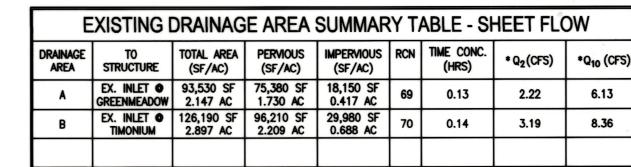


STONE BASE ELEV. 386.80

ENVIRONMENTAL SITE DESIGN DRAINAGE AREA MAP

SCALE: 1" = 20'



*NOTE: FLOWRATES DETERMINED FROM TR-55 (SEE APPENDIX 'E' OF SWM REPORT)

PROPOSED DRAINAGE AREA SUMMARY TABLE - SHEET FLOW								
DRAINAGE AREA	TO STRUCTURE	TOTAL AREA (SF/AC)	PERVIOUS (SF/AC)	IMPERVIOUS (SF/AC)	RCN	TIME CONC. (HRS)	* Q2 (CFS)	*Q ₁₀ (CFS)
С	EX. INLET © GREENMEADOW	104,442 SF 2.398 AC	84,692 SF 1.944 AC	19,750 SF 0.453 AC	68	0.13	2.36	6.58
D1	PR. R-1 ESD RISER	14,475 SF 0.332 AC	4,825 SF 0.111 AC	9,650 SF 0.222 AC	86	0.10	0.94	1.85
D2	EX. INLET • TIMONIUM	100,850 SF 2.315 AC	73,610 SF 1.690 AC	27,240 SF 0.625 AC	71	0.14	2.73	6.98

*NOTE: FLOWRATES DETERMINED FROM TR-55 (SEE APPENDIX 'E' OF SWM REPORT)

EXISTING DRAINAGE AREA SUMMARY TABLE - CHANNEL FLOW				
STUDY ASSOCIATED DRAINAGE AREAS		** Q ₂ (CFS)	**Q ₁₀ (CFS)	
A	001	2.21	6.07	
POI #2 B		3.13	8.37	
POC A, B		5.35	14.43	
	ASSOCIATED DRAINAGE AREAS A B	ASSOCIATED DRAINAGE AREAS A 001 B 002	ASSOCIATED TR—20 XSECT REFERENCE *** Q2 (CFS) A 001 2.21 B 002 3.13	

**NOTE: FLOWRATES DETERMINED FROM TR-20 (SEE APPENDIX 'E' OF SWM REPORT)

PROPOSED DRAINAGE AREA SUMMARY TABLE - CHANNEL FLOW				
STUDY POINT			** Q ₂ (CFS)	**Q ₁₀ (CFS)
POI #1	С	001	2.30	6.52
POI #2	POI #2 D1, D2		2.88	7.65
POC C, D1, D2		005	5.18	14.16

**NOTE: FLOWRATES DETERMINED FROM TR-20 (SEE APPENDIX 'E' OF SWM REPORT

EXISTING vs PROPOSED FLOWRATE COMPARISON					
STUDY POINT	EXISTING CONDITIONS **Q ₁₀ (CFS)	PROPOSED CONDITIONS **Q ₁₀ (CFS)	NET FLOWRATE DIFFERENTIAL **Q ₁₀ (CFS)	NOTES/REMARKS	
POI #1	6.07	6.52	+ 0.45	ADVERSELY IMPACTED IN PR. COND. DUE TO INCREASED DA TO BYPASS OFFSITE RUNOFF	
POI #2	8.37	7.65	- 0.72	POSITIVELY IMPACTED IN PR. COND. DUE TO ATTENUATION FROM PR. ESD FACILITY	
POC	14.43	14.16	- 0.27	DECREASED FLOW IN IN PR. COND. AT DOWNSTREAM POINT OF CONFLUENCE. OUTFALL IS SUITABLE.	

RICHARDSON ENGINEERING, LLC HAS EVALUATED THE PROPOSED STORM WATER MANAGEMENT (SWM) OUTFALL FOR THIS SITE AND FINDS THEM TO BE SUITABLE FOR THE DESIGN FLOWS. OUR EVALUATIONS INCLUDED A FIELD INSPECTION AND PHOTO DOCUMENTATION OF THE AREA. THE OUTFALL IS DESCRIBED IN MORE DETAIL BELOW:

THE SITE HAS TWO (2) SEPARATE OUTFALL LOCATIONS. THE EXISTING DRAINAGE PATTERNS ARE ALTERED WITH THE PROPOSED IMPROVEMENTS, BOTH OF THE SITE'S OUTFALLS WILL ULTIMATELY MERGE END OF THE EXISTING CULVERT RUNNING UNDERNEATH TIMONIUM ROAD. FROM THIS POINT OF CONFLUENCE (POC), RUNOFF WILL ULTIMATELY CONTRIBUTE TO THE WATERS OF LOCH RAVEN RESERVOIR AND THEREFORE WILL MAINTAIN THE NATURAL FLOW PATTERN.

IMMEDIATELY DOWNSTREAM OF THE SITE, HYDROLOGY AND HYDRAULICS CALCULATIONS HAVE DETERMINED THAT THE 10-YEAR (Q_{10}) DISCHARGES AT THE POC ARE NOT ADVERSELY IMPACTED.

WE BELIEVE THAT THIS CONSTITUTES A VERIFIED SUITABLE OUTFALL AS REQUIRED BY SECTION 32-4-224(A)(10) OF THE BALTIMORE COUNTY CODE (2004 EDITION), BASED ON CRITERIA ESTABLISHED BY BALTIMORE COUNTY'S DEPARTMENT OF PUBLIC WORKS (DPW) AND DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY (DEPS).





DESIGN AND DRAWINGS ARE BASED ON MARYLAND COORDINATE SYSTEM (MCS). HORIZONTAL – NAD 83/(2011), VERTICAL – NAVD 88. KEYSHEET: Position sheet:

COUNCILMANIC DISTRICT: ELECTION DISTRICT:

STORMWATER MANAGEMENT DIVISION BALTO. CO. DEPT. OF ENVIRONMENTAL PROTECTION

EXISTING OVERHEAD WIRES

EXISTING ROAD EDGE

EXISTING POWER POLE

EXISTING SEWER MANHOLE EXISTING WATER VALVE (PLAN)

EXISTING GAS VALVE EXISTING WATER METER EXISTING INLET

EXISTING LIGHT POLE

CURB & GUTTER

PR. R-TANK

PR. TREE OR BUSH

PR. IMPERVIOUS SURFACE

5 **OF** 9

PR. RIPRAP OR STONE BACKFILL

EXISTING WATERLINE (SHUTOFF)

EXISTING STORM DRAIN MANHOLL

EXISTING WATER VALVE (SHUTOFF)

PR. LIMIT OF DISTURBANCE

Richardson Engineering, LLC

Deneison Street Timonium, Maryland 21093
Phone: 410-560-1502 Fax: 443-901-1208

FINAL STORMWATER MANAGEMENT DRAINAGE AREA MAPS FOR QUANTITY MANAGEMENT AND ENVIRONMENTAL SITE DESIGN

100 E TIMONIUM ROAD

TIMONIUM, MARYLAND 21093

BALTIMORE COUNTY MARYLAND 8TH ELECTION DISTRICT 3RD COUNCILMANIC DISTRICT DRAWN BY: CHECKED BY: AS SHOWN SHEET NO.:

10-6-2021

OWNER / DEVELOPER THE AGAPE CHRISTIAN CHURCH INC.
100 E. TIMONIUM ROAD
TIMONIUM, MARYLAND 21093
CONTACT: CHIMA UGAH
PHONE: (410) 252-4255
EMAIL: CHIMAUGAH@GMAIL.COM 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 NUMBER 46853, EXPIRATION DATE: 06-11-2023.