disturbed during culvert installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 29 - 12A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DEPTH AND WIDTHS ARE LISTED IN THE SWALE SUMMARY TABLES SHEETS 12-20.

STANDARD SWALE A DETAIL NOT TO SCALE

STANDARD SWALE B DETAIL NOT TO SCALE

DEPTH AND WIDTHS ARE LISTED IN THE SWALE SUMMARY TABLES SHEETS 12-20.

STANDARD SWALE C DETAIL NOT TO SCALE

STANDARD SWALE D DETAIL NOT TO SCALE

THIS PLAN IS FOR SEDIMENT CONTROL PURPOSES ONLY!

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SNE-DET.dwg	DES. BJM	DRN. BJM	CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

SEDIMENT CONTROL DETAILS
WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"
L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	27 OF 78

F-06-31

S.D. Pipe Summary Table
PRIVATELY OWNED AND MAINTAINED

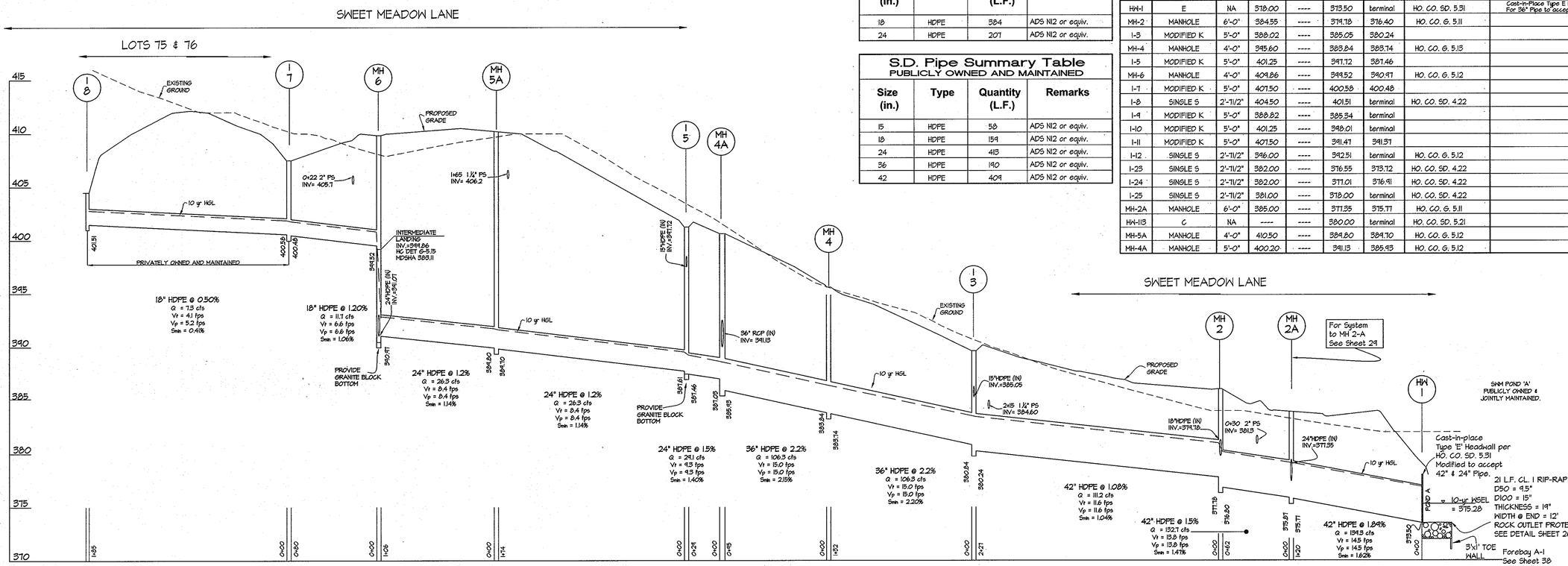
Size (in.)	Type	Quantity (L.F.)	Remarks
18	HDPE	384	ADS N12 or equiv.
24	HDPE	207	ADS N12 or equiv.

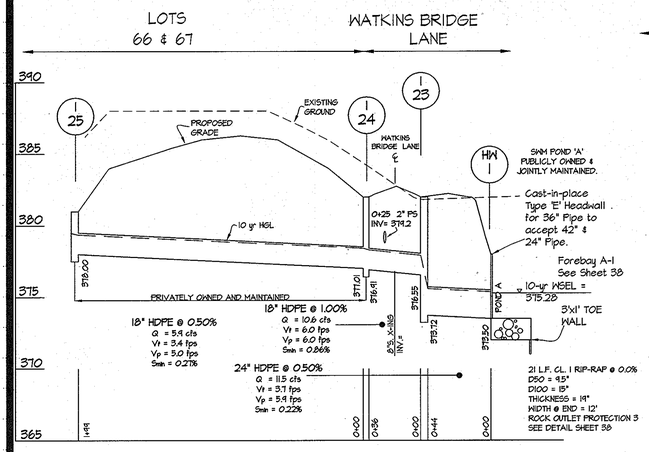
S.D. Pipe Summary Table
PUBLICLY OWNED AND MAINTAINED

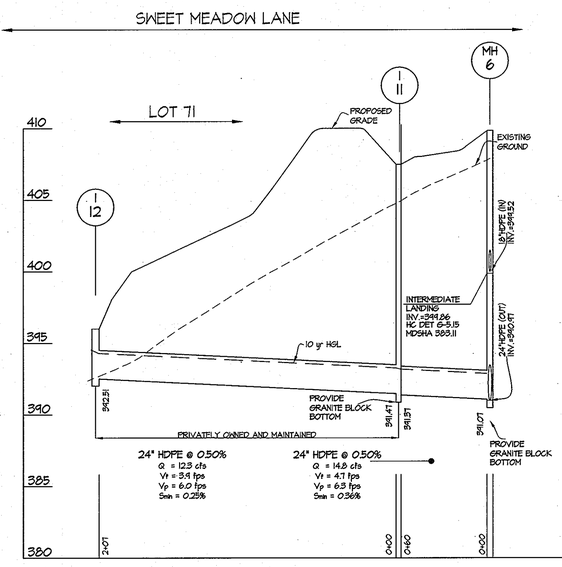
Size (in.)	Type	Quantity (L.F.)	Remarks
15	HDPE	58	ADS N12 or equiv.
18	HDPE	159	ADS N12 or equiv.
24	HDPE	413	ADS N12 or equiv.
36	HDPE	190	ADS N12 or equiv.
42	HDPE	409	ADS N12 or equiv.

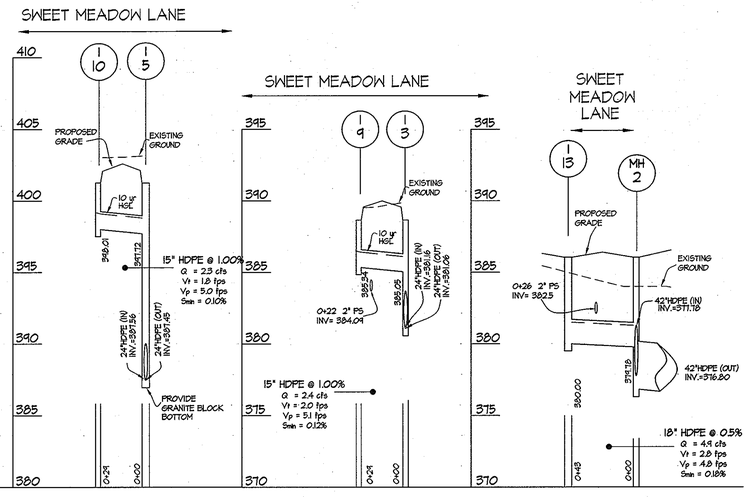
S.D. STRUCTURE SCHEDULE

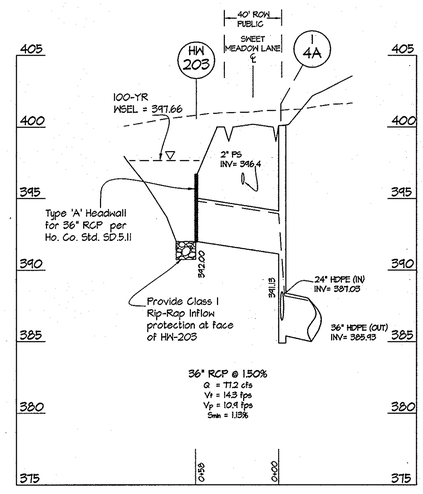
NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL	NOTES	OWNERSHIP & MAINTENANCE
HW-1	E	NA	378.00	----	373.50	terminal	HO. CO. SD. 5.31	Cast-in-Place Type 'E' HW For 36" Pipe to accept 36" & 24" Pipes.	PUBLIC
MH-2	MANHOLE	6'-0"	384.55	----	379.78	376.40	HO. CO. G. 5.11		PUBLIC
I-3	MODIFIED K	5'-0"	388.02	----	385.05	380.24			PUBLIC
MH-4	MANHOLE	4'-0"	395.60	----	388.84	388.74	HO. CO. G. 5.13		PUBLIC
I-5	MODIFIED K	5'-0"	401.25	----	391.72	387.46			PUBLIC
MH-6	MANHOLE	4'-0"	409.86	----	399.52	390.97	HO. CO. G. 5.12		PUBLIC
I-7	MODIFIED K	5'-0"	407.50	----	400.58	400.48			PUBLIC
I-8	SINGLE S	2'-11/2"	404.50	----	401.51	terminal	HO. CO. SD. 4.22		PRIVATE
I-9	MODIFIED K	5'-0"	388.82	----	385.34	terminal			PUBLIC
I-10	MODIFIED K	5'-0"	401.25	----	398.01	terminal			PUBLIC
I-11	MODIFIED K	5'-0"	407.50	----	391.47	391.37			PUBLIC
I-12	SINGLE S	2'-11/2"	396.00	----	392.51	terminal	HO. CO. G. 5.12		PRIVATE
I-23	SINGLE S	2'-11/2"	382.00	----	376.55	373.12	HO. CO. SD. 4.22		PUBLIC
I-24	SINGLE S	2'-11/2"	382.00	----	377.01	376.91	HO. CO. SD. 4.22		PUBLIC
I-25	SINGLE S	2'-11/2"	381.00	----	378.00	terminal	HO. CO. SD. 4.22		PRIVATE
MH-2A	MANHOLE	6'-0"	385.00	----	377.35	375.77	HO. CO. G. 5.11		PUBLIC
HW-113	C	NA	----	----	380.00	terminal	HO. CO. SD. 5.21		PUBLIC
MH-5A	MANHOLE	4'-0"	410.50	----	389.80	389.70	HO. CO. G. 5.12		PUBLIC
MH-4A	MANHOLE	5'-0"	400.20	----	391.13	385.93	HO. CO. G. 5.12		PUBLIC











PROFILES
SCALES: 1" = 5' VERT.
1" = 50' HORZ.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 2/8/07
Chief, Development Engineering Division — Date 2/7/07

STATE OF MARYLAND — JOHN E. GUTSCHICK — No. 7911 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153SD-PROF.dwg | DES. BJM | DRN. BJM | CHK. DDS

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STORM DRAIN PROFILES

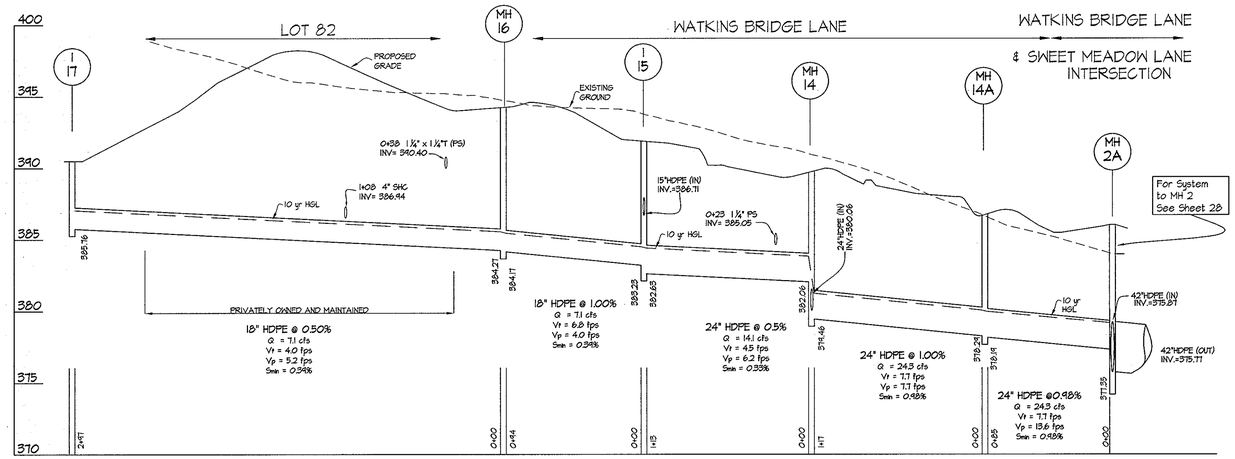
WALNUT GROVE

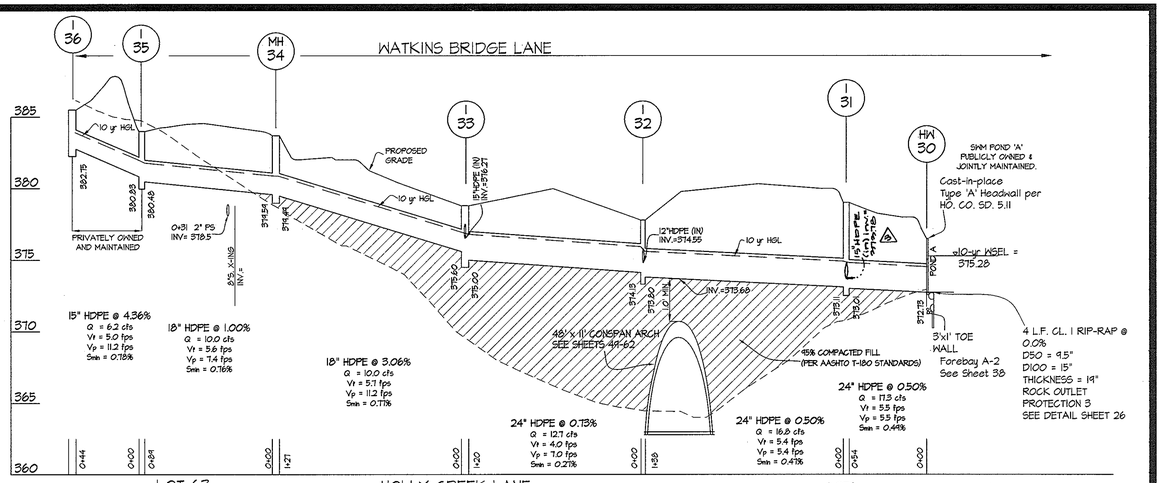
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

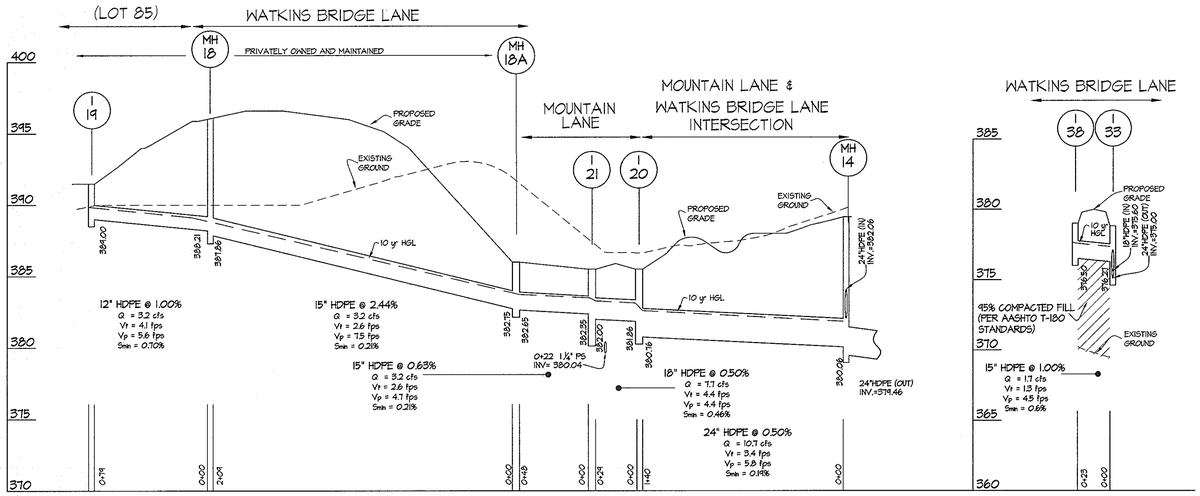
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

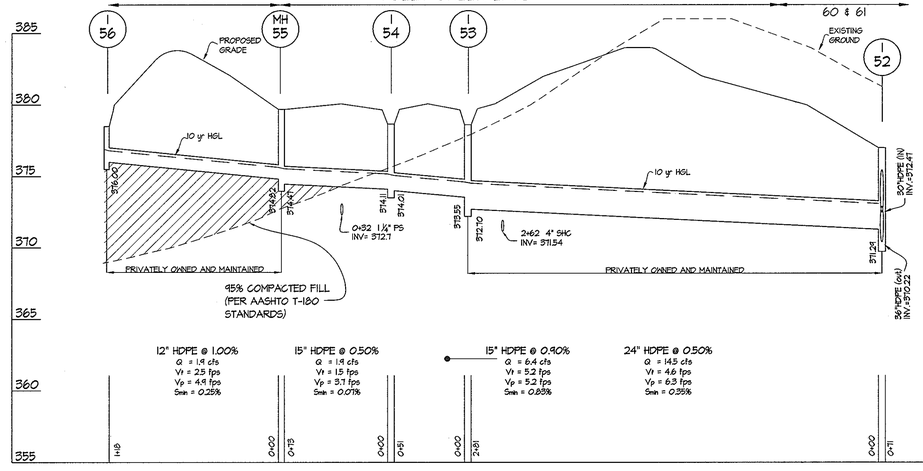
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	28 OF 78

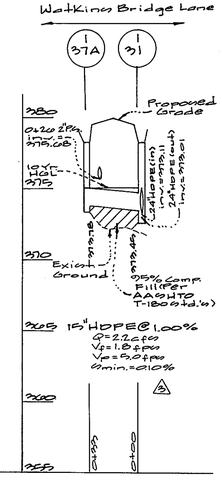
F-06-31

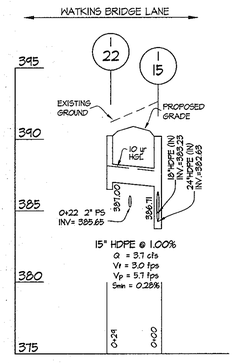


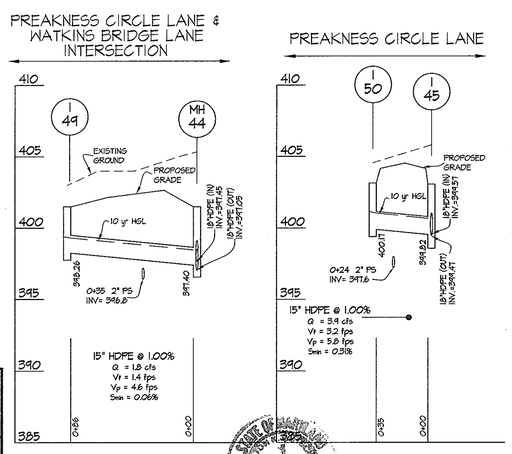


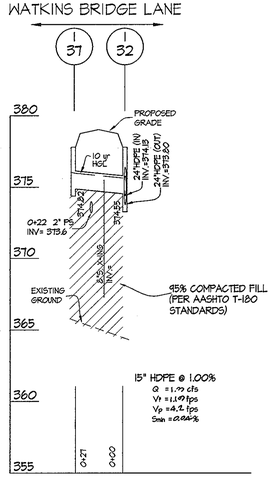












S.D. Pipe Summary Table
PRIVATELY OWNED AND MAINTAINED

Size (in.)	Type	Quantity (L.F.)	Remarks
12	HDPE	197	ADS N12 or equiv.
15	HDPE	208	ADS N12 or equiv.
18	HDPE	297	ADS N12 or equiv.
24	HDPE	281	ADS N12 or equiv.

S.D. Pipe Summary Table
PUBLICLY OWNED AND MAINTAINED

Size (in.)	Type	Quantity (L.F.)	Remarks
15	HDPE	444 ⚠	ADS N12 or equiv.
18	HDPE	334	ADS N12 or equiv.
24	HDPE	767	ADS N12 or equiv.

PROFILES
SCALES: 1" = 5' VERT.
1" = 50' HORZ.

S.D. STRUCTURE SCHEDULE

NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL	NOTES	OWNERSHIP & MAINTENANCE
I-13	MODIFIED K	5'-0"	384.55	----	380.00	terminal			PUBLIC
MH-14	MANHOLE	4'-0"	384.20	----	382.06	379.46	HO. CO. G. 5.12		PUBLIC
I-15	MODIFIED K	5'-0"	390.20	----	386.71	382.65			PUBLIC
MH-16	MANHOLE	4'-0"	393.90	----	384.27	384.17	HO. CO. G. 5.12		PUBLIC
I-17	SINGLE S	2'-11½"	390.50	----	386.76	terminal	HO. CO. STD. 4.22		PRIVATE
MH-18	MANHOLE	4'-0"	395.84	----	389.21	387.86			PRIVATE
I-19	YARD	2'-0"	391.50	----	389.00	terminal	HO. CO. STD. 4.14		PRIVATE
I-20	MODIFIED K	5'-0"	384.64	----	381.86	380.76			PUBLIC
I-21	MODIFIED K	5'-0"	384.64	----	382.35	385.00			PUBLIC
I-22	MODIFIED K	5'-0"	390.20	----	387.00	terminal			PUBLIC
I-31 ⚠	MODIFIED K	4'-0"	379.02	----	373.45	373.01	HO. CO. G. 5.12		PUBLIC
I-32	MODIFIED K	5'-0"	377.80	----	374.13	373.80			PUBLIC
I-33	MODIFIED K	5'-0"	378.82	----	375.60	375.00			PUBLIC
MH-34	MANHOLE	4'-0"	383.49	----	374.54	374.44	HO. CO. G. 5.12		PUBLIC
I-35	MODIFIED K	5'-0"	385.60	----	380.83	380.48			PUBLIC
I-36	SINGLE S	2'-11½"	385.50	----	382.75	terminal	HO. CO. STD. 4.22		PRIVATE
I-37	MODIFIED K	5'-0"	377.80	----	374.82	terminal			PUBLIC
I-38	YARD	2'-0"	379.50	----	376.50	terminal	HO. CO. STD. 4.14		PRIVATE
I-52	MODIFIED K	5'-0"	377.00	----	372.47	370.22			PUBLIC
I-53	MODIFIED K	5'-0"	377.40	----	373.55	372.70			PUBLIC
I-54	MODIFIED K	5'-0"	377.40	----	374.11	374.01			PUBLIC
MH-55	MANHOLE	4'-0"	378.39	----	374.82	374.47	HO. CO. G. 5.12		PUBLIC
I-56	YARD	2'-0"	379.00	----	376.00	terminal	HO. CO. STD. 4.14		PRIVATE
MH-44	MANHOLE	4'-0"	402.50	----	397.45	397.05	HO. CO. G. 5.12		PUBLIC
I-45	MODIFIED K	5'-0"	403.02	----	399.51	399.41			PUBLIC
I-49	MODIFIED K	5'-0"	401.53	----	398.26	terminal			PUBLIC
I-50	MODIFIED K	5'-0"	403.02	----	400.17	terminal			PUBLIC
HW-30	A	NA	373.50	----	372.73	terminal	HO. CO. STD. 5.11		PUBLIC
MH-18A	MANHOLE	4'-0"	385.90	----	382.75	382.65	HO. CO. STD. 5.12		PUBLIC
MH-14A	MANHOLE	4'-0"	386.00	----	378.29	378.19	HO. CO. STD. 5.12		PUBLIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 2/8/07
Chief, Development Engineering Division — Date 2/5/07

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\Drawings\00153\Final-Road\00153SD-PROF.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.
9-3-08	Inlet I-37A added ⚠	WEJ	

PREPARED FOR
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LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	29 OF 78

F-06-31

S.D. Pipe Summary Table
PRIVATELY OWNED AND MAINTAINED

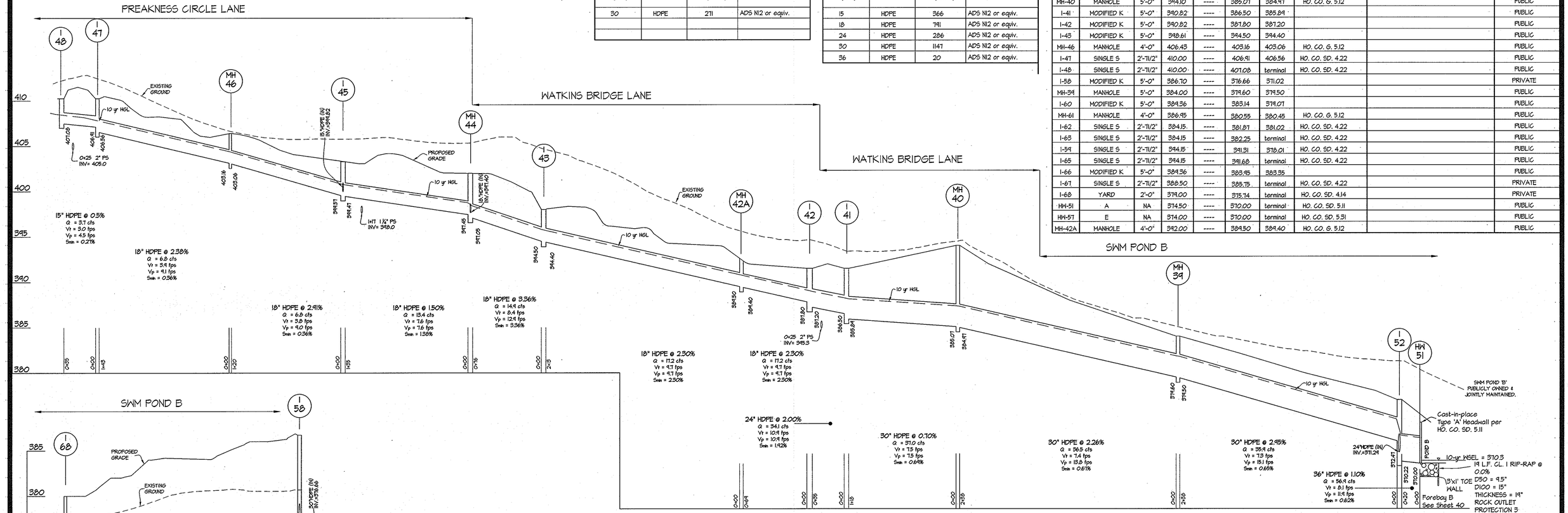
Size (in.)	Type	Quantity (L.F.)	Remarks
30	HDPE	271	ADS N12 or equiv.

S.D. Pipe Summary Table
PUBLICLY OWNED AND MAINTAINED

Size (in.)	Type	Quantity (L.F.)	Remarks
15	HDPE	366	ADS N12 or equiv.
18	HDPE	791	ADS N12 or equiv.
24	HDPE	286	ADS N12 or equiv.
30	HDPE	1147	ADS N12 or equiv.
36	HDPE	20	ADS N12 or equiv.

S.D. STRUCTURE SCHEDULE

NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL	NOTES	OWNERSHIP & MAINTENANCE
MH-40	MANHOLE	5'-0"	394.10	----	385.07	384.97	HO. CO. G. 5.12		PUBLIC
I-41	MODIFIED K	5'-0"	390.82	----	386.50	385.89			PUBLIC
I-42	MODIFIED K	5'-0"	390.82	----	387.80	387.20			PUBLIC
I-43	MODIFIED K	5'-0"	398.61	----	394.50	394.40			PUBLIC
MH-46	MANHOLE	4'-0"	406.43	----	403.16	403.06	HO. CO. G. 5.12		PUBLIC
I-47	SINGLE S	2'-11/2"	410.00	----	406.91	406.56	HO. CO. SD. 4.22		PUBLIC
I-48	SINGLE S	2'-11/2"	410.00	----	407.08	terminal	HO. CO. SD. 4.22		PUBLIC
I-58	MODIFIED K	5'-0"	386.70	----	376.66	371.02			PRIVATE
MH-39	MANHOLE	5'-0"	384.00	----	379.60	379.50			PUBLIC
I-60	MODIFIED K	5'-0"	384.36	----	383.14	379.07			PUBLIC
MH-61	MANHOLE	4'-0"	386.95	----	380.55	380.45	HO. CO. G. 5.12		PUBLIC
I-62	SINGLE S	2'-11/2"	384.15	----	381.87	381.02	HO. CO. SD. 4.22		PUBLIC
I-63	SINGLE S	2'-11/2"	384.15	----	382.25	terminal	HO. CO. SD. 4.22		PUBLIC
I-59	SINGLE S	2'-11/2"	384.15	----	341.31	378.01	HO. CO. SD. 4.22		PUBLIC
I-65	SINGLE S	2'-11/2"	344.15	----	341.68	terminal	HO. CO. SD. 4.22		PUBLIC
I-66	MODIFIED K	5'-0"	384.36	----	383.45	383.35			PUBLIC
I-67	SINGLE S	2'-11/2"	388.50	----	388.75	terminal	HO. CO. SD. 4.22		PRIVATE
I-68	YARD	2'-0"	379.00	----	375.74	terminal	HO. CO. SD. 4.14		PRIVATE
HW-51	A	NA	374.50	----	370.00	terminal	HO. CO. SD. 5.11		PUBLIC
HW-57	E	NA	374.00	----	370.00	terminal	HO. CO. SD. 5.31		PUBLIC
MH-42A	MANHOLE	4'-0"	392.00	----	384.50	384.40	HO. CO. G. 5.12		PUBLIC



PROFILES
SCALES: 1" = 5' VERT.
1" = 50' HORZ.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 2/5/07
Chief, Development Engineering Division — Date 2/1/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SD-PROF.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORM DRAIN PROFILES

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	30 OF 78

F-06-31

S.D. Pipe Summary Table PUBLICLY OWNED AND MAINTAINED			
Size (in.)	**Type**	**Quantity (L.F.)**	**Remarks**
15	HDPE	115	ADS N12 or equiv.
18	HDPE	349	ADS N12 or equiv.
24	HDPE	233	ADS N12 or equiv.
36	HDPE	364	ADS N12 or equiv.
36	HDPE	442	ADS N12 or equiv.

S.D. Pipe Summary Table PRIVATELY OWNED AND MAINTAINED			
Size (in.)	**Type**	**Quantity (L.F.)**	**Remarks**
12	HDPE	24	ADS N12 or equiv.
15	HDPE	80	ADS N12 or equiv.
24	HDPE	166	ADS N12 or equiv.
36	HDPE	279	ADS N12 or equiv.

S.D. STRUCTURE SCHEDULE

NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL	NOTES	Ownership & Maintenance
I-71	MODIFIED K	5'-0"	402.25	----	395.59	395.49			Private
MH-72	MANHOLE	5'-0"	414.97	----	407.72	402.46	HO. CO. G. 5.13		Public
I-73	MODIFIED K	5'-0"	415.95	----	408.13	408.03			↓
I-74	MODIFIED K	5'-0"	415.96	----	408.40	408.30			↓
HW-75	C	NA	---	----	410.00	terminal	HO. CO. SD. 5.21	TYPE 'C' ENDWALL FOR CIRCULAR PIPE	Private
I-76	MODIFIED K	5'-0"	400.65	----	395.65	395.54			Public
MH-77	MANHOLE	5'-0"	406.25	----	397.64	397.02	HO. CO. G. 5.13		Private
I-78	SINGLE S	2'-71/2"	403.00	----	399.14	399.04	HO. CO. SD. 4.22		Private
I-79	SINGLE S	2'-71/2"	410.50	----	400.84	400.74	HO. CO. SD. 4.22		Public
I-80	SINGLE S	2'-71/2"	410.55	----	401.79	401.19	HO. CO. SD. 4.22		↓
I-81	SINGLE S	2'-71/2"	407.49	----	403.24	402.89	HO. CO. SD. 4.22		↓
I-82	SINGLE S	2'-71/2"	410.50	----	405.75	terminal	HO. CO. SD. 4.22		Private
HW-119	C	NA	398.50	----	395.00	terminal	HO. CO. SD. 5.21		↓
STR-120	PRECAST BOX	5'-0"	406.50	----	400.93	395.43	CUSTOM	10' x 5' PRECAST SPLITTER STRUCTURE BOX WITH INTERNAL WEIR - SEE DETAILS SHEET 40	↓
MH-121	MANHOLE	4'-0"	407.31	----	401.59	401.24	HO. CO. G. 5.13		Public
I-122	SINGLE S	2'-71/2"	406.00	----	402.51	402.41	HO. CO. SD. 4.22		↓
I-123	SINGLE S	2'-71/2"	406.00	----	403.25	terminal	HO. CO. SD. 4.22		↓
ES-124	TYPE 'I' END SECTION	NA	----	----	398.00	terminal	HO. CO. SD. 5.62		Private
HW-203	A	NA	----	----	392.00	terminal	HO. CO. SD. 5.11		Public
HW-70	A	NA	----	----	395.00	terminal	HO. CO. SD. 5.11		↓
HW-70A	E	NA	----	----	395.00	terminal	HO. CO. SD. 5.31		↓
I-300	MODIFIED K	5'-0"	411.65	----	406.65	terminal			↓
I-301	MODIFIED K	5'-0"	411.65	----	406.37	406.02			↓

PROFILES
SCALES: 1" = 5' VERT.
1" = 50' HORZ.

MODIFIED 'K' INLET TOP TO BE PER MDSHA STD. NO. 378.05 & 378.11. MANHOLE BASE PER MDSHA STD. NO. 384.05. NO CONICAL SECTION IS TO BE PROVIDED. MINIMUM INTERIOR TOP DIAMETER AT TOP SECTION IS 4.0 FT. DIAMETER REQUIRED AT LOWER SECTIONS WHERE PIPES CONNECT PER. SD STRUCTURE SCHEDULE.

NOTES:
1. PRECAST SHOP DRAWINGS TO BE APPROVED BY THE DESIGN PROFESSIONAL PRIOR TO FABRICATION.
2. CONC. TO BE 4000 PSI. REINFORCING STEEL TO BE GRADE 60.
* SEE STORM DRAIN STRUCTURE SCHEDULE FOR REQUIRED DIAMETER OF MANHOLE BASE.

MODIFIED 'K' INLET n.t.s.

11-15-07

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. 12975, Expiration Date May 26, 2008.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 12/5/07
Chief, Development Engineering Division — Date 12/5/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153SD-PROF.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT △1	DDS	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED STORM DRAIN PROFILES
WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"
L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	**TAX MAP – GRID**	**SHEET**
NOV./2007	PARCEL 74 28 – 18,17	31 OF 78

F-06-31

S.D. Pipe Summary Table
PUBLICLY OWNED AND MAINTAINED

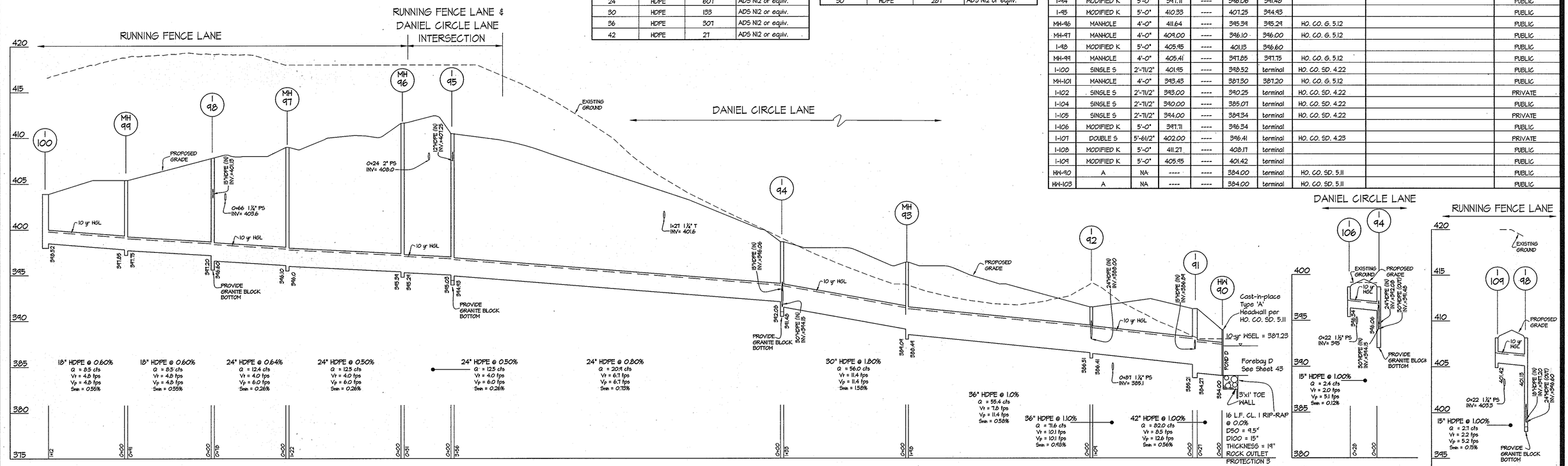
Size (in.)	Type	Quantity (L.F.)	Remarks
15	HDPE	272	ADS N12 or equiv.
18	HDPE	203	ADS N12 or equiv.
24	HDPE	607	ADS N12 or equiv.
30	HDPE	133	ADS N12 or equiv.
36	HDPE	307	ADS N12 or equiv.
42	HDPE	27	ADS N12 or equiv.

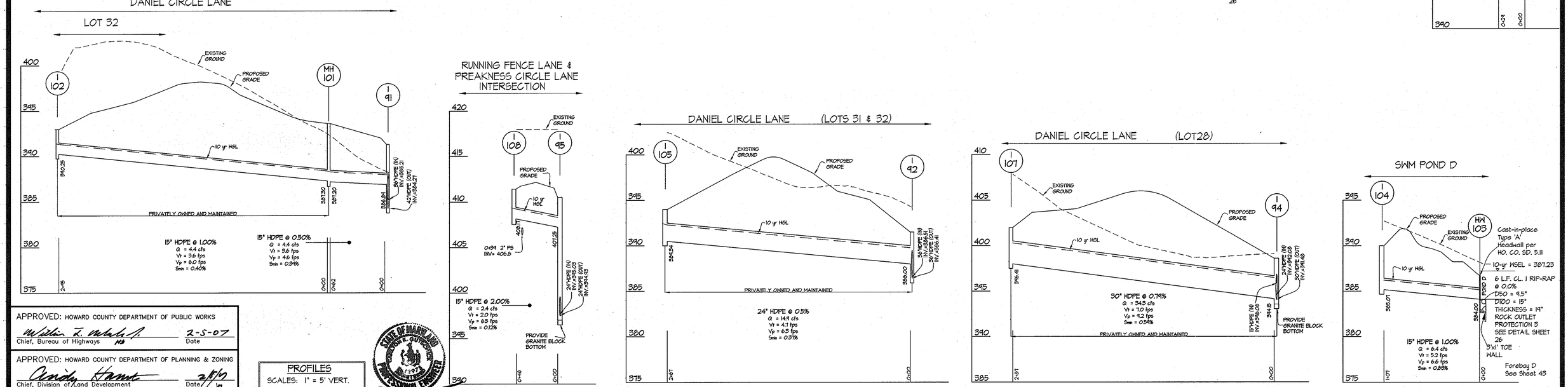
S.D. Pipe Summary Table
PRIVATELY OWNED AND MAINTAINED

Size (in.)	Type	Quantity (L.F.)	Remarks
15	HDPE	245	ADS N12 or equiv.
24	HDPE	261	ADS N12 or equiv.
30	HDPE	281	ADS N12 or equiv.

S.D. STRUCTURE SCHEDULE

NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL	NOTES	OWNERSHIP & MAINTENANCE
I-91	MODIFIED K	6'-0"	390.78	----	386.89	384.27	---		PUBLIC
I-92	MODIFIED K	5'-0"	391.30	----	386.51	386.41			PUBLIC
MH-93	MANHOLE	5'-0"	396.41	----	384.09	388.49	HO. CO. 6. 5.13		PUBLIC
I-94	MODIFIED K	5'-0"	397.71	----	396.06	391.48			PUBLIC
I-95	MODIFIED K	5'-0"	410.33	----	407.25	394.93			PUBLIC
MH-96	MANHOLE	4'-0"	411.64	----	395.39	395.29	HO. CO. 6. 5.12		PUBLIC
MH-97	MANHOLE	4'-0"	409.00	----	396.10	396.00	HO. CO. 6. 5.12		PUBLIC
I-98	MODIFIED K	5'-0"	405.95	----	401.13	396.60			PUBLIC
MH-99	MANHOLE	4'-0"	405.41	----	397.85	397.75	HO. CO. 6. 5.12		PUBLIC
I-100	SINGLE S	2'-11/2"	401.95	----	398.52	terminal	HO. CO. SD. 4.22		PUBLIC
MH-101	MANHOLE	4'-0"	393.43	----	387.30	387.20	HO. CO. 6. 5.12		PUBLIC
I-102	SINGLE S	2'-11/2"	393.00	----	390.25	terminal	HO. CO. SD. 4.22		PRIVATE
I-104	SINGLE S	2'-11/2"	390.00	----	385.07	terminal	HO. CO. SD. 4.22		PUBLIC
I-105	SINGLE S	2'-11/2"	394.00	----	389.34	terminal	HO. CO. SD. 4.22		PRIVATE
I-106	MODIFIED K	5'-0"	397.71	----	396.34	terminal			PUBLIC
I-107	DOUBLE S	5'-6 1/2"	402.00	----	396.41	terminal	HO. CO. SD. 4.23		PRIVATE
I-108	MODIFIED K	5'-0"	411.21	----	408.17	terminal			PUBLIC
I-109	MODIFIED K	5'-0"	405.95	----	401.42	terminal			PUBLIC
HW-90	A	NA	----	----	384.00	terminal	HO. CO. SD. 5.11		PUBLIC
HW-103	A	NA	----	----	384.00	terminal	HO. CO. SD. 5.11		PUBLIC





PROFILES
SCALES: 1" = 5' VERT.
1" = 50' HORZ.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 2/9/07
Chief, Development Engineering Division — Date 2/1/07

STATE OF MARYLAND — CHARLES L. GUTSCHICK — REG. NO. 7997 — PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153SD-PROF.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
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WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORM DRAIN PROFILES

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	32 OF 78

F-06-31

DRAINAGE No.	AREA (Ac)	PERV. (Ac)	IMP (Ac)	C
I-3	0.95	0.89	0.06	0.40
I-5	0.44	0.39	0.05	0.43
I-7	1.38	1.27	0.11	0.41
I-8	2.39	2.39	0.00	0.36
I-9	0.69	0.63	0.06	0.41
I-10	0.65	0.60	0.05	0.41
I-11	0.78	0.67	0.11	0.45
I-12	4.02	4.02	0.00	0.36
I-13	1.62	1.55	0.07	0.39
I-15	1.17	1.06	0.11	0.42
I-17	2.33	2.33	0.00	0.36
I-19	1.06	1.06	0.00	0.36
I-20	0.82	0.68	0.14	0.46
I-21	1.32	1.17	0.15	0.43
I-22	1.06	0.97	0.09	0.41
I-25	0.2	0.12	0.08	0.60
I-23	1.38	1.22	0.16	0.43
I-24	1.94	1.94	0.00	0.36
I-32	0.33	0.17	0.16	0.66
I-33	0.29	0.21	0.08	0.53
I-34	1.23	1.04	0.19	0.45
I-35	1	0.86	0.14	0.45
I-36	2.02	2.02	0.00	0.36
I-37	0.78	0.55	0.23	0.54
I-38	0.54	0.54	0.00	0.36
I-41	0.76	0.59	0.17	0.50
I-42	6.13	6.13	0.00	0.36
I-43	0.62	0.50	0.12	0.48
I-45	0.83	0.74	0.09	0.43
I-47	0.8	0.65	0.15	0.47
I-48	0.94	0.79	0.15	0.46
I-49	0.46	0.39	0.07	0.45
I-50	1.13	1.04	0.09	0.41
I-52	2.98	2.98	0.00	0.36
I-53	2.28	1.97	0.31	0.44
I-54	1.23	1.04	0.19	0.45

DRAINAGE No.	AREA (Ac)	PERV. (Ac)	IMP (Ac)	C
I-56	0.63	0.63	0.00	0.36
I-58	1.27	1.27	0.00	0.36
I-60	0.75	0.70	0.05	0.40
I-62	1.28	0.94	0.34	0.52
I-63	1	0.76	0.24	0.51
I-64	0.87	0.72	0.15	0.47
I-65	1.24	1.05	0.19	0.45
I-66	0.55	0.50	0.05	0.42
I-67	2.24	2.24	0.00	0.36
I-68	1.55	1.55	0.00	0.36
I-71	1.32	1.32	0.00	0.36
I-73	0.32	0.28	0.05	0.45
I-74	0.40	0.37	0.03	0.41
HW-75	15.32	15.32	0.00	0.36
I-76	2.11	2.11	0.00	0.36
I-78	1.76	1.76	0.00	0.36
I-79	0.44	0.40	0.04	0.42
I-80	0.63	0.57	0.06	0.42
I-81	1.23	1.00	0.23	0.47
I-82	1.71	1.71	0.00	0.36
I-91	2.31	2.07	0.24	0.42
I-92	1.32	1.25	0.07	0.39
I-94	1.04	0.96	0.08	0.41
I-95	2	1.80	0.20	0.42
I-98	0.44	0.39	0.05	0.43
I-100	2.38	2.15	0.23	0.42
I-102	1.45	1.45	0.00	0.36
I-104	2.09	2.09	0.00	0.36
I-105	4.86	4.86	0.00	0.36
I-106	0.64	0.56	0.08	0.44
I-107	11.2	11.20	0.00	0.36
I-108	0.61	0.50	0.11	0.47
I-109	0.8	0.75	0.05	0.40
I-122	0.39	0.24	0.15	0.59
I-123	2.41	2.14	0.27	0.43
I-B6	1.50	1.50	0.00	0.21
I-B9	3.03	3.03	0.00	0.21
I-300	1.70	1.45	0.25	0.45
I-301	0.90	0.82	0.08	0.41

1

NOTE: All areas not within a road have been modeled as 1/2 acre residential with C = 0.36. 1/2 acre residential has an inherent 25% impervious incorporated within its value. The impervious areas listed in above table are based up the actual/roadway impervious area and do not include the 25% inherent impervious area.

LEGEND

- PROPOSED STORM DRAIN DRAINAGE DIVIDE
- EXISTING STORM DRAIN DRAINAGE DIVIDE
- PROPOSED SWALE DRAINAGE DIVIDE
- TC PATH (A) (B)
- 1/23 DRAINAGE AREA
- SOILS DELINEATION LINE
- 'B' SOIL
- 'C' SOIL
- 'D' SOIL

APPROVED EXISTING FLOOD INFORMATION
PER HOWARD COUNTY CAPITAL PROJECT D-1028

CLYDES BRANCH
100-YR. FREQUENCY
WATER SURFACE ELEVATIONS

X-SECTION	PRESENT	ULTIMATE
107	359.59	361.02
108	367.49	367.56
13	352.40	353.06
14	358.04	* 358.33
15	362.19	363.35

NOTES:

* 1. STARTING WATER SURFACE ELEVATION FOR THE PROPOSED STUDY, X-SECTION 0+00, SET EQUAL TO X-SECTION 14 (ULTIMATE) OF THE APPROVED HOWARD COUNTY STUDY PER CAPITAL PROJECT D-1028. STARTING WSEL=358.33 @ X-SECTION 0+00.

2. THE ULTIMATE WATER SURFACE ELEVATION FROM THE APPROVED HOWARD COUNTY STUDY PER CAPITAL PROJECT D-1028 FOR X-SECTIONS 107 AND 108 HAS BEEN RE-DELINEATED ON THE LATEST AERIAL TOPOGRAPHY.

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. 12975, Expiration Date May 26, 2008.

11-15-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12/5/07

Chief, Development Engineering Division — Date 12/5/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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DATE	REVISION	BY	APP'R.
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT 1	DDS	

\Drawings\00153\Final-Road\00153SD-DAM.dwg | DES. bjm | DRN. klp | CHK. bjm

PREPARED FOR
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ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED STORM DRAIN DRAINAGE AREA MAP

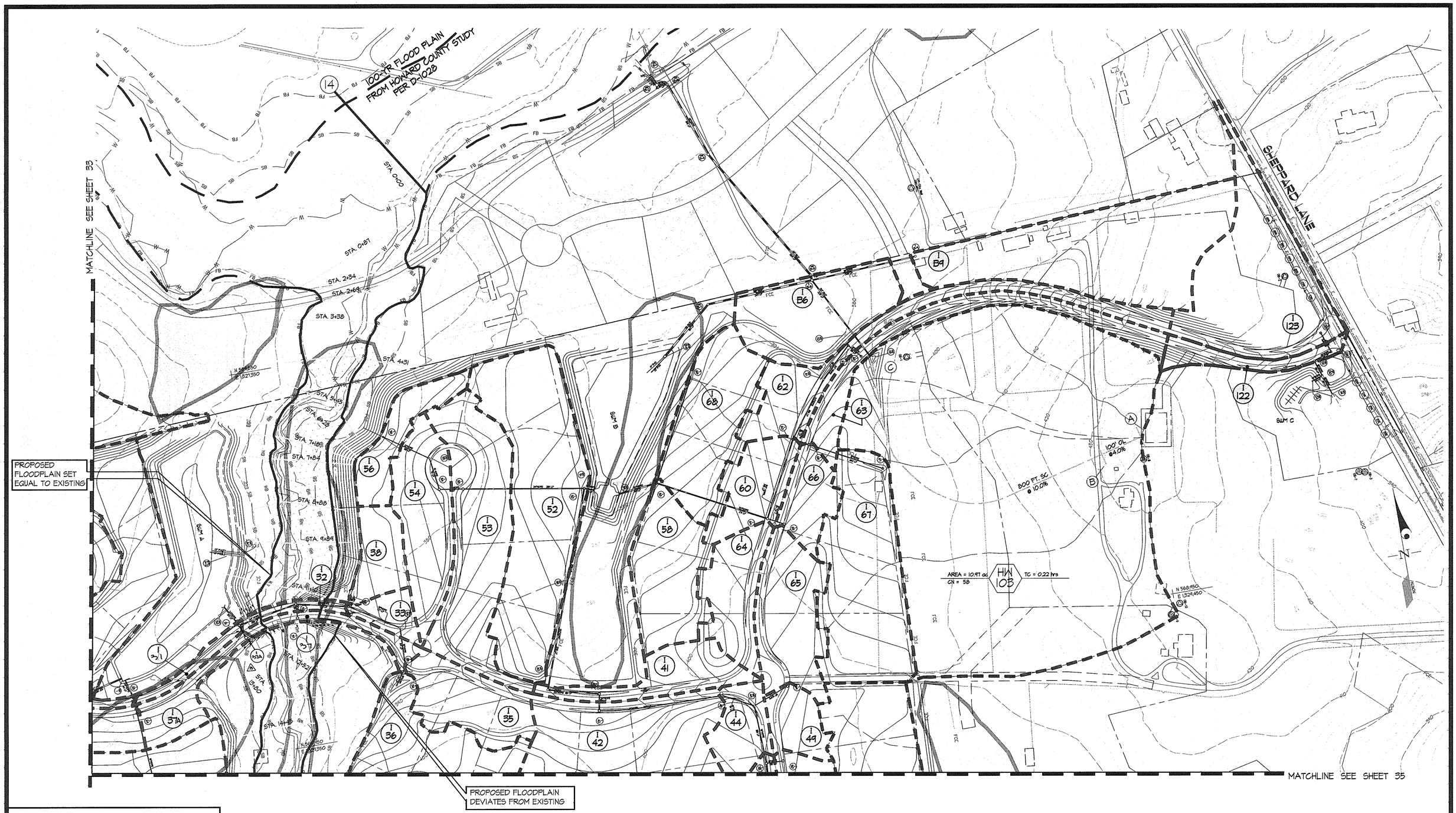
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	33 OF 78

F-06-31



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/7/07

STATE OF MARYLAND — STOCK & GUTSCHICK — 12973 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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DATE	REVISION	BY	APP'R.
9-3-08	Inlet 1-37A Added	WCJ	

\Drawings\00153\Final-Road\00153SD-DAM.dwg | DES. bjm | DRN. klp | CHK. bjm

PREPARED FOR OWNER
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STORM DRAIN DRAINAGE AREA MAP

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

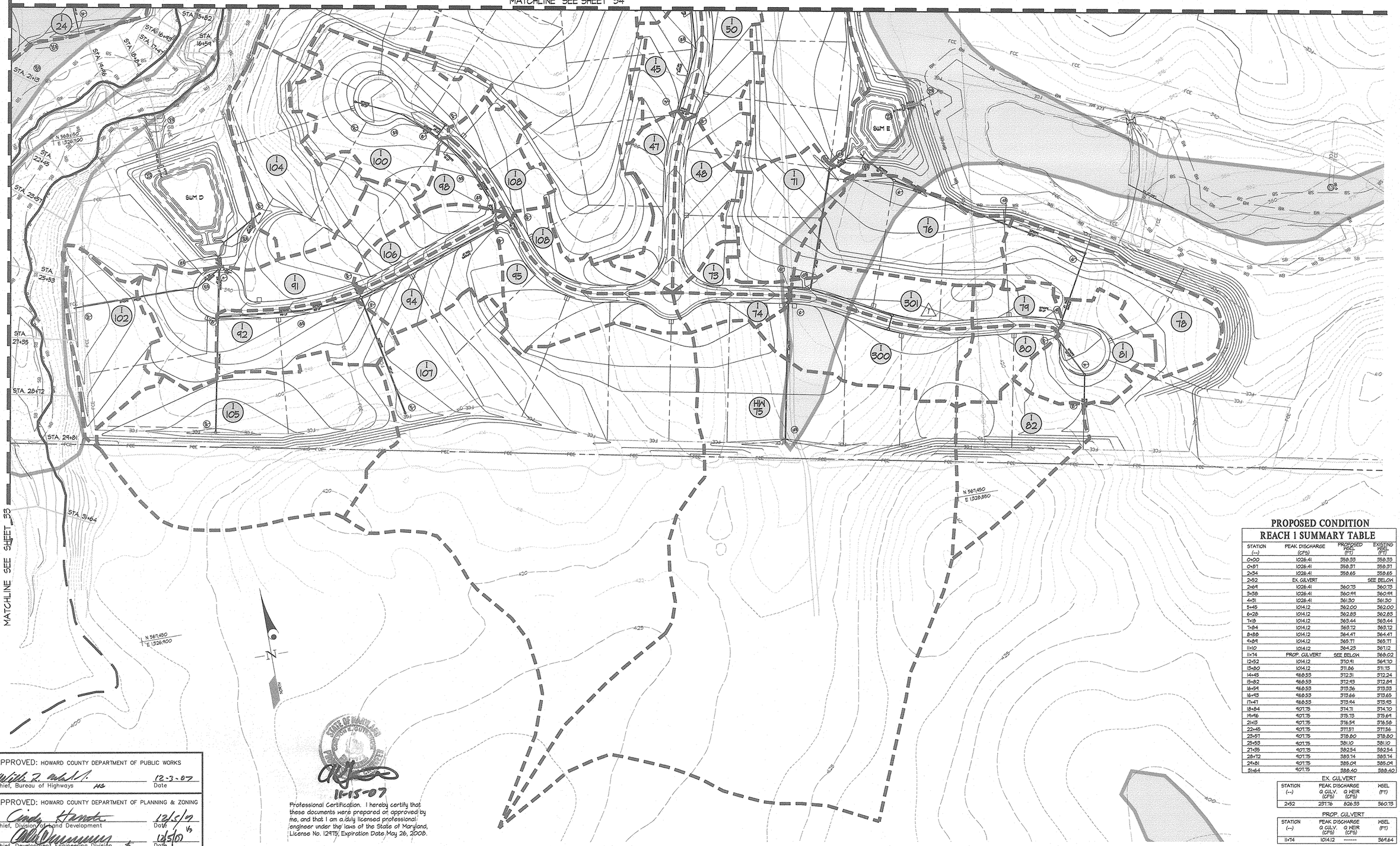
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	34 OF 78

F-06-31

MATCHLINE SEE SHEET 34

MATCHLINE SEE SHEET 33



PROPOSED CONDITION

REACH 1 SUMMARY TABLE

STATION (--)	PEAK DISCHARGE (CFS)	PROPOSED WSEL (FT)	EXISTING WSEL (FT)
0+00	1028.41	358.33	358.33
0+81	1028.41	358.37	358.37
2+34	1028.41	358.65	358.65
2+52	EX. CULVERT		SEE BELOW
2+64	1026.41	360.73	360.73
3+38	1026.41	360.99	360.99
4+31	1026.41	361.30	361.30
5+45	1014.12	362.00	362.00
6+28	1014.12	362.83	362.83
7+18	1014.12	363.44	363.44
7+84	1014.12	363.72	363.72
8+88	1014.12	364.41	364.41
9+84	1014.12	365.71	365.71
11+10	1014.12	364.23	367.12
11+74	PROP. CULVERT	SEE BELOW	368.02
12+52	1014.12	370.41	369.70
13+20	1014.12	371.86	371.75
14+45	968.53	372.31	372.24
15+82	968.53	372.43	372.84
16+54	968.53	373.36	373.33
16+43	968.53	373.66	373.65
17+47	968.53	373.44	373.93
18+84	907.75	374.11	374.10
19+46	907.75	375.13	375.64
21+18	907.75	376.54	376.58
22+45	907.75	377.57	377.56
23+57	907.75	378.80	378.80
25+53	907.75	381.10	381.10
27+35	907.75	382.54	382.54
28+72	907.75	383.14	383.14
29+81	907.75	385.09	385.09
31+64	907.75	388.40	388.40

EX. CULVERT

STATION (--)	PEAK DISCHARGE Q CULV. (CFS)	Q WEIR (CFS)	WSEL (FT)
2+52	231.76	826.33	360.73

PROP. CULVERT

STATION (--)	PEAK DISCHARGE Q CULV. (CFS)	Q WEIR (CFS)	WSEL (FT)
11+74	1014.12	------	369.64

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-7-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12/5/07

Chief, Development Engineering Division — Date 12/5/07

11-15-07

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. 12475, Expiration Date May 26, 2008.

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SD-DAM.dwg | DES. bjm | DRN. klp | CHK. bjm

DATE	REVISION	BY	APP'R.
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT ⚠	DDS	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED STORM DRAIN DRAINAGE AREA MAP

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	35 OF 78

F-06-31

LEGEND

- SOILS DELINEATION LINE
  'B' SOIL
  'C' SOIL
  'D' SOIL
- DRAINAGE AREA DIVIDE
- TC PATH

STUDY POINT SUMMARY TABLE

Study Point (No.)	Qex-1YR (cfs)
1	14.42
2	2.44
3	0.67
4	0.37
5	5.16

HOWARD CO. 5' TOPOGRAPHY

N 510400 E 1326200

AERIAL PHOTOGRAPHY PER FCC

N 510400 E 1329800

HOWARD CO. 5' TOPOGRAPHY

LIMIT OF 2' AERIAL TOPOGRAPHY

STUDY POINT 1

STUDY POINT 2

STUDY POINT 3

STUDY POINT 4

STUDY POINT 5

PARCEL 76 BASSLER, INC. L. 518 F. 169 ZONED: RC-DEO

PARCEL 71 J.A. MARILLEY, ET UX 3RD PARCEL OF L. 1955 F.726 ZONED: RC-DEO

PARCEL 71 J.A. MARILLEY, ET UX 2ND PARCEL OF L. 1955 F.726 ZONED: RC-DEO

PARCEL 71 J.A. MARILLEY, ET UX 1ST PARCEL OF L. 1955 F.726 ZONED: RC-DEO

SHEPPARD LANE

LOT 28 PN 13251 ZONED: RC-DEO

LOT 29 PN 14081 ZONED: RC-DEO

LOT 30 PN 13251 ZONED: RC-DEO

LOT 25 PN 11774 ZONED: RC-DEO

LOT 24 PN 13269 ZONED: RC-DEO

LOT 6 PN 18224 ZONED: RC-DEO

LOT 5 PN 13269 ZONED: RC-DEO

LOT 18 PN 16042

LOT 14 PN 20412 ZONED: RC-DEO

LOT 40 PN 9713 ZONED: RC-DEO

LOT 41 PN 9713 ZONED: RC-DEO

P. LAWRENCE, ET AL L. 3356 F. 530 ZONED: RC-DEO PARCEL 116

GLENARVEN ESTATES LOT B PN 9713 ZONED: RC-DEO

2300 FT. SC FLOW @ 1.8%

900' OPEN CHANNEL FLOW AVERAGE VELOCITY FROM HEGRAS

AREA = 40.5 ac CN = 54 — 2 — TC = 0.383 hrs

AREA = 12.8 ac CN = 58 — 3 — TC = 0.259 hrs

AREA = 7.1 ac CN = 58 — 4 — TC = 0.248 hrs

AREA = 117.7 ac CN = 64 — 1 — TC = 0.684 hrs

AREA = 13.8 ac CN = 60 — 5 — TC = 0.481 hrs

100' OL @ 2.0%

100' OL @ 3.0%

550 FT. SC @ 7.0%

1600 FT. SC FLOW @ 4.5%

100' OL @ 2.0%

100' OL @ 3.0%

750 FT. SC @ 8.0%

TC ASSUMED 0 HRS.

450 FT.

1000 FT. SC FLOW @ 3.0%

1800 FT. SC FLOW @ 2.0%

100' OL @ 2.0%

DISCHARGE OMITTED TO AVOID DILUTION OF THE HYDROGRAPH AND ENABLE AN EQUITABLE COMPARISON.

P. 100 FRANK PARFIELD L. 3585 F. 234 ZONED: RC-DEO MD AGRICULTURAL LAND PRESERVATION EASMT. No. 13-05-19-245 PER 5401-31

LIMIT OF 2' AERIAL TOPOGRAPHY

HOWARD CO. 5' TOPOGRAPHY

N 561000 E 1324800

NORTH

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/2/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153SWM-DAMex.dwg | DES. BJM | DRN. KLP | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

EXISTING CONDITION STORMWATER MANAGEMENT DRAINAGE AREA MAP

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=200'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	36 OF 78

F-06-31

STUDY POINT SUMMARY TABLE

Study Point (No.)	Qex-1YR (cfs)	Qprop-1YR (cfs)	Qex-10YR (cfs)	Qprop-10YR (cfs)	Qex-100YR (cfs)	Qprop-100YR (cfs)	*MANAGEMENT PROVIDED BY:
1	14.42	2.08	121.84	128.21	246.04	285.3	PONDS A & D
2	2.44	1.17	45.64	46.59	101.24	123.82	POND B
3	0.67	0.52	17.07	16.50	37.65	43.46	POND C
4	0.37	0.37	9.37	9.37	20.69	20.69	NONE
5	5.16	3.09	75.92	44.55	165.18	163.64	POND E

NOTE: SP-2 IS AT PROPERTY LINE, FUTURE BASSLER DEVELOPMENT TO MANAGE DISCHARGE TO ST-B5 INDEPENDENTLY.

THE PROPOSED DISCHARGE TO STUDY POINTS 1, 2, 3, AND 5 IS MANAGED BY THE SWM PONDS.

* 1-YR discharge to study point 1 managed jointly by ponds A&D.
1-YR discharge to study point 2 managed by pond B.
1-YR discharge to study point 3 managed by pond C.
Drainage area for study point 4 is undisturbed therefore no management is required.
1-YR discharge to study point 5 managed by pond E.

LEGEND

SOILS DELINEATION LINE
'B' SOIL
'C' SOIL
'D' SOIL
DRAINAGE AREA DIVIDE
TC PATH

FOR PROPOSED CONTOUR ELEVATION INFORMATION
SEE GRADING PLAN - SHEETS 2 THRU 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12/5/07

Chief, Development Engineering Division — Date 12/5/07

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. 12975, Expiration Date May 26, 2008.

11-15-07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153SWM-DAMprop.dwg | DES. BJM | DRN. KLP | CHK. DDS

DATE	REVISION	BY	APP'R.
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT ⚠1	DDS	

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
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COLUMBIA, MARYLAND 21044

REVISED PROPOSED CONDITION STORMWATER MANAGEMENT DRAINAGE AREA MAP

WALNUT GROVE

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NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND
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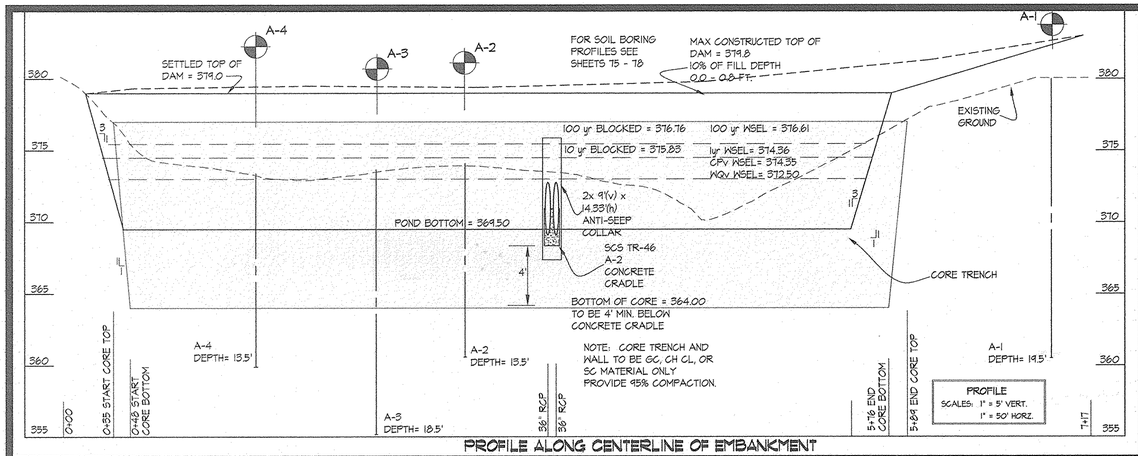
L.2927 F.487

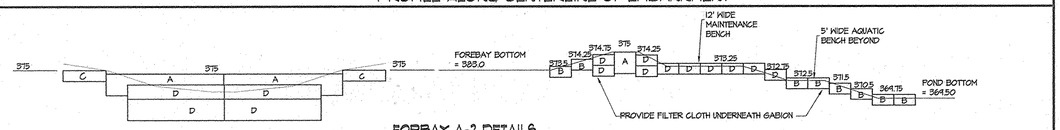
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=200'	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
NOV./2007	PARCEL 74 28 - 18,17	37 OF 78

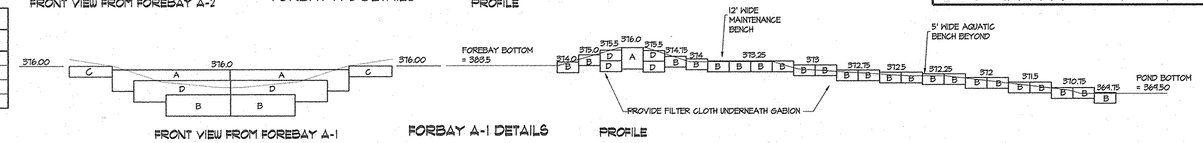
F-06-31



PROFILE ALONG CENTERLINE OF EMBANKMENT



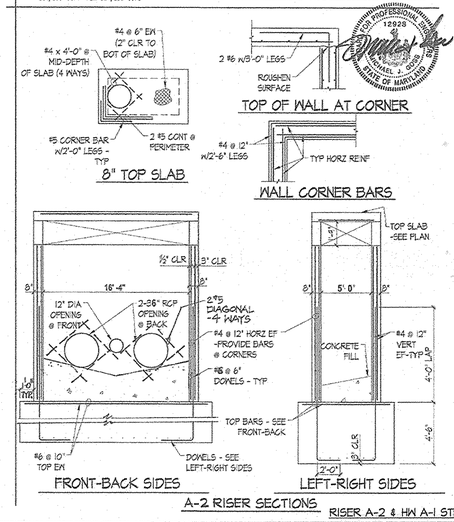
GABION SIZES			
LETTER CODE	LENGTH	WIDTH	HEIGHT
A	12'	3'	3'
B	9'	3'	1'-6'
C	6'	3'	1'-6'
D	12'	3'	1'-6'



GABION DETAILS NTS

KAITHGEBER/ GOSS ASSOCIATES
Consulting Structural Engineers
15871 Crabbs Branch Way, Rockville, Maryland 20855
301/590-0071 Fax: 301/590-0073

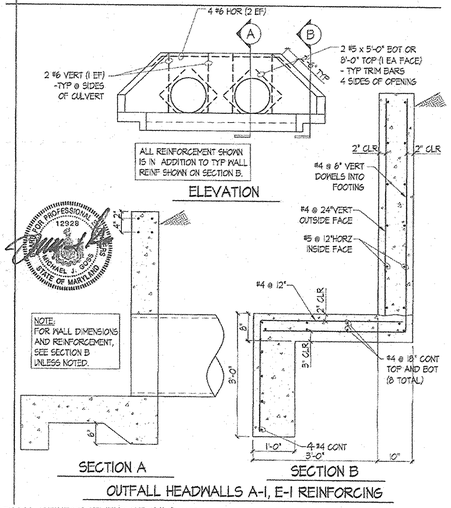
PROJECT WALNUT GROVE
CLIENT GUTSCHICK LITTLE AND WEBER
JOB NO. 6014.03 DATE 13 JANUARY 06
ENGINEER MJS PAGE 2 OF 7



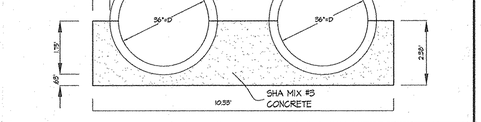
A-2 RISER SECTIONS

KAITHGEBER/ GOSS ASSOCIATES
Consulting Structural Engineers
15871 Crabbs Branch Way, Rockville, Maryland 20855
301/590-0071 Fax: 301/590-0073

PROJECT WALNUT GROVE
CLIENT GUTSCHICK LITTLE AND WEBER
JOB NO. 6014.03 DATE 13 JANUARY 06
ENGINEER MJS PAGE 1 OF 7

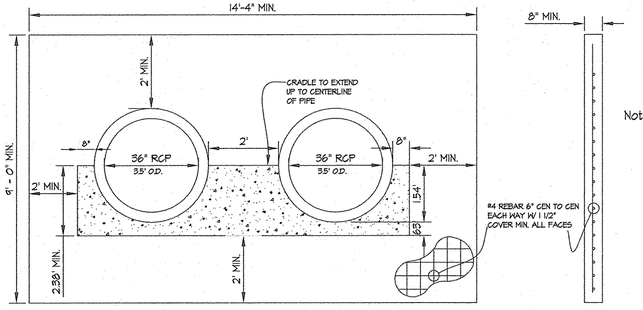


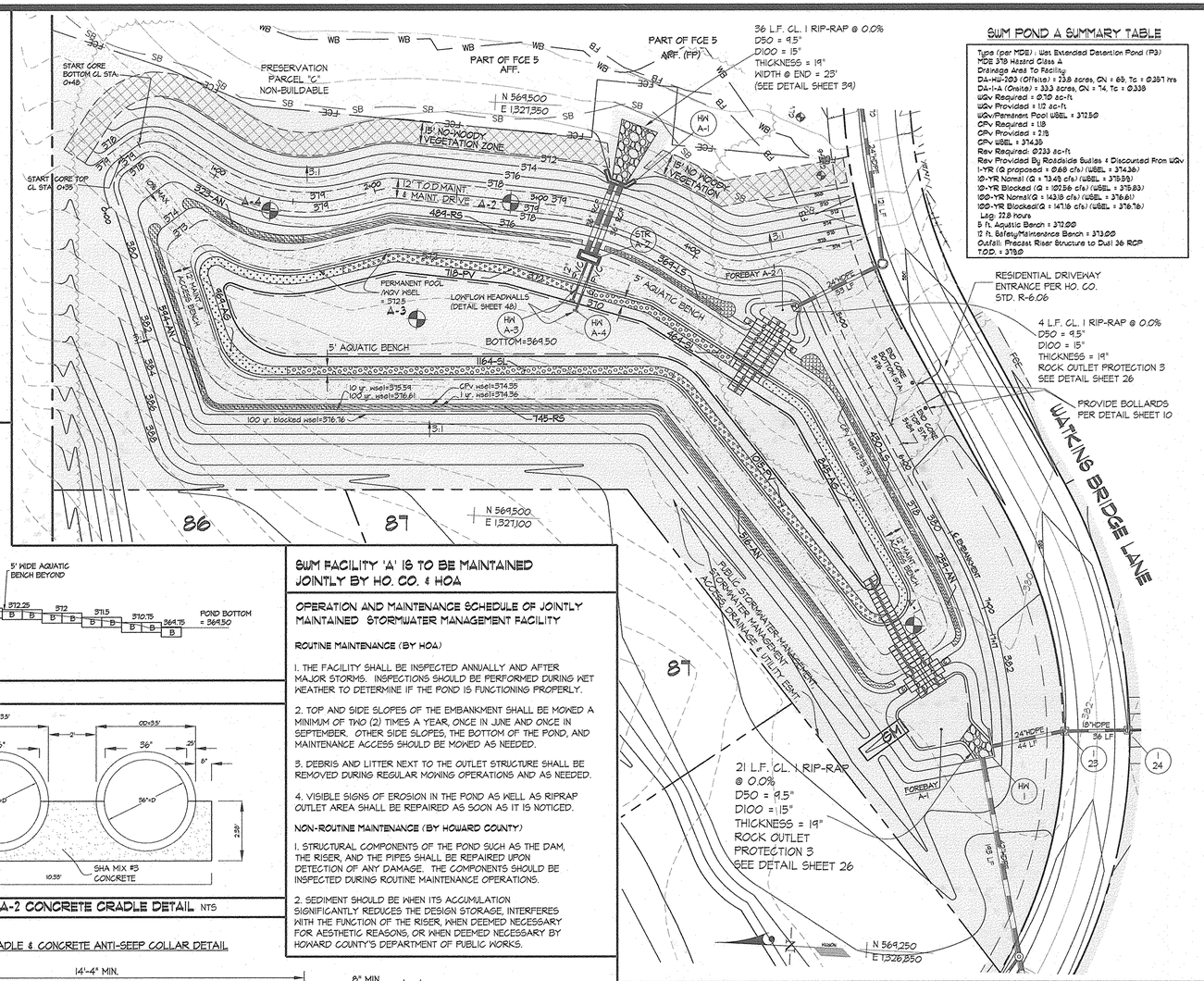
RISER A-2 & HW A-1 STRUCTURAL REINFORCEMENT DETAILS NTS



SCS TR-46 A-2 CONCRETE CRADLE DETAIL NTS

CONCRETE CRADLE & CONCRETE ANTI-SEEP COLLAR DETAIL





SWM POND A SUMMARY TABLE

Type (per MDE) : Wet Extended Detention Pond (P3)
MDE 378 Hazard Class A
Drainage Area To Facility
DA-HW-103 (Offsite) = 33.8 acres, CN = 69, Tc = 0.361 hrs
DA-1-A (Onsite) = 33.3 acres, CN = 74, Tc = 0.338
WQv Required = 0.70 ac-ft
WQv Provided = 1.12 ac-ft
WQv/Permanent Pool WSEL = 372.50
CPv Required = 1.18
CPv Provided = 2.78
CPv WSEL = 374.35
Rev Required: 0.233 ac-ft
Rev Provided By Roadside Swales + Discounted From WQv
1-YR (Q proposed = 0.69 cfs) (WSEL = 374.36)
10-YR Normal (Q = 13.43 cfs) (WSEL = 375.59)
10-YR Blocked (Q = 10256 cfs) (WSEL = 375.83)
100-YR Normal(Q = 143.18 cfs) (WSEL = 376.61)
100-YR Blocked(Q = 147.16 cfs) (WSEL = 376.76)
Lag 22.8 hours
5 ft. Aquatic Bench = 372.00
12 ft. Safety/Maintenance Bench = 373.00
Outfall: Precast Riser Structure to Dual 36 RCP
T.O.D. = 378.0

SWM FACILITY 'A' IS TO BE MAINTAINED JOINTLY BY HO. CO. & HOA

OPERATION AND MAINTENANCE SCHEDULE OF JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITY

ROUTINE MAINTENANCE (BY HOA)

1. THE FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.

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

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

NON-ROUTINE MAINTENANCE (BY HOWARD COUNTY)

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

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

STORMWATER MANAGEMENT POND 'A' ENLARGEMENT / PLANTING PLAN SCALE: 1" = 40'

PLANT LIST FOR STORMWATER MANAGEMENT POND 'A'

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	NOTES
PERENNIALS/GROUNDCOVER				
AN	1692	Aster novi-belgii New York Aster	1 gal. cont.	18" o.c.
LS	799	Lobella siphilitica Great Blue Lobella	1 gal. cont.	18" o.c.
RS	1234	Rudbeckia subtomentosa Cut-leaf Coneflower	1 gal. cont.	18" o.c.
AG	1814	Andropogon glomeratus Bushy Beardgrass	1 gal. cont.	18" o.c.
PV	1733	Peltandra virginica Arrow Arum	1 gal. cont.	18" o.c.
SL	1628	Sagitaria latifolia Duck Potato	1 gal. cont.	18" o.c.

NOTE: STORMWATER MANAGEMENT POND PLANTINGS ARE PER MDE 2000 REQUIREMENTS PROVIDE WETLAND SEED MIX PER MDE APPENDIX A

Note: Asphalt joint filler material shall be applied between all concrete surfaces. (except between the pipe and cradle)

HOWARD SOIL CONSERVATION DISTRICT OPERATION, MAINTENANCE, AND INSPECTION NOTE

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/1/07

Chief, Development Engineering Division — Date 2/2/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1.25.07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

NTS

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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\Drawings\00153\Final-Road\00153SWMA-det.dwg	DES. BJM	DRN. BJM	CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT POND A DETAILS

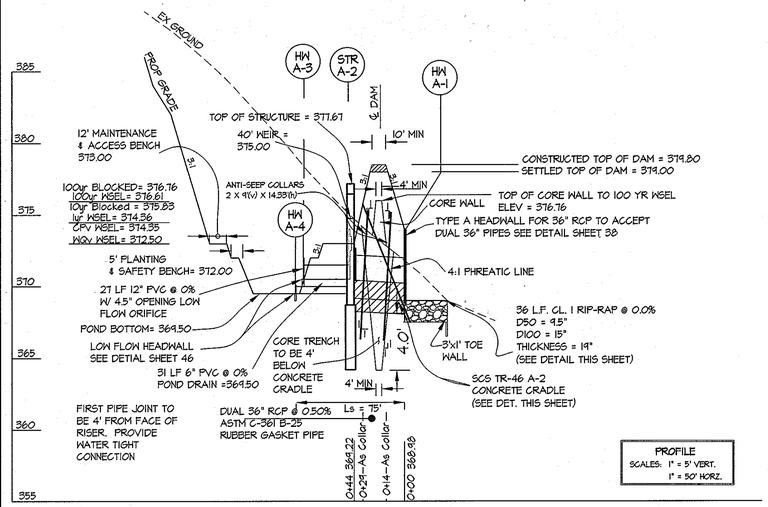
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

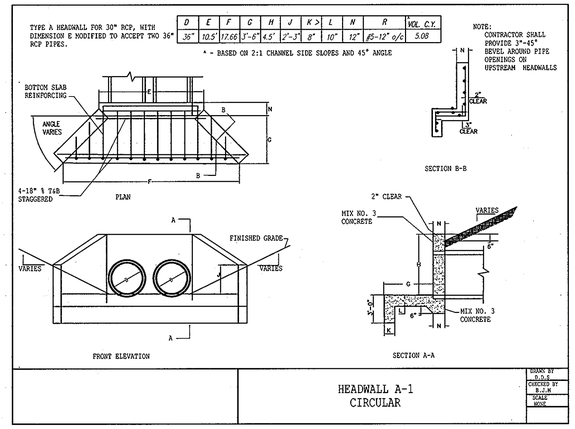
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

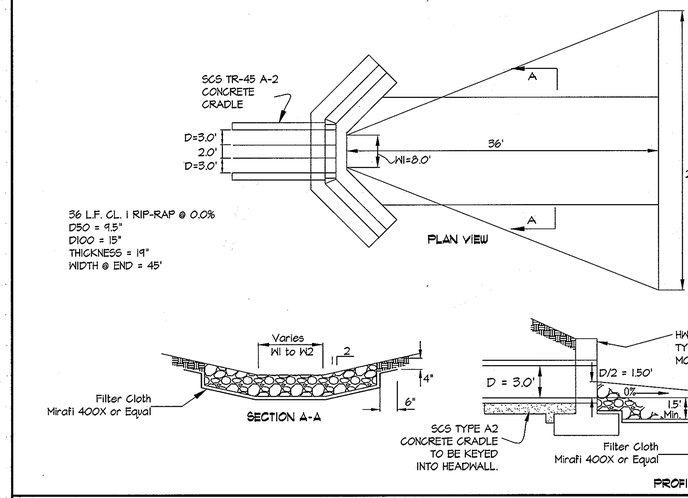
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	38 OF 78

F-06-31

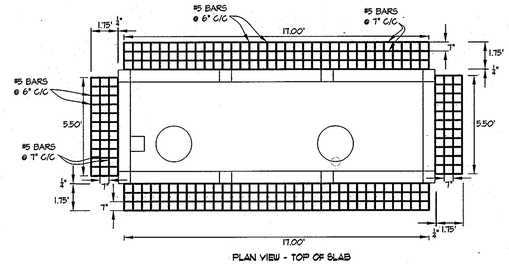


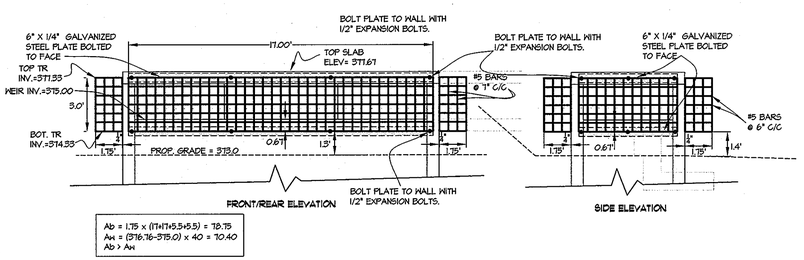
PROFILE THROUGH PRINCIPLE SPILLWAY





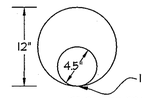
OUTLET PROTECTION DETAIL (EW A-1) NTS





TRASH RACK DETAILS SCALE: 1" = 4'

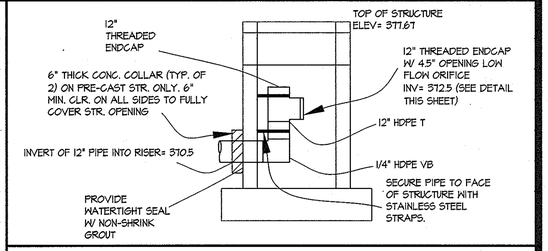
12" DIAMETER SCH. 40 THREADED PVC ENDCAP W/ 4.5" DIAMETER HOLE



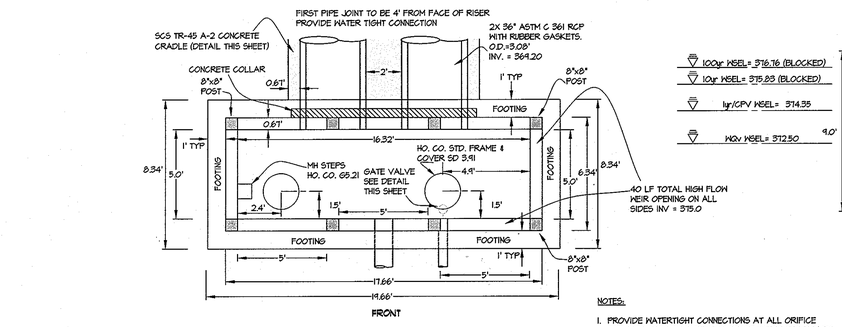
12" PVC TO PROTRUDE THROUGH RISER TO ENABLE CAP TO BE SCREWED ON.

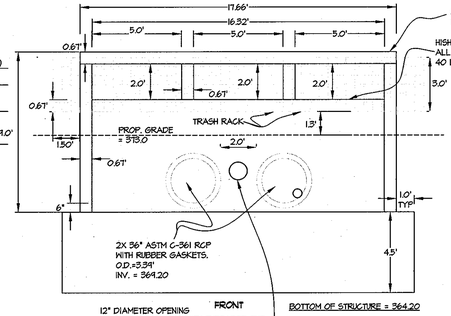
NOTE: ORIFICE CONFIGURATION DIFFERENT DURING SEDIMENT CONTROL INTERIM CONDITION. SEE SEDIMENT CONTROL DETAILS.

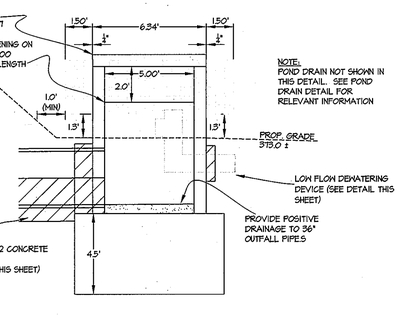
SWM LOW-FLOW ORIFICE DETAIL NTS



DEWATERING DEVICE DETAIL NTS



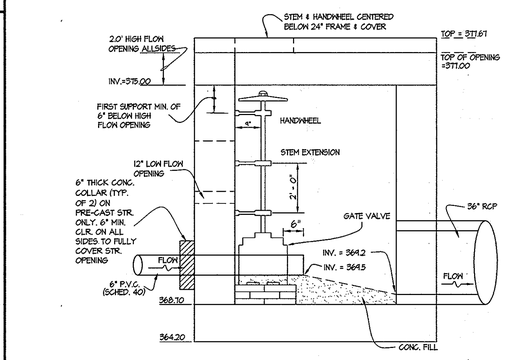




NOTES:

1. PROVIDE WATERTIGHT CONNECTIONS AT ALL ORIFICE OPENINGS, USE NON-SHRINKING GROUT WHERE NECESSARY.
2. RISER STRUCTURE A-2 IS TO BE A MONOLITHIC CAST-IN-PLACE RISER. REINFORCEMENT PER DETAILS SHEET 38

RISER STRUCTURE DETAILS SCALE: 1" = 4'



GATE VALVE DETAIL NTS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/6/07

Chief, Development Engineering Division — Date 2/6/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

ROBERT B. VAN DYKE — 1-25-07

SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

1-25-07

ENGINEER'S SIGNATURE — DATE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

STATE OF MARYLAND — ROBERT B. VAN DYKE — No. 12978 — PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SWMA-det.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT POND A DETAILS

WALNUT GROVE

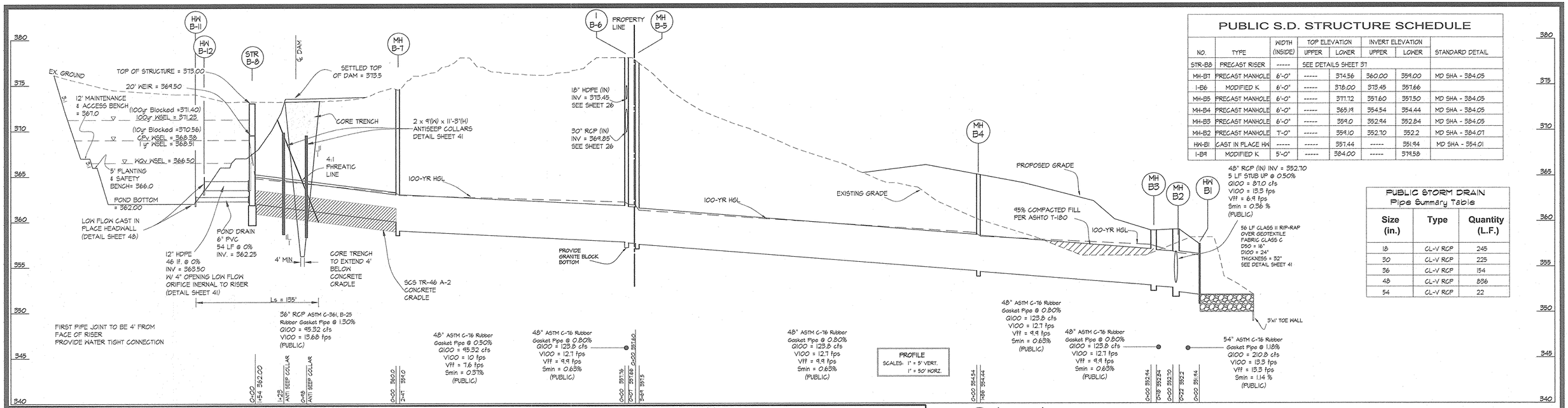
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID - PARCEL	SHEET
JAN./2007	28 - 18,17	39 OF 78

F-06-31



PUBLIC S.D. STRUCTURE SCHEDULE

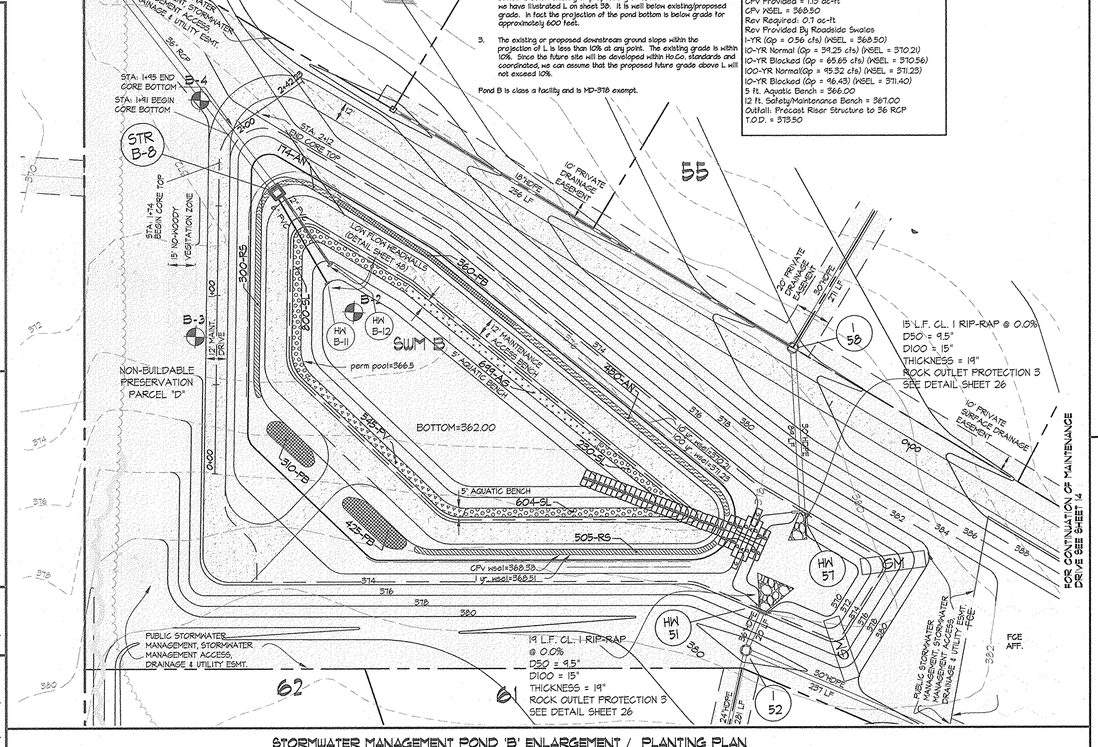
NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL
STR-B8	PRECAST RISER	-----	SEE DETAILS SHEET 37				
MH-B7	PRECAST MANHOLE	6'-0"	-----	374.56	360.00	359.00	MD SHA - 384.05
I-B6	MODIFIED K	6'-0"	-----	378.00	373.45	357.66	
MH-B5	PRECAST MANHOLE	6'-0"	-----	377.72	357.60	357.50	MD SHA - 384.05
MH-B4	PRECAST MANHOLE	6'-0"	-----	365.19	354.54	354.44	MD SHA - 384.05
MH-B3	PRECAST MANHOLE	6'-0"	-----	359.0	352.94	352.84	MD SHA - 384.05
MH-B2	PRECAST MANHOLE	7'-0"	-----	359.10	352.70	352.2	MD SHA - 384.07
HW-B1	CAST IN PLACE HW	-----	-----	357.44	-----	351.94	MD SHA - 354.01
I-B9	MODIFIED K	5'-0"	-----	384.00	-----	379.58	

PUBLIC STORM DRAIN Pipe Summary Table

Size (in.)	Type	Quantity (L.F.)
18	CL-V RCP	245
30	CL-V RCP	225
36	CL-V RCP	154
48	CL-V RCP	836
54	CL-V RCP	22

PROFILE THROUGH PRINCIPLE SPILLWAY

SCALE: (V) 1" = 5' (H) 1" = 50'



Pond B:

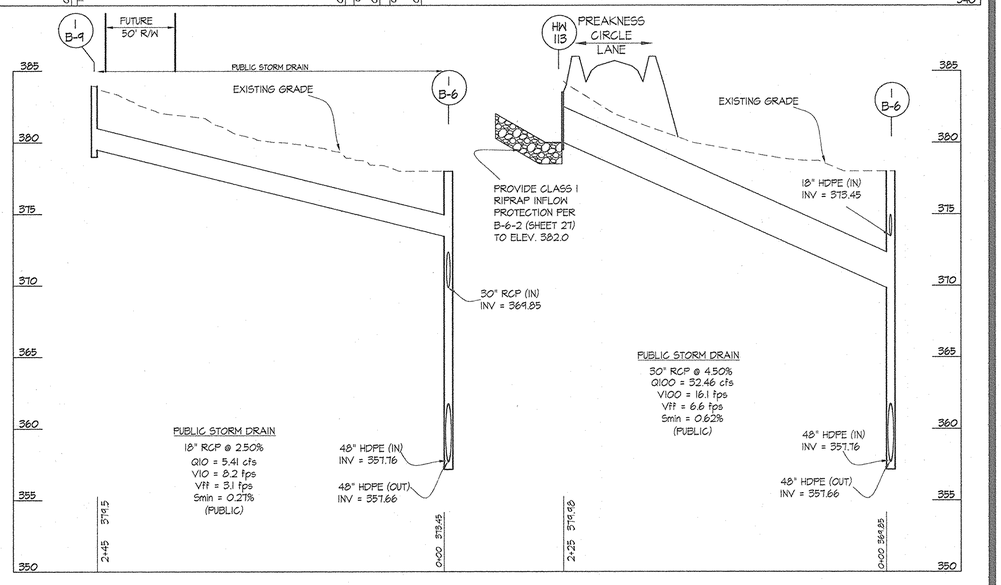
MD-378-2 Exemptions

1. The calculation of 10H + 20 = L, where H = height from the pond bottom to the top of dam, is provided, and Top of Dam = 373.50 Pond Bottom = 362.00 H = 373.50 - 362.00 = 11.50 feet L = (10 x 11.5) + 20 = 135 feet
2. The projection of L horizontally downstream from the pond bottom is below existing or proposed ground, and we have illustrated L on sheet 38. It is well below existing/proposed grade. In fact the projection of the pond bottom is below grade for approximately 600 feet.
3. The existing or proposed downstream ground slope within the projection of L is less than 10% at any point. The existing grade is within 10%. Since the future site will be developed within HoCo. standards and coordinated, we can assume that the proposed future grade above L will not exceed 10%.

Pond B is class a facility and is MD-378 exempt.

SUM POND B SUMMARY TABLE

Type (per MDE) : Wet Extended Detention Pond (P3)
MDE 378 Hazard Class A
Total Drainage Area To Facility = 54.2 acres
CN = 73 Tc = 0.236 hrs.
WQv Required = 1.13 ac-ft
WQv Provided = 1.22 ac-ft
WQv/Permanent Pool WSEL = 366.5
CPv Required = 1.13 ac-ft
CPv Provided = 1.13 ac-ft
CPv WSEL = 368.50
Rev Required: 0.7 ac-ft
Rev Provided By Roadside Swales
1-YR (Qp = 0.56 cfs) (WSEL = 368.50)
10-YR Normal (Qp = 34.25 cfs) (WSEL = 370.21)
10-YR Blocked (Qp = 65.65 cfs) (WSEL = 370.56)
100-YR Normal(Qp = 45.32 cfs) (WSEL = 371.23)
10-YR Blocked (Qp = 46.43) (WSEL = 371.40)
5 ft. Aquatic Bench = 366.00
12 ft. Safety/Maintenance Bench = 367.00
Outfall: Precast Riser Structure to 36 RCP
T.O.D. = 373.50



PLANT LIST FOR STORMWATER MANAGEMENT POND 'B'

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	NOTES
PERENNIALS/GROUNDCOVER				
AS	699	Andropogon glomeratus Bushy Beardgrass	1 gal. cont.	18" o.c.
PV	545	Peltandra virginica Arrow Arum	1 gal. cont.	18" o.c.
SL	1774	Sagitaria latifolia Duck Potato	1 gal. cont.	18" o.c.
AN	654	Aster novi-belgii New York Aster	1 gal. cont.	18" o.c.
RS	805	Rudbeckia subtomentosa Cut-leaf Coneflower	1 gal. cont.	18" o.c.
PB	1095	Agrostis perennans Perennial Bentgrass	1 gal. cont.	18" o.c.

NOTE: STORMWATER MANAGEMENT POND PLANTINGS ARE PER MDE 2000 REQUIREMENTS PROVIDE WETLAND SEED MIX PER MDE APPENDIX A

SWM FACILITY 'B' IS TO BE MAINTAINED JOINTLY BY HO. CO. & HOA

OPERATION AND MAINTENANCE SCHEDULE OF JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITY

ROUTINE MAINTENANCE (BY HOA)

1. THE FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE (BY HOWARD COUNTY)

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY HOWARD COUNTY'S DEPARTMENT OF PUBLIC WORKS.

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1.25.07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A FRACTICAL 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/5/07

STORMWATER MANAGEMENT POND 'B' ENLARGEMENT / PLANTING PLAN

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SWM-det-B.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT POND B DETAILS

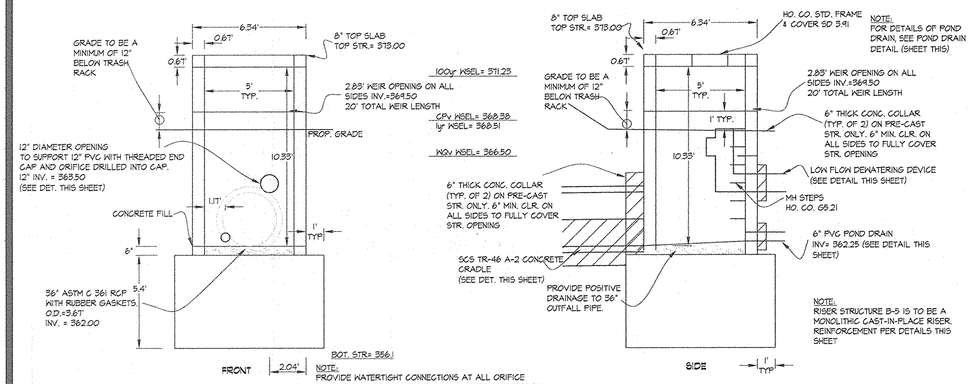
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

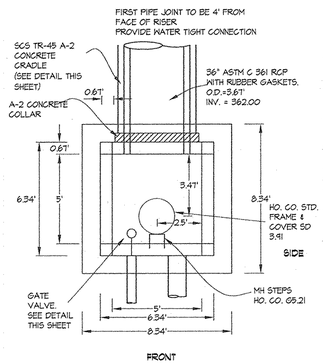
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

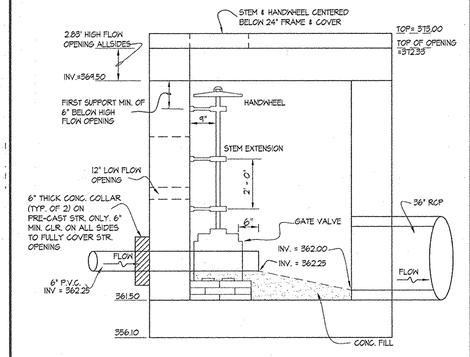
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	40 OF 78

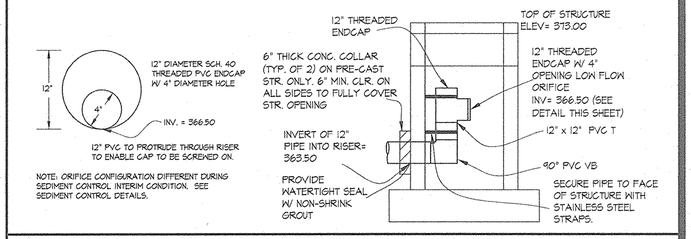
F-06-31



NOTE:
PROVIDE WATERTIGHT CONNECTIONS AT ALL ORIFICE OPENINGS, USE NON-SHRINKING GROUT WHERE NECESSARY. STUCTURE IS TO BE MONOLITHIC CAST IN PLACE



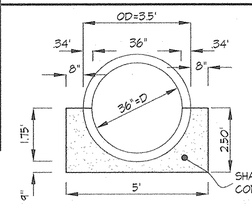




NOTE: ORIFICE CONFIGURATION DIFFERENT DURING SEDIMENT CONTROL INTERIM CONDITION. SEE SEDIMENT CONTROL DETAILS.

SWM LOW-FLOW ORIFICE DETAIL NTS

DEWATERING DEVICE DETAIL NTS



SCS TR-46 A-2 CONCRETE CRADLE DETAIL NTS

SWM FACILITY 'B' IS TO BE MAINTAINED JOINTLY BY HO. CO. & HOA

OPERATION AND MAINTENANCE SCHEDULE OF JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITY

ROUTINE MAINTENANCE (BY HOA)

1. THE FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

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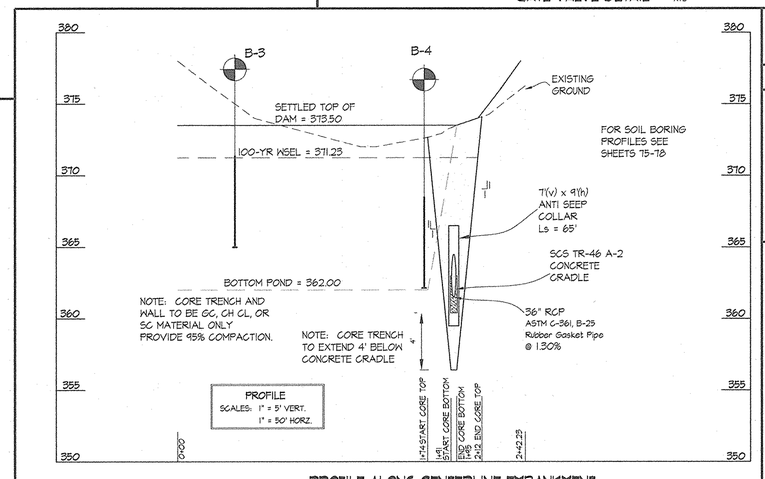
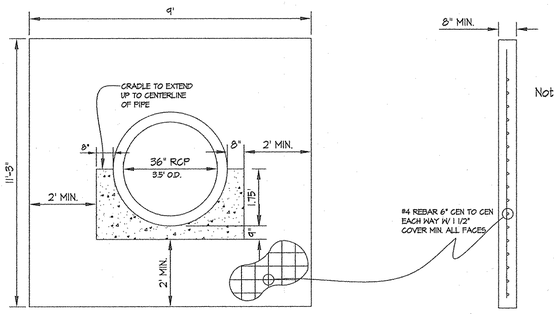
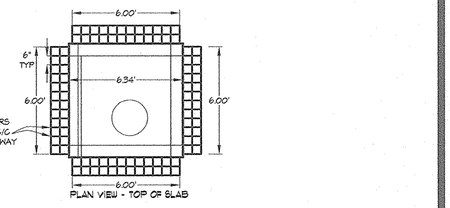
GATE VALVE DETAIL NTS

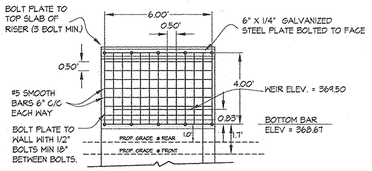


PROFILE ALONG CENTERLINE EMBANKMENT



CONCRETE CRADLE & CONCRETE ANTI-SEEP COLLAR DETAIL NTS

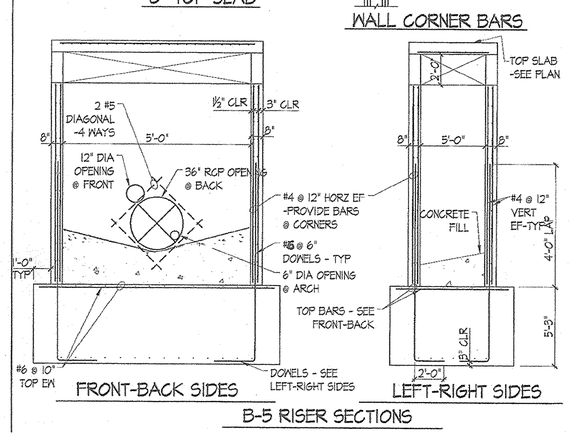




Ab = 1.0 x (4 x 6) = 24 sq-ft.
Aw = (371.40-369.5)*20 = 18 sq-ft.
Ab > Aw

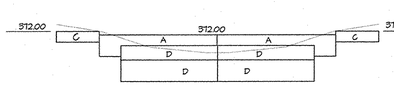
TRASH RACK DETAILS SCALE: 1" = 4'

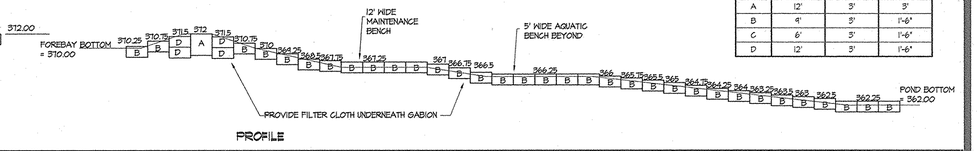
RISER STRUCTURE B-5 DETAILS



B-5 RISER SECTIONS

RISER B-5 STRUCTURE REINFORCEMENT DETAILS NTS





GABION SIZES			
LETTER CODE	LENGTH	WIDTH	HEIGHT
A	12'	3'	3'
B	9'	3'	1'-6"
C	6'	3'	1'-6"
D	12'	3'	1'-6"

GABION DETAILS NTS SCALE: 1" = 40'

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1.25.07

NTS

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/10/07

Chief, Development Engineering Division — Date 2/5/07

KATHLEEN/GOSS ASSOCIATES
Consulting Structural Engineers
15871 Crabbs Branch Way, Rockville, Maryland 20855
301/590-0071 Fax: 301/590-0073

PROJECT WALNUT GROVE
CLIENT GUTSCHICK LITTLE AND WEBER
JOB NO. 6014.03 DATE 13 JANUARY 06
ENGINEER MJG PAGE 3 OF 7

HOWARD SOIL CONSERVATION DISTRICT OPERATION, MAINTENANCE, AND INSPECTION NOTE

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

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SWM-det-B.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT POND B DETAILS

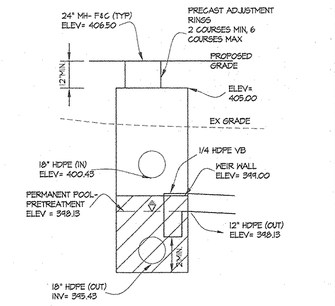
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

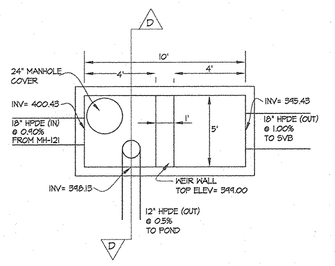
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	41 OF 78

F-06-31



STR 120 - SECTION D-D NTS



STR 120 - TOP VIEW NTS

GENERAL NOTES

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN BIORETENTION AREA ARE DETAILED IN TABLE B.3.2.

2. PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

PH RANGE 5.2 - 7.0
ORGANIC MATTER 1.5 - 4% (BY WEIGHT)
MAGNESIUM 35 LB./AC
PHOSPHORUS (PHOSPHATE - P2O5) 75 LB./AC
POTASSIUM (POTASH - K2O) 85 LB./AC
SOLUBLE SALTS NOT TO EXCEED 500 PPM

ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS, AND POTASSIUM AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED.

SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY. SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.

3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION APPENDIX B.3. CONSTRUCTION SPECIFICATIONS FOR SAND FILTERS, BIRETENTION AND OPEN CHANNELS B.3.5 AREAS ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO FRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL

SEE PLANTINGS THIS SHEET

5. PLANT INSTALLATION

MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. FINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.

TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS

UNDERDRAINS ARE TO BE PLACED ON A 3'-0" WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS

THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

HOWARD SOIL CONSERVATION DISTRICT OPERATION, MAINTENANCE, AND INSPECTION NOTE

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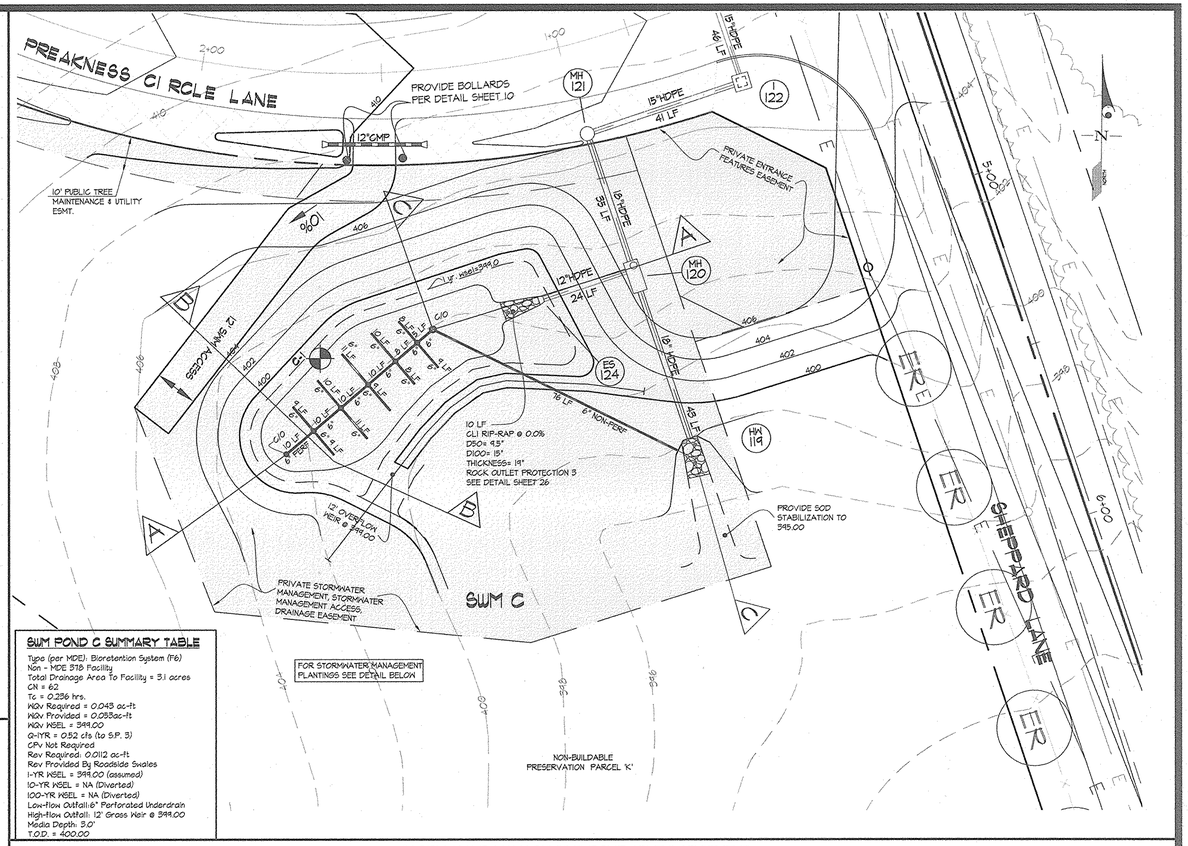
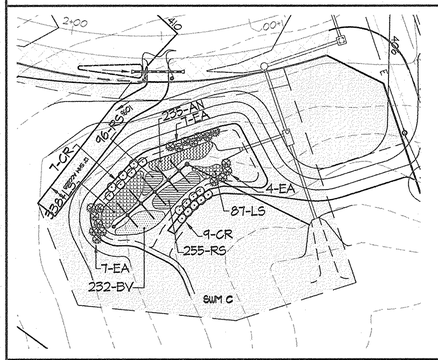


SWM POND C SUMMARY TABLE

Type (per MDE): Bioretention System (F6)
Non - NDE 318 Facility
Total Drainage Area To Facility = 3.1 acres
CN = 62
Tc = 0.236 hrs.
WQv Required = 0.043 ac-ft
WQv Provided = 0.053ac-ft
WQv WSEL = 399.00
Q-1YR = 0.52 cfs (to S.P. 3)
CPv Not Required
Rev Required: 0.0112 ac-ft
Rev Provided By Roadside Swales
1-YR WSEL = 399.00 (assumed)
10-YR WSEL = NA (Diverted)
100-YR WSEL = NA (Diverted)
Low-flow Outfall:6" Perforated Underdrain
High-flow Outfall: 12' Grass Weir @ 399.00
Media Depth: 3.0'
T.O.D. = 400.00

STORMWATER MANAGEMENT POND 'C' ENLARGEMENT SCALE: 1" = 20'

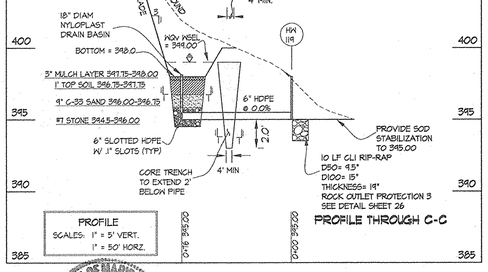


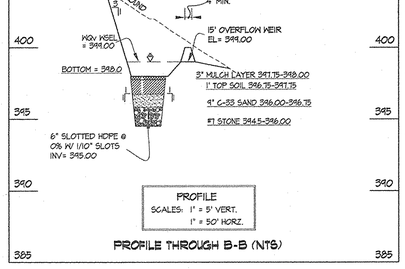
SWM POND 'C' BIORETENTION PLANTING PLAN SCALE: 1" = 40'

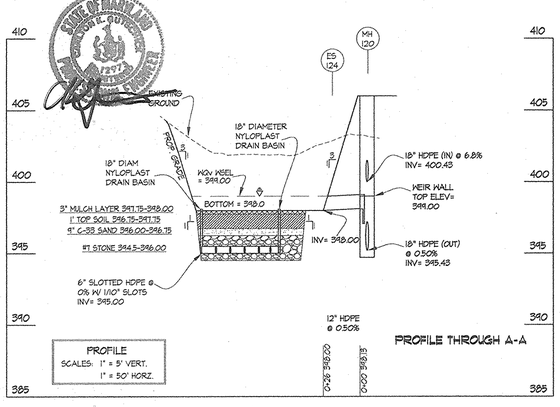
PLANT LIST FOR STORMWATER MANAGEMENT POND 'C'

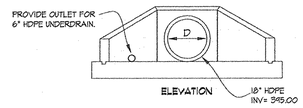
SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	NOTES
SHRUBS				
EA	18	Euvonymus atropurpureus Eastern Burning Bush	24"-36" spread	containerized
CR	16	Cornus racemosa Gray Dogwood	24"-36" spread	containerized
PERENNIALS/GROUNDCOVER				
AN	235	Aster novi-belgii New York Aster	1 gal. cont.	18" o.c.
RS	351	Rudbeckia subtomentosa Cut-leaf Coneflower	1 gal. cont.	18" o.c.
LS	425	Lobelia siphilitica Great Blue Lobelia	1 gal. cont.	18" o.c.
BV	232	Verbena hastata Blue Vervain	1 gal. cont.	18" o.c.

NOTE: STORMWATER MANAGEMENT POND PLANTINGS ARE PER MDE 2000 REQUIREMENTS
PROVIDE WETLAND SEED MIX PER MDE APPENDIX A.









TYPE 'A' HEADWALL PER MD.CO SD-5.11 FOR 18" PIPE MODIFIED TO ACCEPT 18" HDPE & 6" HDPE ON SIDE WALL.

HEADWALL 119 DETAIL (NTS)

OPERATION AND MAINTENANCE SCHEDULE STORMWATER MANAGEMENT FACILITY POND C

ROUTINE MAINTENANCE (BY HOA)

1. THE FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.

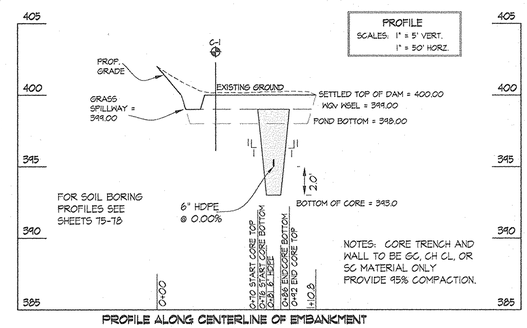
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.

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

NON-ROUTINE MAINTENANCE (BY HOA)

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

2. SEDIMENT SHOULD BE WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY.



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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

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WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
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STORMWATER MANAGEMENT POND C DETAILS

WALNUT GROVE

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ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

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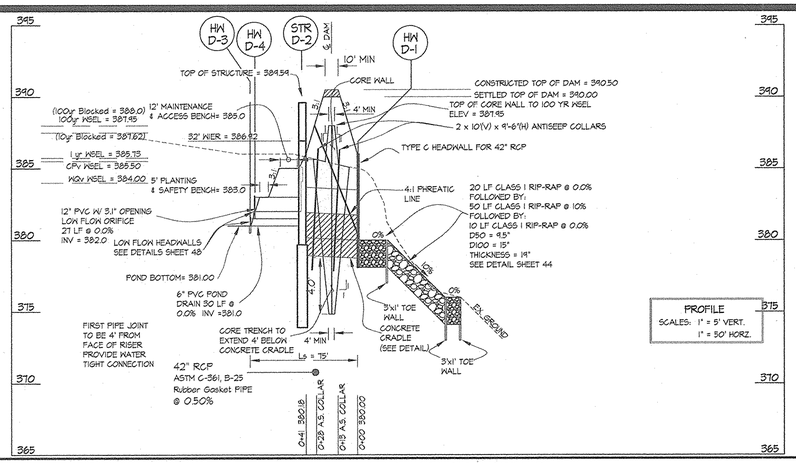
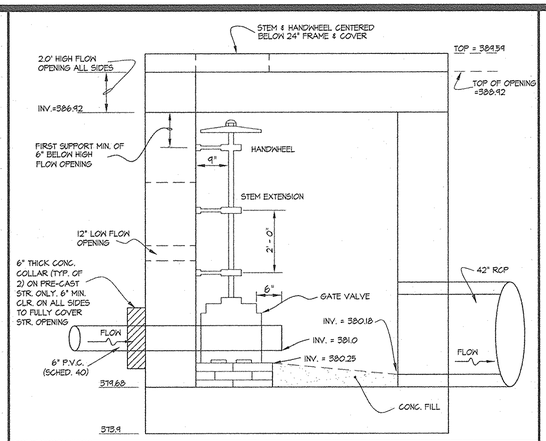
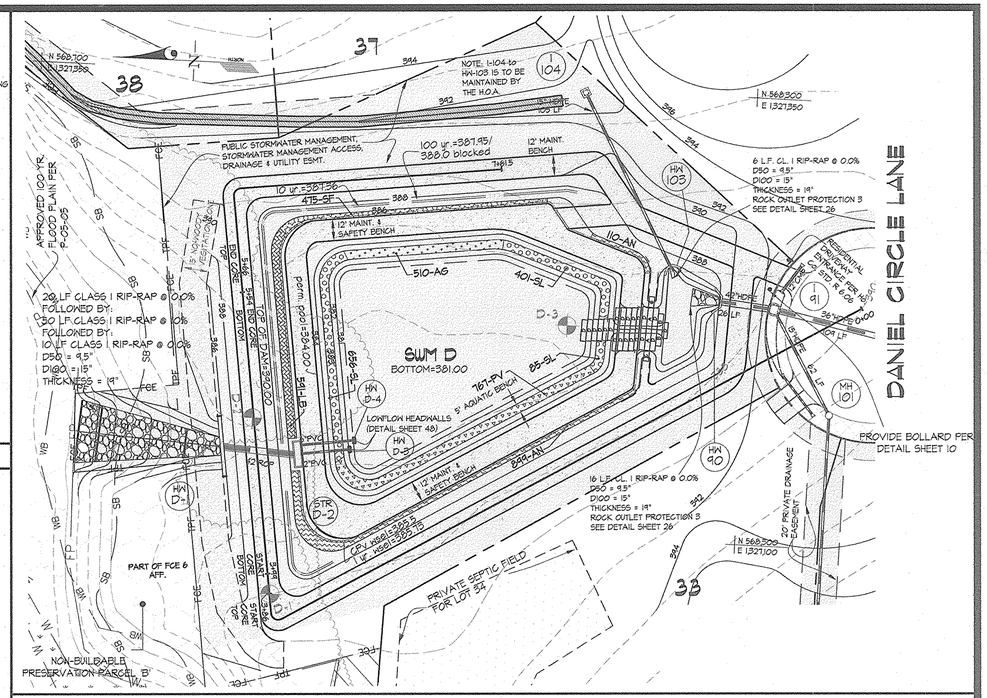


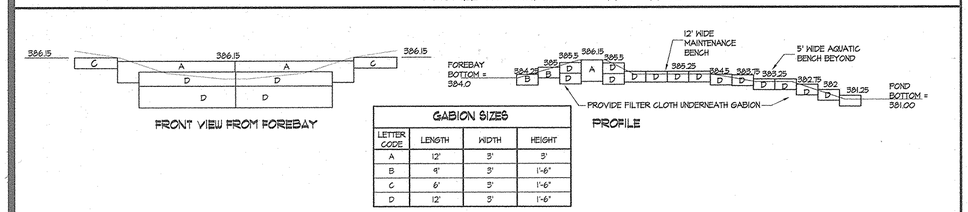
PROFILE THROUGH PRINCIPLE SPILLWAY



GATE VALVE DETAIL NTS



STORMWATER MANAGEMENT POND 'D' ENLARGEMENT / PLANTING PLAN SCALE: 1" = 40'



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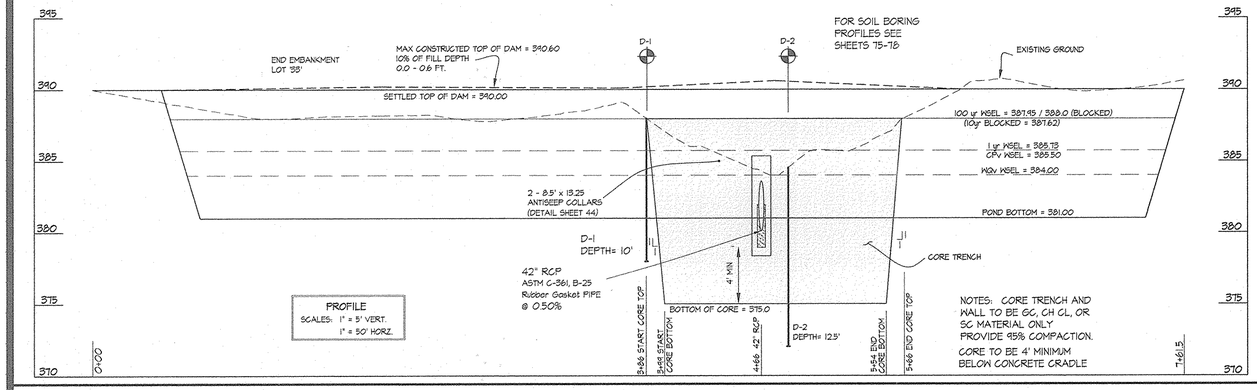
C	6'	3'	1'-6"
D	12'	3'	1'-6"

GABION DETAILS NTS



PROFILE ALONG CENTERLINE OF EMBANKMENT

SWM FACILITY 'D' IS TO BE MAINTAINED JOINTLY BY HO. CO. & HOA

OPERATION AND MAINTENANCE SCHEDULE OF JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITY

ROUTINE MAINTENANCE (BY HOA)

1. THE FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.

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

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

NON-ROUTINE MAINTENANCE (BY HOWARD COUNTY)

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

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

PLANT LIST FOR STORMWATER MANAGEMENT POND 'D'

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	NOTES
PERENNIALS/GROUNDCOVER				
AG	510	Andropogon glomeratus Bushy Beardgrass	1 gal. cont.	18" o.c.
PV	767	Peltandra virginica Arrow Arum	1 gal. cont.	18" o.c.
SL	1142	Sagitaria latifolia Duck Potato	1 gal. cont.	18" o.c.
AN	1009	Aster novi-belgii New York Aster	1 gal. cont.	18" o.c.
SF	475	Cyperus Filicinus Slender Flatsedge	1 gal. cont.	18" o.c.
LB	591	Poa alpigena Low Bluegrass	1 gal. cont.	18" o.c.

NOTE: STORMWATER MANAGEMENT POND PLANTINGS ARE PER MDE 2000 REQUIREMENTS
PROVIDE WETLAND SEED MIX PER MDE APPENDIX A.

SWM POND D SUMMARY TABLE

Type (per MDE) : Wet Extended Detention Pond (P3)
MDE 378 Hazard Class A
Total Drainage Area To Facility = 34.3 acres
Proposed Drainage Area Treated = 25.0 acres
CN = 68 Tc = 0.321 hrs.
WQv Required = 0.48 ac-ft
WQv Provided = 1.01 ac-ft
WQv/Permanent Pool WSEL = 384.00
CPv Required = 0.78 ac-ft
CPv Provided = 0.80 ac-ft
CPv WSEL = 386.5
Rev Required: 0.11 ac-ft
Rev Provided By Roadside Swales & Discounted From WQv
1-YR (Q proposed = 0.32cfs) (WSEL = 385.13)
10-YR Normal (Qp = 33.25 cfs) (WSEL = 387.39)
10-YR Blocked (Qp = 60.0 cfs) (WSEL = 387.62)
100-YR Normal(Qp = 109.88 cfs) (WSEL = 387.45)
10-YR Blocked (Qp = 111.19) (WSEL = 388.00)
5 ft. Aquatic Bench = 388.00
12 ft. Safety/Maintenance Bench = 386.00
Outfall: Precast Riser Structure to 42 RCP
T.O.D. = 390.00

HOWARD SOIL CONSERVATION DISTRICT
OPERATION, MAINTENANCE, AND INSPECTION NOTE

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/2/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1.25.07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — 1-25-07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SWM-det-D.dwg	DES. BJM	DRN. BJM	CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT POND D DETAILS

WALNUT GROVE

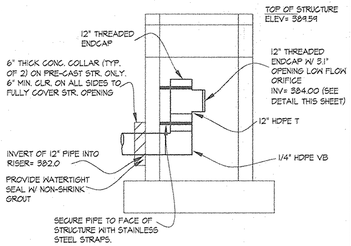
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

L.2927 F.487

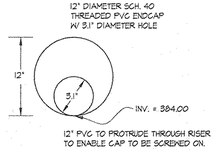
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	43 OF 78

F-06-31



DEWATERING DEVICE DETAIL NTS



NOTE: ORIFICE CONFIGURATION DIFFERENT DURING SEDIMENT CONTROL INTERIM CONDITION. SEE SEDIMENT CONTROL DETAILS.

SWM LOW-FLOW ORIFICE DETAIL NTS

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1-25-07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

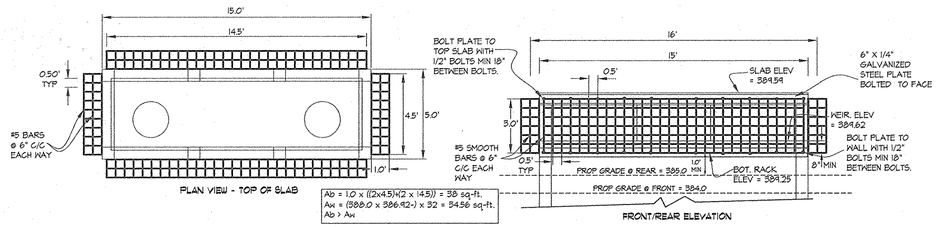
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

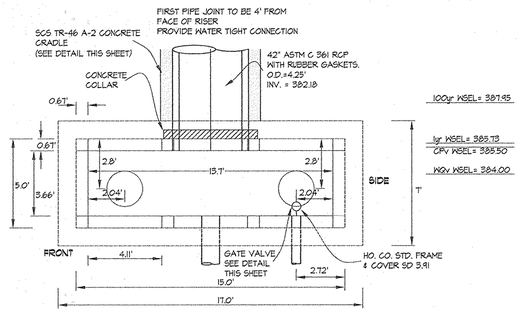
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

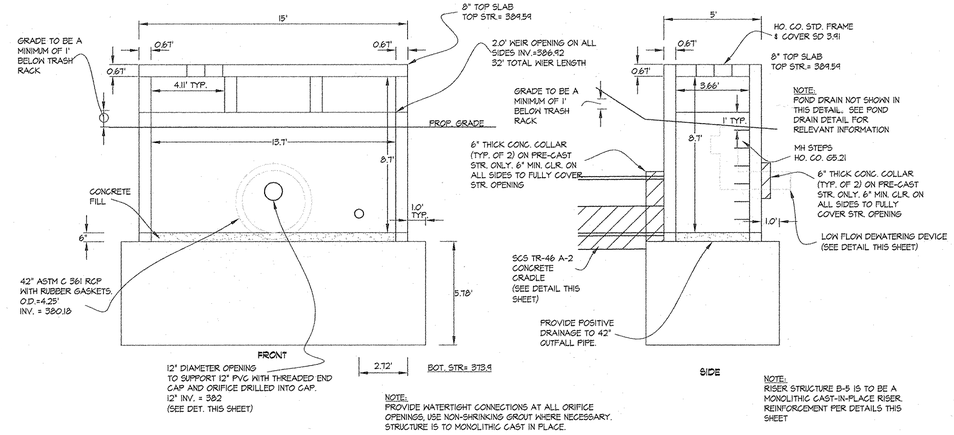
Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/9/07

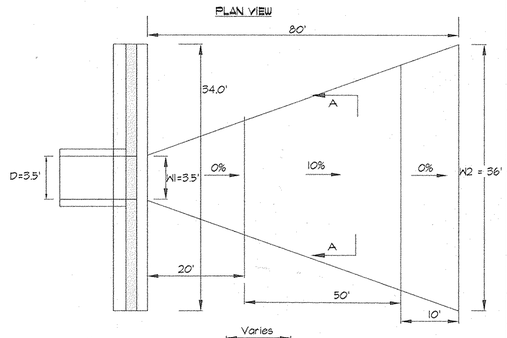


TRASH RACK DETAILS SCALE: 1" = 4'

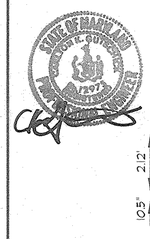




RISER STRUCTURE DETAILS SCALE: 1" = 4'

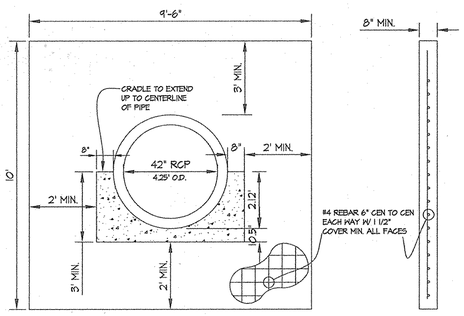


OUTLET PROTECTION DETAILS (HW D-1) NTS

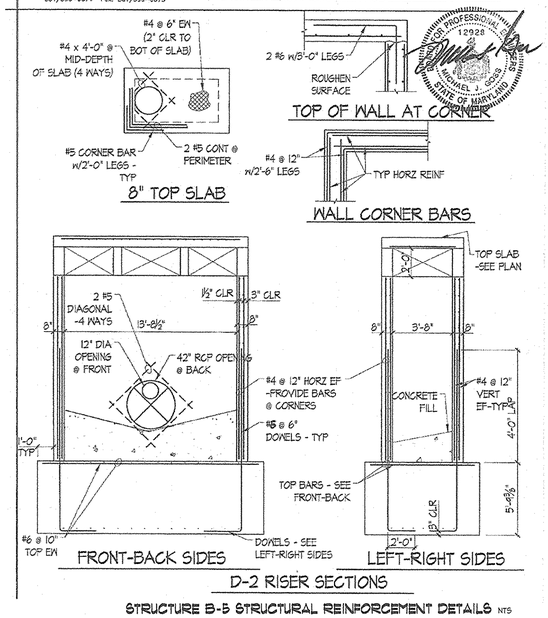


SCS TR-46 A-2 CONCRETE CRADLE DETAIL NTS

Note: Asphalt joint filler material shall be applied between all concrete surfaces. (except between the pipe and cradle)



CONCRETE CRADLE & CONCRETE ANTI-SEEP COLLAR DETAIL NTS



STRUCTURE B-5 STRUCTURAL REINFORCEMENT DETAILS NTS

RATHGEBER/GOSS ASSOCIATES
Consulting Structural Engineers
10871 Gerbils Branch Way, Rockville, Maryland 20855
301/590-0071 Fax: 301/590-0073

PROJECT WALNUT GROVE
CLIENT GUTSCHICK, LITTLE AND WEBER
JOB NO. 6014.03 DATE 13 JANUARY 06
ENGINEER MJG PAGE 4 OF 7

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SWM-det-D.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE, PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT POND D DETAILS

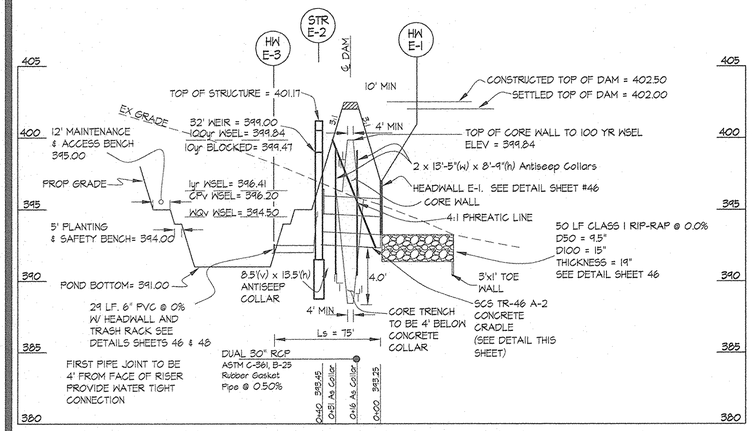
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	44 OF 78

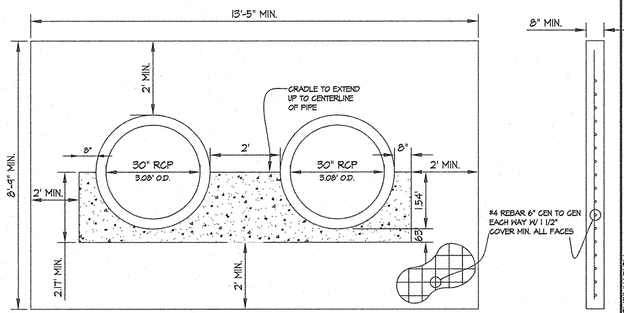
F-06-31



PROFILE THROUGH PRINCIPLE SPILLWAY

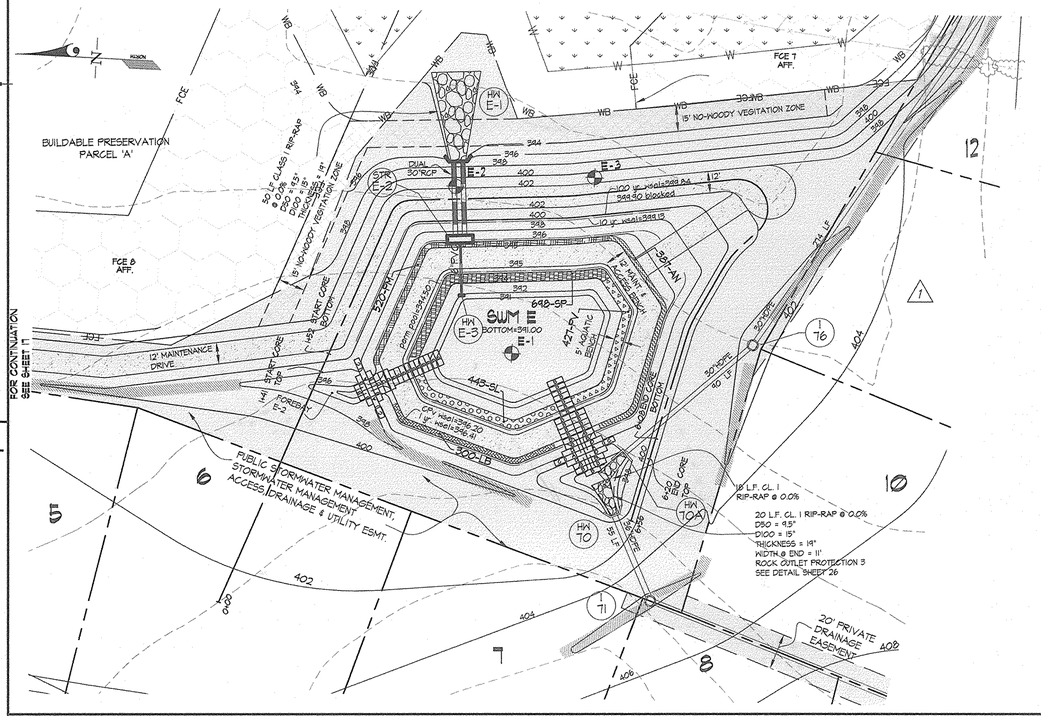
SCALE: H: 1" = 50'
V: 1" = 5'

Note: Asphalt joint filler material shall be applied between all concrete surfaces. (except between the pipe and cradle)



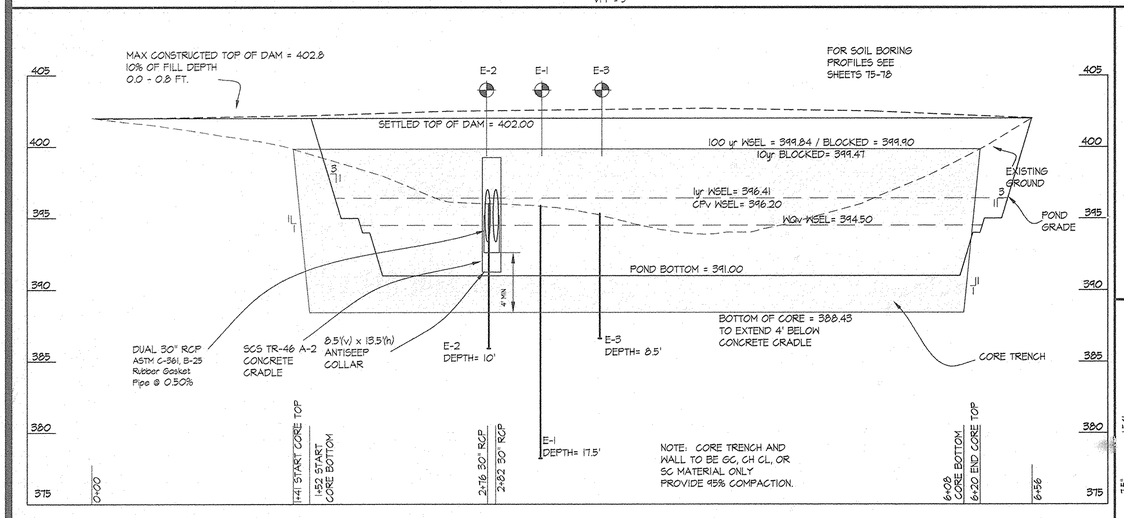
CONCRETE CRADLE & CONCRETE ANTI-SEEP COLLAR DETAIL

NTS



STORMWATER MANAGEMENT POND 'E' ENLARGEMENT / PLANTING PLAN

SCALE: 1" = 40'

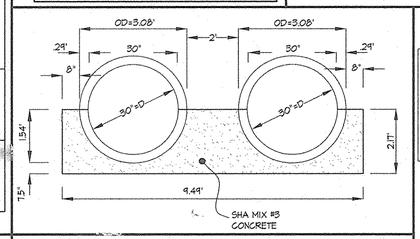


PROFILE ALONG CENTERLINE OF EMBANKMENT

SCALE: H: 1" = 50'
V: 1" = 5'

SWM POND E SUMMARY TABLE

Type (per MDE) : Wet Extended Detention Pond (P3)
MDE 378 Hazard Class A
Total Drainage Area To Facility = 28.4 acres
Proposed Drainage Area Treated = 16.8 acres
CN = 68
Tc = 0.364 hrs.
WQv Required = 0.32 ac-ft
WQv Provided = 0.40 ac-ft
WQv/Permanent Pool WSEL = 394.5
CPv Required = 0.55 ac-ft
CPv Provided = 0.78 ac-ft
CPv WSEL = 396.12
Rev Required: 0.1119 ac-ft
Rev Provided By Roadside Swales & Discounted From WQv
1-YR (Qp = 0.28 cfs) (WSEL = 396.72)
10-YR Normal (Qp = 14.31 cfs) (WSEL = 398.19)
10-YR Blocked (Qp = 50.80 cfs) (WSEL = 399.51)
100-YR Normal(Qp = 84.66 cfs) (WSEL = 399.90)
10-YR Blocked (Qp = 95.01 cfs) (WSEL = 399.96)
5 ft. Aquatic Bench = 394.00
12 ft. Safety/Maintenance Bench = 395.00
Outfall: Precast Riser Structure dual to 30 RCP
T.O.D. = 402.00



SCS TR-46 A-2 CONCRETE CRADLE DETAIL NTS

HOWARD SOIL CONSERVATION DISTRICT OPERATION, MAINTENANCE, AND INSPECTION NOTE

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

SWM FACILITY 'E' IS TO BE MAINTAINED JOINTLY BY HO. CO. & HOA

OPERATION AND MAINTENANCE SCHEDULE OF JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITY

ROUTINE MAINTENANCE (BY HOA)

1. THE FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.

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

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

NON-ROUTINE MAINTENANCE (BY HOWARD COUNTY)

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

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

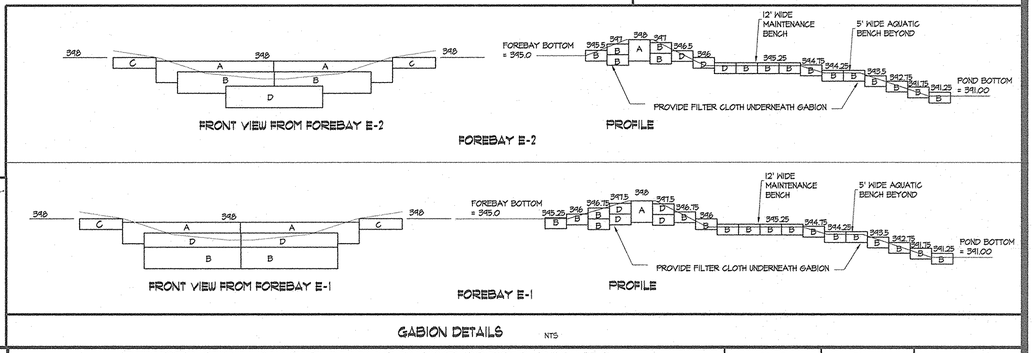
PLANT LIST FOR STORMWATER MANAGEMENT POND 'E'

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	NOTES
PERENNIALS/GROUNDCOVER				
SP	698	Scirpus pungens Three-square Bulrush	1 gal. cont.	18" o.c.
PV	427	Peltandra virginica Arrow Arum	1 gal. cont.	18" o.c.
SL	443	Sagitaria latifolia Duck Potato	1 gal. cont.	18" o.c.
AN	387	Aster novi-belgii New York Aster	1 gal. cont.	18" o.c.
PM	520	Phlox maculata Meadow Phlox	1 gal. cont.	18" o.c.
LB	300	Poa alpigena Low Bluegrass	1 gal. cont.	18" o.c.

NOTE: STORMWATER MANAGEMENT POND PLANTINGS ARE PER MDE 2000 REQUIREMENTS
PROVIDE WETLAND SEED MIX PER MDE APPENDIX A.

GABION SIZES

LETTER CODE	LENGTH	WIDTH	HEIGHT
A	12'	3'	3'
B	9'	3'	1'-6"
C	6'	3'	1'-6"
D	12'	3'	1'-6"



GABION DETAILS NTS

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. 12915, Expiration Date May 26, 2008.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12/5/07

Chief, Development Engineering Division — Date 12/5/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 11/13/07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN HAS 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — 11-14-07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 11/29/07

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153SWMA-det.dwg	DES. BJM	DRN. BJM	CHK. DDS

DATE	REVISION	BY	APP'R.
11/16/07	RUNNING, FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT ⚠	DDS	

REVISED STORMWATER MANAGEMENT POND E DETAILS

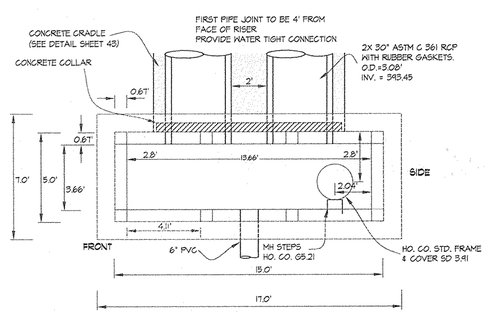
WALNUT GROVE

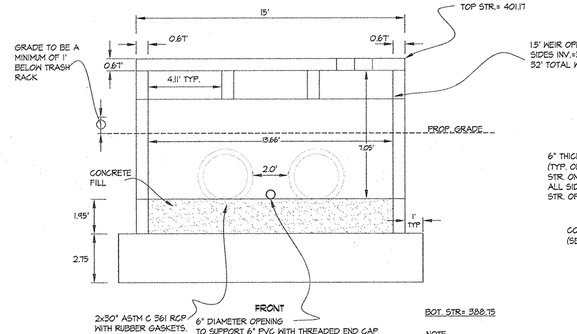
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

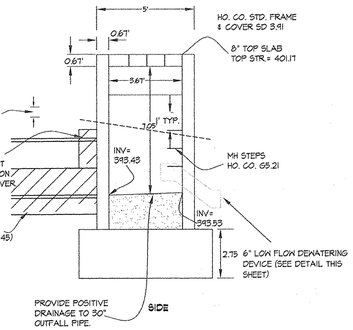
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	45 OF 78

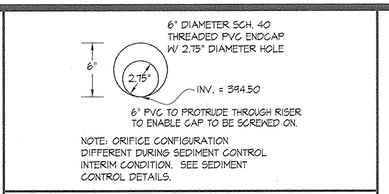
F-06-31



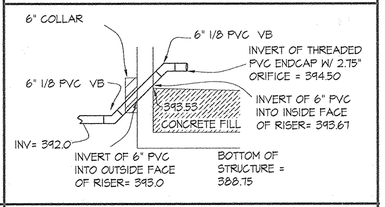




RISER STRUCTURE DETAILS SCALE: 1" = 4'



SWM LOW FLOW ORIFICE DETAIL NTS



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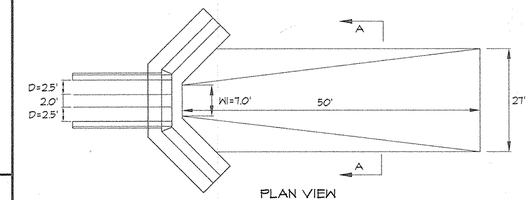
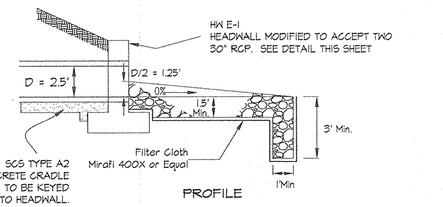
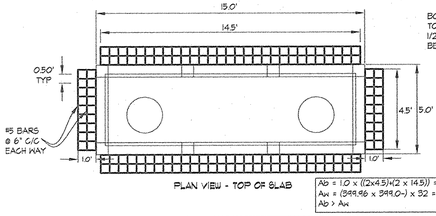
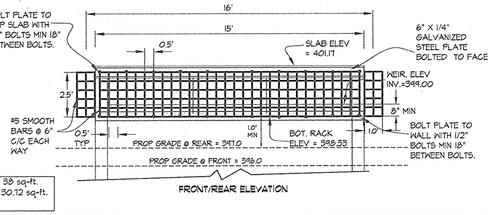
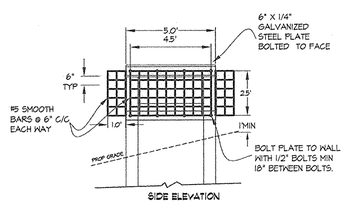




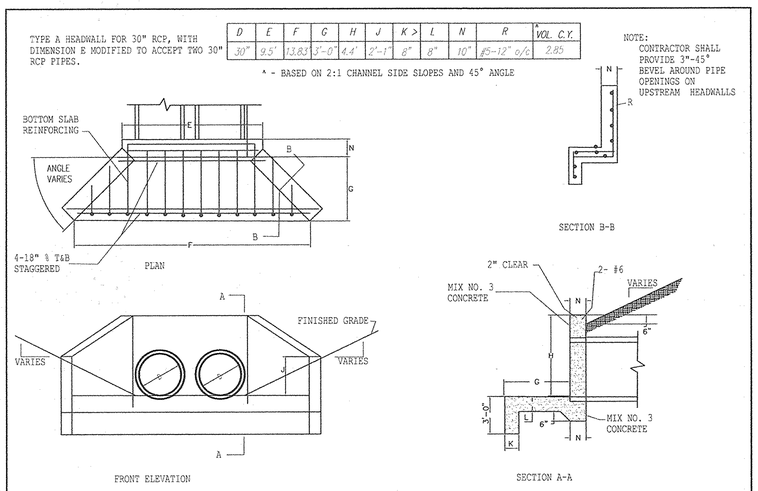
OUTFALL E-1 NTS







TRASH RACK DETAILS SCALE: 1" = 4'



HEADWALL E-1
CIRCULAR

DRAWN BY D.B.S.
CHECKED BY B.J.M.
SCALE NONE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

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HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/5/07

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SIGNATURE OF DEVELOPER/BUILDER — DATE 1-25-07

ENGINEER'S CERTIFICATE

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ENGINEER'S SIGNATURE — DATE 1-25-07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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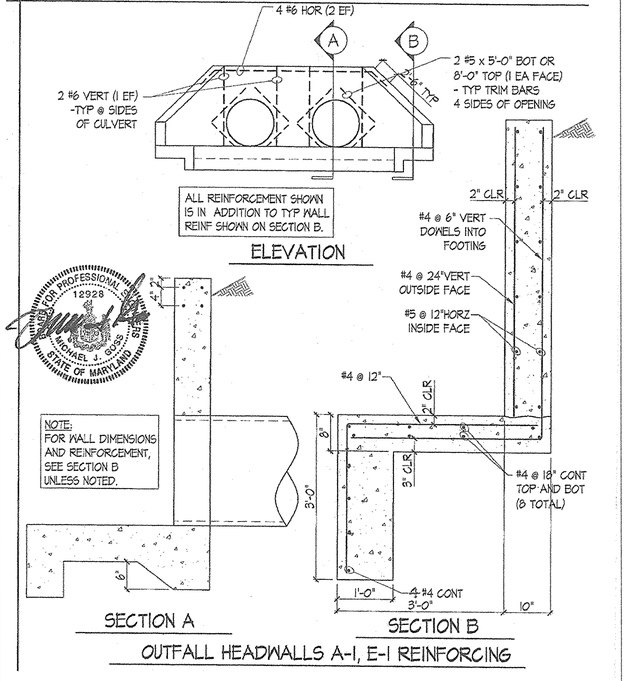
\Drawings\00153\Final-Road\00153SWMA-det.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

RATHGEBER/GOSS ASSOCIATES
Consulting Structural Engineers
15871 Crabbs Branch Way, Rockville, Maryland 20855
301/590-0071 Fax: 301/590-0073

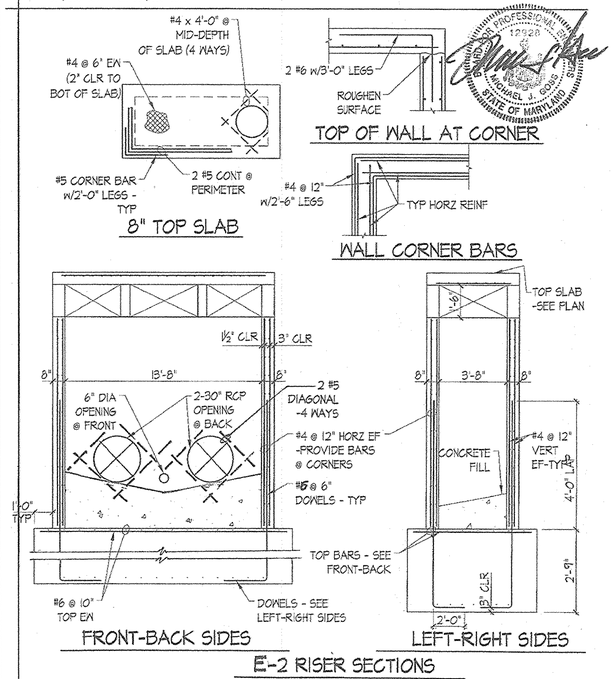
PROJECT WALNUT GROVE
CLIENT GUTSCHICK LITTLE AND WEBER
JOB NO. 6014.03 DATE 13 JANUARY 06
ENGINEER MJG PAGE 1 OF 7



OUTFALL HEADWALLS A-1, E-1 REINFORCING

RATHGEBER/GOSS ASSOCIATES
Consulting Structural Engineers
15871 Crabbs Branch Way, Rockville, Maryland 20855
301/590-0071 Fax: 301/590-0073

PROJECT WALNUT GROVE
CLIENT GUTSCHICK LITTLE AND WEBER
JOB NO. 6014.03 DATE 13 JANUARY 06
ENGINEER MJG PAGE 5 OF 7



RISER E2 & HEADWALL E1 STRUCTURAL REINFORCEMNT DETAILS NTS

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT POND E DETAILS

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	46 OF 78

F-06-31

SOIL BORING SUMMARY TABLE

BORING (--)	LOCATION (N, E)	
EP-1	N 568,366	E 1,329,038
EP-2	N 568,281	E 1,329,701
EP-3	N 568,066	E 1,329,289

SEQUENCE OF CONSTRUCTION FOR EXISTING POND CONVERSION

1. CONSTRUCT TEMPORARY SAND BAG WALL (A) AND INSTALL SUPER SILT FENCE.
2. CONSTRUCT PERMANENT LOW RISE RELEASE STRUCTURE, GRADE, AND STABILIZE WITH SOD.
3. OBTAIN PERMISSION FROM THE SCI TO REMOVE TEMPORARY SAND BAG WALL (A) AND SUPER SILT FENCE.
4. CONSTRUCT TEMPORARY SAND BAG WALL (B).
5. EXCAVATE AND REMOVE EXISTING OUTFALL PIPE AND BACKFILL TRENCH WITH CORE MATERIAL.
6. STABILIZE DISTURBED AREAS.
7. OBTAIN PERMISSION FROM THE SCI TO REMOVE TEMPORARY SAND BAG WALL (B).

EXISTING FARM POND SUMMARY

DA Through Pond E
A = 28.9 acres
CN = 66
Tc = 0.364 hrs

Overland Flow To Farm Pond
A = 9.9 acres
CN = 63
Tc = 0.183 hrs

Farm Pond Hydraulic Summary
Permanent Pool WSEL = 388.50
Outfall to Low Rise Release Structure
Invert = 388.50
Q-2 YR = 9.74 cfs
2-YR WSEL = 390.49
Q-100 = 81.77 cfs
100-YR WSEL = 391.02

Embankment Material and Certification

Evaluation of the embankment material is based upon soil borings EP-1, EP-2, EP-3, and the upon compaction test report at EP-2. The Geotechnical report prepared by Hillis Carnes in August 1, 2005 concludes "that the geotechnically related aspects of the existing farm pond generally conform to MD-378 criteria." All existing woody vegetation along the embankment is to be removed per the recomendation of the geotechnical engineer.

FOR SOIL BORING INFORMATION SEE SHEETS 75-78

EXISTING FARM POND SCALE: 1" = 30'

CENTERLINE PROFILE EXISTING EMBANKMENT

SCALE: (H) 1" = 50' (V) 1" = 5'

CENTERLINE PROFILE EXISTING 12' SPILLWAY TO STREAM

SCALE: (H) 1" = 50' (V) 1" = 5'

Criteria and Recommendations for Stump and root Mass Removal (TR-705)

A. Definition of Treatment Methods

Consideration of the factors previously listed was used to develop the appropriate treatment methods for stump and root mass removal on embankments. General recommendations are summarized in Table A.

Definitions of each of the treatment methods listed in this table are as follows:

1. Cut and Kill Stump

Trees should be cut approximately six inches below the ground surface to eliminate the hazard of any surface obstruction.

An approved silvicide should be applied to the stump surface, as recommended by the manufacturer, prior to backfilling and reseeding.

2. Cut and Grub Stumps and Root Mass to Specified Depth Uniformly

In the area specified, a uniform cut will be made with appropriate equipment. The underlying root mass that remains will be disturbed as little as possible by using sharp cutting tools. Exposed tap roots will be treated with an appropriate silvicide to prevent reemergence.

3. Method of placement and Backfill

Where stump and root mass removal is to a uniform depth over an accessible area, backfill should be placed in lifts no thicker than 6" and compacted at about optimum moisture by at least two passes if the tracks of the earth moving equipment.

Where stump and root mass removal is in confined areas, backfill should be compacted with hand directed power tampers. Backfill should be placed at a minimum of 90 percent maximum dry density (ASTM D-698A) and approximately optimum moisture. Lift thickness should be 4 - 6".

1. Special Treatment

Where extensive root mass removal is necessary and seepage is either evident or probable, the use of a filter may be appropriate. Filter material gradations must be selected to prevent piping or movement of embankment materials but allow seepage and safe exit of water. The filter may be added in conjunction with partial removal of extensive root systems.

C. General Recommendations for Tree Removal

Table A contains general recommendations for tree removal.

3. Cut and Grub Stumps to Depth and Diameter of Removal Dictated by Type and Size of Tree (See tables)

For taprooted trees, the removal of this mass should create a roughly parabolic shaped hole with depth and diameter at the surface as specified in the tables. For spreading root trees, the depth of removal shown in the tables should be uniform over the diameter area specified in the tables.

4. Complete Removal of Stump and Root system

It is anticipated that this treatment will be unusual and must be judged on an individual basis. Generally this would be an impractical solution and may, in some cases, be detrimental to the structure. Some of the complications are as follows: (1) area of disturbance, (2) depth and slopes of excavation, (3) procedures for effective backfilling of the excavation, (4) timing and duration of the removal operation.

5. Partial Removal of Stumps and Root Systems and the Addition of a Filter. (See backfill method 3, page 6.)

This treatment may be the most positive solution when there us concern for piping but treatment number 4 (+complete removal) is not feasible.

B. Types of Backfill and Methods of Backfilling After Removal of Stumps and Root Mass

1. Selection of Soil Materials for Backfill

The selection of soil for the backfilling of treated areas should be based primarily on the permeability characteristics of the backfill with respect to the surrounding embankment. Generally backfill materials in Zones 1 and 2 of the embankment should be of similar permeability to the adjacent embankment. In embankments of known dispersive clays care must be taken to find nondispersed clay borrow material or treat dispersed borrow material with hydrated lime.

For backfill in Zones 3 and 4, if the materials in the embankment are permeable shell type materials, it is important that borrow material be at least as permeable as and preferably more permeable than the adjacent fill material. At the same time, in critical locations, the borrow soils should satisfy filter design criteria to prevent any possible piping.

TABLE A
GENERAL RECOMMENDATIONS FOR TREE REMOVAL 1/

TREE LOCATION ZONE	TREE TYPE A (TAP ROOT) DBH < 8" LIGHT COVER	TREE TYPE A DBH < 8" HEAVY COVER	TREE TYPE A DBH _ 8" LIGHT COVER	TREE TYPE A DBH _ 8" HEAVY COVER	TREE TYPE B (SPREADING ROOTS) DBH < 8" LIGHT COVER	TREE TYPE B DBH < 8" HEAVY COVER	TREE TYPE B DBH ≥ 8" LIGHT COVER	TREE TYPE B DBH ≥ 8" HEAVY COVER
1 1/	CUT AND KILL STUMPS.	CUT AND KILL STUMPS.	CUT AND KILL STUMPS.	CUT AND KILL STUMPS.	CUT AND KILL STUMPS.	CUT AND KILL STUMPS.	CUT AND KILL STUMPS.	CUT AND KILL STUMPS.
2 4/	CUT AND KILL STUMPS. 2/	CUT AND GRUB STUMPS AND ROOT MASS TO 18" DEPTH UNIFORMLY	CUT AND GRUB STUMPS AND ROOT MASS TO 24" DEPTH IN ½ CROWN WIDTH DIAMETER AREA	CUT AND GRUB STUMPS AND ROOT MASS TO 24" DEPTH UNIFORMLY	CUT AND KILL STUMPS. 2/	CUT AND GRUB STUMPS AND ROOT MASS TO 12" DEPTH UNIFORMLY	CUT AND GRUB STUMPS AND ROOT MASS TO 18" DEPTH IN ½ CROWN WIDTH DIAMETER AREA	CUT AND GRUB STUMPS AND ROOT MASS TO 18" DEPTH UNIFORMLY
3 7/	CUT AND KILL STUMPS.	CUT AND GRUB STUMPS AND ROOT MASS TO 18" DEPTH UNIFORMLY	CUT AND GRUB STUMPS AND ROOT MASS TO 24" DEPTH IN ½ CROWN WIDTH DIAMETER AREA	CUT AND GRUB STUMPS AND ROOT MASS TO 18" DEPTH UNIFORMLY	CUT AND KILL STUMPS. 5/	CUT AND GRUB STUMPS AND ROOT MASS TO 12" DEPTH UNIFORMLY. 5/	CUT AND GRUB STUMPS AND ROOT MASS TO 18" DEPTH IN ½ CROWN WIDTH DIAMETER AREA. 3/ 5/	CUT AND GRUB STUMPS AND ROOT MASS TO 12" DEPTH UNIFORMLY. 6/

1/ TREE GROWTH SMALLER THAN 2" DBH WILL BE REMOVED BY SPRAYING, INJECTION OR CUTTING AND STUMP KILLING. TREES AND SHRUBS PLANTED FOR SHORELINE PROTECTION IN ZONE 1 SHALL BE MAINTAINED AT HEIGHTS 4 FEET.

2/ IN EMBANKMENT TYPE (A) DISPERSED SOIL -- CUT STUMPS 12 INCHES BELOW SURFACE AND BACK FILL WITH COMPACTED SOIL.

3/ IN EMBANKMENT TYPE (D) EARTHFILL WITH LOW PIPING POTENTIAL -- CUT AND KILL STUMPS.

4/ IN RIP-RAPPED OR HEAVY ROCKFILL SECTIONS GRUBBING IS NOT REQUIRED

5/ FIR WATER-LOVING TREES SUCH AS WILOWS, REMOVE STUMPS AND ROOT MASS IN TWICE THE CROWN WIDTH AREA.

6/ FOR WATER-LOVING TREES SUCH AS WILLOWS, REMOVE STUMPS AND ROOT MASS TO 18" DEPTH UNIFORMLY.

7/ INDIVIDUAL LARGE TREES IN THIS ZONE MAY NEED THE SPECIAL TREATMENT AS DESCRIBED IN SECTION 3.

PLAN

SECTION A-A

FRONT ELEVATION

SECTION B-B

SECTION C-C

NOTES:

1. ALL EXPOSED EDGES TO HAVE ¾" X ¾" CHANFER OR AS DIRECTED.
2. CONCRETE SHALL BE SHA MIX NO. 3 (fc' - 3500 PSI @ 28 DAYS).
3. REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60.
4. QUANTITIES IN TABLE FOR ESTIMATING ONLY.
5. WEIR CONTROL SECTION SHALL BE SIZED FOR APPROPRIATE CONTROL OF DISCHARGE RATES. (WEIRD SHOWN IS FOR ILLUSTRATION PURPOSES ONLY)
6. DETAIL SHOWN IS BASED UP HOWARD COUNTY STD. SD-7.00.

LOW RISE STORMWATER CONTROL STRUCTURE DETAILS

N.T.S.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 2/8/07
Chief, Development Engineering Division — Date 2/7/07

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USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/1/07

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HOWARD SOIL CONSERVATION DISTRICT — DATE 2/1/07

STATE OF MARYLAND PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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DATE	REVISION	BY	APP'R.

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WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

EXISTING FARM POND DETAILS and CERTIFICATION

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"
L.2927 F.487

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1" = 30'	RC-DEO	00153
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JAN./2007	PARCEL 74 28 - 18,17	47 OF 78

F-06-31

SWM CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30 % PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8-INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT. WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN ±2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT OFF TRENCH - THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10-YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE

ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

1. MATERIALS -(POLYMER COATED STEEL PIPE) - STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.
MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.
MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT. ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PREPUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE. HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE

ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE

THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4"-10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311. GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL EMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

OPERATION AND MAINTENANCE

AN OPERATION AND MAINTENANCE PLAN IN ACCORDANCE WITH LOCAL OR STATE REGULATIONS WILL BE PREPARED FOR ALL PONDS. AS A MINIMUM, THE DAM INSPECTION CHECKLIST LOCATED IN APPENDIX A SHALL BE INCLUDED AS PART OF THE OPERATION AND MAINTENANCE PLAN AND PERFORMED AT LEAST ANNUALLY. WRITTEN RECORDS OF MAINTENANCE AND MAJOR REPAIRS NEEDS TO BE RETAINED IN A FILE. THE ISSUANCE OF A MAINTENANCE AND REPAIR PERMIT FOR ANY REPAIRS OR MAINTENANCE THAT INVOLVES THE MODIFICATION OF THE DAM OR SPILLWAY FROM ITS ORIGINAL DESIGN AND SPECIFICATIONS IS REQUIRED. A PERMIT IS ALSO REQUIRED FOR ANY REPAIRS OR RECONSTRUCTION THAT INVOLVE A SUBSTANTIAL PORTION OF THE STRUCTURE. ALL INDICATED REPAIRS ARE TO BE MADE AS SOON AS PRACTICAL.

EMBANKMENT AND CUT-OFF TRENCH Per HILLIS CARNES JOB No. 04423A

The areas of the SWM facilities should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed sub grade material should be proof rolled with a loaded dump truck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or pentrometer testing should be excavated to suitable firm soil, and then grades re-established by back-filling with suitable soil.

A representative of the Geotechnical Engineer should be present to monitor placement and compaction to fill for the embankment and cut off trench. In accordance with NRCS-MD Code No. 378 Pond Standards/ Specifications, soils considered suitable for the center of the embankment and cut off trench shall conform to United Soil Classification GC, SC, CL or CH and have at least 30% passing the #200 sieve.

It is our professional opinion that in addition to the soil materials described above, a fine grained soil, including silt (ML-MH) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. All fill materials must be placed and compacted in accordance with NRCS-MD Code no. 378 specifications.

RATHGEBER/ GOSS ASSOCIATES
Consulting Structural Engineers
15871 Crabbs Branch Way, Rockville, Maryland 20855
301/590-0071 Fax: 301/590-0073

PROJECT WALNUT GROVE
CLIENT GUTSCHICK LITTLE AND WEBER
JOB NO. 6014.03 DATE 13 JANUARY 06
ENGINEER MJG PAGE 6 OF 7

LOW-FLOW HEADWALL REINFORCING
PONDS A, B, D, E

STRUCTURES:
A-3 A-4
B-11 B-12
D-4 D-3
E-3

6" & 12" LOW FLOW HEADWALL STRUCTURAL REINFORCEMENT DETAILS NTS

STRUCTURES:
A-4
B-11
D-4
E-3

6" LOW FLOW HEADWALL DETAILS NTS

STRUCTURES:
A-3
B-12
D-3

12" LOW FLOW HEADWALL DETAILS NTS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — 2-5-07 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — 2/5/07 Date
Chief, Development Engineering Division — 2/7/07 Date

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — 1-28-07 DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — 1-25-07

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/1/07 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 2/1/07 DATE

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153-STREAMXING.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT NOTES & DETAILS

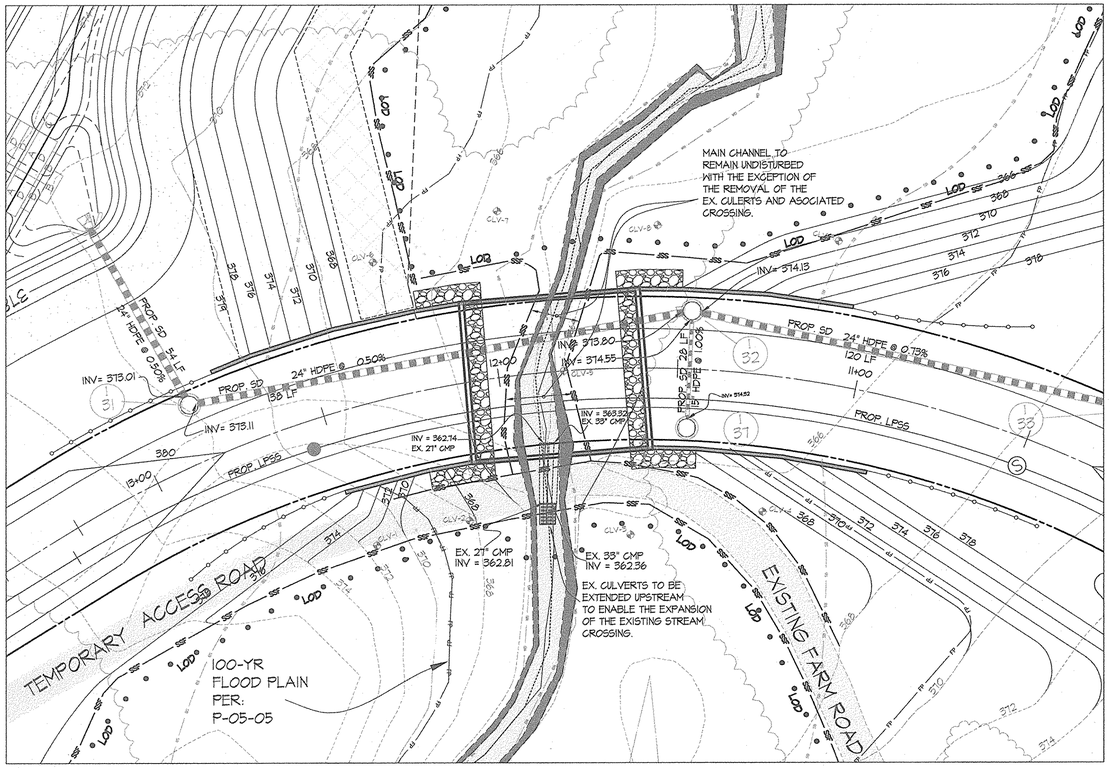
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"
L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	48 OF 78

F-06-31



SEDIMENT CONTROL AND ACCESS PLAN

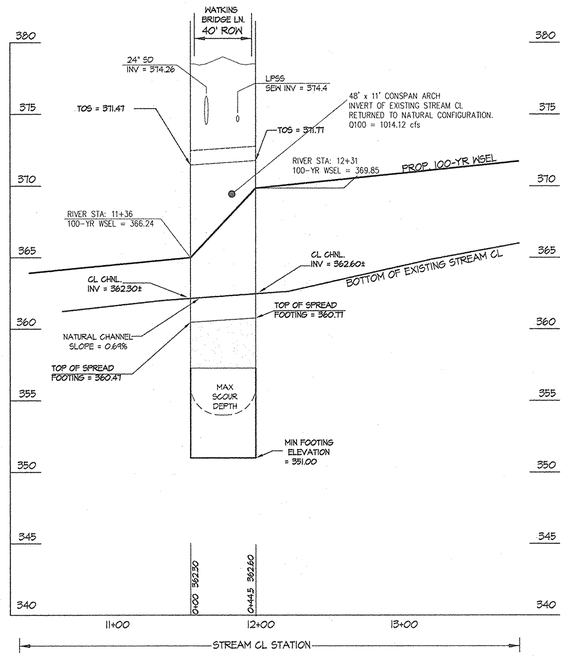
SCALE: 1" = 20'

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. HOLD A PRECONSTRUCTION MEETING WITH THE Ho.Co. SCI, GLW DESIGN ENGINEER, GENERAL CONTRACTOR, MDE (BILL SIEGER) AND THE ARMY CORPS OF ENGINEERS (JOE DAVIA).
2. EXTEND THE EXISTING CMP CULVERTS (27" AND 33") UPSTREAM AND EXPAND THE CROSSING WIDTH UPSTREAM SUFFICIENTLY TO A PROVIDE 12 FOOT WIDE ACCESS PATH.
3. INSTALL SUPER SILT FENCE SHOWN.
4. CONSTRUCT/INSTALL CONSPAN ARCH AND HEADWALL PER MANUFACTURERS RECOMENDATIONS.
5. STABILIZE ALL DISTURBED AREAS WITH SOD PEGGED AT 2 FEET C-O-C.
5. REMOVE THE EXISTING/EXPANDED CROSSING AND ASSOCIATED CMP CLUVERTS.
6. RESTORE THE 'NATURAL CHANNEL' CONFIGURATION BY GRADING THE STREAM CHANNEL TO MATCH THE EXISTING CHANNEL GEOMETRY UP AND DOWNSTREAM. PROVIDE A SMOOTH/GRADUAL TRANSITION BETWEEN UP AND DOWNSTREAM CROSS SECTIONS.

SOIL BORING SUMMARY TABLE

BORING (--)	LOCATION (NE)	LOCATION WATKINS BRIDGE CL (STA, OFFSET (L-R)
GLV-1	N = 564222 E= 1321311	STA: 12+46.09, 38.91 L
GLV-2	N = 564224 E = 1321343	STA: 12+15.40, 38.22 L
GLV-3	N = 564225 E = 1321387	STA: 11+63.83, 46.59 L
GLV-4	N = 564232 E = 1321424	STA: 11+21.34, 38.00 L
GLV-5	N = 564211 E = 1321369	STA: 11+81.82, CL KB
GLV-6	N = 564316 E = 1321350	STA: 12+27.17, 38.00 R
GLV-7	N = 564316 E = 1321350	STA: 11+15.14, 46.21 R
GLV-8	N = 564312 E = 1321395	STA: 11+56.15, 39.99 R
GLV-9	N = 564308 E = 1321446	STA: 11+11.33, 39.99 R



Footing Depth Recommendations

HECRAS - Combined Scour Depths
Left abutment scour + contraction scour (ft): 6.23
Right abutment scour + contraction scour (ft): 11.10

ABSCOUR - Combined Scour Depths

	Left	Channel	Right
116: Contraction scour depth (ys) (#115-#103>0)(ft):	8.286	5.689	9.434

We have conservatively based our footing specifications upon the highest combined scour depth determined by ABSCOUR and HECRAS. The HECRAS determined combined scour depth of 11.10 ft will be countered by setting the bottom of all structural footings 14.5 feet below the lowest overbank elevation encountered along the inside face of structure. Field survey data shows that the lowest elevation where this occurs is 365.5, at the downstream inside face of structure. This equates to a minimum footing depth of 351.00 and effectively sets the footing over 3 feet below scour depth.

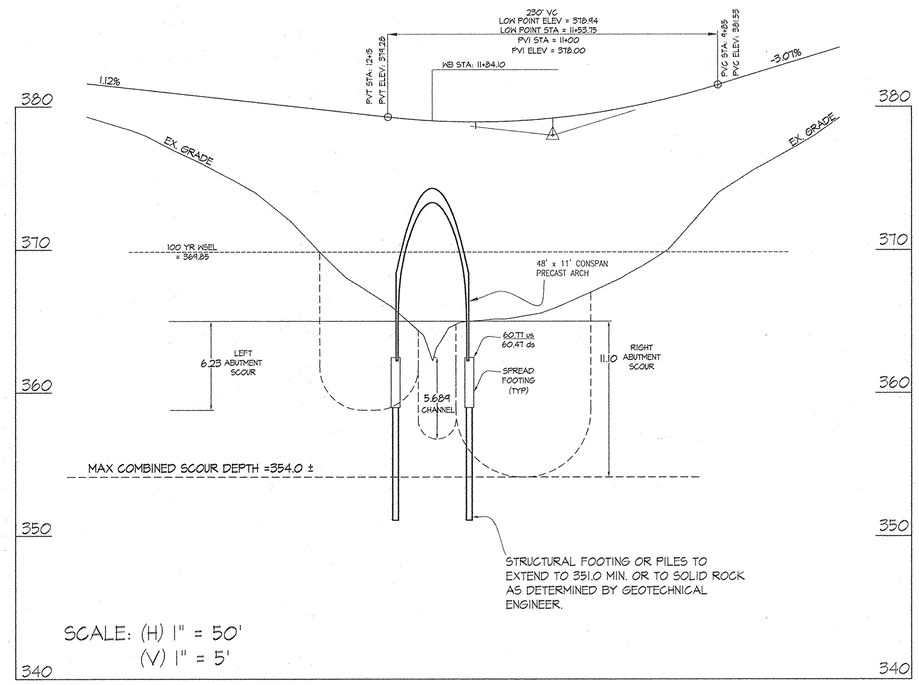
Geotechnical and Structural recommendations vary across the structure due to the presence of rock at numerous borings. Some portions of this structure are to be supported by H piles and others by spread footings. Unless set into rock, both the H-pile and spread footings must extend to a minimum depth of 351.00 to protect the structure from scour and also eliminate the need to heavily armor the stream.

Provide 14.5' of footing depth below over bank elevation at outfall.

Lowest Over bank elevation along inside face of structure = 365.5
Top of footing = 360.41 ds / 360.71 us
Required Invert of Footing = 351.00
Footing Depth Below Scour = 9.4 ft.

FOOTING SUPPORT RECOMMENDATIONS

1. Foundation Support on Shallow Rock designed to a minimum allowable bearing pressure of 6000 psf. CONTECH's structural engineer has determined that no dowel or key joints are necessary for the footing on rock support condition. The limits of this support condition are to be determined by Hillis Carnes Inc. during construction.
2. Deep Foundation Support is to extend to rock or refusal at approximate depths of up to 40' below existing grade, elev=325. Deep Foundation Support is to consist of HP-12x53 Piles driven to rock and designed to an allowable single pile capacity of 40 tons per pile. Hillis Carnes Inc. to recommend the hammer-tip and blow count during construction. The limits of this support condition are to be determined by Hillis Carnes Inc. during construction.



BRIDGE SCOUR ANALYSIS AND RECOMENDATIONS PROFILE THROUGH INTERNAL BRIDGE SECTION 11+87

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/9/07

DEVELOPER'S/BUILDER'S CERTIFICATE

"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 MARYLAND 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 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1.25.07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND 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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER'S SIGNATURE — DATE 1-25-07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153-BRIDGE-CE.dwg | DES. BJM | DRN. BJM | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STREAM CROSSING PLAN & DETAILS

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

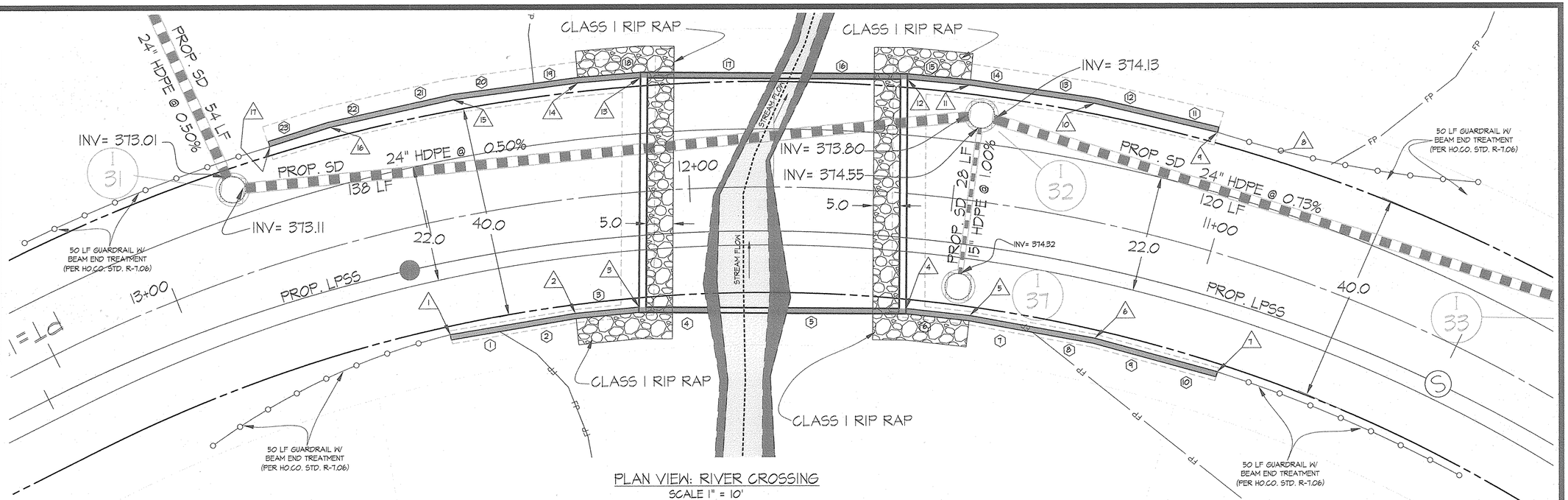
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	49 OF 78

F-06-31

WATKINS BRIDGE LANE
WALL STATIONING

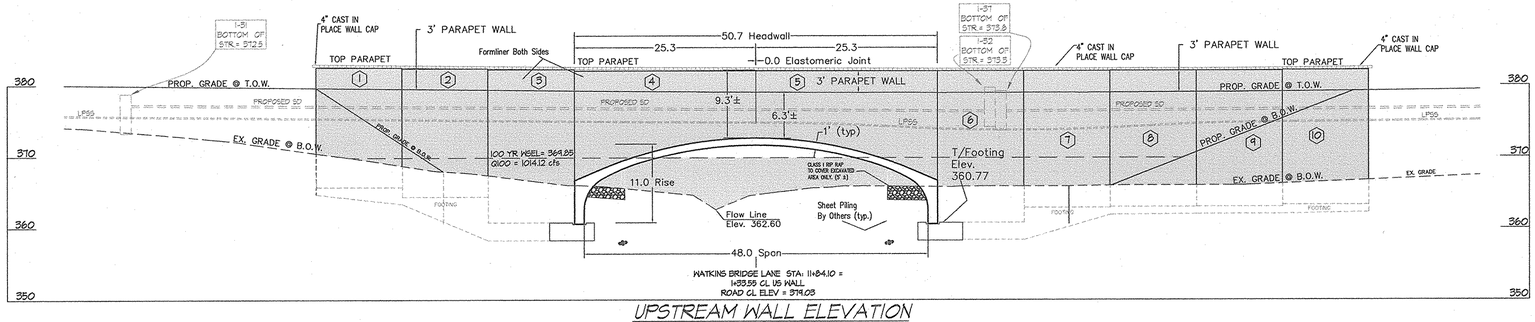
	ROAD ℄ STATIONING	℄ OFFSET
1	12+50.49	21.58 LEFT
2	12+24.54	21.67 LEFT
3	12+11.45	21.71 LEFT
4	11+56.74	21.71 LEFT
5	11+43.65	21.67 LEFT
6	11+17.74	21.58 LEFT
7	10+91.74	21.52 LEFT
8	10+82.45	21.72 RIGHT
9	11+04.76	22.02 RIGHT
10	11+27.04	22.01 RIGHT
11	11+49.35	21.69 RIGHT
12	11+60.44	21.57 RIGHT
13	12+07.75	21.57 RIGHT
14	12+18.84	21.69 RIGHT
15	12+41.15	22.01 RIGHT
16	12+63.43	22.02 RIGHT
17	12+74.57	21.64 RIGHT



PLAN VIEW: RIVER CROSSING
SCALE 1" = 10'

UPSTREAM WALL SUMMARY TABLE

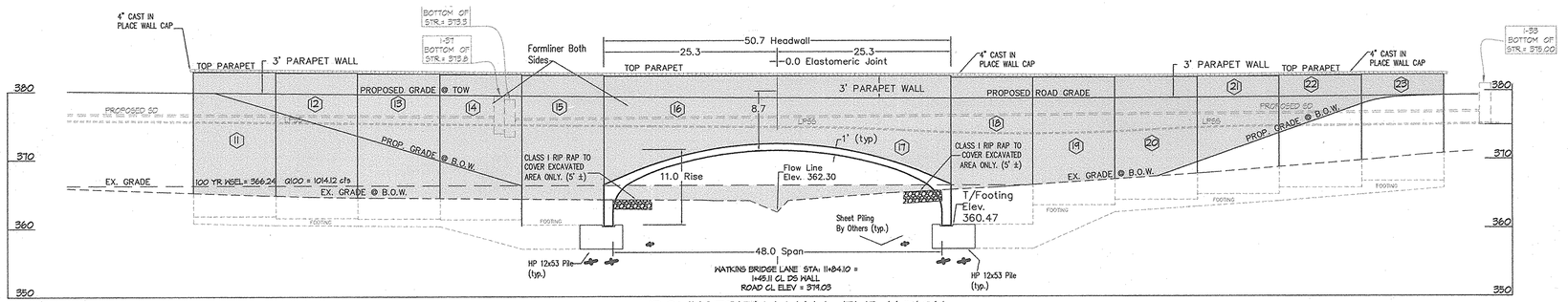
PANEL #	TOP OF PANEL	BOTTOM OF PANEL	MAX. GRADE @ TOP OF PANEL	MIN. GRADE @ BOTTOM OF PANEL
①	382.44	365.13	374.44	368.13
②	382.36	364.38	374.36	367.38
③	382.22	360.77	374.22	366.00
④	382.00	ARCH	374.03	ARCH
⑤	382.00	ARCH	374.03	ARCH
⑥	382.00	360.77	378.44	365.80
⑦	382.00	362.88	378.45	365.88
⑧	382.03	362.97	378.97	365.97
⑨	382.03	363.00	374.03	366.00
⑩	382.11	363.25	374.11	366.25



UPSTREAM WALL ELEVATION
LOOKING DOWN STREAM
SCALE: 1" = 10'

DOWNSTREAM WALL SUMMARY TABLE

PANEL #	TOP OF PANEL	BOTTOM OF PANEL	MAX. GRADE @ TOP OF PANEL	MIN. GRADE @ BOTTOM OF PANEL
⑪	382.84	361.78	374.75	364.78
⑫	382.75	361.44	374.62	364.44
⑬	382.62	361.34	374.44	364.34
⑭	382.44	361.26	374.55	364.26
⑮	382.35	360.47	374.22	364.16
⑯	382.22	ARCH	374.03	ARCH
⑰	382.22	ARCH	374.03	ARCH
⑱	381.79	360.47	378.64	365.54
⑲	381.87	363.29	378.95	366.24
⑳	382.03	364.09	378.97	367.09
㉑	382.11	364.88	374.03	364.55
㉒	382.22	365.82	374.11	373.78
㉓	382.35	366.79	374.22	377.48



DOWNSTREAM WALL ELEVATION
LOOKING UP STREAM
SCALE: 1" = 10'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/5/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153-BRIDGE-CE.dwg | DES. BJM | DRN. BJM | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

STREAM CROSSING DETAILS-PLAN & PROFILE ALONG HEADWALLS

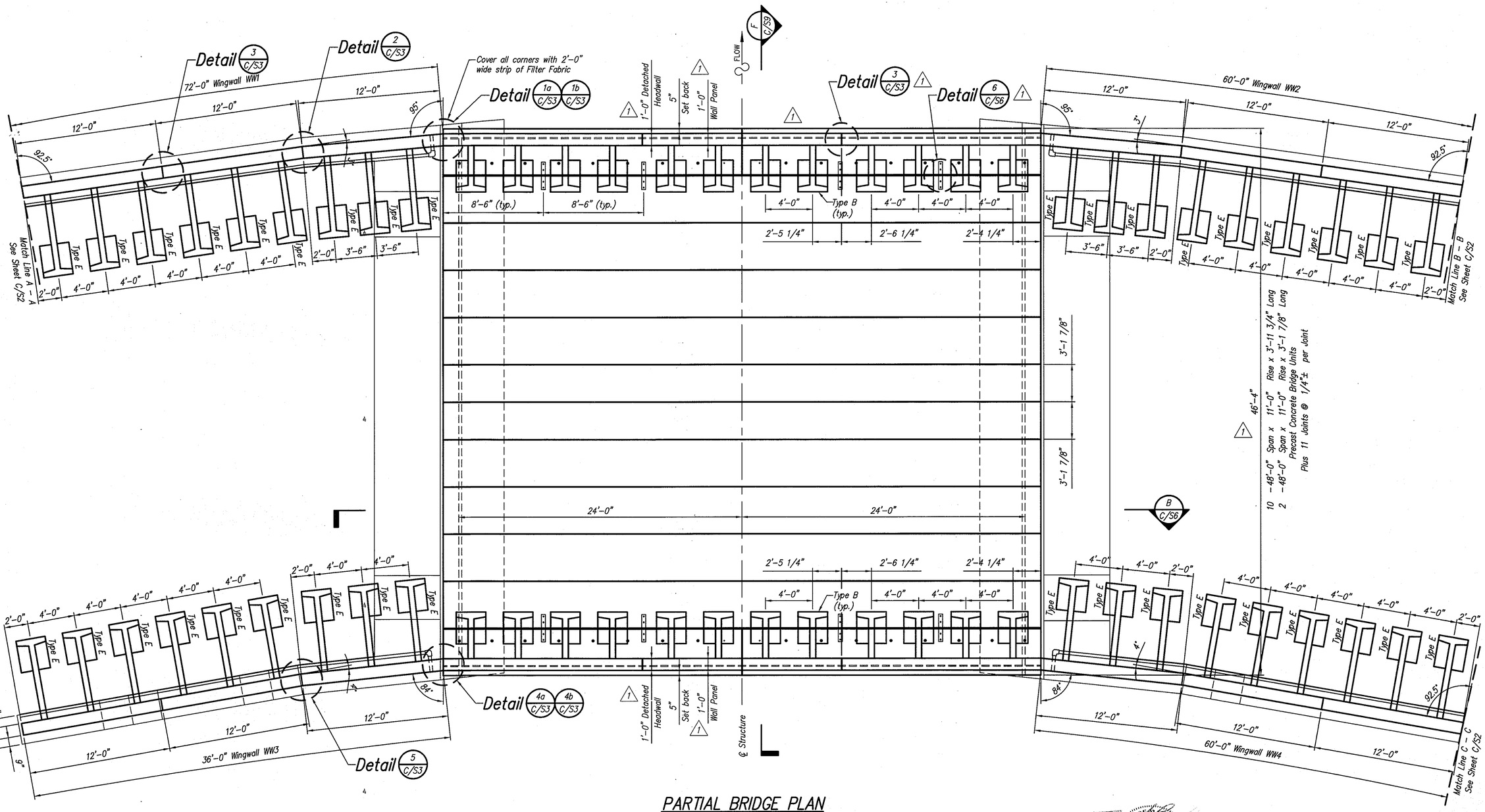
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	50 OF 78

F-06-31



PARTIAL BRIDGE PLAN

0 2' 4' 8'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 9/18/07

Chief, Development Engineering Division — Date 9/14/07

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. 22201, Expiration Date: 12-22-08

CONSPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.
Drawn	RPU	14679
Checked	JVP	Sheet No.
Date		C/S1

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
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TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

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DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

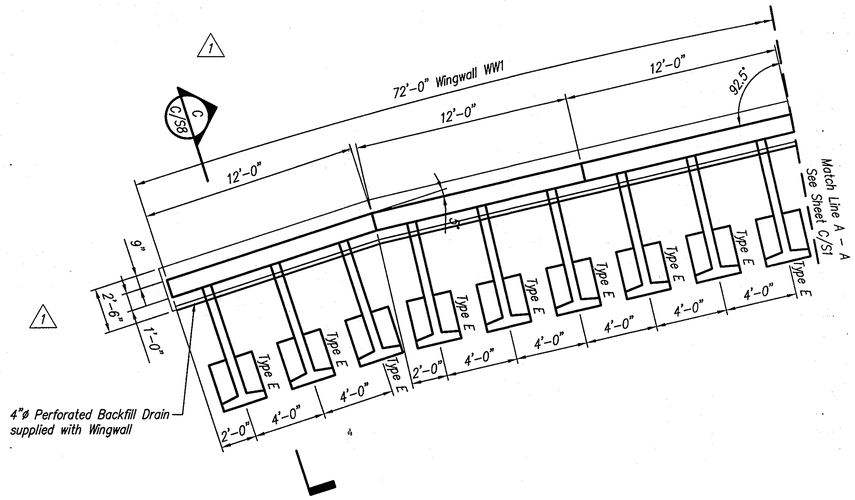
PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

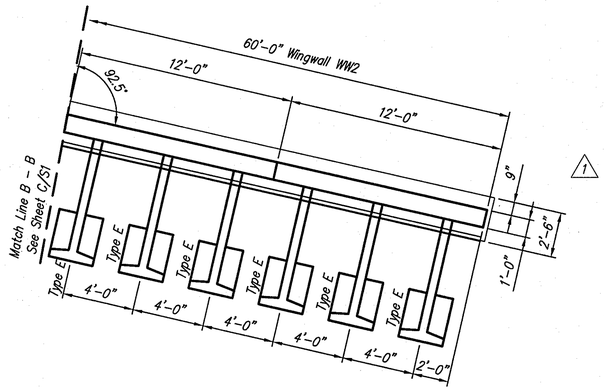
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
AUGUST/2007	PARCEL 74 28 - 18,17	51 OF 78

F-06-31



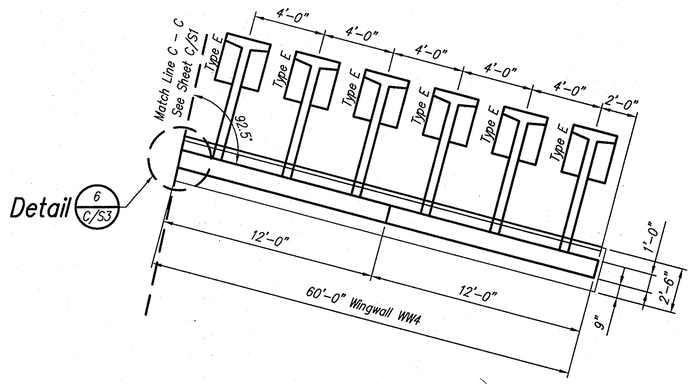
WINGWALL WW1 – PARTIAL BRIDGE PLAN

0 2' 4' 8'



WINGWALL WW2 – PARTIAL BRIDGE PLAN

0 2' 4' 8'



WINGWALL WW4 – PARTIAL BRIDGE PLAN

0 2' 4' 8'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 9/18/07

Chief, Development Engineering Division — Date 9/19/07

STATE OF MARYLAND — JOHN V. PHILLIPS — No. 15441 — PROFESSIONAL ENGINEER — 8-23-07

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. 22201, Expiration Date: 12-22-08

CONSPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S2
Date			

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

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DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A",
NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND
NON-BUILDABLE BULK PARCELS "J"
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
AUGUST/2007	PARCEL 74 28 – 18,17	52 OF 78

F-06-81

NOTES

GENERAL NOTES:

1. This bridge has been designed for general site conditions. The project engineer shall be responsible for the structure's suitability to the existing site conditions and for the hydraulic evaluation -- including scour and confirmation of soil conditions.

2. Prior to construction, contractor must verify all elevations shown through the engineer.

3. Only CONTECH Bridge Solutions Inc. the CON/SPAN® approved precaster in Maryland may provide the structure designed in accordance with these plans.

4. The use of another precast structure with the design assumptions used for the CON/SPAN® structure may lead to serious design errors. Use of any other precast structure with this design and drawings voids any certification of this design and warranty. CONTECH Bridge Solutions Inc. assumes no liability for design of any alternate or similar type structures.

5. Alternate structures may be considered, provided that signed and sealed design drawings (and calculations) are submitted to the engineer 2 weeks prior to the bid date for review and approval.

6. Proposed alternates to a CON/SPAN® Bridge System must submit at least two (2) independently verified full scale load tests that confirm the proposed design methodology of the three sided/arch structure(s). The proposed alternate, upon satisfactory confirmation of design methodology, may be considered an acceptable alternate.

DESIGN DATA

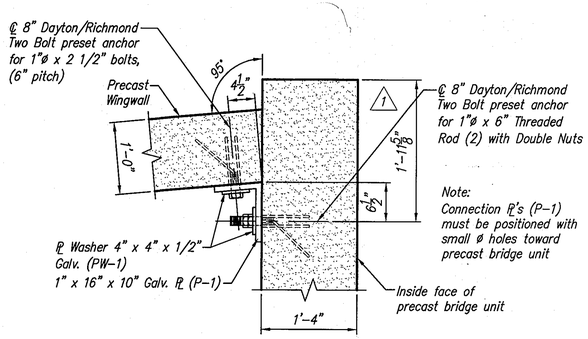
Design Loading:
- Bridge Units: HS25-44
- Headwalls: Earth Pressure + Live Load Impact
- Wingwalls: Earth Pressure + Live Load Impact

Design Fill Height: 2'-0" min. to 7'-0" max. from top of crown to top of pavement.
Design Method: Load factor per AASHTO Specification
Net allowable soil bearing pressure: 4000 PSF * 1

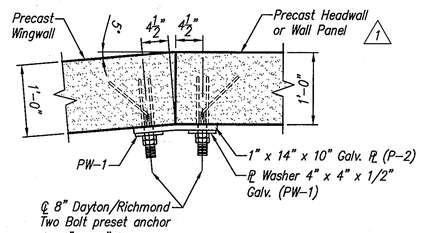
*Foundation excavation and subgrade preparation shall be in accordance with the geotechnical report for this project prepared by Hillis-Carnes dated June 1, 2007.

MATERIALS

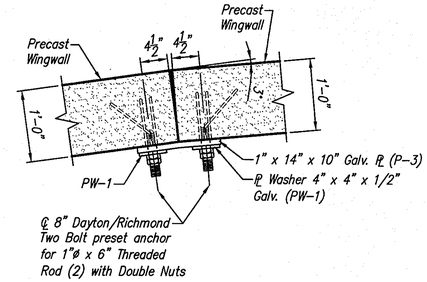
Precast units shall be constructed and installed in accordance with CON/SPAN® Specifications. Concrete for Footings shall have a minimum compressive strength of 4000 psi. Reinforcing steel for footings shall conform to ASTM A615 or A996-Grade 60.



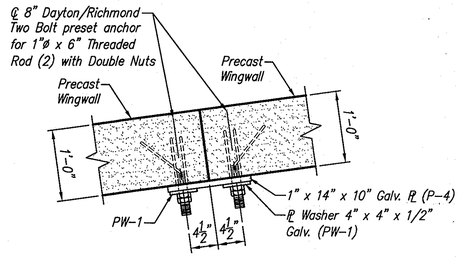
DETAIL @ Unit Leg — 1a — C/S1



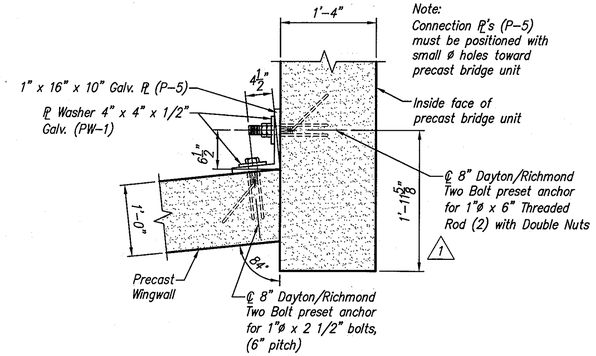
DETAIL @ Headwall — 1b — C/S1



DETAIL — 2 — C/S1



DETAIL — 3 — C/S1



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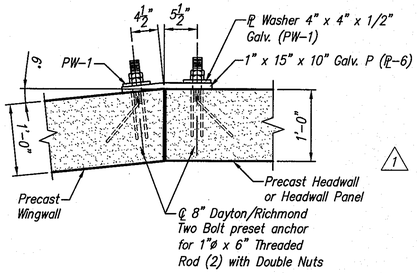
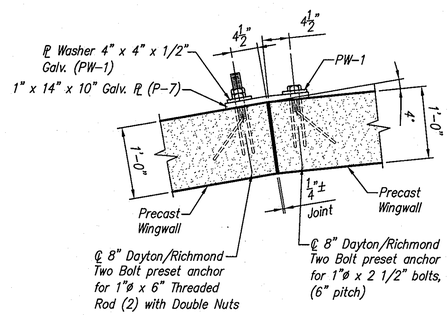
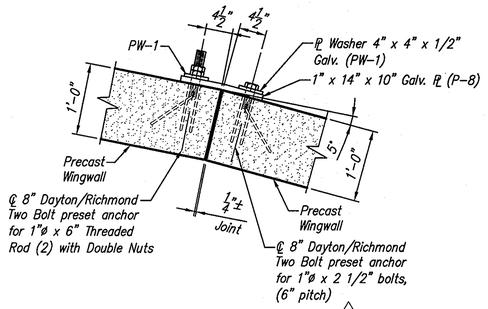


DETAIL @ Headwall — 4b — C/S1



DETAIL — 5 — C/S1



DETAIL — 6 — C/S1

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 9/18/07
Chief, Development Engineering Division — Date 9/14/07

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. 22201, Expiration Date: 12-22-08

STATE OF MARYLAND — TIMOTHY L. BEALL — No. 22201 — PROFESSIONAL ENGINEER
8-23-07

CON/SPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S3
Date			

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

W: \00Plots\14679-E-IN-F-ACT-A04.dwg | DES. KTM | DRN. RPU | CHK. JVP

DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

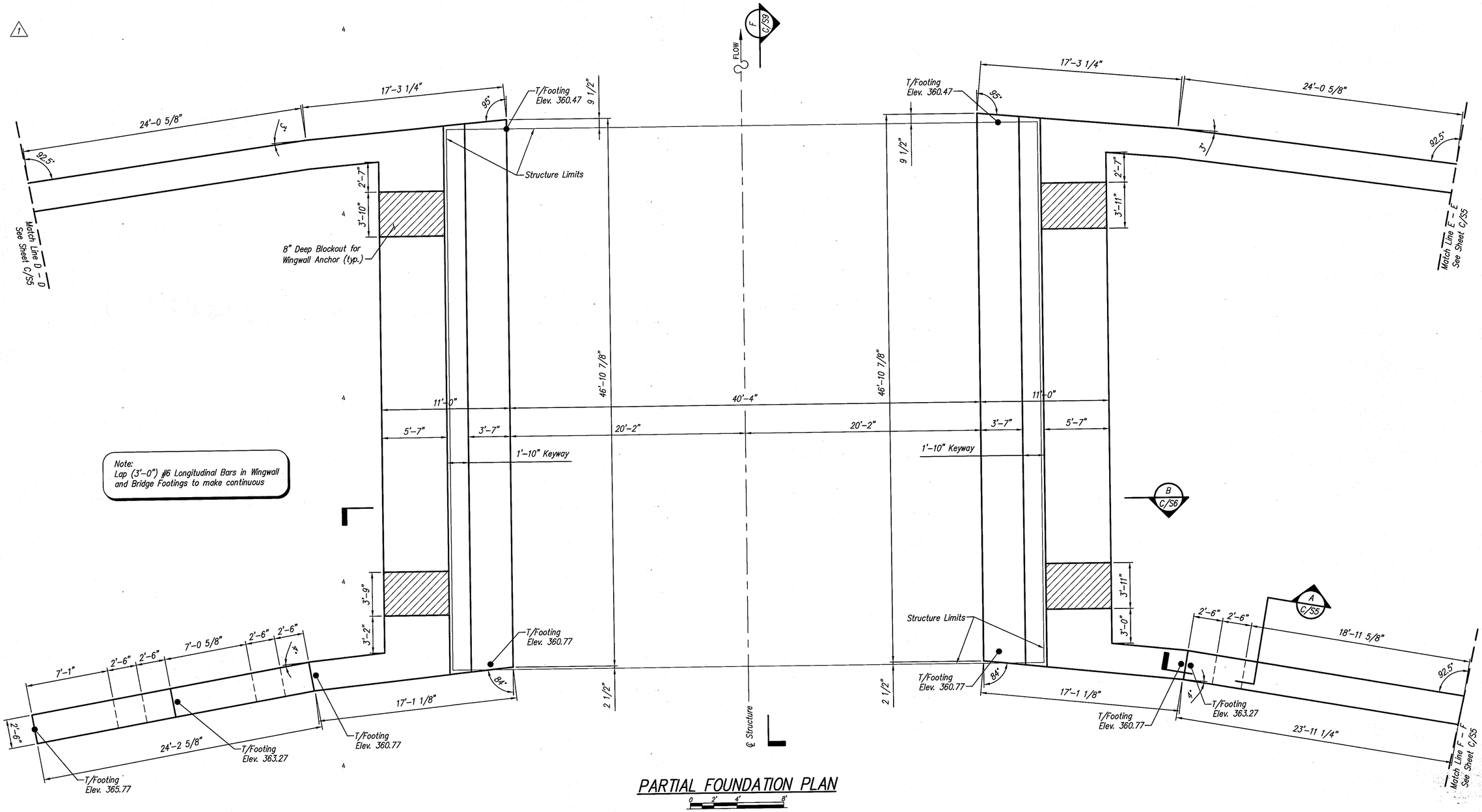
PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
L.2927 F.487
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
AUGUST/2007	PARCEL 74 28 - 18,17	53 OF 78

F-06-39



PARTIAL FOUNDATION PLAN

0 2' 4' 8'

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. 22201, Expiration Date: 12-22-08

8-23-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 9/18/07

Chief, Development Engineering Division — Date 5/14/07

CONSPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S4
Date			

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

W:\00Plots\14679-E-IN-F-ACT-A04.dwg | DES. KTM | DRN. RPU | CHK. JVP

DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

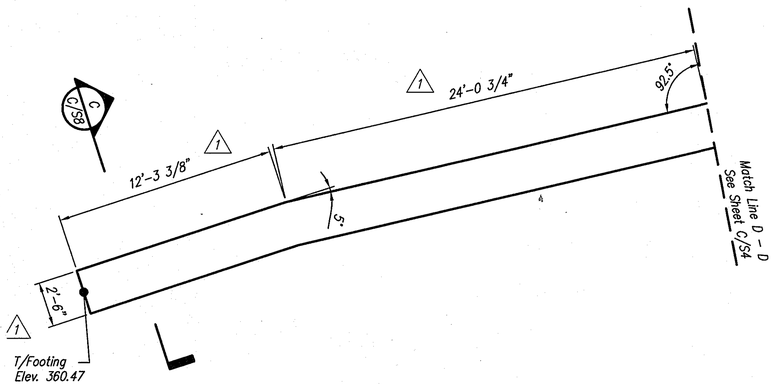
PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
L.2927 F.487
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

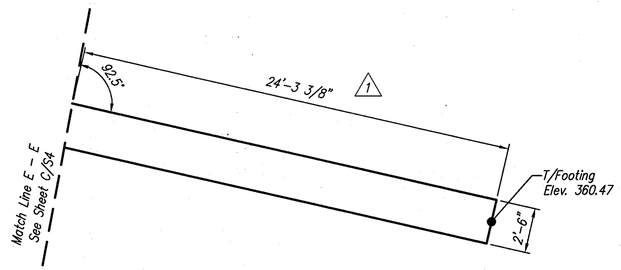
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
AUGUST/2007	PARCEL 74 28 - 18,17	54 OF 78

F-06-31



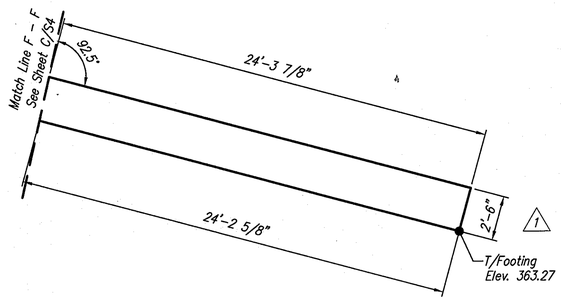
WINGWALL WW1 – PARTIAL FOUNDATION PLAN

0 2' 4' 8'



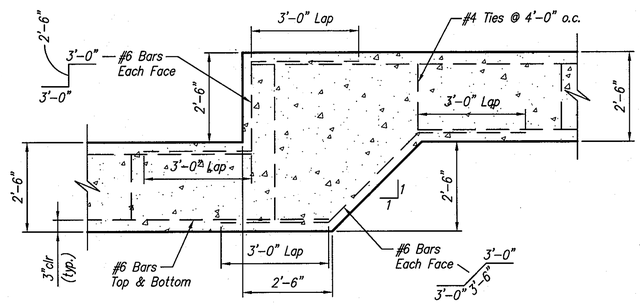
WINGWALL WW2 – PARTIAL FOUNDATION PLAN

0 2' 4' 8'



WINGWALL WW4 – PARTIAL FOUNDATION PLAN

0 2' 4' 8'



SECTION A C/S4

0 1' 2' 4'

STATE OF MARYLAND
JOHN V. PERRY
No. 22261
PROFESSIONAL ENGINEER
9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 9/10/07

Chief, Development Engineering Division — Date 9/14/07

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. 22261, Expiration Date: 12-22-08

CONSPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S5
Date			

G.L.W. GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

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DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

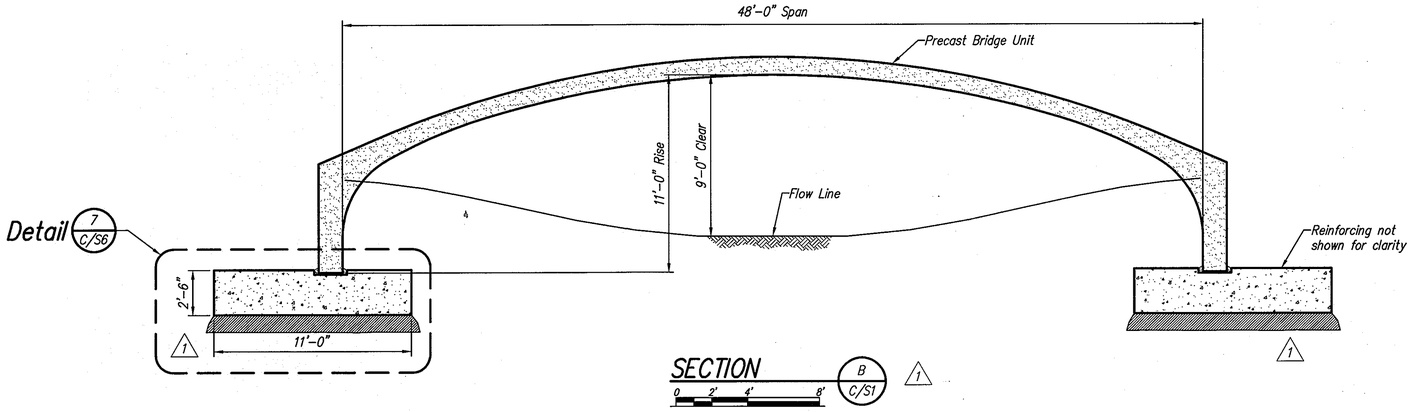
PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A",
NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND
NON-BUILDABLE BULK PARCELS "J"
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
AUGUST/2007	PARCEL 74 28 – 18,17	55 OF 78

F-06-57



SECTION B C/S1 — 1

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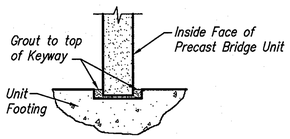
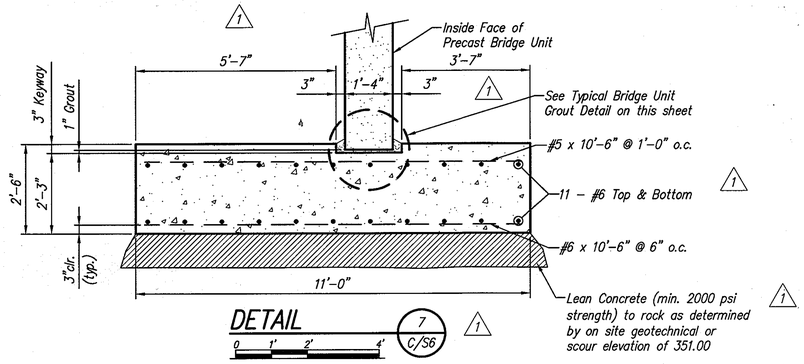


Note:
Fill entire keyway including nominal 1" void between bottom of keyway and bottom of precast bridge unit leg with grout.

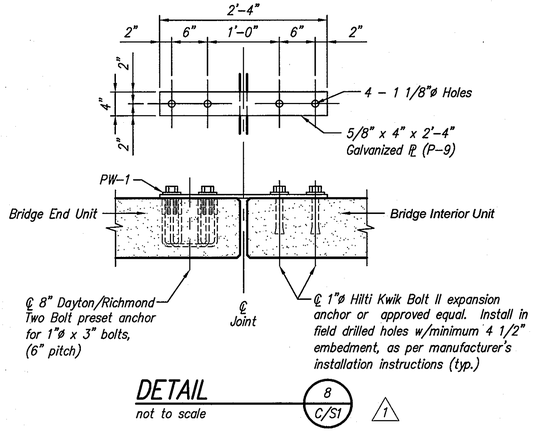
TYPICAL BRIDGE UNIT GROUT DETAIL

not to scale



DETAIL 7 C/S6 — 1

0 1' 2' 4'



DETAIL 8 C/S1 — 1

not to scale

STATE OF MARYLAND — TIMOTHY R. REED — No. 22201 — PROFESSIONAL ENGINEER

8-23-07

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. 22201, Expiration Date: 12-22-08

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 9/10/07

Chief, Development Engineering Division — Date 8/24/07

CONSPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S6
Date			

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

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DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

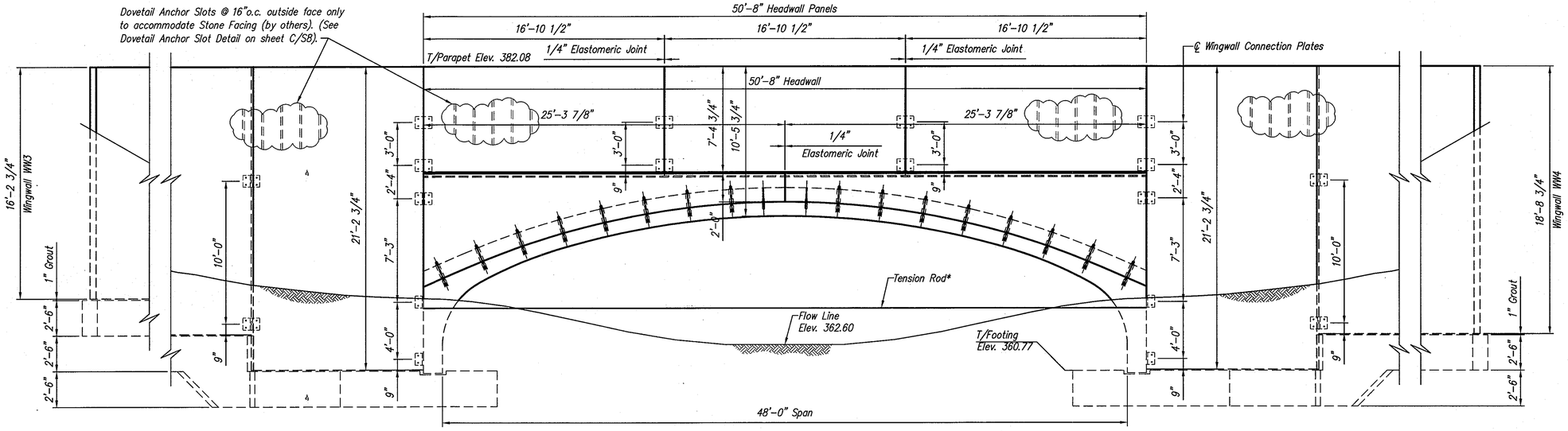
PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
L.2927 F.487
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
AUGUST/2007	PARCEL 74 28 - 18,17	56 OF 78

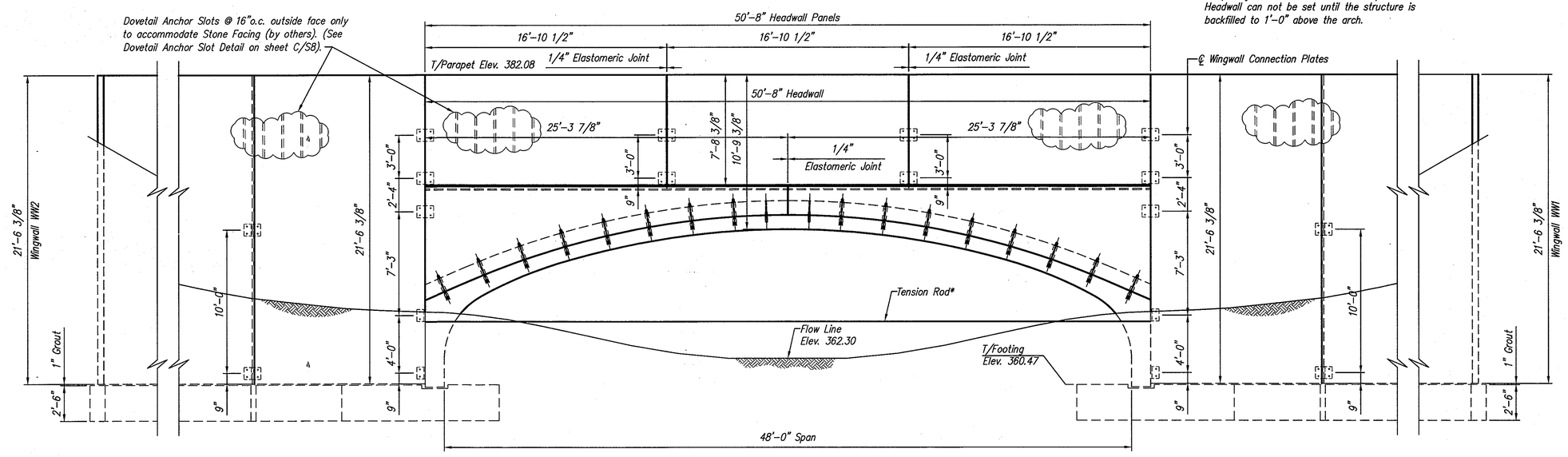
F-06-391



UPSTREAM END ELEVATION

0 2' 4' 8'

*Tension Rods will come installed on the last two units on each end. The tension rods can not be removed until the structure is completely backfilled. The Panel on top of the Headwall can not be set until the structure is backfilled to 1'-0" above the arch.



DOWNSTREAM END ELEVATION

0 2' 4' 8'

8-23-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 9/18/07

Chief, Development Engineering Division — Date 9/14/07

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. 22201, Expiration Date: 12-22-08

CONSPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.
Drawn	RPU	14679
Checked	JVP	Sheet No.
Date		C/S7

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

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DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

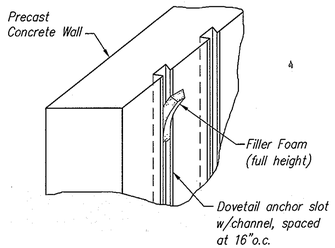
PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

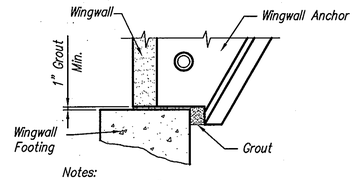
WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
AUGUST/2007	PARCEL 74 28 – 18,17	57 OF 78

F-06-31

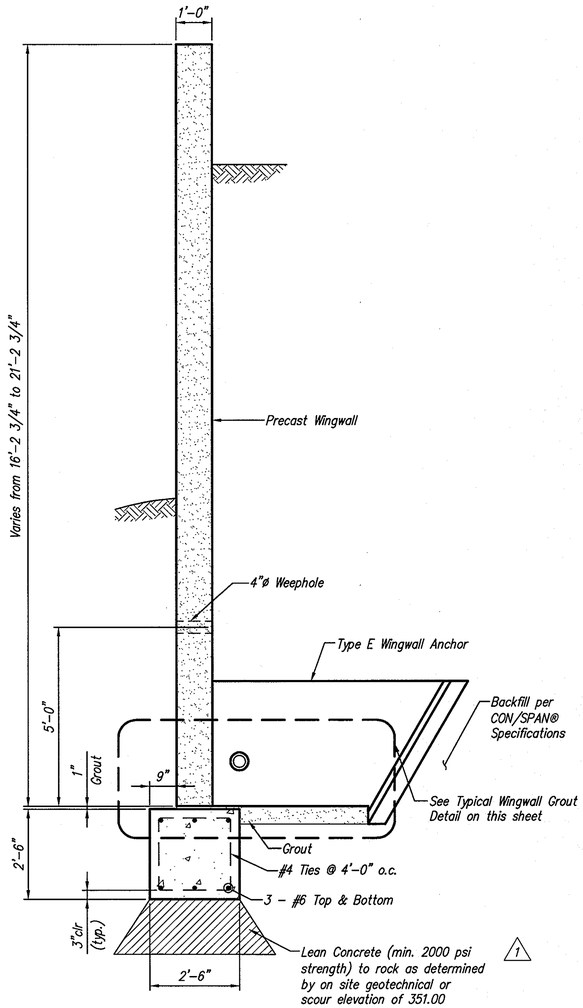


DOVETAIL ANCHOR SLOT DETAIL
not to scale



Notes:
- Minimum 1" Grout under wingwall leg & anchor stem.
- Area between wingwall footing and wingwall anchor shall be grouted solid before backfill.

TYPICAL WINGWALL GROUT DETAIL
not to scale



SECTION C/S2
0 1' 2' 4'

8-23-07

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. 22201, Expiration Date: 12-22-08

CON SPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S8
Date			

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 9/18/07
Chief, Development Engineering Division — Date 9/14/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

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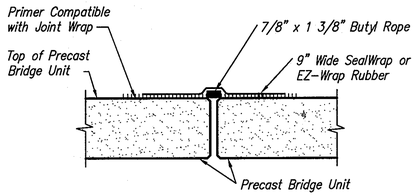
DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

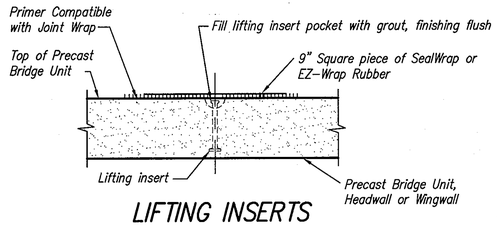
Revised CONSPAN BRIDGE SYSTEM DETAILS
WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
AUGUST/2007	PARCEL 74 28 - 18,17	58 OF 78

F-06-51

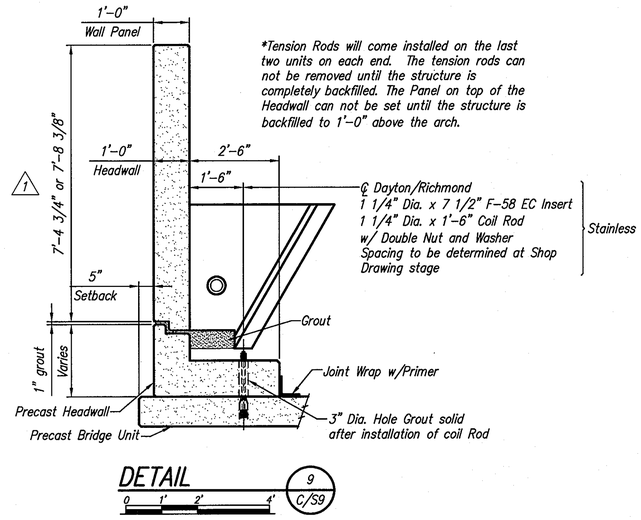


TYPICAL JOINT SEAL DETAIL
not to scale

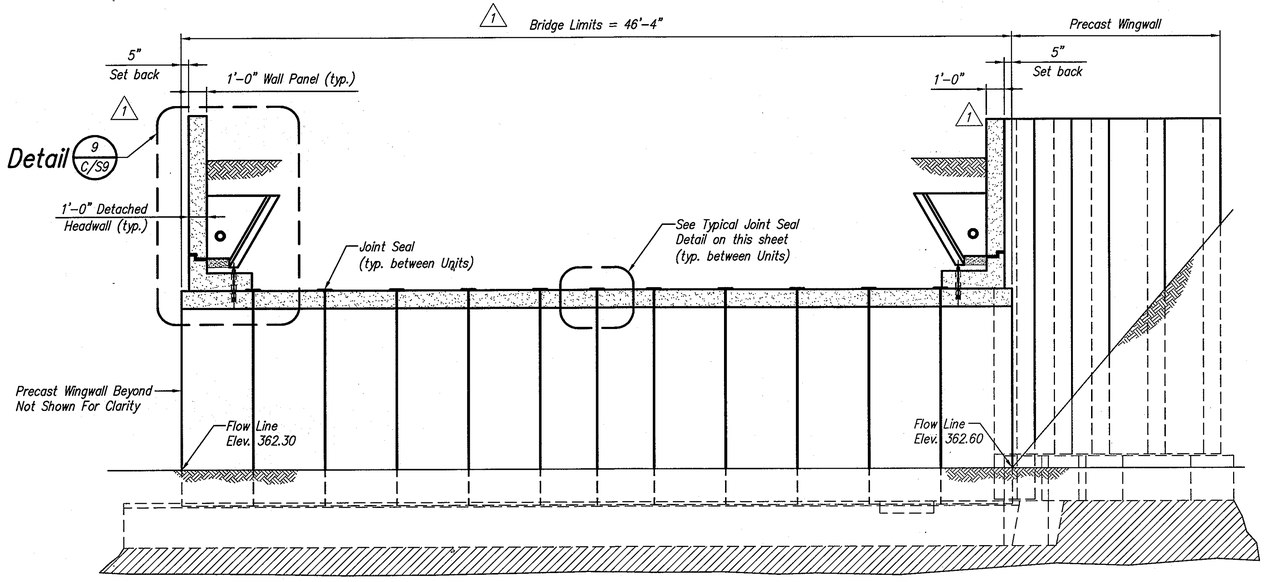


LIFTING INSERTS

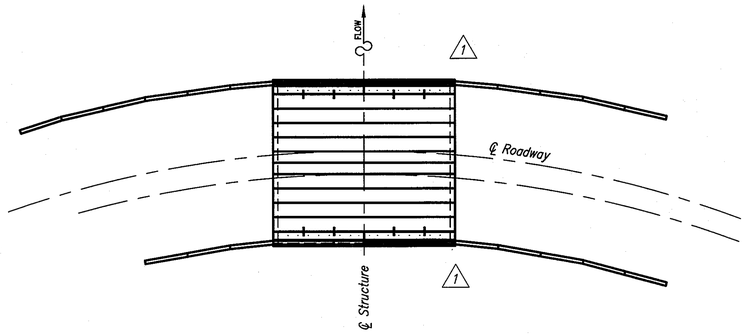
TYPICAL LIFT POINT SEALING DETAIL
not to scale



DETAIL
0 1' 2' 4'
9 C/S9



SECTION
0 2' 4' 8'
D C/S1



LOCATION PLAN
0 20' 40'

STATE OF MARYLAND — JOHN VINCENT PASCUCCI — No. 22201 — PROFESSIONAL ENGINEER
6-23-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 6-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 9/15/07

Chief, Development Engineering Division — Date 9/14/07

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. 22201, Expiration Date: 12-22-08

CONSPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.
Drawn	RPU	14679
Checked	JVP	Sheet No.
Date		C/S9

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

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DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
AUGUST/2007	PARCEL 74 28 - 18,17	59 OF 78

F-06-31

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS

1. DESCRIPTION

This work shall consist of constructing a CON/SPAN ® bridge in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans or as established by the Engineer. In situations where two or more specifications apply to this work, the most stringent requirements shall govern.

2. TYPES

Precast reinforced concrete CON/SPAN® bridge units manufactured in accordance with this specification shall be designated by span and rise. Precast reinforced concrete CON/SPAN® wingwalls and headwalls manufactured in accordance with this specification shall be designated by length, height, and deflection angle.

3. MATERIALS - CONCRETE

The concrete for the culverts shall be air-entrained when installed in areas subject to freeze-thaw conditions, composed of portland cement, fine and coarse aggregates, admixtures and water. Air-entrained concrete shall contain 6 ± 2 percent air. The air entraining admixture shall conform to AASHT0 M154.

3.1 Portland Cement - Shall conform to the requirements of ASTM Specifications C150-Type I, Type II, or Type III cement.

3.2 Coarse Aggregate - Shall consist of stone having a maximum size of 1 inch. Aggregate shall meet requirements for ASTM C33.

3.3 Water Reducing Admixture - The manufacturer may submit for approval by the Engineer, a water-reducing admixture for the purpose of increasing workability and reducing the water requirement for the concrete.

3.4 Calcium Chloride - The addition to the mix of calcium chloride or admixtures containing calcium chloride will not be permitted.

4. MATERIALS - STEEL REINFORCEMENT AND HARDWARE

All reinforcing steel for the culverts shall be fabricated and placed in accordance with the detailed shop drawings submitted by the manufacturer.

4.1 Steel Reinforcement - Reinforcement shall consist of welded wire fabric conforming to ASTM Specification A 185 or A 497, or deformed billet steel bars conforming to ASTM Specification A 615, Grade 60. Longitudinal distribution reinforcement may consists of welded wire fabric or deformed billet-steel bars.

4.2 Hardware:
Bolts and threaded rods for wingwall connections shall conform to ASTM A 307. Nuts shall conform to AASHTO M 292 (ASTM A 194) Grade 2H. All bolts, threaded rods and nuts used in wingwall connections shall be mechanically zinc coated in accordance with ASTM B 695 Class 50.

Structural Steel for wingwall connection plates and plate washers shall conform to AASHTO M 270 (ASTM A 709) Grade 36 and shall be hot dip galvanized as per AASHTO M 111 (ASTM A 123).

Inserts for wingwalls shall be 1" diameter Two-Bolt Preset Wingwall Anchors as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700.

Ferrule Loop Inserts shall be F-64 Ferrule Loop Inserts as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700.

Hook Bolts used in attached headwall connections shall be ASTM A 307.

Inserts for detached headwall connections shall be AISI Type 304 stainless steel, F-58 Expanded Coil inserts as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700. Coil rods and nuts used in headwall connections shall be AISI Type 304 stainless steel. Washers used in headwall connections shall be either AISI Type 304 stainless steel plate washers or AASHTO M 270 (ASTM A 709) Grade 36 plate washers hot dip galvanized as per AASHTO M 111 (ASTM A 153).

Reinforcing bar splices shall be made using the Dowel Bar Splicer System as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700, and shall consist of the Dowel Bar Splicer (DB-SAE) and Dowel-In (DI).

5. MANUFACTURE

5.1 Mixture - The aggregates, cement and water shall be proportioned and mixed in a batch mixer to produce a homogeneous concrete meeting the strength requirements of this specification. The proportion of portland cement in the mixture shall not be less than 658 pounds (7 sacks) per cubic yard of concrete.

5.2 Curing - The precast concrete culvert units shall be cured for a sufficient length of time so that the concrete will develop the specified compressive strength in 28 days or less. Any one of the following methods of curing or combinations thereof shall be used:

5.2.1 Steam Curing - The culverts may be low pressure, steam cured by a system that will maintain a moist atmosphere.

5.2.2 Water Curing - The culverts may be water cured by any method that will keep the sections moist.

5.2.3 Membrane Curing - A sealing membrane conforming to the requirements of ASTM Specification C 309 may be applied and shall be left intact until the required concrete compressive strength is attained. The concrete temperature at the time of application shall be within ± 10 degrees F of the atmospheric temperature. All surfaces shall be kept moist prior to the application of the compounds and shall be damp when the compound is applied.

5.3 Forms - the forms used in manufacture shall be sufficiently rigid and accurate to maintain the culvert dimensions within the permissible variations given in Section 7 of these specifications. All casting surfaces shall be of a smooth material.

5.4 Handling - Handling devices or holes shall be permitted in each culvert for the purpose of handling and setting.

5.5 Storage - The precast elements shall be stored in such a manner to prevent cracking or damage. The units shall not be moved until the concrete compressive strength has reached a minimum of 2500 psi, and they shall not be stored in an upright position until the concrete compressive strength is a minimum of 4,000 psi.

6. DESIGN

6.1 The precast element dimension and reinforcement details shall be as prescribed in the plan and the shop drawings provided by the manufacturer, subject to the provisions of Section 7, below. The minimum concrete compressive strength shall be as shown on the shop drawings. The minimum steel yield strength shall be 60,000 psi, unless otherwise noted on the shop drawings.

6.2 The precast elements are designed in accordance with the "Standard Specifications for Highway Bridges" 17th Edition, adopted by the American Association of State Highway and Transportation Officials, 2002. A minimum of one foot of cover above the crown of the bridge units is required in the installed condition. (Unless noted otherwise on the shop drawings and designed accordingly.)

6.3 Placement of Reinforcement in Precast Bridge Units - The cover of concrete over the outside circumferential reinforcement shall be 2 inches minimum. The cover of concrete over the inside circumferential reinforcement shall be 1 1/2 inches minimum, unless otherwise noted on the shop drawings. The clear distance of the end circumferential wires shall not be less than one inch nor more than two inches from the ends of each section. Reinforcement shall be assembled utilizing single or multiple layers of welded wire fabric (not to exceed 3 layers), supplemented with a single layer of deformed billet-steel bars, when necessary. Welded wire fabric shall be composed of circumferential and longitudinal wires meeting the spacing requirements of 6.6, below, and shall contain sufficient longitudinal wires extending through the bridge unit to maintain the shape and position of the reinforcement. Longitudinal distribution reinforcement may be welded wire fabric or deformed billet-steel bars and shall meet the spacing requirements of 6.6, below. The ends of the longitudinal distribution reinforcement shall be not more than 3 inches and not less than 1 1/2 inches from the ends of the bridge unit.

6.4 Placement of Reinforcement for Precast Wingwalls and Headwalls - The cover of concrete over the longitudinal and transverse reinforcement shall be 2 inches minimum. The clear distance from the end of each precast element to the end transverse reinforcing steel shall not be less than one inch nor more than two inches. Reinforcement shall be assembled utilizing a single layer of welded wire fabric, or a single layer of deformed billet-steel bars. Welded wire fabric shall be composed of transverse and longitudinal wires meeting the spacing requirements of 6.7, below, and shall contain sufficient longitudinal wires extending through the element to maintain the shape and position of the reinforcement. Longitudinal reinforcement may be welded wire fabric or deformed billet-steel bars and shall meet the spacing requirements of 6.7, below. The ends of the longitudinal reinforcement shall be not more than 3 inches and not less than 1 1/2 inches from the ends of the walls.

6.5 Bending of Reinforcement for Precast Bridge Units - The outside and inside circumferential reinforcing steel for the corners of the bridge shall be bent to such an angle that is approximately equal to the configuration of the bridge's outside corner.

6.6 Laps, Welds, and Spacing for Precast Bridge Units - Tension splices in the circumferential reinforcement shall be made by lapping. Laps may NOT be tack welded together for any purpose. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.2 and 8.32.6. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.1 and 8.32.5. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 8.25. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be not less than 2 inches nor more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.

6.7 Laps, Welds, and Spacing for Precast Wingwalls and Headwalls - Splices in the reinforcement shall be made by lapping. Laps may NOT be tack welded together for any purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.2 and 8.32.6. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.1 and 8.32.5. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 8.25. The spacing center-to-center of the wires in a wire fabric sheet shall be not less than 2 inches nor more than 8 inches.

7. PERMISSIBLE VARIATIONS

7.1 Bridge Units

7.1.1 Internal Dimensions - The internal dimension shall vary not more than 1% from the design dimensions nor more than 1-1/2 inches whichever is less. The haunch dimensions shall vary not more than 3/4 inch from the design dimension.

7.1.2 Slab and Wall Thickness - The slab and wall thickness shall not be less than that shown in the design by more than 1/4 inch. A thickness more than that required in the design shall not be cause for rejection.

7.1.3 Length of Opposite Surfaces - Variations in laying lengths of two opposite surfaces of the bridge unit shall not be more than 1/2 inch in any section, except where beveled ends for laying of curves are specified by the purchaser.

7.1.4 Length of Section - The underrun in length of a section shall not be more than 1/2 inch in any bridge unit.

7.1.5 Position of Reinforcement - The maximum variation in position of the reinforcement shall be ± 1/2 inch. In no case shall the cover over the reinforcement be less than 1 1/2 inches for the outside circumferential steel or be less than 1 inch for the inside circumferential steel as measured to the external or internal surface of the bridge. These tolerances or cover requirements do not apply to mating surfaces of the joints.

7.1.6 Area of Reinforcement - The areas of steel reinforcement shall be the design steel areas as shown in the manufacturer's shop drawings. Steel areas greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcement.

7.2 Wingwalls and Headwalls

7.2.1 Wall Thickness - The wall thickness shall not vary from that shown in the design by more than 1/2 inch.

7.2.2 Length/ Height of Wall sections - The length and height of the wall shall not vary from that shown in the design by more than 1/2 inch.

7.2.3 Position of Reinforcement - The maximum variation in the position of the reinforcement shall be ± 1/2 inch. In no case shall the cover over the reinforcement be less than 1 1/2 inches.

7.2.4 Size of Reinforcement - The permissible variation in diameter of any reinforcing shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcing. Steel area greater than that required shall not be cause for rejection.

8. TESTING AND INSPECTION

8.1 Type of Test Specimen - Concrete compressive strength shall be determined from compression tests made on cylinders or cores. For cylinder testing, a minimum of 4 cylinders shall be taken during each production run. For core testing, one core shall be cut from each of 3 precast elements selected at random from each production group. A production group shall be defined as 15 or fewer bridge units (of a particular size), wingwalls or headwalls in a continuous production run. For each continuous production run, each production group or fraction thereof shall be considered separately for the purpose of testing and acceptance. A production run shall be considered continuous if not interrupted for more than 3 consecutive days.

8.2 Compression Testing - Cylinders shall be made and tested as prescribed by the ASTM C 39 Specification. Cores shall be obtained and tested for compressive strength in accordance with the provisions of the ASTM C497 Specification.

8.3 Acceptability of Cylinder Tests - When the average compressive strength of all cylinders tested is equal to or greater than the design compressive strength, and not more than 10% of the cylinders tested have a compressive strength less than the design concrete strength, and no cylinder tested has a compressive strength less than 80% of the design compressive strength, then the lot shall be accepted. When the compressive strength of the cylinders tested does not conform to this acceptance criteria, the acceptability of the lot may be determined as described in section 8.4, below.

8.4 Acceptability of Core Tests - The compressive strength of the concrete in each production group as defined in 8.1 is acceptable when the average core test strength is equal to or greater than the design concrete strength. When the compressive strength of the core tested is less than the design concrete strength, the precast element from which that core was taken may be re-cored. When the compressive strength of the re-core is equal to or greater than the design concrete strength, the compressive strength of the concrete in that production group is acceptable.

8.4.1 When the compressive strength of any recore is less than the design concrete strength, the precast element from which that core was taken shall be rejected. Two precast elements from the remainder of the group shall be selected at random and one core shall be taken from each. If the compressive strength of both cores is equal to or greater than the design concrete strength, the compressive strength of the remainder of that group is acceptable. If the compressive strength of either of the two cores tested is less than the design concrete strength, the remainder of the group shall be rejected or, at the option of the manufacturer, each precast element of the remainder of the group shall be cored and accepted individually, and any of these elements that have cores with less than the design concrete strength shall be rejected.

8.4.2 Plugging Core Holes - The core holes shall be plugged and sealed by the manufacturer in a manner such that the elements will meet all of the test requirements of this specification. Precast elements so sealed shall be considered satisfactory for use.

8.4.3 Test Equipment - Every manufacturer furnishing culverts under this specification shall furnish all facilities and personnel necessary to carryout the test required.

9. JOINTS

The bridge units shall be produced with flat butt ends. The ends of the bridge units shall be such that when the sections are laid together they will make a continuous line of with a smooth interior free of appreciable irregularities, all compatible with the permissible variations in Section 7, above. The joint width shall not exceed 3/4 inches.

10. WORKMANSHIP AND FINISH

The bridge units, wingwalls, and headwalls shall be substantially free of fractures. The ends of the bridge units shall be normal to the walls and centerline of the bridge section, within the limits of the variations given in section 7, above, except where beveled ends are specified. The faces of the wingwalls and headwalls shall be parallel to each other, within the limits of variations given in section 7, above. The surface of the precast elements shall be a smooth steel form or troweled surface. Trapped air pockets causing surface defects shall be considered as part of a smooth, steel form finish.

11. REPAIRS

Precast elements may be repaired, if necessary, because of imperfections in manufacture or handling damage and will be acceptable if, in the opinion of the purchaser, the repairs are sound, properly finished and cured, and the repaired section conforms to the requirements of this specification.

12. INSPECTION

The quality of materials, the process of manufacture, and the finished culverts shall be subject to inspection by the purchaser.

13. REJECTION

The precast elements shall be subject to rejection on account of any of the specification requirements. Individual precast elements may be rejected because of any of the following:

13.1 Fractures or hairline cracks (widths less than 0.012") passing through the wall, except for a single end crack that does not exceed one half the thickness of the wall.

13.2 Defects that indicate proportioning, mixing, and molding not in compliance with Section 5 of these specifications.

13.3 Honeycombed or open texture.

13.4 Damaged ends, where such damage would prevent making a satisfactory joint.

14. MARKING

Each bridge unit shall be clearly marked by waterproof paint. The following shall be shown on the inside of the vertical leg of the bridge section:
Bridge Span X Bridge Rise
Date of Manufacture
Name or trademark of the manufacturer

15. CONSTRUCTION REQUIREMENTS

15.1 Footings - The bridge units and wingwalls shall be installed on cast-in-place concrete footings. The design size and elevation of the footings shall be as determined by the Engineer. A three inch deep keyway shall be formed in the top surface of the bridge footing three inches clear of the inside and outside faces of the bridge units, unless specified otherwise on the plans. No keyway is required in the wingwall footings, unless otherwise specified on the plans. The footings shall be given a smooth float finish and shall reach a compressive strength of 2,000 psi before placement of the bridge and wingwall elements. The completed footing surface shall be constructed in accordance with grades shown on the plans. When tested with a 10 foot straight edge, the surface shall not vary more than 1/4 inch in 10 feet.

15.2 Placement of the Bridge Units, Wingwalls and Headwalls - The bridge units, wingwalls and headwalls shall be placed as shown on the Engineer's plan drawings. Special care shall be taken in setting the elements to the true line and grade. The bridge units and wingwalls shall be set on 6" x 6" masonite or steel shims. A minimum gap of 1/2 inch shall be provided between the footing and the bottom of the bridge's vertical legs or the wingwall. The gap shall be filled with cement grout (Portland cement and water or cement mortar composed of Portland cement, sand and water) with a minimum 28-day compressive strength of 3000 psi. If units have been set with temporary ties (cables, bars, etc.) grout must attain a minimum compressive strength of 1500 psi before ties may be removed.

15.3 External Protection of Joints - The butt joint made by two adjoining bridge units shall be covered with a 7/8" x 1 3/8" preformed bituminous joint sealant and a minimum of a 9 inch wide joint wrap. The surface shall be free of dirt before applying the joint material. A primer compatible with the joint wrap to be used shall be applied for a minimum width of nine inches on each side of the joint. The external wrap shall be either EZ-WRAP RUBBER by PRESS-SEAL GASKET CORPORATION, SEAL WRAP by MAR MAC MANUFACTURING CO. INC. or approved equal. The joint shall be covered continuously from the bottom of one bridge section leg, across the top of the arch and to the opposite bridge section leg. Any laps that result in the joint wrap shall be a minimum of six inches long with the overlap running downhill.

In addition to the joints between bridge units, the joint between the end bridge unit and the headwall shall also be sealed as described above. If precast wingwalls are used, the joint between the end bridge unit and the wingwall shall be sealed with a 2'-0" strip of filter fabric. Also, if lift holes are formed in the arch units, they shall be primed and covered with a 9" x 9" square of joint wrap.

During the backfilling operation, care shall be taken to keep the joint wrap in its proper location over the joint.

15.4 Backfill - Backfill shall be considered as all replaced excavation and new embankment adjacent to the CON/SPAN® bridge units, wingwalls, and headwalls. The project construction and material specifications which include the specifications for excavation for structures and roadway excavation and embankment construction, shall apply except as modified in this section.

No backfill shall be placed against any structural elements until they have been approved by the Engineer.

Backfill against a waterproofed surface shall be placed carefully to avoid damage to the waterproofing material.

STATE OF MARYLAND — PROFESSIONAL ENGINEER
8-23-07

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. 22201, Expiration Date: 12-22-08

CON/SPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S10
Date			

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 9/18/07
Chief, Development Engineering Division — Date

GLW GUTSCHICK LITTLE &WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

W:\00Plots\14679-E-IN-F-ACT-A04.dwg | DES. KTM | DRN. RPU | CHK. JVP

DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS
WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
L.2927 F.487
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
AUGUST/2007	PARCEL 74 28 – 18,17	60 OF 78

F-06-31

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS

Mechanical tampers or approved compacting equipment shall be used to compact all backfill and embankment immediately adjacent to each side and over the top of each bridge unit until it is covered to a minimum depth of one foot, unless the design fill height is less than 1'-0". The backfill within the Critical Backfill Zone (shown in the diagrams below) shall be placed in lifts of eight inches or less (loose depth). Heavy compaction equipment shall not be operated in this area or over the bridge until it is covered to a depth of one foot, unless the design fill height is less than 1'-0".

Lightweight dozers and graders may be operated over bridge units having one foot of compacted cover, but heavy earth moving equipment (larger than a D-4 Dozer weighing in excess of 12 tons and having track pressures of eight psi or greater) shall require two feet of cover unless the design cover is less than two feet. In no case shall equipment operating in excess of the design load (HS20 or HS25) be permitted over the bridge units unless approved by CON/SPAN®.

Any additional fill and subsequent excavation required to provide this minimum cover shall be made at no additional cost to the project.

As a precaution against introducing unbalanced stresses in the bridge, when placing backfill at no time shall the difference between the heights of fill on opposite sides of the bridge exceed 24".

Backfill in front of wingwalls shall be carried to ground lines shown in the plans.

For fill heights over 12 feet, no backfilling may begin until a backfill compaction testing plan has been coordinated with and approved by CON/SPAN® Bridge Systems. Cost of the backfill compaction testing shall be included in the cost of the precast units. This included cost applies only to projects with fill heights over 12 feet (as measured from top crown of arch to finished grade).

16. QUALITY ASSURANCE

The Precaster shall demonstrate adherence to the standards set forth in the NPCA Quality Control Manual. The Precaster shall meet either Section 16.1 or 16.2.

16.1 Certification: The Precaster shall be certified by the Precast/Prestressed Concrete Institute Plant Certification Program or the National Precast Concrete Association's Plant Certification Program prior to and during production of the products covered by this specification.

16.2 Qualifications, Testing and Inspection

16.2.1 The Precaster shall have been in the business of producing precast concrete products similar to those specified for a minimum of three years. He shall maintain a permanent quality control department or retain an independent testing agency on a continuing basis. The agency shall issue a report, certified by a licensed engineer, detailing the ability of the Precaster to produce quality products consistent with industry standards.

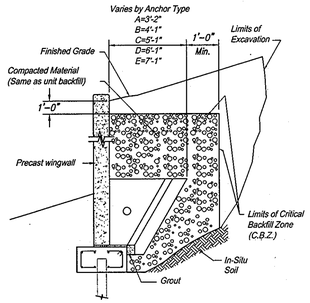
16.2.2 The Precaster shall show that the following tests are performed in accordance with the ASTM standards indicated. Tests shall be performed for each 150 cubic yards of concrete placed, but not less frequently than once per production run, as defined in §8 of these specifications.

16.2.2.1 Air Content: C231 or C173

16.2.2.2 Compressive Strength: C39, C497

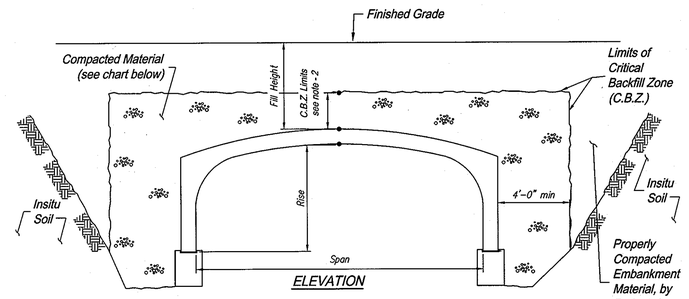
16.2.3 The Precaster shall provide documentation demonstrating compliance with this section to CON/SPAN® Bridge Systems at regular intervals or upon request.

16.2.4 The Owner may place an inspector in the plant when the products covered by this specification are being manufactured.



WINGWALL BACKFILL REQUIREMENTS

BACKFILL DESCRIPTION (AASHTO M 145-91)								
Group Classification	A-1		A-3	A-2				A-4
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7	
Sieve Analysis, Percent Passing (100% Passing 3" Sieve)								
No. 10	50 max.							
No. 40	30 max.	50 max.	51 min.					
No. 200	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	35 max.	36 min.
Characteristics of Fraction Passing No. 40								
Liquid Limit				40 max.	41 min.	40 max.	41 min.	40 max.
Plasticity Index	6 max.		N.P.	10 max.	10 max.	11 min.	11 min.	10 max.
Usual Types of Significant Constituent Materials	Stone Fragments, Gravel & Sand		Fine Sand	Silty or Clayey Gravel and Sand				Silty Soils
General Rating as Subgrade	Excellent to Good							Fair to Poor



ELEVATION

NOTES
1. SEE CONSPAN® SPECIFICATIONS SECTION 15.4 FOR BACKFILL SPECIFICATIONS.
2. FOR FILL HEIGHTS GREATER THAN 2'-0", C.B.Z. LIMIT SHALL BE 2'-0" ABOVE ARCH CROWN. FOR FILL HEIGHTS LESS THAN 2'-0", THE FINISHED GRADE SHALL BE THE BOUNDARY LINE FOR THE C.B.Z.
3. BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
4. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
5. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.

SPAN	FILL HEIGHT	ACCEPTABLE MATERIAL INSIDE C.B.Z.	ACCEPTABLE MATERIAL OUTSIDE C.B.Z.
≤ 24'-0"	≥ 12'-0"	A1, A3	**
≤ 24'-0"	< 12'-0"	A1, A2, A3, A4	**
> 24'-0"	ALL	A1, A3	**

** EMBANKMENT MATERIAL PER PROJECT SPECIFICATIONS

BACKFILL REQUIREMENTS

REVISED 9/3/03 SPEC4.DWG
REVISED 1/15/02 SPEC4.DWG
REVISED 6/12/01 SPEC3.DWG
REVISED 7/21/00 SPEC3.DWG
REVISED 7/14/97 SPEC1.DWG
REVISED 4/4/96 SPEC1.DWG
REVISED 3/5/96 SPEC1.DWG
REVISED 11/14/94 SPEC1.DWG
REVISED 5/25/94 SPEC1.DWG
REVISED 9/10/93 SPEC1.DWG

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 9/15/07

Chief, Development Engineering Division — Date 9/14/07

STATE OF MARYLAND — PROFESSIONAL ENGINEER — 8-23-07

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. 22201, Expiration Date: 12-22-08

CON/SPAN® BRIDGE SYSTEMS

Designed	KTM	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S11
Date			

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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W:\00Plots\14679-E-IN-F-ACT-A04.dwg | DES. KTM | DRN. RPU | CHK. JVP

DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND NON-BUILDABLE BULK PARCELS "J"
L.2927 F.487
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SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
AUGUST/2007	PARCEL 74 28 – 18,17	61 OF 78

F-06-31

HILLIS-CARNES ENGINEERING ASSOCIATES, INC.

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Annapolis Junction, MD 20701
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www.hcea.com

June 1, 2007

Heritage Land Development
15950 North Avenue
Lisbon, Maryland 21765

Attention: Mr. Jeremy Rutter

Re: Additional Geotechnical Engineering Evaluation
Walnut Grove Culvert
Howard County, Maryland
HCEA Job No. 05443E

Gentlemen:

Hillis-Carnes Engineering Associates, Inc. (HCEA) is pleased to submit this letter concerning the additional geotechnical evaluation for the proposed Walnut Grove culvert that is to be located in Howard County, Maryland.

Project Background

An original geotechnical study was previously performed for the project by HCEA (report dated August 1, 2005). During the subsurface exploration for the original report, auger refusals were encountered at shallow depths in Borings CLV-1 and CLV-2 (at depths of 9± ft and 5.5± ft, respectively). The remainder of the borings were typically extended to depths near 40± ft where auger refusal or more suitable materials were generally encountered. In our original report, HCEA recommended that the proposed culvert be supported on a shallow footing system designed utilizing an allowable soil bearing pressure of 2500 psf.

It was later requested that HCEA perform an additional evaluation to determine if an alternative method of foundation support could be developed because of potential foundation sizing, construction and permitting difficulties. HCEA reviewed the subsurface information provided in our original geotechnical report for the project and determined that two different foundation support conditions could be utilized for the project.

In the vicinity of Borings CLV-1 and CLV-2 (shown on the attached Boring Location Plan), the culvert and wing wall foundations could be supported directly on rock and designed for an allowable bearing pressure of 6000 psf. The limits of this support condition would need to be determined in the field during construction. In the remainder of the culvert and wingwall areas, it was recommended that foundations could be supported on a deep foundation system

consisting of driven steel H-piles extending to rock. The limits of the differing support conditions would need to be determined in the field during construction.

At a recent site meeting with the Client and the Civil Engineer (Gutschick, Little & Weber), discussion arose as to what could be done to better evaluate the subsurface conditions in the vicinity of the proposed culvert. It was determined that dilatometer testing would be performed to better define the subsurface conditions and to maximize the allowable soil bearing pressure that could be used for design.

Dilatometer Testing

In order to determine the general soil stress and types, two Flat Dilatometer Tests were performed. The dilatometer test locations generally correlated with the follow previous boring locations:

Dilatometer Test	Previous Boring
DMT-1	CLV-7
DMT-2	CLV-3

The dilatometer is a state of the art in-situ testing tool which can be hydraulically advanced into soil without causing any disturbance. The test is best suited for materials finer than gravelly sands. Its' suitability in loose sands is noted as one of the best applications of the device by experts in the DMT field.

To perform the test, a membrane on the side of the blade-shaped tool is expanded into the sidewall of the soil a distance of one point one millimeter. The pressure that is required to expand the membrane into the soil and the pressure prior to the expansion are noted (A and B pressures). The operator then deflates the membrane and records a third pressure (C pressure). The blade is then advanced to the next test depth and the test is repeated. A series of single dilatometer tests is referred to as a DMT sounding.

This abbreviated stress-strain test can be used to define many geotechnical parameters of soil including soil type, shear strength, constrained deformation modulus (that is, settlement), preconsolidation stress, in-situ pore water pressure and rate of consolidation. By coupling the reduced modulus data from the test with an elastic settlement program such as Schmertmann's Special Method, very accurate settlement predictions can be made for specific foundation load/size cases. Diagrams illustrating the dilatometer test are also attached to this report.

Results

Allowable bearing pressures ranging from 4,000 psf to 6,000 psf were considered for the design of foundations. Based on the available drawings, it was estimated that maximum foundation loads will be on the order of 36 kips/linear foot. Contact

HILLIS-CARNES ENGINEERING ASSOCIATES, INC.

stress (simulated load) and dilatometer constrained modulus data was input into a computer-generated elastic settlement program based on Schmertmann's Special Method. Stress distributions under applied loads were computed using the Boussinesq Solution.

Based on the dilatometer results, the following total settlements were predicted for the allowable soil bearing pressures evaluated:

Allowable Soil Bearing Pressure (psf)	Predicted Total Settlement (in.)
4,000	1.06
5,000	1.21
6,000	1.35

It is therefore our professional opinion that the allowable soil bearing pressures outlined above can be utilized for foundation design, provided the structure can tolerate the anticipated settlements predicted for the bearing pressure utilized. The remaining recommendations that were outlined in our original geotechnical report remain valid for the proposed foundations.

Remarks

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either implied or expressed. Hillis-Carnes Engineering Associates, Inc. assumes no responsibility for interpretations made by others based on work or recommendations made by HCEA.

Should any of the project characteristics, structural loading conditions, or required settlement criteria differ from those outlined above, then this office should be contacted for a re-evaluation of the site.

HCEA appreciates having had the opportunity to provide the geotechnical exploration services for this project. Should you have any questions concerning the contents of this report, or should you require additional consultation, design, inspection, or testing services, please contact our Office.

Very truly yours,
HILLIS-CARNES ENGINEERING ASSOCIATES, INC.

Michael P. Johnson, P.E.

HILLIS-CARNES ENGINEERING ASSOCIATES, INC.

8-23-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 9-13-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 9/18/07
Chief, Development Engineering Division — Date 9/14/07

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. 22201, Expiration Date: 12-22-08.

CONSPAN® BRIDGE SYSTEMS

Designed	JVP	C/S Project No.	14679
Drawn	RPU		
Checked	JVP	Sheet No.	C/S12
Date			

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

W:\00Plots\14679-E-IN-F-ACT-A04.dwg | DES. KTM | DRN. RPU | CHK. JVP

DATE	REVISION	BY	APP'R.
8/23/07	REVISION #1) REVISED FOUNDATION ACCORDING TO NEW GEOTECH REPORT AND REVISED HEADWALLS	JCH	KTM

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

Revised CONSPAN BRIDGE SYSTEM DETAILS

WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCELS "A",
NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I" AND
NON-BUILDABLE BULK PARCELS "J"
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
AUGUST/2007	PARCEL 74	62 OF 78
	28 – 18,17	

F-06-31

F-06-31

N 570500
E 1325900

NORTH

FCE AREA 5
0.83 AC. AFF.
0.16 AC. AFF. (IN FP)
0.21 AC. PRESERVATION (NET TRACT)
0.86 AC. NON-CREDIT TREE SAVE (IN FP)
FCE AREA #5 TOTAL= 2.52 AC.

NON CREDIT FCE
0.03 AC
TRIANGLE

P-5
1693 L.F.

0.86 AC
NON-CREDITED
TREE SAVE (IN FP)

POND 'A'

0.18 AC
PRES.

0.40 AC
AFF.

0.09 AC
PRES.

0.23 AC
AFF.

P-3
464 L.F.
EX. FOREST

P-2
401 L.F.

P-1
302 L.F.

PARCEL 'J'

FUTURE
CLAY CIRCLE
LANE

PARCEL 'L'

PARCEL 'F'

PARCEL 'C'

0.69 AC
AFF. (FP)

PARCEL 'D'
POND 'B'

FCE AREA 2
0.35 AC. AFF.

FCE AREA 3
0.13 AC. AFF.

FREAKNESS CIRCLE LANE

SHEPPARD LANE (SCENIC ROAD)

0.07 AC
AFF. (FP)

0.55 AC
TREE
CLEARING

MOUNTAIN LANE

HANGING BRIDGE LANE

P-4
237 L.F.

HOLLY CREEK LANE

0.30 AC
TREE CLEARING
(IN FP)

0.15 AC
AFF. (FP)

PARCEL 'J'

FCE AREA 1
0.24 AC. AFF.

POND 'C'

PARCEL 'G'

PARCEL 'K'

P-9
0+00

P-9
0+87=
0+00 P-10

FCE AREA 4
1.22 AC. AFF.

P-8
1+48

P-7
5+28=
0+00 P-8
EX. FOREST

PARCEL 'B'

FCE AREA 6

FCE AREA 9
0.61 AC. AFF.

0.66 AC
AFF.

MATKINS BRIDGE LANE

PARCEL 'H'

6.01 AC
AFF.

P-6
0+00

SWEET MEADOW LANE

1.12 AC
PRES.

P-10
4+54
EX. FOREST

1.07 AC
TREE
CLEARING

0.51 AC
TREE CLEARING

P-11
0+00

POND 'D'

1.38 AC
PRES.

0.48 AC
TREE CLEARING

DANIEL CIRCLE LANE

RUNNING FENCE LANE

FREAKNESS CIRCLE LANE

P-14
1039 L.F.

POND 'E'

P-13
3256 L.F.

PARCEL 'A'

EX. BARN
POND

17.31 AC
AFF.

P-6
4+58=
0+00 P-7

P-11
6+38=
0+00 P-12
EX. FOREST

NON CREDIT FCE
0.01 AC.

P-12
0+88

FCE AREA 7
0.19 AC. AFF.

1.88 AC
PRES.

0.78 AC
AFF.

3.69 AC
AFF.

4.07 AC
NON-CREDITED
TREE SAVE (IN FP)

FCE AREA 6
11.20 AC. AFF.
0.15 AC. AFF. (IN FP)
4.38 AC. PRESERVATION (NET TRACT)
0.04 AC. NATURAL REGENERATION AREA
4.07 AC. NON-CREDIT TREE SAVE (IN FP)
19.84 AC. TOTAL FOR FCE AREA #6

PARCEL 'B'

FCE AREA 6

PARCEL 'I'

FCE
AREA 8

2.82 AC
AFF. (FP)

0.37 AC
AFF.

PARCEL 'B'

NON CREDIT FCE
0.01 AC
TRIANGLE

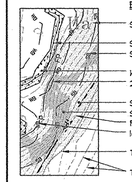
FCE AREA 8
17.68 AC. AFF.
2.82 AC. AFF. (IN FP)
0.01 AC. NATURAL REGENERATION AREA
20.51 AC. TOTAL FOR FCE AREA #8

N 567000
E 1325900

N 567000
E 1330300

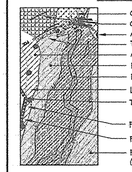
PLAN LEGEND

EXISTING ENVIRONMENTAL FEATURES



- SOIL TYPE
- STREAM
- STREAM BUFFER (-SB-)
- WETLAND
- 25' WETLAND BUFFER (-WB-)
- SLOPED AREA 15-25% (LIGHT GRAY)
- SLOPED AREA >25% (DK. GRAY)
- PROPOSED LOD
- 100-YR FLOODPLAIN (-FP-)
- TREE CANOPY LINE
- TOPOGRAPHY (CONTOUR LINES)

FOREST CONSERVATION & LANDSCAPE ITEMS



- CLEARING WITHIN THE FP (+++)
- CLEARING ON NET TRACT (tila)
- AFFORESTATION (w/in FP, double X-hatch)
- TREE PROTECTION FENCE (TPF)
- AFFORESTATION (single X-hatch)
- FOREST RETENTION (on net tract, stipple)
- FOREST RETENTION (w/in floodplain, zigzag)
- LIMIT OF DISTURBANCE (• • • •)
- TYPE-A LANDSCAPE PERIMETER (■■■) CREDITED PORTION (■■■)
- FOREST CONSERVATION SIGN (⊕)
- FOREST CONSERVATION ESMT (FCE)
- FOREST CONSERVATION EASEMENT AREA (GRAY HONEYCOMB HATCH)

FOREST CONSERVATION NARRATIVE

MOST OF THE DEVELOPMENT IS PROPOSED ON THE PORTION OF THE SITE THAT IS CURRENTLY CULTIVATED/FARMED. ALL ENVIRONMENTALLY SENSITIVE AREAS THAT IS NOT WOODED WILL BE PLANTED AS AFFORESTATION. ALL FOREST CONSERVATION OBLIGATIONS WILL BE SASTIFIED ON PRESERVATION PARCEL TO MINIMIZE THE LIKELIHOOD OF FUTURE ENFORCEMENT PROBLEMS.

STATE OF MARYLAND
Michael B. Tran
933
LANDSCAPE ARCHITECT

SOIL TYPES	SOIL NAMES SEE SHEETS 44-51 FOR SOIL TYPE LOCATIONS	TYPICAL FOREST COVER FOR SOIL TYPE	WOODLAND SUITABILITY INDEX	HYDROLOGIC SOIL GROUPS
CgB2	Chester gravelly silt loam, 3-8% slopes, moderately eroded	Upland hardwoods	30	B
CgC2	Chester gravelly silt loam, 8-15% slopes, moderately eroded	Upland hardwoods	30	B
ChA	Chester silt loam, 0-3% slopes	Upland hardwoods	30	B
ChB2	Chester silt loam, 3-8% slopes, moderately eroded	Upland hardwoods	30	B
ChC2	Chester silt loam, 8-15% slopes, moderately eroded	Upland hardwoods	30	B
ChD2	Chester silt loam, 15-25% slopes, moderately eroded	Upland hardwoods	31	B
Cs	Comus silt loam	Oak, Hickory, Beech, Locust and Maple	4	B
EkA	Elliook silt loam, 0-3% slopes	mixed hardwoods, mainly oaks	30	C
EkB2	Elliook silt loam, 3-8% slopes, moderately eroded	mixed hardwoods, mainly oaks	30	C
EkC2	Elliook silt loam, 8-15% slopes, moderately eroded	mixed hardwoods, mainly oaks	30	C
GlA	Glenelg loam, 0-3% slopes	mixed hardwoods, mainly oaks	30	B
GlB2	Glenelg loam, 3-8% slopes, moderately eroded	mixed hardwoods, mainly oaks	30	B
GlC2	Glenelg loam, 8-15%, moderately eroded	mixed hardwoods, mainly oaks	30	B
GlD2	Glenelg loam, 15-25% slopes, moderately eroded	mixed hardwoods, mainly oaks	31	B
GnA **	Glenville silt loam, 0-3% slopes	water tollerant hardwoods	12	C
GnB2 **	Glenville silt loam, 3-8% slopes, moderately eroded	water tollerant hardwoods	12	C
Ha *	Hatboro silt loam	wetland oaks, holly and maple	2	D
MgB2	Manor Gravelly loam, 3-8% slopes, moderately eroded	mixed upland hardwoods, mainly oaks.	43	B
MgC2	Manor Gravelly loam, 8-15% slopes, moderately eroded	mixed upland hardwoods, mainly oaks.	43	B
MlA	Manor loam, 0-3% slopes	mixed upland hardwoods, mainly oaks.	43	B
MlB2	Manor loam, 3-8% slopes, moderately eroded	mixed upland hardwoods, mainly oaks.	43	B
MlD2	Manor loam, 15-25% slopes, moderately eroded	mixed upland hardwoods, mainly oaks.	44	B
MlD3	Manor loam, 15-25% slopes, severely eroded	mixed upland hardwoods, mainly oaks.	44	B
MlE	Manor loam, 25-45% slopes	mixed upland hardwoods, mainly oaks.	44	B
MnD	Manor very stony loam, 3-25% slopes	mixed upland hardwoods, mainly oaks.	44	B
MnF	Manor very stony loam, 25-60% slopes	mixed upland hardwoods, mainly oaks.	45	B

*Indicates a hydric soil or **hydric inclusions.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/9/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\P-LS-COMP.dwg | DES. mbt | DRN. JRS | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

COMPOSITE FOREST CONSERVATION PLAN & LANDSCAPE BUFFER ANALYSIS

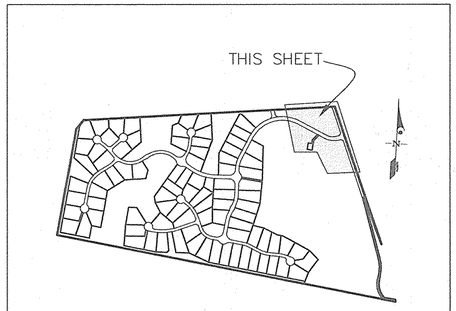
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A",
NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND
NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=200'	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	63 OF 78

F-06-31



KEY MAP
SCALE: 1"=1000'

NOTE: FCE BEARING AND DISTANCE DESCRIPTIONS ARE PROVIDED AND ESTABLISHED ON THE FINAL PLAT.

PLAN LEGEND

EXISTING ENVIRONMENTAL FEATURES

- SOIL TYPE
- STREAM
- STREAM BUFFER (-SB-)
- WETLAND
- 25' WETLAND BUFFER (-WB-)
- SLOPED AREA 15-25% (LIGHT GRAY)
- SLOPED AREA >25% (DK. GRAY)
- PROPOSED LOD
- 100-YR FLOODPLAIN (-FP-)
- TREE CANOPY LINE
- TOPOGRAPHY (CONTOUR LINES)

FOREST CONSERVATION & LANDSCAPE ITEMS

- CLEARING WITHIN THE FP (+++)
- CLEARING ON NET TRACT (tile)
- AFFORESTATION (w/n floodplain, double X-hatch)
- TREE PROTECTION FENCE (TPF)
- NEW TREE CANOPY LINE ( )
- AFFORESTATION (single X-hatch)
- FOREST RETENTION (on net tract, stipple)
- FOREST RETENTION (w/n floodplain, zigzag)
- LIMIT OF DISTURBANCE (• • • •)
- TYPE-A LANDSCAPE PERIMETER (▮▮▮▮▮) CREDITED PORTION (▮▮▮▮▮)
- FOREST CONSERVATION SIGN (◆)
- FOREST CONSERVATION EASMT (FCE)
- FOREST CONSERVATION EASEMENT AREA (GRAY HONEYCOMB HATCH)

THIS PLAN IS FOR PLANTING PURPOSES ONLY!

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/9/07

SHEPPARD LANE (Scenic Road)
SHEPPARD LANE
MINOR COLLECTOR - SCENIC ROAD
VARIABLE WIDTH
FREAKNESS CIRCLE LA.
MINOR COLLECTOR PUBLIC
N 569,900
E 1329,900
N 569,600
E 1329,600
N 568,700
E 1328,900
NORTH
LOT 6 PLAT 7588 ZONED: RC-DEO
LOT 116 PLAT 26242 ZONED: RC-DEO
C.A. LANGENFELDER ET AL PARCEL 116 L3886 F320 ZONED: RC-DEO
PARCEL 71 J.A. MARILLEY, ET UX 1ST PARCEL OF L. 1955 F. 728 ZONED: RC-DEO
PARCEL 71 J.A. MARILLEY, ET UX 3RD PARCEL OF L. 1955 F. 728 ZONED: RC-DEO
EX. SHED TO BE REMOVED
EX. SHED TO BE RAZED
EX. GRAVEL DRIVEWAY TO BE REMOVED AND STABILIZED AT LIMIT OF AND INTERIOR TO THE PROPOSED SEPTIC FIELD
EX. GRAVEL DRIVE
EX. SLAB TO BE REMOVED
EX. WELL TO BE CAPPED
EX. CEMETERY
PRIVATE ENTRANCE FEATURES EASEMENT
10' MONITORING WELL ACCESS EASMT.
10' PUBLIC TREE MAINTENANCE & UTILITY ESMT.
PRIVATE STORMWATER MANAGEMENT, STORMWATER MANAGEMENT, ACCESS, DRAINAGE EASEMENT
30' PRIVATE DRAINAGE EASEMENT
PROPOSED PATH TO REMAIN
SWM EDGE #1 171 L.F.
SWM EDGE #2 135 L.F.
SWM EDGE #3 74 L.F.
SWM EDGE #4 61 L.F.
SWM EDGE #5 84 L.F.
SWM EDGE #6 70 L.F.
SWM C
FOR BIORETENTION PLANTINGS SEE DET. SHEET 42
NON-BUILDABLE PRESERVATION PARCEL 'K'
NON-BUILDABLE PRESERVATION PARCEL 'H'
NON-BUILDABLE PRESERVATION PARCEL 'L'
NON-BUILDABLE PRESERVATION PARCEL 'F'
NON-BUILDABLE PRESERVATION PARCEL 'G'
BUILDABLE PRESERVATION PARCEL 'A'
PART OF FCE 8 17.31 AC AFF.
228.42' TOTAL
SEPTIC FIELD
SEPTIC FIELD
S 19°34'08" E
S 25°55'41" E
GIB2
GIB3
GIB4
GIB5
GIB6
GIB7
GIB8
GIB9
GIB10
GIB11
GIB12
GIB13
GIB14
GIB15
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GIB83
GIB84
GIB85
GIB86
GIB87
GIB88
OB-1
OB-2
OB-3
OB-7
OB-8
OB-9
OB-10
MATCH LINE - SHEET 68
MATCH LINE - SHEET 69
MATCH LINE - SHEET 69
MATCH LINE - SHEET 65

STATE OF MARYLAND
Michael B. Tran
933
LANDSCAPE ARCHITECT

GLW GUTSCHICK LITTLE & WEBER, P.A.
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TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153LS.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

LANDSCAPE & FOREST CONSERVATION & STREET TREE PLAN

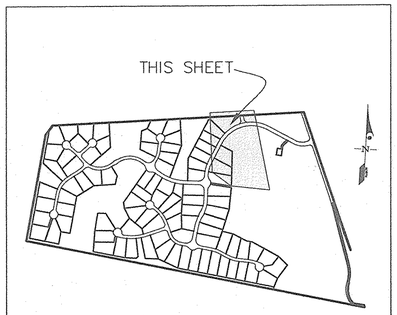
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	64 OF 78

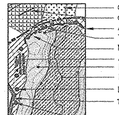
F-06-31



KEY MAP
SCALE: 1"=1000'

PLAN LEGEND

EXISTING ENVIRONMENTAL FEATURES



- SOIL TYPE
- STREAM
- STREAM BUFFER (-SB-)
- WETLAND
- 25' WETLAND BUFFER (-WB-)
- SLOPED AREA 15-25% (LIGHT GRAY)
- SLOPED AREA >25% (DK. GRAY)
- PROPOSED LOD
- 100-YR FLOODPLAIN (-FP-)
- TREE CANOPY LINE
- TOPOGRAPHY (CONTOUR LINES)

FOREST CONSERVATION & LANDSCAPE ITEMS

- CLEARING WITHIN THE FP (+++)
- CLEARING ON NET TRACT (tile)
- AFFORESTATION (w/n floodplain, double X-hatch)
- TREE PROTECTION FENCE (TPF)
- NEW TREE CANOPY LINE ( )
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- FOREST RETENTION (on net tract, stipple)
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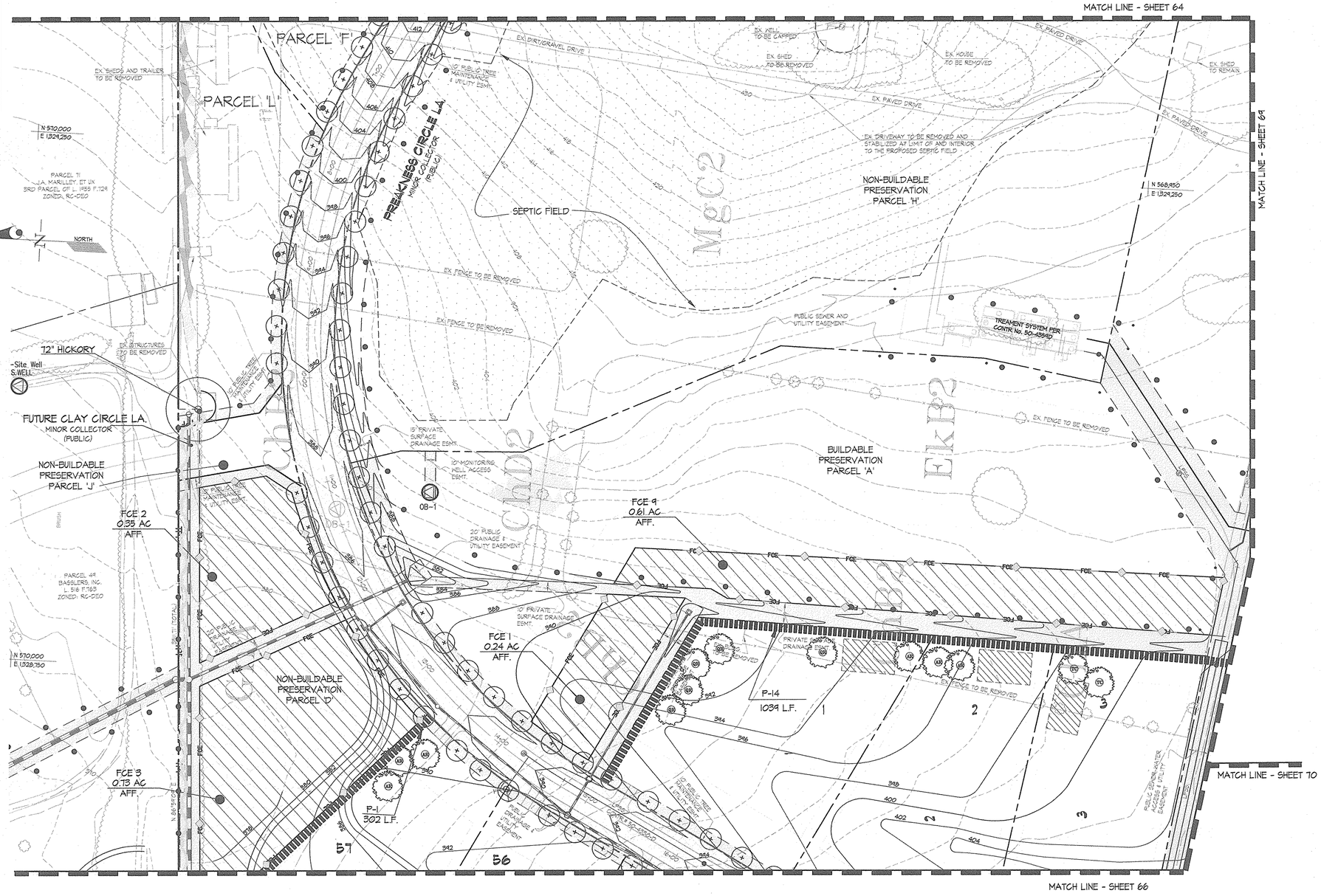
- LIMIT OF DISTURBANCE (• • • •)
- TYPE-A LANDSCAPE PERIMETER (▮▮▮▮▮) CREDITED PORTION (▮▮▮▮▮)
- FOREST CONSERVATION SIGN (⊕)
- FOREST CONSERVATION ESMT (FCE)
- FOREST CONSERVATION EASEMENT AREA (GRAY HONEYCOMB HATCH)

STATE OF MARYLAND
Michael B. Trew
553
LANDSCAPE ARCHITECT

THIS PLAN IS FOR PLANTING PURPOSES ONLY!



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/1/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
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\Drawings\00153\Final-Road\00153LS.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
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WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN D'YKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

LANDSCAPE & FOREST CONSERVATION & STREET TREE PLAN

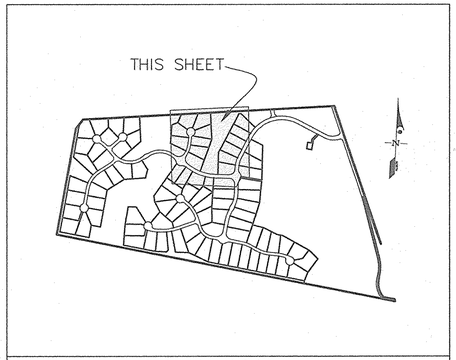
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

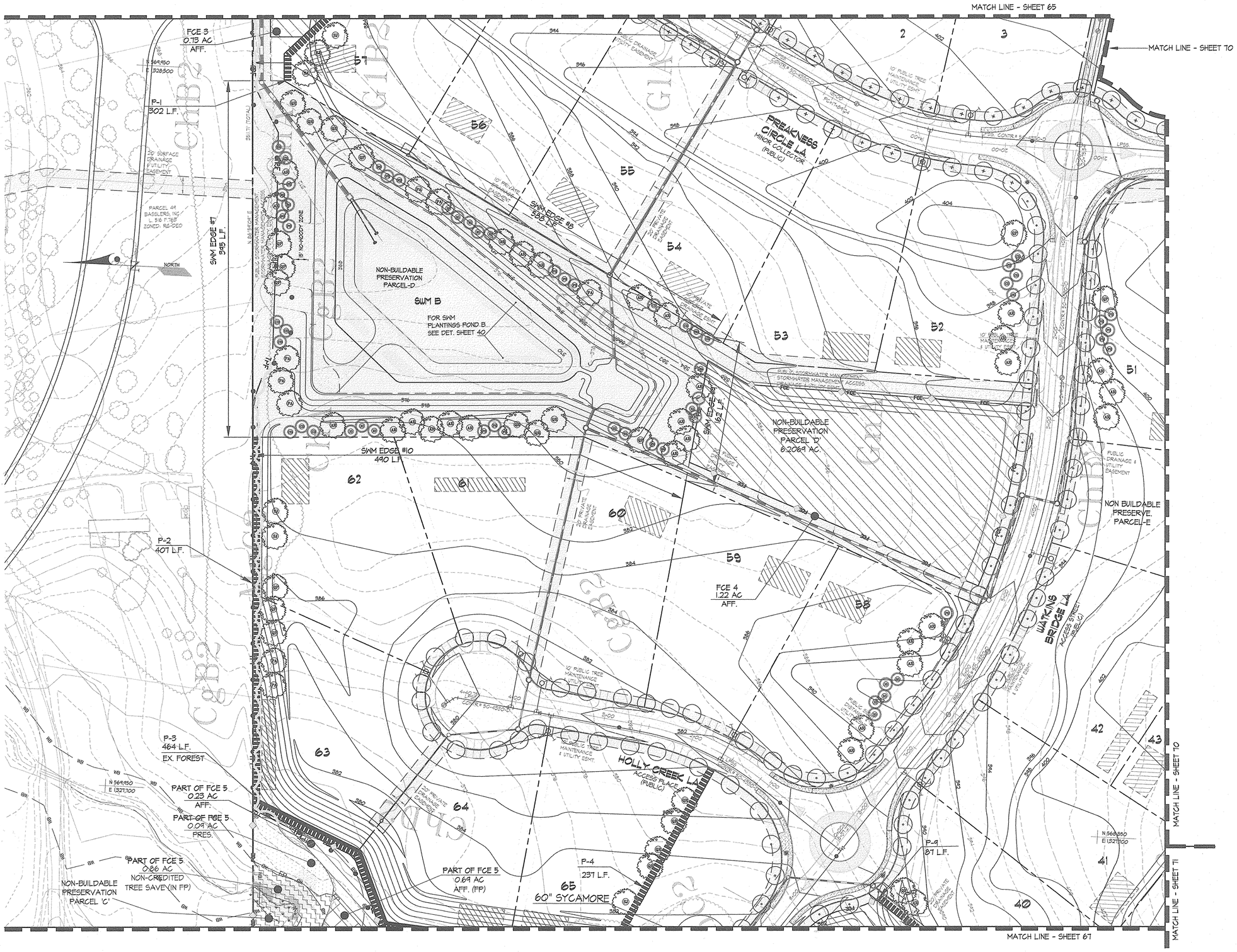
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	65 OF 78

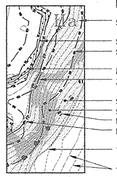
F-06-31



KEY MAP
SCALE: 1"=1000'



PLAN LEGEND



EXISTING ENVIRONMENTAL FEATURES

- SOIL TYPE
- STREAM
- STREAM BUFFER (-SB-)
- WETLAND
- 25' WETLAND BUFFER (-WB-)
- SLOPED AREA 15-25% (LIGHT GRAY)
- SLOPED AREA >25% (DK. GRAY)
- PROPOSED LOD
- 100-YR FLOODPLAIN (-FP-)
- TREE CANOPY LINE
- TOPOGRAPHY (CONTOUR LINES)

FOREST CONSERVATION & LANDSCAPE ITEMS

- CLEARING WITHIN THE FP (+++)
- CLEARING ON NET TRACT (tile)
- AFFORESTATION (w/n floodplain, double X-hatch)
- TREE PROTECTION FENCE (TPF)
- NEW TREE CANOPY LINE ( )
- AFFORESTATION (single X-hatch)
- FOREST RETENTION (on net tract, stipple)
- FOREST RETENTION (w/n floodplain, zigzag)
- LIMIT OF DISTURBANCE (• • • •)
- TYPE-A LANDSCAPE PERIMETER (▮▮▮▮▮▮)
- CREDITED PORTION (▮▮▮▮▮▮)
- FOREST CONSERVATION SIGN (♦)
- FOREST CONSERVATION ESMT (FCE)
- FOREST CONSERVATION EASEMENT AREA (GRAY HONEYCOMB HATCH)

STATE OF MARYLAND
Michael B. Tran
REGISTERED LANDSCAPE ARCHITECT
1933

THIS PLAN IS FOR PLANTING PURPOSES ONLY!

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 1/2/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153LS.dwg | DES. BJM | DRN. klP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

LANDSCAPE & FOREST CONSERVATION & STREET TREE PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	66 OF 78

F-06-31

MATCH LINE H-H (SEE THIS SHEET)

MATCH LINE - SHEET 66

MATCH LINE I-I (SHEET 66)

MATCH LINE - SHEET 71

MATCH LINE 6-6 (SHEET 72)

MATCH LINE H-H (SEE THIS SHEET)

PART OF FCE 5
0.63 AC
AFF. (IN FP)

NON-BUILDABLE PRESERVATION PARCEL 'C'

N 569,850
E 1327,450

PART OF FCE 5
0.86 AC
NON-CREDITED TREE SAVE (IN FP)

PART OF FCE 5
0.18 AC
PRES.

PART OF FCE 5
0.69 AC
AFF. (FP)

P-3
464 L.F.
EX. FOREST

P-4
237 L.F.

PART OF FCE 5
0.40 AC
AFF.

PART OF FCE 5
0.07 AC
AFF. (FP)

SWM EDGE #12
438 L.F.

15' NON-WOODY ZONE

SWM A

FOR SWM PLANTINGS POND A SEE DET. SHEET 38

SWM EDGE #11
278 L.F.

SWM EDGE #14
715 L.F.

SWM EDGE #15
504 L.F.

P-5
1693 L.F.

PART OF FCE 6
1.12 AC
PRES.

PART OF FCE 6
0.66 AC
AFF.

P-9
87 L.F.

P-10
454 L.F.
EX. FOREST

0.15 AC
AFF. (FP)

WATKINS BRIDGE LANE
ACCESS PLACE
(PUBLIC)

NON-BUILDABLE PRESERVATION PARCEL 'B'

PART OF FCE 6
1.68 AC
PRES.

P-8
148 L.F.

PART OF FCE 6
6.07 AC
AFF.

P-7
1529 L.F. TOTAL
EX. FOREST
PART OF FCE 6
4.07 AC
NON-CREDITED TREE SAVE (IN FP)

0.55 AC
TREE CLEARING
#88

0.30 AC
TREE CLEARING
(FP)

MOUNTAIN LANE
ACCESS PLACE
(PUBLIC)

SWEET MEADOW LANE
ACCESS PLACE
(PUBLIC)

20' PRIVATE DRAINAGE EASEMENT

PUBLIC TREE MAINTENANCE UTILITY ESMT.

PUBLIC DRAINAGE / UTILITY EASEMENT

PUBLIC WATER & SEWER UTILITY EASEMENTS

N 569,200
E 1326,650

N 569,800
E 1326,600

PARCEL 49
BASSLERS, INC.
L. 516 F. 163
ZONED: RC-DEO

LOT 28
PN 10231
ZONED: RC-DEO

N 569,750
E 1326,500

N 569,750
E 1326,200

PART OF FCE 6
NON CREDIT FCE
0.03 AC
TRIANGLE

PART OF FCE 6
6.07 AC
AFF.

(800.20' TOTAL)
N 10°21'48" E

NORTH

KEY MAP
SCALE: 1"=1000'

THIS SHEET

PLAN LEGEND

EXISTING ENVIRONMENTAL FEATURES

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- STREAM
- STREAM BUFFER (-SB-)
- WETLAND
- 25' WETLAND BUFFER (-WB-)
- SLOPED AREA 15-25% (LIGHT GRAY)
- SLOPED AREA >25% (DK. GRAY)
- PROPOSED LOD
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- TREE CANOPY LINE
- TOPOGRAPHY (CONTOUR LINES)

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- FOREST CONSERVATION EASEMENT AREA (GRAY HONEYCOMB HATCH)

THIS PLAN IS FOR PLANTING PURPOSES ONLY!

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/7/07

STATE OF MARYLAND
Michael B. Trainum
933
LANDSCAPE ARCHITECT

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
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\Drawings\00153\Final-Road\00153LS.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
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ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
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LANDSCAPE & FOREST CONSERVATION & STREET TREE PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A",
NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND
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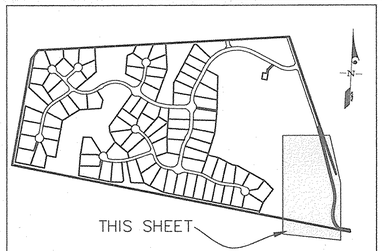
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

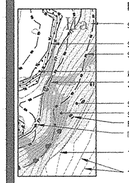
SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	67 OF 78

F-06-31



KEY MAP
SCALE: 1"=1000'

PLAN LEGEND



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STATE OF MARYLAND
Michael B. Tran
REGISTERED LANDSCAPE ARCHITECT
938

MATCH LINE - SHEET 64

MATCH LINE - SHEET 69

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 7-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/2/07

THIS PLAN IS FOR PLANTING PURPOSES ONLY!

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\Drawings\00153\Final-Road\00153LS.dwg | DES. BJM | DRN. KIP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
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WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

LANDSCAPE & FOREST CONSERVATION & STREET TREE PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	68 OF 78

F-06-31

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STATE OF MARYLAND
Michael B. Tran
REGISTERED LANDSCAPE ARCHITECT
933
11-15-07

PLAN LEGEND

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- FOREST CONSERVATION EASEMENT AREA (GRAY HONEYCOMB HATCH)

KEY MAP
SCALE: 1"=1000'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12/5/07

Chief, Development Engineering Division — Date 12/5/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
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3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.
11/16/07	RUNNING FENCE LANE LOWERED AND STORM DRAIN ADDED AT NEW LOW POINT △	DDS	

\Drawings\00153\Final-Road\00153LS.dwg | DES. BJM | DRN. kIP | CHK. MJT

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED LANDSCAPE & FOREST CONSERVATION & STREET TREE PLAN

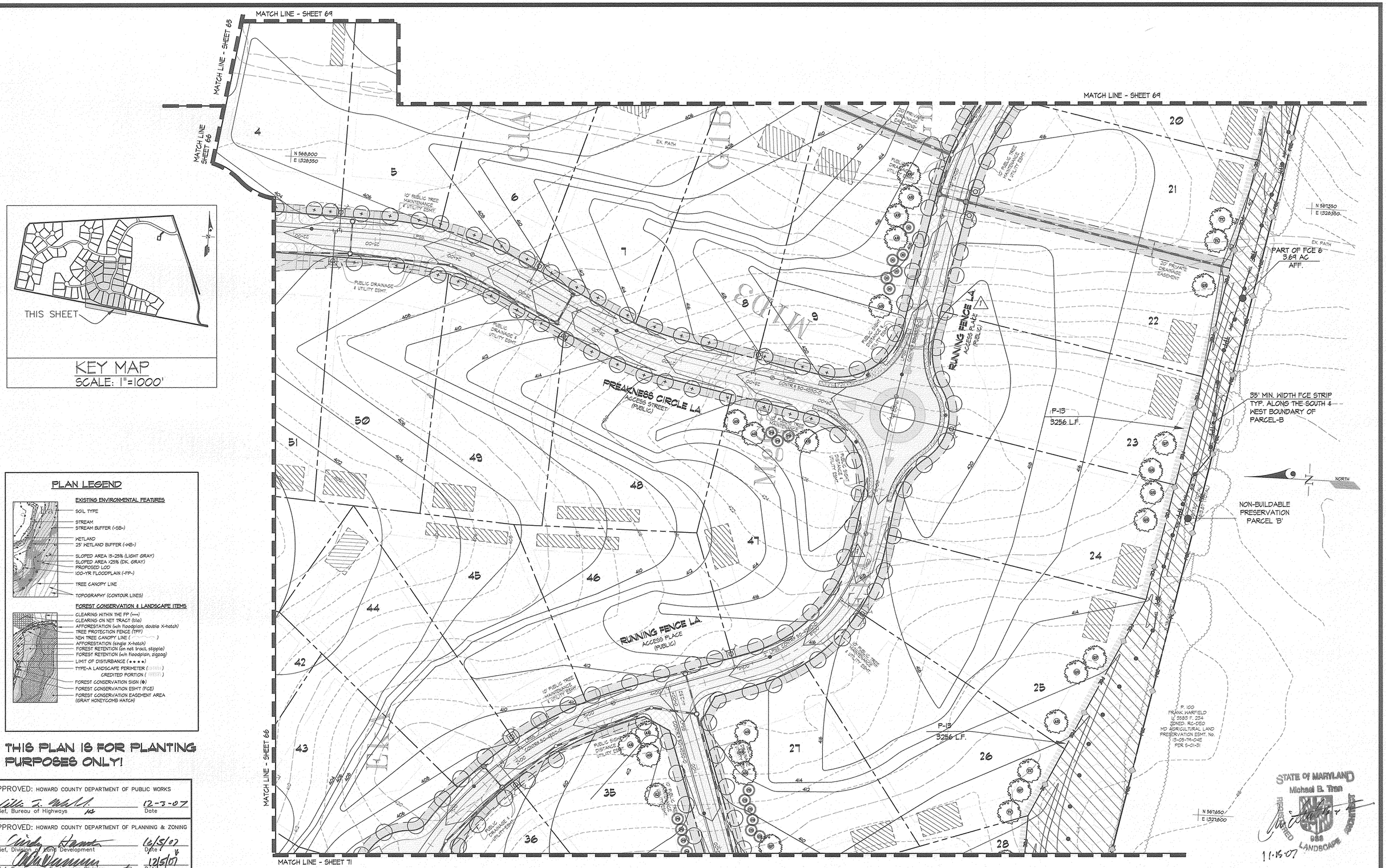
WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
NOV./2007	PARCEL 74 28 - 18,17	69 OF 78

F-06-31



PLAN LEGEND

EXISTING ENVIRONMENTAL FEATURES

- SOIL TYPE
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- STREAM BUFFER (-SB-)
- WETLAND
- 25' WETLAND BUFFER (-WB-)
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FOREST CONSERVATION & LANDSCAPE ITEMS

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THIS PLAN IS FOR PLANTING PURPOSES ONLY!

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date: 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date: 12/5/07

Chief, Development Engineering Division — Date: 12/5/07

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REVISED LANDSCAPE & FOREST CONSERVATION & STREET TREE PLAN

WALNUT GROVE

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ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
NOV./2007	PARCEL 74 28 - 18,17	70 OF 78

F-06-31

MATCH LINE - SHEET 66

MATCH LINE - SHEET 67

MATCH LINE - SHEET 70

RUNNING FENCE LA.
ACCESS PLACE
(PUBLIC)

39

38

36

37

35

28

34

33

32

31

30

29

P-13
3256 L.F.

PART OF FCE 6
3.69 AC
AFF.

PUBLIC DRAINAGE & UTILITY EASEMENT

20' PRIVATE DRAINAGE EASEMENT

NON-BUILDABLE PRESERVATION PARCEL 'B'

N 567,150
E 1321,550

N 568,650
E 1321,550

12' PUBLIC TREE MAINTENANCE & UTILITY ESMT.

P-10
454 L.F.
EX. FOREST

PART OF FCE 6
1.38 AC
PRES.

PART OF FCE 6
4.07 AC
NON-CREDITED TREE
SAVE (IN FP)

SWM EDGE #15
175 L.F.

SWM EDGE #16
191 L.F.

SWM EDGE #17
75 L.F.

70" SYCAMORE

70" WHITE OAK

PARCEL B

NON-BUILDABLE PRESERVATION PARCEL 'B'

DANIEL CIRCLE LA.
ACCESS PLACE
(PUBLIC)

SWM D
FOR SWM PLANTINGS
POND D SEE DET.
SHEET 45

0.51 AC
TREE
CLEARING

SWM EDGE #14
284 L.F.

SWM EDGE #18
357 L.F.

P-11
638 L.F.
EX. FOREST

PART OF FCE 6
1.88 AC
PRES.

PART OF FCE 6
6.07 AC
AFF.

0.48 AC
TREE
CLEARING

P-12
888 L.F.

35' MIN. WIDTH FCE STRIP
TYP. ALONG THE SOUTH &
WEST BOUNDARY OF
PARCEL-B

NON CREDIT FCE
0.01 AC
RECTANGLE

35' MIN. WIDTH FCE STRIP
TYP. ALONG THE SOUTH &
WEST BOUNDARY OF
PARCEL-B

P 100
FRANK MARFIELD
L. 5583 F. 284
ZONED: RC-DEO
MD AGRICULTURAL LAND
PRESERVATION ESMT. No.
15-05-72-046
PER 5-01-91

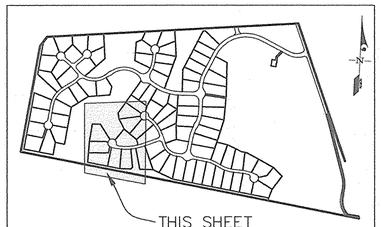
PART OF FCE 6
0.78 AC
AFF.

N 567,850
E 1326,900

NON-BUILDABLE
PRESERVATION
PARCEL 'B'

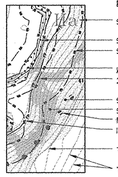
NORTH

MATCH LINE - SHEET 72



KEY MAP
SCALE: 1"=1000'

PLAN LEGEND



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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

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Chief, Development Engineering Division — Date 2/2/07

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STATE OF MARYLAND
Michael B. Tran
933
REGISTERED LANDSCAPE ARCHITECT

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3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153LS.dwg | DES. BJM | DRN. klP | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN D'YKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

LANDSCAPE & FOREST CONSERVATION & STREET TREE PLAN

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A",
NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND
NON-BUILDABLE BULK PARCEL "J"

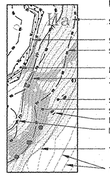
ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	71 OF 78

F-06-31

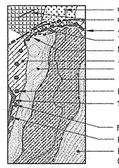
PLAN LEGEND

EXISTING ENVIRONMENTAL FEATURES



- SOIL TYPE
- STREAM
- STREAM BUFFER (-SB-)
- WETLAND
- 25' WETLAND BUFFER (-WB-)
- SLOPED AREA 15-25% (LIGHT GRAY)
- SLOPED AREA >25% (DK. GRAY)
- PROPOSED LOD
- 100-YR FLOODPLAIN (-FP-)
- TREE CANOPY LINE
- TOPOGRAPHY (CONTOUR LINES)

FOREST CONSERVATION & LANDSCAPE ITEMS



- CLEARING WITHIN THE FP (+++)
- CLEARING ON NET TRACT (tic)
- AFFORESTATION (w/n floodplain, double X-hatch)
- TREE PROTECTION FENCE (TPF)
- NEW TREE CANOPY LINE ( )
- AFFORESTATION (single X-hatch)
- FOREST RETENTION (on net tract, stipple)
- FOREST RETENTION (w/n floodplain, zigzag)
- LIMIT OF DISTURBANCE (• • • •)
- TYPE-A LANDSCAPE PERIMETER ( ) CREDITED PORTION ( )
- FOREST CONSERVATION SIGN (⊕)
- FOREST CONSERVATION ESMT (FCE)
- FOREST CONSERVATION EASEMENT AREA (GRAY HONEYCOMB HATCH)

MATCH LINE - SHEET 71

MATCH LINE 5-S (SHEET 67)

MATCH LINE 1-I (SHEET 67)

WATKINS BRIDGE LA.
ACCESS PLACE
(PUBLIC)

SWEET MEADOW LANE
ACCESS PLACE
(PUBLIC)

PART OF FCE 6
1.38 AC
PRES.

PART OF FCE 6
4.07 AC
NON-CREDITED
TREE SAVE
(IN FP)

PART OF FCE 6
6.07 AC
AFF.

PART OF FCE 6
1.88 AC
PRES.

1.07 AC
TREE
CLEARING

P-1
1529 L.F. TOTAL
EX. FOREST

P-5
1693 L.F.

P-6
0+00

P-6
14+59=
0+00 P-7

NON-BUILDABLE
PRESERVATION PARCEL 'B'

P. 100
FRANK WARFIELD
L. 3583 F. 234
ZONED: RC-DEO
MD AGRICULTURAL LAND
PRESERVATION ESMT. No.
13-05-78-04E
PER 5-01-31

35' MIN. WIDTH FCE STRIP
TYP. ALONG THE SOUTH &
WEST BOUNDARY OF
PARCEL-B

N 564300
E 1526450

N 564300
E 1526100

N 568050
E 1526100

LOT 28
PN 10231
ZONED: RC-DEO

CHAPEL CHASE
LOT 29
PN 10231
ZONED: RC-DEO

LOT 30
PN 10231
ZONED: RC-DEO

LOT 22 PN 9774
ZONED: RC-DEO

LOT 23 PN 9774
ZONED: RC-DEO

EX. 50' DRAINAGE EASEMENT
PER PLAT

800.20' (TOTAL)

N 10°21'48" E

NORTH

STATE OF MARYLAND
Michael B. Tran
933
REGISTERED LANDSCAPE ARCHITECT

THIS SHEET

KEY MAP
SCALE: 1"=1000'

THIS PLAN IS FOR PLANTING PURPOSES ONLY!

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/8/07

Chief, Development Engineering Division — Date 2/5/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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PLANT LIST

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	NOTES
SHADE TREES				
AR	109	Acer rubrum 'October Glory' October Glory Red Maple	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht	
PA	55	Platanus x acerifolia 'Bloodgood' Bloodgood London Plane tree	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht	
QP	49	Quercus phellos Willow Oak	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht	
QR	59	Quercus rubra Red Oak	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht	
SJ	34	Sophora japonica Japanese Pagoda Tree	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht	
TC	30	Tilia cordata 'Greenspire' Greenspire Littleleaf Linden	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht	
EVERGREEN TREES				
CD	58	Cedrus deodara Deodar Cedar	8'-10' height	
IO	67	Ilex opaca American Holly	7'-8' height 16 male and 31 female plants (1 male to 3 females)	
PS	76	Pinus strobus White Pine	8'-10' height	

STREET TREE SCHEDULE

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE
⊙ QP	185	Quercus phellos Willow Oak	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht
⊙ QR	150	Northern Red Oak Quercus rubra	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht
◯ QC	163	Quercus coccinea Scarlet Oak	2 1/2"-3" Cal. B&B 12' - 14' height 6' min. branching ht
(ER)	12	Eastern Redbud Cercis Canadensis	2 1/2"-3" Cal. B&B 8'-10' height 4' min. branching ht

STREET TREE TABLE

STREET NAME	LINEAR FEET (*BOTH SIDES)	REQUIRED STREET TREES (40' O.C.)	PROPOSED TREES - TYPE
SHEPPARD LANE	490	12	12 - ER
FREAKNESS CIRCLE LANE	5960*	149	150 - QR
RUNNING FENCE LANE	3850*	96	103 - QC
DANIEL CIRCLE LANE	1598*	40	33 - QC & 7 - QP
WATKINS BRIDGE LANE	4402*	110	110 - QP
HOLLY CREEK LANE	1025*	26	27 - QC
MOUNTAIN LANE	647*	16	20 - QP
SWEET MEADOW LANE	1902*	48	48 - QP
TOTALS	19874	497 TREES	510 TREES

STATE OF MARYLAND
Michael B. Tran
REGISTERED LANDSCAPE ARCHITECT
933

DEVELOPER'S/BUILDER'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.

NAME — DATE 1-28-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 2/5/07

Chief, Development Engineering Division — Date 2/2/07

STORM WATER MANAGEMENT AREA LANDSCAPING - SCHEDULE D

SWM POND	SWM EDGE #	PROPOSED LAND USE	ADJACENT LAND USE	LINEAR FEET OF PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	# OF PLANTS REQUIRED SHADE TREES	# OF PLANTS REQUIRED EVERGREEN TREES	# OF PLANTS REQUIRED ORN. TREES	# OF PLANTS PROVIDED SHADE TREES	# OF PLANTS PROVIDED EVERGREEN TREES	# OF PLANTS PROVIDED ORN. TREES	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)
C	1	POND	ROADWAY	117' (B)	NO	3	3	—	3	3	—	NO
C	2	POND	ROADWAY	85' (B)	NO	2	2	—	2	2	—	NO
C	3	POND	RESIDENTIAL	74' (B)	NO	2	2	—	2	2	—	NO
C	4	POND	RESIDENTIAL	61' (B)	NO	1	2	—	1	2	—	NO
C	5	POND	RESIDENTIAL	89' (B)	NO	2	2	—	2	2	—	NO
C	6	POND	RESIDENTIAL	70' (B)	NO	2	2	—	2	2	—	NO
B	7	POND	RESIDENTIAL	345' (B)	NO	8	10	—	8	10	—	NO
B	8	POND	RESIDENTIAL	588' (B)	NO	12	15	—	12	15	—	NO
B	9	POND	RESIDENTIAL	162' (B)	NO	4	4	—	4	4	—	NO
B	10	POND	RESIDENTIAL	490' (B)	NO	10	13	—	10	13	—	NO
A	11	POND	RESIDENTIAL	278' (B)	NO	6	7	—	6	7	—	NO
A	12	POND	RESIDENTIAL	438' (B)	YES, 438'	0	0	—	0	0	—	YES, 438'
A	13	POND	ROADWAY	504' (B)	NO	10	13	—	10	13	—	NO
A	14	POND	RESIDENTIAL	715' (B)	NO	15	18	—	15	18	—	NO
D	15	POND	RESIDENTIAL	225' (B)	NO	5	6	—	5	6	—	NO
D	16	POND	RESIDENTIAL	197' (B)	NO	4	5	—	4	5	—	NO
D	17	POND	ROADWAY	75' (B)	NO	2	2	—	2	2	—	NO
D	18	POND	RESIDENTIAL	357' (B)	NO	8	9	—	8	9	—	NO
D	19	POND	RESIDENTIAL	284' (B)	YES, 284'	0	0	—	0	0	—	YES, 284'
E	20	POND	RESIDENTIAL	175' (B)	NO	4	5	—	4	5	—	NO
E	21	POND	RESIDENTIAL	316' (B)	NO	7	8	—	7	8	—	NO
E	22	POND	RESIDENTIAL	328' (B)	NO	7	9	—	7	9	—	NO
E	23	POND	RESIDENTIAL	258' (B)	NO	6	7	—	6	7	—	NO
					TOTALS	120	144	—	120	144	—	

SCHEDULE 'D' REQUIRED SURETY: 120 SHADE TREES @ $300/TREE = $36,000.00
144 EVG. TREES @ $150/TREE = $21,600.00
TOTAL SURTY FOR SCHEDULE 'D' = $57,600.00

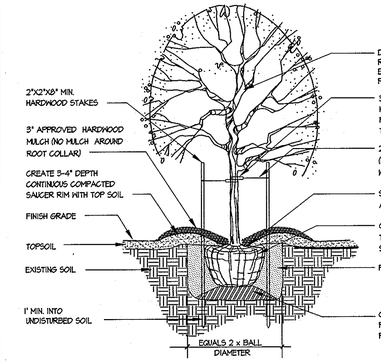
SCHEDULE A	LOT 9	LOT 27	LOT 35	LOT 47	LOT 51	LOT 52	LOT 58	LOT 67	LOT 79	LOT 84	LOT 88
PERIMETER LANDSCAPE PERIMETER CATEGORY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY	BUFFER REAR/SIDE OF HOUSES FROM ROADWAY
LANDSCAPE BUFFER TYPE	B	B	B	B	B	B	B	B	B	B	B
LINEAR FEET OF ROADWAY/ PERIMETER FRONTAGE	214'	220'	307'	134'	214'	186'	218'	64'	275'	180'	168'
CREDIT FOR EX. VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	5 6 0	5 6 0	6 8 0	5 5 0	4 5 0	4 5 0	5 6 0	1 2 0	6 7 0	4 5 0	4 4 0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBST.) SHRUBS (10:1 SUBST.) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	5 6 0 0	5 6 0 0	6 8 0 0	3 5 0 0	4 5 0 0	4 5 0 0	5 6 0 0	1 2 0 0	6 7 0 0	4 5 0 0	4 4 0 0

SCHEDULE A-CONT.	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12	P-13	P-14	TOTALS
PERIMETER LANDSCAPE PERIMETER CATEGORY	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	PERIMETER PROPERTIES*	
LANDSCAPE BUFFER TYPE	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
LINEAR FT. OF PERIMETER FRONTAGE	302'	407'	464'	257'	1,693'	1,454'	1,524'	148'	87'	454'	638'	888'	3,256'	1,034'	12,607'±
CREDIT FOR EX. VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	YES 464 L.F. OF EX. FOREST	NO	NO	NO	YES 1,524 L.F. OF EX. FOREST	NO	NO	YES 454 L.F. OF EX. FOREST	YES 638 L.F. OF EX. FOREST	NO	NO	NO	3,082±L.F. ALONG PORTION OF LOTS 31-40 & 63-73 ABUTTING WOODED FLOODPLAIN
CREDIT FOR WALL, FENCE OR BERM	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NONE
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES	5 0	7 0	0 0	4 0	28 0	24 0	0 0	3 0	2 0	0 0	0 0	15 0	54 0	17 0	(FOR 9516 L.F.) 154 SHADE TREES
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES	6 0	7 0	0 0	5 0	31 0	24 0	0 0	3 0	2 0	0 0	5 0	15 0	54 0	17 0	164 0

SCHEDULE 'A' NUMBER OF SHADE TREES FOR BONDING: 206 X $300 = $61,800
SCHEDULE 'A' NUMBER OF EVERGREEN TREES FOR BONDING: 57 X $150 = $8,550
TOTAL ESTIMATE FOR BONDING (SCHEDULE 'A'): $70,350

* ALONG THE PERIMETER OF THE CLUSTER SUBDIVISION (IDENTIFIED AS THE "TYPE-A LANDSCAPE PERIMETER" IN THE LEGEND).

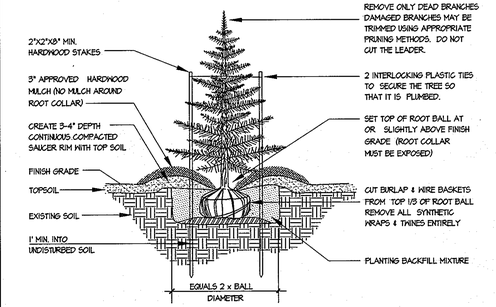
THE LANDSCAPE SURETY WILL BE INCLUDED IN THE DEVELOPER'S AGREEMENT



NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

DECIDUOUS TREE PLANTING DETAIL

FOR PLANTING MATERIAL UP TO 3 1/2" CALIPER — NTS



NOTE: ALL SUPPORTING DEVICES (STAKES, TIES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

EVERGREEN TREE PLANTING DETAIL

NTS

LANDSCAPING NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE OF THE HOWARD COUNTY LANDSCAPE MANUAL. PLANT MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL.
2. CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST (5) FIVE DAYS BEFORE STARTING WORK. ALL GENERAL NOTES, ESPECIALLY THOSE REGARDING UTILITIES, ON SHEET 1 SHALL APPLY.
3. FIELD VERIFY UNDERGROUND UTILITY LOCATIONS AND EXISTING CONDITIONS BEFORE STARTING PLANTING WORK. CONTACT ENGINEER / LANDSCAPE ARCHITECT IF ANY RELOCATIONS ARE REQUIRED.
4. PLANT QUANTITIES SHOWN ON PLANT LIST ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON THE PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN SHALL TAKE PRECEDENCE.
5. ALL PLANT MATERIAL SHALL BE FULL, HEAVY, WELL FORMED, AND SYMMETRICAL, AND CONFORM TO THE A.A.N. SPECIFICATIONS, AND BE INSTALLED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
6. NO SUBSTITUTION SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR HIS REPRESENTATIVE AND DPZ.
7. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES BUT NOT OTHERWISE PLANTED, PAVED, OR MULCHED SHALL BE SEEDED OR SODDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
8. THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING IF HE/SHE ENCOUNTERS SOIL DRAINAGE CONDITIONS WHICH MAY BE DETRIMENTAL TO THE GROWTH OF THE PLANTS.
9. ALL EXPOSED EARTH WITHIN LIMITS OF PLANTING BEDS SHALL BE MULCHED WITH SHREDDED HARDWOOD MULCH PER PLANTING DETAILS.
10. THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND, WHEN NECESSARY, REPAIRED AND REPLACED.
11. "SCHEDULE A - PERIMETER LANDSCAPE EDGE: AND "SCHEDULE D - STORMWATER MANAGEMENT AREA LANDSCAPING" ARE PROVIDED FOR LANDSCAPE SURETY CALCULATION PURPOSES ONLY. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED WITH THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $127,950 FOR:

    326 SHADE TREES @ $300/TREE = $97,800.00
    201 EVG. TREES @ $150/TREE = $30,150.00

12. NO LANDSCAPING WILL BE ALLOWED WITHIN STORMDRAIN EASEMENTS.
13. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND 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 DEVIATION 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 APPLICABLE PLANS.

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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LANDSCAPE NOTES & DETAILS

WALNUT GROVE

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ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

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AS SHOWN	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	73 OF 78

F-06-31

FOREST CONSERVATION WORKSHEET

1. SITE DATA

GROSS SITE AREA	202.44± AC
AREA WITHIN 100-YEAR FLOOD PLAIN	8.78± AC
NET TRACT AREA*	193.66± AC
LAND USE CATEGORY	RESIDENTIAL-RURAL MEDIUM DENSITY

2. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA	193.66± AC
B. REFORESTATION THRESHOLD (25% x A)	48.42±
C. AFFORESTATION THRESHOLD (20% x A)	38.73±
D. EXISTING FOREST ON NET TRACT AREA	7.26±
E. FOREST AREAS ON NET TRACT TO BE CLEARED	2.67±
F. FOREST AREAS ON NET TRACT TO BE RETAINED	4.58±

3. AFFORESTATION CALCULATIONS

A. NET TRACT AREA	193.66± AC
B. AFFORESTATION THRESHOLD (20% x A)	38.73±
C. EXISTING FOREST ON NET TRACT AREA	7.26±
D. FOREST AREAS ON NET TRACT TO BE CLEARED	2.61±
E. FOREST AREAS ON NET TRACT TO BE RETAINED	4.65±

4. REQUIRED FOREST CONSERVATION

A. AFFORESTATION UP TO THRESHOLD (3B-3C)	31.47± AC
B. REFORESTATION FOR CLEARING BELOW THRESHOLD (3D x 2)	5.22±
C. TOTAL CONSERVATION PLANTING AREA REQUIRED (4A + 4B)	36.69±
D. TOTAL FOREST CONSERVATION EASEMENT AREA REQUIRED (3E + 4C)	41.34±

5. PROPOSED METHODS OF FULFILLING FOREST CONSERVATION OBLIGATIONS

RETENTION OF EXISTING FOREST ON NET TRACT	4.65± AC
ON-SITE FOREST PLANTING	36.69± AC
TOTAL MINIMUM AREA OF FOREST CONSERVATION EASEMENT TO BE RECORDED	41.34± AC

** NOTE: ALL PRESERVATION PARCELS ARE INCLUDED IN THE NET TRACT AREA FOR CALCULATION PURPOSES SINCE THERE IS A CHANGE-IN-USE (SHARED SEPTIC SYSTEM, SWM AND UTILITIES) ON ALL PARCELS. THIS SUBDIVISION IS COMPLYING WITH "RURAL CLUSTER OPTION B" OF APPENDIX L OF THE FOREST CONSERVATION MANUAL.*

FOREST CONSERVATION SURETY

FOREST RETENTION AT $0.20/SF X (4.65 AC X 43,560 SF/AC) = $40,510.80
RE/AFFORESTATION AT $0.50/SF X (36.69 AC X 43,560 SF/AC) = $799,108.20
TOTAL FOREST CONSERVATION SURETY = $839,619.00

FOREST CONSERVATION PROGRAM SEQUENCE

(TO BE PERFORMED AT FINAL PLAN STAGE)

1. OBTAIN ALL NECESSARY PERMITS.
2. STAKEOUT LIMITS OF DISTURBANCE.
3. FIELD MEETING TO REVIEW AND VERIFY LIMIT OF DISTURBANCE FOR THE SITE GRADING AND CONSTRUCTION.
4. INSTALL FOREST CONSERVATION SIGNS AND FOREST PROTECTION DEVICES (FENCES) ALONG THE PORTION OF THE LIMIT OF DISTURBANCE (THAT INVOLVES CLEARING AND/OR RETENTION OF TREES).
5. COMMENCE SITE CONSTRUCTION.
6. INSTALL FOREST PLANTING AND THE REMAINDER OF THE CONSERVATION SIGNS ALONG THE EDGE OF THE CONSERVATION EASEMENT. MOVE CONSERVATION SIGNS INSTALLED IN #4 (ABOVE) TO THE EDGE OF THE CONSERVATION EASEMENT.
7. INSPECTION AND CERTIFICATION FOR THE RELEASE OF THE CONSTRUCTION PERIOD OBLIGATIONS; START OF POST-CONSTRUCTION MANAGEMENT PERIOD.
8. POST-CONSTRUCTION MANAGEMENT FOR A PERIOD OF 2 YEARS (MIN.).
9. FINAL INSPECTION AND CERTIFICATION FOR THE RELEASE OF THE OWNER'S FOREST CONSERVATION SURETY.

FOREST CONSERVATION EASEMENT AREA TABULATION										
FOREST CONSERVATION EASEMENT (FCE) AREA	1	2	3	4	5	6	7	8	9	
PARCEL WHERE FCE IS LOCATED	A	D	D	D	C	B	A	A	A	TOTAL
CREDITED FOREST RETENTION AREA ON NET TRACT (IN AC.)	N/A	N/A	N/A	N/A	0.27	4.38	N/A	N/A	N/A	4.65
NON-CREDITED FOREST RETENTION AREA IN FLOODPLAIN (IN AC.)	N/A	N/A	N/A	N/A	0.86	4.07	N/A	N/A	N/A	4.93
FOREST PLANTING AREA (IN AC.)	0.24	0.35	0.73	1.22	0.63	11.20	0.79	17.68	0.61	33.45
FOREST PLANTING AREA WITHIN THE FLOODPLAIN (IN AC.)	N/A	N/A	N/A	N/A	0.76	0.15	N/A	2.82	N/A	3.73
NATURAL REGENERATION AREA (IN AC.)	N/A	N/A	N/A	N/A	N/A	0.04	N/A	0.01	N/A	0.05
MINIMUM TOTAL AREA IN CONSERVATION EASEMENT (IN AC.)	0.24	0.35	0.73	1.22	2.52	19.84	0.79	20.51	0.61	46.81

1

FOREST CONSERVATION PLANTING QUANTITY SCHEDULE										
FOREST CONSERVATION LOCATION	1	2	3	4	5	6	7	8	9	TOTAL
FOREST PLANTING AREA (IN AC.)	0.24	0.35	.73	1.22	0.63	11.20	0.79	17.68	0.61	33.45
FOREST PLANTING AREA WITHIN THE FLOODPLAIN (IN AC.)	N/A	N/A	N/A	N/A	0.76	0.15	N/A	2.82	N/A	3.73
TOTAL ACRAGE OF AFFORESTATION PROVIDED (IN AC.)	0.24	0.35	0.73	1.22	1.39	11.35	0.79	20.50	0.61	37.18
BASE QUANTITY OF WHIP TREES REQUIRED (AT 350 TREES/AC.)	84	123	256	427	487	3973	277	7175	214	13016
REQUIRED QUANTITY OF WHIP TREES TO BE PLANTED	84	123	256	427	487	3973	277	7175	214	13016
NOTE: THE QUANTITY SHOWN ABOVE IS FOR PLANTING WITH WHIP TREES AT 11' X 11' SPACING.										

1

FOREST CONSERVATION PLANT LIST											
		FOREST CONSERVATION EASEMENT AREA									
PLANT NAME (BOTANICAL/COMMON)		1	2	3	4	5	6	7	8	9	TOTAL
ACER RUBRUM/RED MAPLE	*(WHIP)*	16	25	51	85	98	794	56	1435	42	2602
LIQUIDAMBAR STYRACIFLUA/SWEETGUM	*(WHIP)*	17	25	51	85	98	794	56	1435	43	2604
LIRIODENDRON TULIPFERA/TULIP TREE	*(WHIP)*	17	25	51	86	97	795	55	1435	43	2604
QUERCUS PALUSTRIS/PIN OAK	*(WHIP)*	17	24	51	86	97	795	55	1435	43	2603
QUERCUS RUBRUM/RED OAK	*(WHIP)*	17	24	52	85	97	795	55	1435	43	2603
TOTAL		84	123	256	427	487	3973	277	7175	214	13016

GENERAL NOTES

1. THIS REFORESTATION PLAN IS PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF SUBTITLE 12 "FOREST CONSERVATION" OF THE HOWARD COUNTY CODE.
2. IMPLEMENTATION OF THIS PLAN MUST BE PERFORMED BY A CONTRACTOR THAT IS KNOWLEDGEABLE AND EXPERIENCED IN AFFORESTATION/REFORESTATION TECHNIQUES AND PRACTICES.
3. AT FINAL PLAN STAGE, THE OWNER IS RESPONSIBLE FOR A 2-YEAR (MIN.) POST-CONSTRUCTION MAINTENANCE PERIOD WHICH INVOLVES ACTIVITIES NECESSARY TO ENSURE SURVIVAL AND GROWTH OF THE CONSERVATION AREA. TWO INSPECTIONS PER YEAR BY A QUALIFIED PROFESSIONAL AT BEGINNING AND END OF THE GROWING SEASON, ARE RECOMMENDED IN ORDER TO TAKE REMEDIAL STEPS AS NECESSARY. IF, AFTER ONE YEAR, THE POSSIBILITY EXISTS THAT THE ORIGINAL PLANTING (IF APPLICABLE) WILL NOT MEET SURVIVAL RATE STANDARDS, THE APPLICANT MAY CHOOSE TO ESTABLISH REINFORCEMENT PLANTINGS.
4. AT THE END OF THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD, CERTIFICATION BY A QUALIFIED CONSULTANT WILL BE REQUIRED BEFORE TO THE OWNER CAN BE RELEASED FROM HIS/HER FOREST CONSERVATION OBLIGATION TO THE ADMINISTRATOR OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.
5. THE DEVELOPER/BUILDER SHALL (IN WRITING) NOTIFY ALL LOT OWNERS OF THIS DEVELOPMENT OF THE EXISTENCE OF FOREST CONSERVATION AREAS AND THAT DISTURBANCE TO THE FOREST CONSERVATION AREAS OR THE REMOVAL OF FOREST CONSERVATION SIGNAGE IS PROHIBITED.
6. THE PROPOSED FOREST CONSERVATION EASEMENTS (FCE) SHOWN ON THESE PLANS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FCE; HOWEVER, THE INITIAL GRADING TO DEVELOP THE SITES (AT SUBSEQUENT PLAN STAGES) AND FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. TO FULFILL THE THE FOREST CONSERVATION OBLIGATION FOR THE DEVELOPMENT OF THIS SITE, AT LEAST 41.34± ACRES OF FOREST CONSERVATION EASEMENTS WHICH COMPRISES OF 4.65± AC. OF NET TRACT RETENTION AND 36.69± AC. OF REQUIRED SUPPLEMENTAL PLANTING (AFFORESTION/REFORESTION) MUST BE RECORDED AT FINAL PLAN STAGE. (31.47 AC. AFFORESTATION AND 5.22 AC. REFORESTATION)
7. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND 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 DEVIATION 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 APPLICABLE PLANS.
8. THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
9. REFORESTATION/AFFORESTATION TREE PLANTINGS SHOULD BE INSTALLED IN A CURVILINEAR PATTERN TO FACILITATE MAINTENANCE BUT AVOID A GRID APPEARANCE. EACH SPECIES OF TREE SHALL BE DISTRIBUTED EVENLY WITHIN EACH FOREST CONSERVATION EASEMENT AREA.

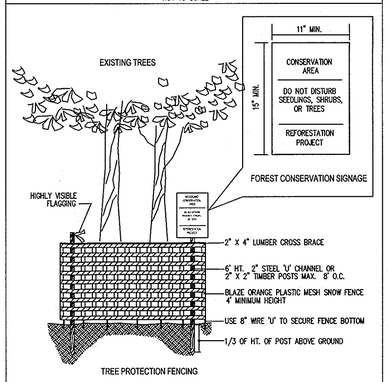
CONSTRUCTION PERIOD PROTECTION PROGRAM

(TO BE PERFORMED AT FINAL PLAN STAGE)

1. THE LIMIT OF FOREST RETENTION SHALL BE STAKED AND FLAGGED.
2. A PRE-CONSTRUCTION MEETING AT THE SITE SHOULD BE HELD TO CONFIRM THE LIMITS OF CLEARING SPECIFIED. THE MEETING SHOULD INCLUDE THE OWNER OR THE OWNER'S REPRESENTATIVE, THE ON-SITE FOREMAN IN CHARGE OF LAND DISTURBANCE, THE ENVIRONMENTAL CONSULTANT AND THE APPROPRIATE HOWARD COUNTY INSPECTORS.
3. FOREST PROTECTION DEVICES AND SIGNS (SEE DETAILS) SHALL BE INSTALLED PRIOR TO ANY CLEARING OR GRADING. THE PROTECTION DEVICES AND SIGNS SHALL BE MAINTAINED DURING THE ENTIRE CONSTRUCTION PERIOD. NONE OF THE DEVICES SHALL BE ANCHORED OR ATTACHED IN ANY WAY TO THE TREES TO BE SAVED.
4. EQUIPMENT, VEHICLES AND BUILDING MATERIALS SHALL NOT BE WITHIN THE PROTECTED AREA. ACTIVITIES STRICTLY TO IMPLEMENT ANY REFORESTATION PLANTING AND MAINTENANCE (I.E. WATERING, FERTILIZING THINNING, PRUNING, REMOVAL OF DEAD AND DISEASED TREES WHERE NECESSARY, ETC.) OF THE CONSERVATION AREA ARE PERMITTED. CLEARING FOR THE PURPOSE OF SODDING OR PLANTING GRASS IS NOT PERMITTED WITHIN THE FOREST CONSERVATION AREAS ONCE THEY'RE ESTABLISHED.
5. AT THE END OF THE CONSTRUCTION PERIOD, THE DESIGNATED QUALIFIED PROFESSIONAL SHALL CONVEY TO THE ADMINISTRATOR OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM CERTIFICATION THAT ALL FOREST RETENTION AREAS HAVE BEEN PRESERVED, ALL REFORESTATION AND/OR AFFORESTATION PLANTINGS (IF APPLICABLE) HAVE BEEN INSTALLED AS REQUIRED BY THE FOREST CONSERVATION PLAN, AND THAT ALL PROTECTION MEASURES REQUIRED FOR THE POST-CONSTRUCTION PERIOD HAVE BEEN INSTALLED. UPON REVIEW OF THE FINAL CERTIFICATION DOCUMENT FOR COMPLETENESS AND ACCURACY, THE PROGRAM COORDINATOR WILL NOTIFY THE OWNER OF RELEASE FROM THE CONSTRUCTION PERIOD OBLIGATIONS. THE 2-YEAR (MIN.) POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD THEN COMMENCES.

TREE PROTECTION FENCE & FOREST CONSERVATION SIGNAGE

NOT TO SCALE



NOTES:

1. THE TREE PROTECTION FENCING SHOWN ON THESE PLANS IS TEMPORARY AND SHALL REMAIN IN PLACE DURING CONSTRUCTION ACTIVITY, BUT THE FOREST CONSERVATION SIGNAGE IS PERMANENT AND SHALL REMAIN IN PLACE AROUND THE FOREST CONSERVATION EASEMENTS AFTER THE REMOVAL OF THE TREE PROTECTION FENCING.
2. FOREST CONSERVATION SIGNAGE SHALL BE INSTALLED ALONG THE PERIMETER OF THE CONSERVATION EASEMENT AT 50' TO 100' APART.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

SOURCE: PRINCE GEORGE'S COUNTY, MARYLAND: WOODLAND CONSERVATION MANUAL ADAPTED FROM THE MARYLAND STATE FOREST CONSERVATION MANUAL

TREE PLANTING AND MAINTENANCE CALENDAR

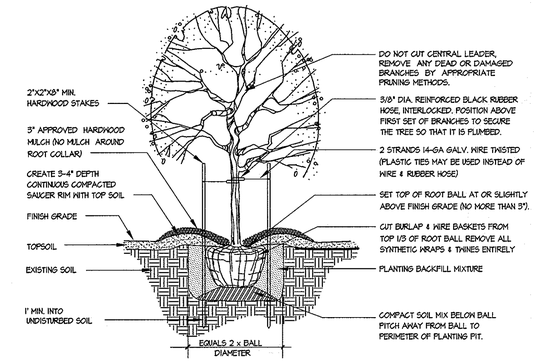
TASKS	MONTHS: JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
TRANSPLANT OF 2" DBH OR GREATER	■	■								▤	▤	
PLANTING SEEDINGS, WHIPS	■	■								■	■	
MINIMUM MONITORING	*			*						*		
FERTILIZER + (IF NEEDED)										▭	▭	
WATER ++	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭
PRUNING	▭	▭										▭

KEY

*	ACTIVITIES DURING THESE MONTHS ARE DEPENDENT UPON GROUND CONDITIONS
■	GREATLY RECOMMENDED
▤	RECOMMENDED WITH ADDITIONAL CARE
▭	RECOMMENDED
+	DEPENDENT UPON SITE CONDITIONS
++	DEPENDENT UPON SITE CONDITIONS; WEEKLY WATERING IS GREATLY RECOMMENDED FROM MAY THROUGH OCTOBER UNLESS WEEKLY RAINFALL EQUALS 1"

NOTE:
THE PLANTING AND CARE OF TREES IS MOST SUCCESSFUL WHEN COORDINATED WITH THE LOCAL CLIMATIC CONDITIONS. THIS CALENDAR SUMMARIZES SOME OF THE RECOMMENDED TIME FRAMES FOR BASIC REFORESTATION AND STRESS REDUCTION ACTIVITIES.

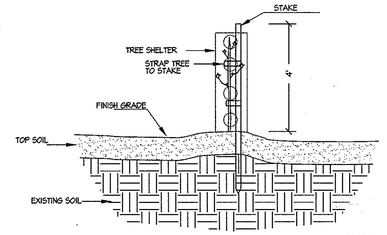
SOURCE: ADAPTED FROM THE MARYLAND STATE FOREST CONSERVATION MANUAL



NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

DECIDUOUS TREE PLANTING DETAIL

FOR PLANTING MATERIAL UP TO 3 1/2" CALIPER NTS



WHIP TREE PLANTING DETAIL 1

NTS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 12-3-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/5/07

Chief, Development Engineering Division — Date 12/5/07

STATE of MARYLAND
Michael B. Tran
933
LANDSCAPE ARCHITECT
11.15.07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\Drawings\00153\Final-Road\00153LSnotes.dwg | DES. JRS | DRN. JRS | CHK. MT

DATE	REVISION	BY	APP'R.
11/16/07	FCE REQUIREMENTS CHANGED FOR WHIP CALIPER TREES ⚠	DDS	

PREPARED FOR OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

REVISED FOREST CONSERVATION NOTES & DETAILS

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
NOV./2007	PARCEL 74 28 – 18,17	74 OF 78

F.06.31

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: A-1
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 389.9 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
390	Brown, moist, medium dense silty sand, with gravel, trace mica, and trace organics. (SM)	2" of Topsoil	12"		10-14-11	25	
385	Brown, moist, medium dense silty coarse sand and gravel, trace rock fragments. (SM-GM)		18"		9-9-8	16	
	Brown, wet, loose to medium dense, silty sand, and trace clay. (SM)	Water encountered @ 7.5' while drilling.	14"		4-3-4	7	
380			14"		6-6-6	12	
	Brown, wet, very dense silty coarse sand and gravel, with rock fragments. (DECOMPOSED ROCK)		8"		40-51/4	100+	
375	Bottom of Test Boring @ 19.5'		10"		23-51/6	100+	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	dry ft.	6.5 ft.
AFTER 24 HRS.	6.5 ft.	7.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: A-4
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 373.7 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
375	Brown, moist, stiff sandy silt clay, with organics. (CL-ML)	3" of Topsoil	10"		5-7-10	17	
370	Reddish brown to brown, moist, loose to medium dense, micaceous silty sand, and trace gravel. (SM)		14"		4-5-6	11	
			10"		4-4-5	9	
365	Dark reddish brown, wet, soft, micaceous sandy silt. (ML)		14"		1-2-2	4	
	Bottom of Test Boring @ 10'	No water encountered while drilling.					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	4.0 ft.
AFTER 24 HRS.	Dry ft.	3.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: B-1
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 387.7 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
385	Dark brown, moist, stiff clayey silt-silty clay, trace sand and trace organics. (CL- ML)	6" of Topsoil	14"		8-9-8	17	
380	Brown to grayish brown, moist, stiff silty clay, trace sand, and trace organics in sample 2. (ML)		14"		4-5-7	12	
			17"		5-5-8	13	
375			14"		6-6-7	13	
	Gray, moist, hard clayey silt, and trace sand. (ML)		15"		20-29-38	67	
370	Gray moist, hard clayey silt, trace mica, and trace sand. (DECOMPOSED ROCK to ROCK)		12"		29-40-51/6	46	
365	Bottom of Test Boring @ 22.0' Spoon Refusal at 22.5'		5"		51/0	100+	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	dry ft.	10.5' ft.
AFTER 24 HRS.	10.0 ft.	11.5 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: B-2
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 374.1 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
375	Brown, moist, medium dense silty sand with gravel, orangics, trace glass fragments and trace wood fragments. (FILL)	6" of Topsoil	16"		11-10-15	25	
	Reddish brown, moist, stiff silty clay, trace sand and mica. (CL)		18"		5-5-9	15	
370	Reddish brown and gray, moist, stiff micaceous sandy silt, and trace clay. (SM-ML)		16"		4-5-7	12	
	Reddish brown and gray, moist, medium dense, micaceous silty sand, and trace gravel. (SM)		12"		4-4-5	12	
365	Bottom of Test Boring @ 15'	Encountered water @ 10' while drilling.	12"		4-5-6	11	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	8.0 ft.	8.0' ft.
AFTER 24 HRS.	6.0 ft.	8.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: D-2
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 383.2 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
385	Brown, moist, stiff silt, with fine sand, trace gravel, and trace organics in samples 1 and 2. (ML)	2" of Topsoil	16"		10-10-18	28	
380	Brown, moist, stiff silty clay, trace sand and trace mica. (CL)		18"		5-6-10	16	
	Brown, moist, stiff micaceous clayey silt, with sand, trace gravel, and trace clay. (SM-ML)		10"		5-5-6	12	
375			2"		8-8-21	29	
	Bottom of Test Boring @ 12.5' Auger refusal @ 12.5'	No water encountered while drilling.	0"		51/0	100+	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	dry ft.	9.5 ft.
AFTER 24 HRS.	dry ft.	7.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: D-3
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 385.9 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
385	Brown, moist, medium stiff to stiff sandy silt and clay, with organics in sample 1,and trace mica and trace gravel in sample 2. (CL-ML)	2" of Topsoil	14"		6-8-10	18	
380		Hole is offset 5'	10"		3-3-4	7	
	Brown, moist, hard clay and trace sand. (CL)	Rock fragments discovered at the bottom of sample 3, Auger refusal @ 8.5'	6"		5-6-51/6	100+	
375	Bottom of Test Boring @ 8.5' Auger refusal @ 8.5'	No water encountered while drilling.	0"		51/0	100+	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	dry ft.	2.5 ft.
AFTER 24 HRS.	dry ft.	2.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: E-1
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 388.9 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
385	Brown, moist, stiff sandy clay and silt, and trace organics. (CL/ML)	2" of Topsoil	10"		8-8-13	21	
380	Brown, moist, stiff clay, trace gravel, and trace organics. (CL)		14"		4-5-9	15	
	Brown to light gray, moist, loose to medium dense micaceous silty sand. (SM)		18"		5-6-10	16	
375			14"		4-5-5	10	
	Reddish brown and white, wet, loose, silty / clayey coarse sand with gravel, and trace rock fragments. (SM-SC)	Encountered water @ 11' while drilling.	12"		5-5-4	9	
370	Bottom of Test Boring @ 17.5' Spoon Refusal @ 17.5'		0"		51/0	100+	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	7.0 ft.	8.0 ft.
AFTER 24 HRS.	6.0 ft.	8.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: E-2
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: Oto
Surf. Elev.: 392.8 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
390	Brown, moist soft silty clay trace sand, and trace organics. (CL)	2" of Topsoil	14"		2-2-3	5	
385	Gray, moist, medium stiff, micaceous sandy silt. (ML)		12"		2-3-4	7	
	Gray, wet, medium dense, micaceous silty sand, and trace gravel. (SM)		16"		6-6-12	18	
380	White, moist, very dense silty sand. (SM-Possible Decomposed Rock) Bottom of Test Boring @ 10'		18"		40-32-30	62	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	3.0 ft.	4.5 ft.
AFTER 24 HRS.	1.0 ft.	3.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: B-3
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 375.1 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
375	Brown to reddish brown, moist, stiff silty clay, trace mica, trace gravel, and trace organics in sample 1. (CL)	6" of Topsoil	14"		7-9-15	24	
370			10"		4-4-7	11	
	Grayish brown, moist, medium dense micaceous silty sand-sandy silt, and trace clay. (SM-ML)		8"		9-9-8	17	
365	Bottom of Test Boring @ 10'	No water encountered while drilling.	10"		8-6-8	14	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	dry ft.	4.0 ft.
AFTER 24 HRS.	dry ft.	4.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: B-4
Location: Howard County, MD — Job #: 04423A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolote
Surf. Elev.: 372.2 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
375	Grayish brown, moist, stiff sandy silt, trace gravel, and trace organics. (ML)	6" of Topsoil	16"		8-8-12	20	
370	Brown, moist, stiff silt, trace clay, trace sand, and trace mica. (ML)		18"		3-4-8	12	
	Brown, moist, stiff micaceous clayey silt, with sand and trace gravel. (ML)		16"		4-5-6	11	
365			12"		10-10-8	18	
	Bottom of Test Boring @ 10'	Encountered water @ 10' while drilling.					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	dry ft.	3.0 ft.
AFTER 24 HRS.	dry ft.	3.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date: 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date: 2/6/07

Chief, Development Engineering Division — Date: 2/7/07

STATE OF MARYLAND — CHARLES E. GUTSCHICK — 2927 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT. 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

L:\CADD\DRAWINGS\00153\Final-Road\00153sb.dwg | DES. BJM | DRN. JNG | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

SOIL BORING LOGS

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

L.2927 F.487

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	75 OF 78

F-06-31

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: E-3
Location: Howard County, MD — Job #: 04423A

SAMPLER

Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolate
Surf. Elev.: 392.2 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Gray, moist, soft, silty clay, trace sand, trace gravel, and trace organics. (CL)	2" of Topsoil	14"		1-2-3	5
5		Orange and white, moist, dense silty coarse sand and gravel. (SM-GM)		18"		14-22-24	46
		Orange and white, very dense, silty coarse sand and gravel, and trace rock fragments. (DECOMPOSED ROCK) Bottom of Test Boring @ 8.5' Spoon Refusal @ 8.5'		2"		51/2	100+
				6"		51/0	100+

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	3.5 ft.
AFTER 24 HRS.	3.0 ft.	3.5 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: CLV-1
Location: Howard County, MD — Job #: 05344A

SAMPLER

Datum: 370 — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 372.4 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/26/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/26/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Dark brown, moist, medium stiff, clayey silt, trace organics and fine sand	Topsoil 5 inches				
5		Reddish brown, moist, stiff, micaceous sandy silt		15"		7-8-9	17
		Light gray and tan, moist, very dense, silty sand, with gravel, trace rock fragments (Decomposed Rock)		1"		51/1"	100+
				16"		3-16-51/4"	100+
		Boring terminated at 9.0 ft		0"		51/0"	100+
		Auger refusal at 9.0 ft					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	4.5 ft.
AFTER 24 HRS.	DRY ft.	4.5 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: C-1
Location: Howard County, MD — Job #: 04423A

SAMPLER

Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolate
Surf. Elev.: 402.6 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Reddish brown, moist, stiff micaceous sandy silt-silty sand, trace gravel, and trace organics in sample 1. (SM-ML)	2" of Topsoil	12"		3-4-8	12
5				14"		3-4-7	11
		Gray, moist, medium dense, micaceous silty sand, trace gravel (SM)		16"		7-5-8	14
			Water encountered @ 8' while drilling.	14"		8-8-10	18
			Set hollo-plug to a depth of 9' next to Test Boring C-1.	18"		8-9-14	23
		Bottom of Test Boring @ 15'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	8.5 ft.
AFTER 24 HRS.	8.5 ft.	8.5 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: D-1
Location: Howard County, MD — Job #: 04423A

SAMPLER

Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: O. Aronmolate
Surf. Elev.: 388.3 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 7/21/04 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 7/21/04

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Brown to grayish brown, moist, stiff clay, with sand, trace gravel and trace organics. (CL)	2" of Topsoil	10"		5-8-12	20
5				14		5-11-17	28
		Light brown, moist, medium dense silty sand, trace mica, and trace organics in samples 3 and 4. (SM)		15"		6-9-12	21
		Bottom of Test Boring @ 10'		18"		7-6-10	16

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	dry ft.	3.5 ft.
AFTER 24 HRS.	Dry ft.	3.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: CLV-2
Location: Howard County, MD — Job #: 05344A

SAMPLER

Datum: 370 — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 367.8 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/26/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/26/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Dark brown, moist, very soft, silt, trace sand, clay and organics	Topsoil 3 inches	10"		1-1-1	2
5		Brown, damp, hard, clay, with silt, trace organics, trace sand		15"		2-5-51/5"	100+
		Boring terminated at 5.5 ft		1"		51/1"	100+
		Auger refusal at 5.5 ft		0"		51/0"	100+

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	2.0 ft.
AFTER 24 HRS.	DRY ft.	2.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: CLV-3
Location: Howard County, MD — Job #: 05344A

SAMPLER

Datum: 370 — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 366.2 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/29/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/29/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Brown, moist, medium dense, silty sand with rock fragments and gravel, trace organics	Topsoil 2 inches	3"		8-7-6	13
5		Brown to dark brown, moist to wet, very soft to medium stiff, silty clay, trace organics, sand, decomposed wood fragments in S-3		6"		2-1-2	3
				12"		2-2-5	7
10		Brown to reddish brown, moist to damp, medium stiff to stiff, micaceous silt, trace to little sand, trace gravel		18"		2-2-4	6
				15"		4-5-6	11
15				18"		5-6-7	13
				18"		4-6-7	13
20				18"		6-11-13	24
		Brown, damp, stiff, micaceous sandy silt, trace gravel, with clay		18"		10-10-6	16

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	3.5 ft.
AFTER 24 HRS.	___ ft.	___ ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: CLV-3
Location: Howard County, MD — Job #: 05344A

SAMPLER

Datum: 370 — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 366.2 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/29/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/29/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Brown and dark brown, damp, very loose, micaceous silty sand, with clay, trace gravel		18"		1-1-1	2
5							
		Grayish brown, damp, medium stiff, micaceous sandy silt, trace gravel, with clay		18"		2-3-3	6
		Boring terminated at 41.5 ft					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	3.5 ft.
AFTER 24 HRS.	___ ft.	___ ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: CLV-4
Location: Howard County, MD — Job #: 05344A

SAMPLER

Datum: 370 — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 366.4 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/26/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/26/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Dark brown, moist, medium dense, silty sand with gravel, rock fragments, clay (Possible Fill or Boulder)	Topsoil 4 inches	12"		3-7-8	15
5		Brown, moist, medium stiff, silty clay, trace mica and sand	Groundwater encountered at 30.0 ft while drilling	12"		2-3-3	6
		White and brown, moist, loose, silty sand trace gravel, with clay lenses (Possible decomposed Pegmatite)		10"		3-4-5	9
10		Brown, moist, medium stiff, silty clay, trace sand and mica		18"		2-3-3	6
				18"		2-3-4	7
15		Brown to reddish brown, moist to damp, micaceous silt, trace to some sand, trace gravel		18"		2-3-4	7
				18"		3-4-4	8
20				18"		2-2-4	6
				18"		4-5-6	11

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	7.5 ft.	7.5 ft.
AFTER 24 HRS.	7.5 ft.	6.5 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: CLV-4
Location: Howard County, MD — Job #: 05344A

SAMPLER

Datum: 370 — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 366.4 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/26/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/26/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Grayish brown and brown, damp, medium dense to very dense, micaceous silty sand, with gravel and rock fragments, trace rock fragments		18"		3-6-9	15
5							
		Boring terminated at 41.42 ft		15"		28-46-51/5"	100+

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	7.5 ft.	7.5 ft.
AFTER 24 HRS.	2.5 ft.	6.5 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: CLV-5
Location: Howard County, MD — Job #: 05344A

SAMPLER

Datum: 370 — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 364.6 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/28/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/28/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N
0		Dark gray, moist, very soft, silty clay to clayey silt, trace organics, sand and gravel	Topsoil 9 inches	10"		1-0-1	1
5		Dark gray, moist, loose, silty sand, with gravel, rock fragments, trace organics	Groundwater encountered at 5.0 ft while drilling	11"		5-6-3	9
		Reddish brown, damp to moist, medium stiff to hard, silt, some to trace sand, with clay, none to trace gravel		14"	14.2%	8-3-4	7
10				18"		2-3-4	7
				15"		2-3-6	9
15				18"		4-4-7	11
		Boring terminated at 21.5 ft					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	4.5 ft.	4.5 ft.
AFTER 24 HRS.	1.0 ft.	6.5 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date: 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date: 2/8/07

Chief, Development Engineering Division — Date: 2/9/07

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

L:\CADD\DRAWINGS\00153\Final-Road\00153sb.dwg | DES. BJM | DRN. JNG | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

SOIL BORING LOGS

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'I', 'K' & 'L' AND NON-BUILDABLE BULK PARCEL 'J'

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	RC-DEO	00153
DATE	TAX MAP – GRID	SHEET
JAN./2007	PARCEL 74 28 – 18,17	76 OF 78

F-06-31

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. CLV-6
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 366.5 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/27/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/27/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Dark brown, moist, very soft, micaceous clayey silt, trace sand, trace organics	Topsoil 5 inches	10"		1-1-2	3
Sample lost		0"		51/0"	100+
Grayish brown, damp, medium stiff, micaceous sandy silt, trace gravel		8"		4-4-4	8
Grayish brown to reddish brown, damp, loose, micaceous silty sand, trace gravel		16"		3-3-6	9
		18"		2-3-4	7
Reddish brown, damp, medium dense, micaceous silty sand to sandy silt, trace gravel		16"		5-6-13	19
Reddish brown, wet, very dense, micaceous silty sand, with gravel and rock fragments (Decomposed Rock)		8"		5-7-51/1"	100+
Boring terminated at 21.1 ft					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 3.0 ft.; AFTER 24 HRS. 2.0 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: 5.0 ft.; 4.5 ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. CLV-7
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 365.4 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/28/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/28/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown to grayish brown, moist, soft to very stiff, silty clay, none to trace mica, trace sand, decomposed wood and rock fragments in sample S-2- Possible fill	Topsoil 9 inches				
Reddish brown, wet to damp, soft to medium stiff, micaceous sandy silt to silty sand, trace gravel	Groundwater encountered at 5.5 ft while drilling	14"		2-3-3	6
		18"		2-2-3	5
Reddish brown to grayish brown, damp to wet, micaceous silty sand, trace clay		15"		2-1-3	4
		18"		3-4-5	9
Dark brown, damp to wet, micaceous sandy silt to silty sand, with clay		18"		2-1-3	4
		18"		2-1-3	4
		16"		2-1-1	2

GROUND WATER: AT COMPLETION 3.5 ft.; AFTER 24 HRS. 1.5 ft. — CAVE IN DEPTH: 6.5 ft.; 3.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. CLV-7
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 365.4 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/28/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/28/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		16"		3-4-5	9
Grayish brown, wet, silty coarse sand and gravel, with rock fragments		16"		37-47-51/5"	100+
Boring terminated at 41.42 ft					

GROUND WATER: AT COMPLETION 3.5 ft.; AFTER 24 HRS. 1.5 ft. — CAVE IN DEPTH: 6.5 ft.; 3.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. CLV-8
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 364.8 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/28/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/28/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Dark grayish brown, moist, very soft, clayey silt, trace sand and organics	Topsoil 10 inches	16"		1-1-2	3
		15"		1-1-1	2
Grayish brown to reddish brown, wet to damp, silt, some to trace sand, with mica	Groundwater encountered at 5.5 ft while drilling	10"		8-10-3	13
		17"		3-5-7	12
		18"		2-2-3	5
		18"		2-3-4	7
Reddish brown, moist, medium stiff, silty clay, trace gravel and sand		18"		3-4-6	10
White with tan specks, medium dense, moist to wet, clayey sandd, trace gravel		16"		12-11-15	26
		15"		5-7-10	17

GROUND WATER: AT COMPLETION 6.5 ft.; AFTER 24 HRS. 2.0 ft. — CAVE IN DEPTH: 6.5 ft.; 4.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. CLV-8
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 364.8 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/28/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/28/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		5-5-8	13
White and gray, damp, medium dense, clayey sand and gravel		17"		4-6-9	15
Boring terminated at 41.5 ft					

GROUND WATER: AT COMPLETION 6.5 ft.; AFTER 24 HRS. 2.0 ft. — CAVE IN DEPTH: 6.5 ft.; 4.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. CLV-9
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 364.3 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/28/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/28/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Grayish brown, moist, soft to medium stiff, micaceous silt, trace sand, gravel, trace to no organics	Topsoil 10 inches	13"		1-2-2	4
		16"		2-3-4	7
Brown, damp, medium dense, silty coarse sand and gravel, trace rock fragments		3"		6-11-5	16
Reddish brown to brown, damp to wet, soft to medium stiff, silty to sandy clay, with mica		18"		2-2-3	5
		18"		2-3-4	7
Brown to white, wet, medium dense, silty sand and gravel, with clay		17"		4-6-7	13
		18"		6-7-12	19
Reddish brown to brown, moist to damp, very stiff to soft, micaceous sandy silt to silty sand, trace gravel and clay		18"		3-5-7	12
		18"		6-7-10	17

GROUND WATER: AT COMPLETION 3.0 ft.; AFTER 24 HRS. 1.0 ft. — CAVE IN DEPTH: 3.0 ft.; 6.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. CLV-9
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 364.3 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/28/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/28/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		2-2-2	4
Boring terminated at 40.0 ft Auger refusal at 40. 0 ft		0"		51/0"	100+

GROUND WATER: AT COMPLETION 3.0 ft.; AFTER 24 HRS. 1.0 ft. — CAVE IN DEPTH: 3.0 ft.; 6.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. EP-1
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 393.6 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/25/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/25/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Light brown and tan, moist, loose, micaceous silty sand to sandy silt, trace organics and clay	Topsoil 10 inches Embankment Fill 0 to 8 ft	14"		1-3-3-4	6
Gray, moist, medium stiff, sandy lean clay, trace organics	USCS: CL; AASHTO: A-6 PL=24; LL=39; PI=15	17"	21.6%	3-4-5-6	9
		16"		3-4-4-6	8
Gray, moist, loose, clayey sand	PL=22; LL=30; PI=8 USCS: SC; AASHTO: A-4	18"	21.7%	3-4-4-7	8
	Bag sample taken from 3.0 ft to 6.0 ft	10"		3-5-5-6	10
Brown and grayish brown, damp, micaceous silty medium to coarse sand, trace gravel (Possible Residual Soil)		15"		3-5-5-6	10
		18"		17-28-28	56
Boring terminated at 16.5 ft					

GROUND WATER: AT COMPLETION 5.5 ft.; AFTER 24 HRS. 6.5 ft. — CAVE IN DEPTH: 11.0 ft.; 7.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. EP-2
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 392.9 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/25/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/25/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, loose, clayey sand, trace organics and mica	Topsoil 10 inches Embankment Fill 0 to 8 ft	15"	13.5%	2-3-3-5	6
Gray, moist, stiff, sandy clay, trace silt, gravel, and mica	USCS: SC; AASHTO: A- 6; PL=21; LL=32; PI= 11	18"		6-7-7-8	14
Gray, moist, loose to medium dense, clayey sand, with silt, trace gravel and mica	Groundwater encountered at 15.0 ft while drilling	18"		3-6-6-7	12
	Bag sample taken from 4.0 ft to 12.0 ft	18"		4-4-5-7	9
Gray, moist, medium stiff, sandy lean clay, trace sand and gravel	USCS: CL; AASHTO: A-4 PL=18; LL=26; PI=8	13"	16.5%	3-4-5-7	9
		16"		2-3-4-4	7
Brown and tan, damp, very dense, micaceous silty sand to sandy silt, trace gravel (Residual Soil)		5"		51/5"	100+
Boring terminated at 15.4 ft					

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. 6.0 ft. — CAVE IN DEPTH: 7.0 ft.; 7.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No. EP-3
Location: Howard County, MD — Job # 05344A

SAMPLER
Datum 370 — Hammer Wt. 140 lbs. — Hole Diameter 6 — Foreman L. Smith
Surf. Elev. 392.9 Ft. — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector
Date Started 07/25/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 07/25/05

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, soft to medium stiff, micaceous sandy silt to silty sand, with clay, trace organics	Topsoil 11 inches Embankment Fill 0-8 ft	16"		1-1-3-4	4
Light brown, moist, stiff, sandy lean clay	USCS: ML; AASHTO: A-6 PL=25; LL=38; PI=13	18"	18.4%	3-3-5-8	8
Dark gray, moist, medium dense, silty and clayey sand, trace mica, gravel and organics	USCS: CL; AASHTO: A-4 PL=19; LL=29; PI=10	17"	14.2%	6-6-7-6	13
Dark gray, moist, medium stiff, micaceous sandy silt to silty sand, trace gravel	Bag samples taken from 0 to 5 ft and 6 to 10 ft	16"		3-4-5-7	9
Grayish brown with white, moist to damp, medium dense to very dense, micaceous silty sand, trace gravel (Residual Soil)		17"		5-7-12-22	34
		18"		7-32-32-38	64
		15"		29-38-51/3"	100+
Boring terminated at 16.25 ft					

GROUND WATER: AT COMPLETION 5.5 ft.; AFTER 24 HRS. 4.5 ft. — CAVE IN DEPTH: 8.5 ft.; 6.0 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 2-5-07
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[signature] 2/8/07
Chief, Division of Land Development — Date
[signature] 2/7/07
Chief, Development Engineering Division — Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

L:\CADD\DRAWINGS\00153\Final-Road\00153sb.dwg — DES. BJM — DRN. BJM — CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

SOIL BORING LOGS
WALNUT GROVE
LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"
L.2927 F.487
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	77 OF 78

F-06-31

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: EP-1
Location: Howard County, MD — Job #: 05344A

SAMPLER — Datum: 370 — Hammer Wt: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 393.6 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/25/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/25/05

Elevation/ Depth	Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
0	D	Light brown and tan, moist, loose, micaceous silty sand to sandy silt, trace organics and clay	Topsoil 10 inches. Embankment Fill 0 to 8 ft	14"		1-3-3-4	6	
5	D	Gray, moist, medium stiff, sandy lean clay, trace organics	USCS: CL; AASHTO: A- 6 PL=24; LL=39; PI=15	17"	21.6%	3-4-5-5	9	
10	D	Gray, moist, loose, clayey sand	PL=22; LL=33; PI=8 USCS: SC; AASHTO: A-4 Bag sample taken from 3.0 ft to 6.0 ft	18"	21.7%	3-4-4-6	8	
15	D	Brown and gray/ish brown, damp, micaceous silty medium to coarse sand, trace gravel (Possible Residual Soil)		10"		3-4-5-7	9	
				15"		3-5-5-6	10	
		Boring terminated at 16.5 ft		10"		3-5-5-6	10	
						17-26-28	56	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	5.5 ft.	11.0 ft.
AFTER 24 HRS	6.5 ft.	7.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: EP-2
Location: Howard County, MD — Job #: 05344A

SAMPLER — Datum: 370 — Hammer Wt: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 392.9 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/25/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/25/05

Elevation/ Depth	Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
0	D	Brown, moist, loose, clayey sand, trace organics and mica	Topsoil 10 inches. Embankment Fill 0 to 8 ft	15"	13.5%	2-3-3-6	6	
5	D	Gray, moist, stiff, sandy clay, trace silt, gravel, and mica	USCS: SC; AASHTO: A- 6; PI=21; LL=32; PI= 11	18"		5-7-7-8	14	
10	D	Gray, moist, loose to medium dense, clayey sand, with silt, trace gravel and mica	Groundwater encountered at 15.0 ft while drilling	16"		3-6-6-7	12	
			Bag sample taken from 4.0 ft to 12.0 ft	18"		4-4-5-7	9	
15	D	Gray, moist, medium stiff, sandy lean clay, trace sand and gravel	USCS: CL; AASHTO: A-4 PL=16; LL=26; PI=8	13"	16.5%	3-4-5-7	9	
				16"		2-3-4-4	7	
		Brown and tan, damp, very dense, micaceous silty sand to sandy silt, trace gravel (Residual Soil)		5"		51/5"	100+	
		Boring terminated at 15.4 ft						

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	7.0 ft.
AFTER 24 HRS.	6.0 ft.	7.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Walnut Grove — Boring No.: EP-3
Location: Howard County, MD — Job #: 05344A

SAMPLER — Datum: 370 — Hammer Wt: 140 lbs. — Hole Diameter: 6 — Foreman: L. Smith
Surf. Elev.: 392.9 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: N/A — Inspector:
Date Started: 07/25/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 07/25/05

Elevation/ Depth	Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
0	D	Brown, moist, soft to medium stiff, micaceous sandy silt to silty sand, with clay, trace organics	Topsoil 11 inches. Embankment Fill 0-6 ft	16"		1-1-3-4	4	
5	D	Light brown, moist, stiff, sandy lean clay	USCS: ML; AASHTO: A-6 PL=25; LL=38; PI=13	18"	18.4%	3-3-5-8	8	
	D	Dark gray, moist, medium dense, silty and clayey sand, trace mica, gravel and organics	USCS: CL; AASHTO: A-4 PL=19; LL=28; PI=10	17"	14.2%	6-6-7-6	13	
10	D	Dark gray, moist, medium stiff, micaceous sandy silt to silty sand, trace gravel	Bag samples taken from 0 to 5 ft and 6 to 10 ft	16"		3-4-5-7	9	
	D	Gray/ish brown with white, moist to damp, medium dense to very dense, micaceous silty sand, trace gravel (Residual Soil)		17"		5-7-12-22	34	
15	D			18"		7-32-32-38	64	
		Boring terminated at 16.25 ft		15"		29-35-51/3"	100+	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

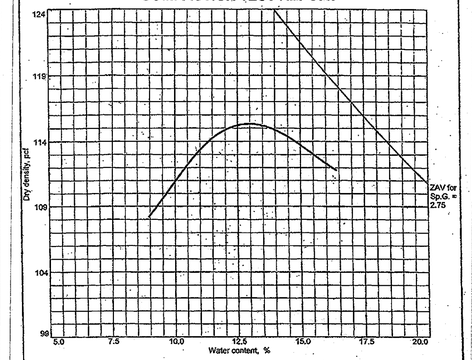
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	5.5 ft.	8.5 ft.
AFTER 24 HRS.	4.6 ft.	6.0 ft.
AFTER ___ HRS.	___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

COMPACTION TEST REPORT



Test specification: AASHTO T 99 Method C Standard

Elev/ Depth	Classification USCS	Classification AASHTO	Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
4'-12	CL	A-6(4)	18.6	2.75	32	11	0.0	57.3

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 115.3 pcf	Grey brown Sandy lean clay
Optimum moisture = 13.0 %	
Project No. 05443B Client: Heritage Land Development	Remarks:
Project: Walnut Grove	
Location: EP-2, bag	

COMPACTION TEST REPORT

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. — Figure

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 2-5-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 2/8/07
Chief, Development Engineering Division — Date 2/2/07

STATE OF MARYLAND — THEODORE R. GUTSCHICK — 12971 — REGISTERED PROFESSIONAL ENGINEER

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

L:\CADD\DRAWINGS\00153\Final-Road\00153sb.dwg | DES. BJM | DRN. BJM | CHK. DDS

DATE	REVISION	BY	APP'R.

PREPARED FOR
OWNER
WALNUT GROVE HOLDING, L.L.C.
WALNUT GROVE DEVELOPMENT, INC.
ROBERT VAN DYKE PRESIDENT
10705 CHARTER DRIVE
SUITE 320
COLUMBIA, MARYLAND 21044

SOIL BORING LOGS

WALNUT GROVE

LOTS 1 THRU 88, BUILDABLE PRESERVATION PARCEL "A", NON-BUILDABLE PRESERVATION PARCELS "B" THRU "I", "K" & "L" AND NON-BUILDABLE BULK PARCEL "J"

ELECTION DISTRICT No. 5 — L.2927 F.487 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	RC-DEO	00153
DATE	TAX MAP - GRID	SHEET
JAN./2007	PARCEL 74 28 - 18,17	78 OF 78

F-06-31