

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

A Practicing Geoprofessional Business Association Member Firm



April 28, 2026

Hope Presbyterian Church

140 Denow Road
Lawrenceville, New Jersey 08648

Attn: Noel Greenberger

Re: Preliminary Stormwater Management Testing
Hope Presbyterian Church
Lawrence Township, Mercer County, New Jersey

Dear Noel:

In accordance with our agreement dated December 15, 2025, and executed on April 2, 2026 Geo-Technology Associates, Inc. (GTA) has performed test pits and in-situ infiltration testing for the preliminary planning and design of stormwater management (SWM) facilities related to a proposed building addition to be constructed at the Hope Presbyterian Church in Lawrence Township, Mercer County, New Jersey. The site is located at 140 Denow Road and is identified as Lot 5.021 in Block 6 on the Lawrence Township tax map as shown on the attached [Site Location Map](#).

A concept plan prepared by Dynamic Engineering (Dynamic) titled "Conceptual Site Plan 'A'" dated March 26, 2026, and a survey plan prepared by Carroll Engineering titled "Boundary & Topographic Survey" dated September 3, 2025 were provided to GTA. The plans indicate the site boundaries, existing site features and topography, mapped wetlands areas, and the layout and dimensions of the proposed site improvements. The proposed improvements will include a building addition abutting the northeastern side of the existing church building and associated at-grade parking areas to the south and southwest of the existing building. The concept plan was marked up to show the locations of 5 explorations within the potential SWM basin areas. Based on our conversations with Dynamic, we were requested to perform in-situ infiltration testing at a depth of about 6 feet below the existing surface grades at the specified locations.

Test Pit Exploration

On April 14, 2026, GTA observed and logged the excavation of 5 test pits and performed preliminary in-situ infiltration testing at the requested locations. Test Pits TP-2, TP-3, and TP-4 were offset by about

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◆ Northeastern, OH ◆ Sterling, VA ◆ Nashville, TN ◆ Charlotte, NC ◆ Raleigh, NC ◆ Orlando, FL

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5 feet to the south, east, and north, respectively due to existing utilities. The test pits were excavated by Neighbors Property Management using a Bobcat E60 excavator and extended to depths ranging from approximately 11 to 13 feet below the existing ground surface. In-situ infiltration testing was performed adjacent to each of the test pits using a double-ring infiltrometer. The exploration locations were selected by Dynamic Engineering and located in the field by GTA using a hand-held GPS unit and existing site features as reference. The approximate locations of the explorations performed for this study are shown on the attached Test Pit Location Plan. Detailed descriptions of the subsurface conditions encountered in the test pits are indicated on the Logs of Test Pits, which are also attached. The ground surface elevations indicated on the logs were obtained by interpolating between topographic contours indicated on the plan provided to us and should be considered approximate.

Existing Conditions

At the time GTA's exploration was performed, the southwestern portion of the site was occupied by the existing church building, a parking lot, and an open lawn area and the northern portion of the site was wooded. Access to the site was provided from Denow Road through the southern portion of the site.

Subsurface Conditions

An approximately 10- to 18-inch-thick layer of topsoil was encountered in the explorations performed for this study. The native soils below the surficial materials consisted predominantly of residual soils (silt loam, clay, sandy clay, sandy clay loam, and sandy loam) overlying highly-weathered shale bedrock, which became more competent with depth. Highly-weathered shale bedrock was encountered in all of the explorations at depths ranging from about 3½ to 8½ feet below the existing surface grades. Refusal to further excavation was encountered in the test pits at depths ranging from about 11 to 13 feet below the existing surface grades within the shale bedrock.

Groundwater was encountered in 4 of the 5 test pits at depths ranging from about 9 to 11½ feet below the existing surface grades. Groundwater was not observed in Test Pit TP-5. The test pits were performed during the "wet season" defined by the NJDEP as January through April. Therefore, we believe the depth of groundwater encountered in the explorations is representative of the seasonal high water table (SHWT) at the explored locations, and that the SHWT is below the depth excavated in Test Pit TP-5.

Preliminary Infiltration Testing

Preliminary in-situ infiltration tests were performed adjacent to each of the test pits using a double-ring infiltrometer in general accordance with Chapter 12 of the NJDEP Stormwater Best Management Practices Manual (Chapter 12). The results of the infiltration tests are summarized in the following table.

SUMMARY OF PRELIMINARY INFILTRATION TEST RESULTS

Test Pit Location	Approx. Test Depth (ft.)	Approx. Test Elevation (ft.)	USDA Classification	Measured Infiltration Rate (in/hr)
TP-1	6	131.0	Silt Loam	0.0
TP-2	6	131.0	Silt Loam	0.2
TP-3	6	132.5	Sandy Clay	0.2
TP-4	4	135.5	Silt Loam	0.0
TP-5	1½	138.5	Silt Loam	0.0

Note: A factor of safety of at least 2 should be applied to the measured infiltration rates for design purposes.

The primary conditions that affect the capacity of soil to infiltrate water are the soil gradation and density properties and the presence of hydraulically restrictive layers such as silt or clay (fines), rock, or groundwater, each of which would restrict the flow of water into the underlying aquifer. The subsurface profile at the site generally consisted of occasional existing fill materials consisting of sandy loam and sandy clay overlying interlayered native soils comprised of clay, silt loam, sandy clay loam, and sandy loam underlain by weathered shale rock of the Passaic Formation. The preliminary infiltration testing performed for this study resulted in measured infiltration rates ranging from about 0.0 to 0.2 inches per hour.

Shale was encountered throughout the site and would be considered the most hydraulically restrictive subsurface layer if encountered within 8 feet of the proposed infiltration elevation as outlined in Chapter 12 of the NJDEP Stormwater BMP manual. Depending on the final site design and infiltration requirements, additional testing in the form of basin flood tests may be required to evaluate if the rock is suitable for infiltration per the guidance offered in Chapter 12. A basin flood test is a pass/fail test that involves excavating a “basin” with a minimum bottom area of 50 square feet. If groundwater is observed within the basin, the basin flood test shall not be used. If no groundwater is observed, the basin shall be filled with 12 inches (about 375 gallons) of water and allowed to drain completely over a period of 24 hours. If the basin does not drain, the test is considered to have failed. If the basin drains completely, it is refilled and checked again after another 24-hour period. If the basin drains completely both times, the test is “passed” and the rock is considered a fractured substratum that is suitable for infiltration.

Groundwater, also a hydraulically restrictive layer, was encountered in 4 of the 5 test pits at depths ranging from about 9 to 11½ feet. A minimum vertical separation of 2 feet should be maintained between the bottom of the lowest layer of the basin and the seasonal high-water table.

LIMITATIONS

This letter, including all supporting test pit logs, field data, and other documents prepared by GTA in connection with this project have been prepared for the exclusive use of the Client pursuant to the agreement between GTA and the Client. All terms and conditions set forth in the Agreement and the General Provisions attached thereto are incorporated herein by reference. No warranty, express or implied, is made herein. Use and reproduction of this letter by any other person without the expressed written permission of GTA and the Client is unauthorized and such use is at the sole risk of the user. Test pits indicate soil conditions only at specific locations and times and only at the depths penetrated. They do not necessarily reflect strata or variations that may exist between the exploration locations.

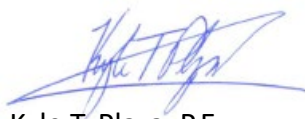
GTA is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data without the expressed written authorization of Geo-Technology Associates, Inc.

This letter and the attached logs are instruments of service. The subject matter of this report is limited to the facts and matters stated herein. Absence of a reference to any other conditions or subject matter shall not be construed by the reader to imply approval by the writer.

GTA appreciates the opportunity to have been of assistance to you on this project. Please contact our office at (732) 271-9301 if you have questions or require additional information. Please note that, unless you make other arrangements, GTA will discard all soil samples obtained from the explorations 60 days after the date of this report.

Sincerely,

GEO-TECHNOLOGY ASSOCIATES, INC.



Kyle T. Plaza, P.E.
Associate



Christopher M. Reith, P.E., BCGE
Principal Consultant

Attachments:

Site Location Map
Test Pit Location Plan
Logs of Test Pits (5 pages)



Note: Site boundary is approximate.

SITE LOCATION MAP



GEO-TECHNOLOGY ASSOCIATES, INC.

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(732) 271-9301
fax (732) 271-9306

HOPE PRESBYTERIAN CHURCH

Lawrence Township,
Mercer County, New Jersey

Prepared For: Hope Presbyterian Church

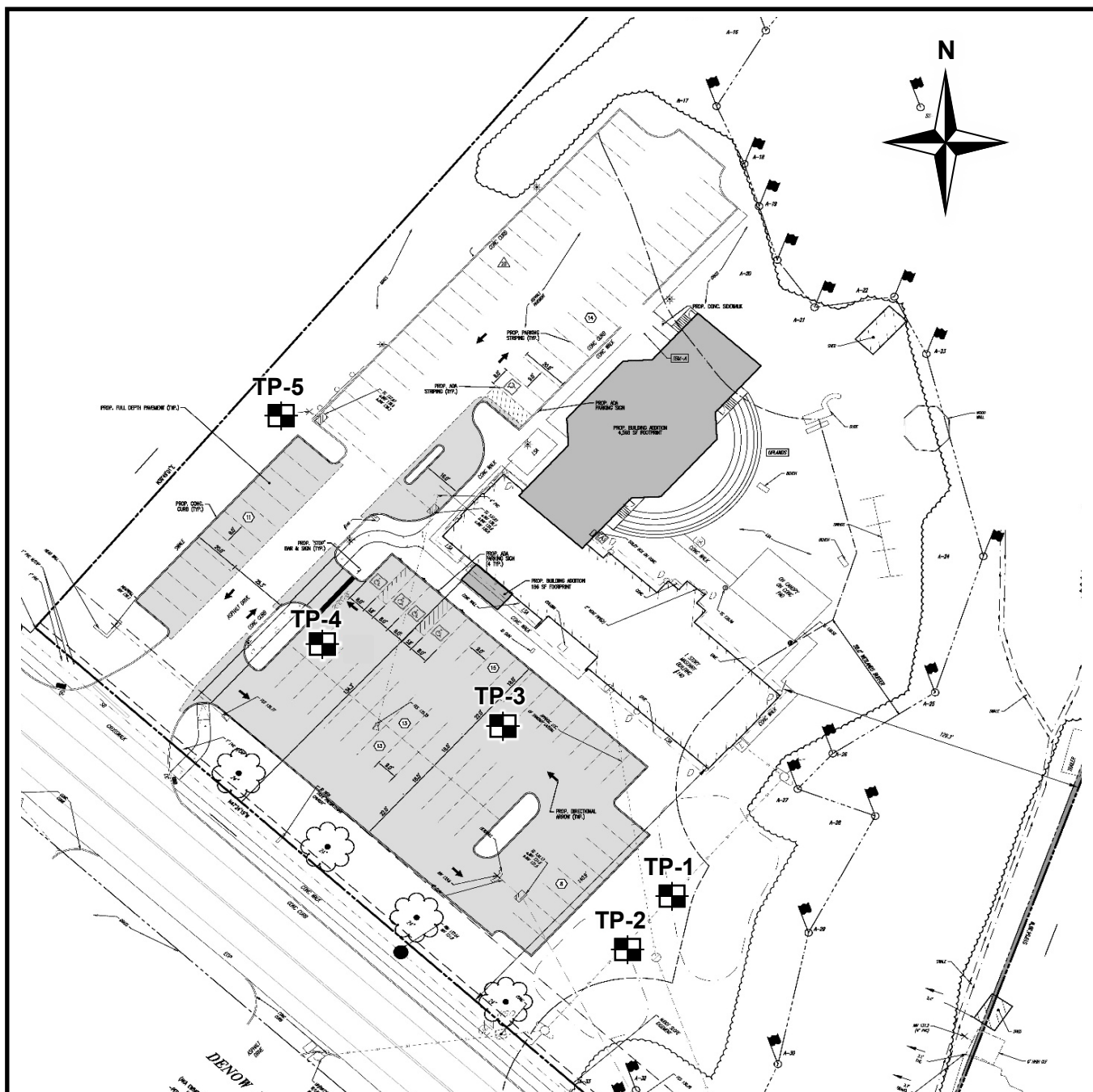
SOURCE: Google Earth

SCALE: NTS

DATE: FEB. 2026

PROJECT#: 31260060

Figure 1



*Base plan prepared by Dynamic Engineering titled "Conceptual Site Plan 'A' " dated March 26, 2026.

LEGEND:

TP-X  Indicates the numbers and approximate locations of test pits performed for this study.

TEST PIT LOCATION PLAN



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Somerset, New Jersey 08873
(732) 271-9301
fax (732) 271-9306

HOPE PRESBYTERIAN CHURCH

Lawrence Township,
Mercer County, New Jersey

Prepared For: Hope Presbyterian Church

DESIGN BY: *	DRAWN BY: AFS	REVIEWED BY: KTP
SCALE: NTS	DATE: APR. 2026	PROJECT#: 31260060

Figure 2

LOG OF TEST PIT NO. TP-1

Sheet 1 of 1

PROJECT: **Hope Presbyterian Church**
 PROJECT LOCATION: **Lawrence Township, Mercer County, New Jersey**
 CLIENT: **Hope Presbyterian Church**

PROJECT NO.: **31260060**

DATE STARTED: **4/14/2026**
 DATE COMPLETED: **4/14/2026**
 CONTRACTOR: **Neighbors Property Management**
 EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **10 Ft.**
 GROUND SURFACE ELEVATION: **137 Ft.**
 DATUM: **Topo**
 LOGGED BY: **AFS**
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
				DESCRIPTION	REMARKS
136.2	0			10 In. of Topsoil	- Infiltration rate = 0.0 in/hr at 6 Ft. - Water seepage at 10 Ft.
		SM		Dark yellow-brown (10YR 4/4), moist, single grain, loose, Sandy Loam	
133.0	2				
	4	ML		Gray-brown (10YR 5/2), moist, subangular blocky, friable, Silt Loam	
129.0	6				
	8	HW		Dark red-brown (5YR 3/3), moist to wet, Highly-weathered ROCK (Shale)	
125.0	10				
	12			Test pit complete at 12 Ft. due to refusal on highly-weathered rock.	
	14				
	16				
	18				

NOTES: **Location and elevation are approximate.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-1

Sheet 1 of 1

LOG OF TEST PIT NO. TP-2

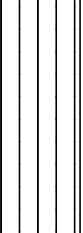
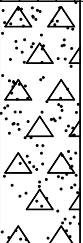
Sheet 1 of 1

PROJECT: **Hope Presbyterian Church**
 PROJECT LOCATION: **Lawrence Township, Mercer County, New Jersey**
 CLIENT: **Hope Presbyterian Church**

PROJECT NO.: **31260060**

DATE STARTED: **4/14/2026**
 DATE COMPLETED: **4/14/2026**
 CONTRACTOR: **Neighbors Property Management**
 EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **9 Ft.**
 GROUND SURFACE ELEVATION: **137 Ft.**
 DATUM: **Topo**
 LOGGED BY: **AFS**
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
				DESCRIPTION	REMARKS
136.2	0			10 In. of Topsoil	
		SM		Dark yellow-brown (10YR 4/4), moist, single grain, loose, Sandy Loam	
133.0	4	ML		Gray (10YR 6/1) and yellow-brown (10YR 5/6), moist, subangular blocky, friable, Silt Loam	
	6				
129.0	8	HW		Dark red-brown (5YR 3/3), moist to wet, Highly-weathered ROCK (Shale)	- Infiltration rate = 0.2 in/hr at 6 Ft.  - Water seepage at 9 Ft.
	10				
125.0	12			Test pit complete at 12 Ft. due to refusal on highly-weathered rock.	
	14				
	16				
	18				

NOTES: **Location and elevation are approximate.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-2

Sheet 1 of 1

LOG OF TEST PIT NO. TP-3

Sheet 1 of 1

PROJECT: **Hope Presbyterian Church**
 PROJECT LOCATION: **Lawrence Township, Mercer County, New Jersey**
 CLIENT: **Hope Presbyterian Church**

PROJECT NO.: **31260060**

DATE STARTED: **4/14/2026**
 DATE COMPLETED: **4/14/2026**
 CONTRACTOR: **Neighbors Property Management**
 EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **11.5 Ft.**
 GROUND SURFACE ELEVATION: **138.5 Ft.**
 DATUM: **Topo**
 LOGGED BY: **AFS**
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
				DESCRIPTION	REMARKS
137.7	0			10 In. of Topsoil	
		SM		Dark yellow-brown (10YR 4/4), moist, single grain, loose, Sandy Loam	
135.5	2				
		CL		Yellow-brown (10YR 5/6) and gray (10YR 6/1), moist, subangular blocky, friable, Clay	
134.5	4				
		SC		Dark yellow-brown (10YR 4/4), moist, single grain, loose, Sandy Clay Loam	- Infiltration rate = 0.2 in/hr at 6 Ft.
132.5	6				
		CL		Dark yellow-brown (10YR 4/4), moist, subangular blocky, friable, Sandy Clay	
	8				
130.0		HW		Black (10YR 2/1) and dark red-brown (5YR 3/3), moist, Highly-weathered ROCK (Shale)	- Water seepage 11-1/2 Ft.
	10				
126.5	12			Test pit complete at 12 Ft. due to refusal on highly-weathered rock.	
	14				
	16				
	18				

NOTES: **Location and elevation are approximate.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-3

Sheet 1 of 1

LOG OF TEST PIT NO. TP-4

Sheet 1 of 1

PROJECT: **Hope Presbyterian Church**
 PROJECT LOCATION: **Lawrence Township, Mercer County, New Jersey**
 CLIENT: **Hope Presbyterian Church**

PROJECT NO.: **31260060**

DATE STARTED: **4/14/2026**
 DATE COMPLETED: **4/14/2026**
 CONTRACTOR: **Neighbors Property Management**
 EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **10 Ft.**
 GROUND SURFACE ELEVATION: **139.5 Ft.**
 DATUM: **Topo**
 LOGGED BY: **AFS**
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
				DESCRIPTION	REMARKS
138.0	0			18 In. of Topsoil	- Infiltration rate = 0.0 in/hr at 4 Ft.
	2	ML		Yellow-brown (10YR 5/6) and gray (10YR 6/1), moist, subangular blocky, friable, Silt Loam	
133.5	4			- Dark yellow-brown (10YR 3/3) at 4-1/2 Ft.	
	6			- with shale fragments at 5-1/2 Ft.	
126.5	6	HW		Black (10YR 2/1) and dark red-brown (5YR 3/3), moist, Highly-weathered ROCK (Shale)	- Water seepage at 10 Ft.
	8				
	10				
	12				
	14			Test pit complete at 13 Ft. due to refusal on highly-weathered rock.	
	16				
	18				

NOTES: **Location and elevation are approximate.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-4

Sheet 1 of 1

LOG OF TEST PIT NO. TP-5

Sheet 1 of 1

PROJECT: **Hope Presbyterian Church**
 PROJECT LOCATION: **Lawrence Township, Mercer County, New Jersey**
 CLIENT: **Hope Presbyterian Church**

PROJECT NO.: **31260060**

DATE STARTED: **4/14/2026**
 DATE COMPLETED: **4/14/2026**
 CONTRACTOR: **Neighbors Property Management**
 EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **140 Ft.**
 DATUM: **Topo**
 LOGGED BY: **AFS**
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
				DESCRIPTION	REMARKS
139.0	0			12 in. of Topsoil	- Infiltration rate = 0.0 in/hr at 1-1/2 Ft.
	2	ML		Yellow-brown (10YR 5/6) and gray (10YR 6/1), moist, subangular blocky, friable, Silt Loam	
136.5	4	HW		Dark red-brown (5YR 3/3), moist, Highly-weathered ROCK (Shale)	
129.0	6				- Trapped water seepage at 7 Ft., dissipated as excavation advanced.
	8				
	10				
	12				
	14				
	16				
	18				
				Test pit complete at 11 Ft. due to refusal on highly-weathered rock.	

NOTES: **Location and elevation are approximate.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-5

Sheet 1 of 1