B&G ENGINEERING LLC

P: (732) 598.6616 | F: (609) 671.0715

STORMWATER MANAGEMENT MEASURES

MAINTENANCE PLAN & FIELD MANUALS

FOR

GALILEEE EGLISE ADVENTISTE INCORPORATED
PROPOSED CHURCH

3313 NJ RTE 33,
NEPTUNE, NJ 07753

BLOCK 3301, LOT 4
NEPTUNE TOWNSHIP

MONMOUTH COUNTY, NEW JERSEY

Party Responsible for Maintenance
Galileet Eglise Adventiste

Contact Person: Jean Claude Lavarin
3 Ryjac Court Brick, NJ 08724
732 822 8767

PREPARED BY:

B&G ENGINEERING LLC.
30 BERNARD DRIVE
EWING, NEW JERSEY 08628

November 19, 2023

BESRICK G. PLUMMER, P.E.
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 39534

B&G PROJECT NO. 1943A

Table of Contents

Part I- Maintenance

Part II- Field Manuals and Maintenance Records

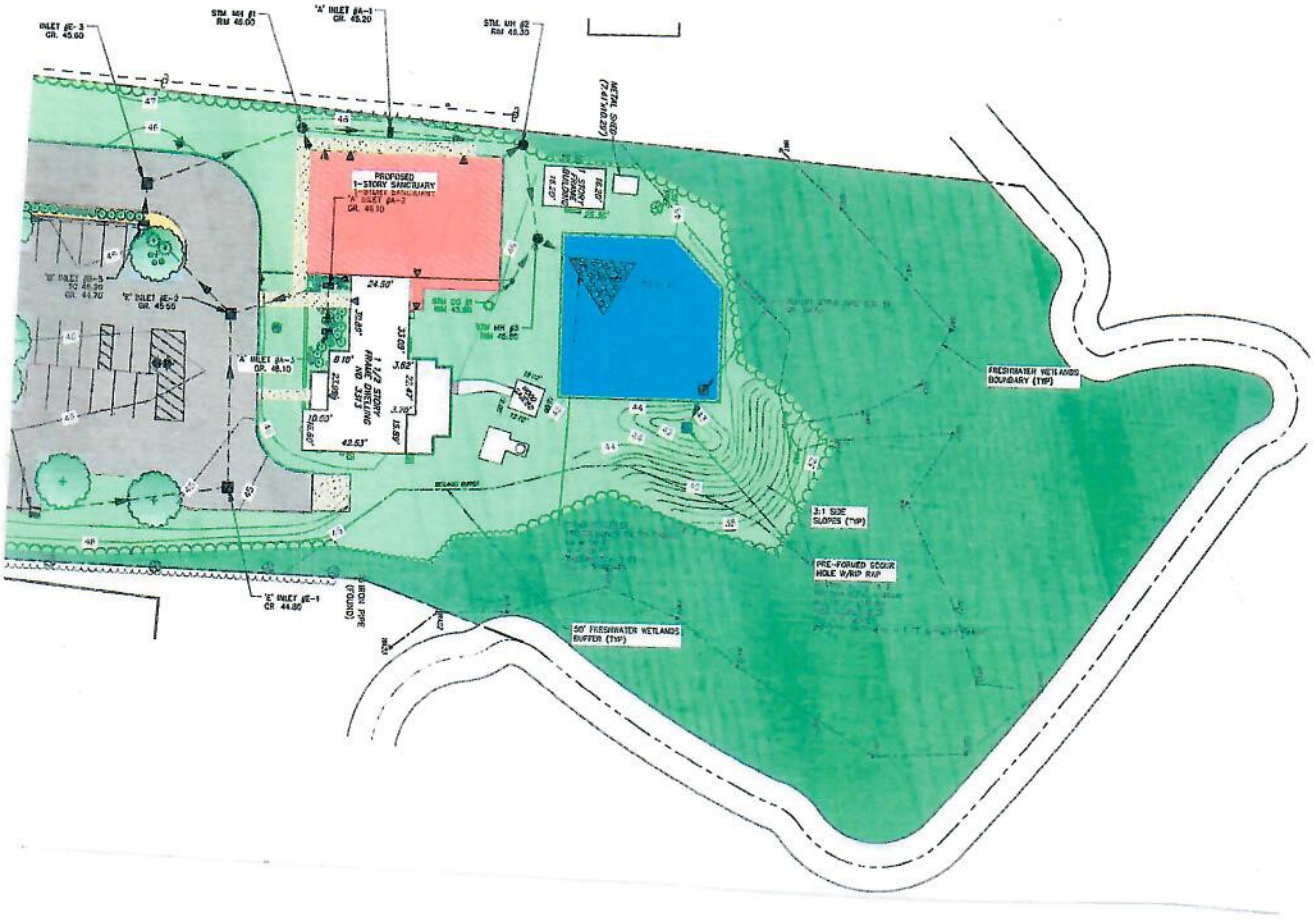
Part I- Maintenance Plan

List of Stormwater Management Measures

The stormwater management measures incorporated into this development are listed below. The corresponding Field Manuals for the stormwater management measures are located in Part II of the Maintenance Plan.

Type of Stormwater Management Measure	BMP No.	Location Description	State Plane Coordinates / Lat., Long.
Infiltration Basin	Basin #1	Rear of site to the north behind proposed sanctuary	612, 020 ft (E) 501,470 ft (N)
Preformed Scour Hole		Rear of site to the north immediately east of infiltration basin	612, 060 ft (E) 501,490 ft (N)
Discharge Point	Discharge # 1	Infiltration basin at location, Overflow to preformed Scour hole & to Shark River Brook located east and north of Basin	612, 020 ft (E) 501,470 (N)
Access Route to the Stormwater Management Measures	-	From rear of proposed building along lawn areas and safety ledge.	-

Location Map



No.	Type of Stormwater Management Measure
Basin #1	Infiltration Basin
Pre formed Scour Hole	Overflow Infiltration Feature

Description of Stormwater Management Measures

Name of the stormwater management measure (Infiltration Basin)
Design storm:

- Design Purposes:
  - (Water quality, water quantity, and/or recharge)
  - 1.25 inches in 2 hours
  - 2-year storm (3.38 inches);
  - 10-year storm (5.23 inches);
  - 100-year storm (8.94 inches)
- Dimensions: 66 ft x 66 ft x 6 ft (Depth)

Name of the stormwater management measure (Preformed Scour Hole)
Design storm:

- Design Purposes:
  - (Overflow from Infiltration Basin)
  - 1.25 inches in 2 hours
- Dimensions: 9 ft x 7.5 ft (Width) x 0.75 ft (Depth);
- Slope 3:1 Side Slope

Preventative and Corrective Maintenance Action Plan

As per N.J.A.C. 7:8-5.8(b) & (e), preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including, but not limited to, repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of non-vegetated linings.

As per NJDEP BMP Manual Ch. 8 Feb. 2004), maintenance plans should include specific preventative and corrective maintenance tasks such as removal of sediment, trash, and debris; mowing, pruning, and restoration of vegetation; restoration of eroded areas; elimination of mosquito breeding habitats; control of aquatic vegetation; and repair or replacement of damaged or deteriorated components.

This maintenance plan addresses the maintenance of access points to the stormwater management measures in accordance with the following:

- all components of the stormwater management measures must be readily accessible for inspection and maintenance;
- trees, shrubs, and underbrush must be pruned or trimmed as necessary to maintain access to the stormwater management measure via roadways, paths, and ramps,

including paths through perimeter vegetation to permanent pools, and safety ledges to allow for the inspection and control of mosquito breeding.

Preventative Maintenance Actions

Frequency	Preventative Maintenance Actions	Stormwater Measures/ No.
Monthly	Vegetation mowing and removal in growing season	Location: Behind perimeter walls of Infiltration Basin, Safety Ledge and at Preformed Scour Hole.
Quarterly	Quarterly inspection (Sediment removal, depending on the type of measure)	Location: At bottom of Infiltration Basin and at all components of basin such as flared end sections, access ladder etc. At Preformed scour hole and components.
Semiannual	Sediment removal, depending on the type of measure	Location: At Infiltration Basin & Components, at Preformed scour hole and components.
Annual	Basin Structural Inspection	Inspect Flared end sections, outlet structure and access ladder. Also inspect inlet and out let pipes at Basin and at Pre-formed Scour hole.
Biennial	Sand layer replacement for sand filter and infiltration basin only	At Infiltration Basin and Pre-formed Scour hole to ensure efficient functioning of both systems
Unscheduled	Quick inspection after every 1" rain	At Infiltration Basin

Corrective Maintenance Actions

Potential Corrective Maintenance Actions	Stormwater Management Measures/No.
- Repair/replacement of eroded or damaged riprap apron	Location: At infiltration Basin and at Pre-formed Scour Hole.

- Repair/replacement of missing or damaged trash racks - Repair/replacement of outlet pipes or orifices - Revegetation of eroded side slope, basin bottom, and preformed scour hole, etc.	

Inspection and Logs of All Preventative and Corrective Maintenance

As per N.J.A.C. 7:8-5.8(f), the person responsible for maintenance shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

As per NJDEP BMP Manual Ch. 8 (Feb, 2004), a maintenance plan shall include a schedule of regular inspections and tasks, and detailed logs of all preventative and corrective maintenance performed on the stormwater management measure, including all maintenance-related work orders. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site.

Inspection Checklists in the Field Manual for the stormwater management measures on this site include:

- Infiltration Basin & Preformed Scour Field Manual

The logs of all inspections, and both preventative and corrective maintenance performed should be attached in the **"Maintenance Logs and Inspection Records"** section. See Part II of the Maintenance Plan

Maintenance Personnel, Equipment, Tools, and Supplies

Maintenance Personnel/Equipment/Tools/Supplies

Personnel/Equipment/Tools Name	Quantity
General maintenance crew	2
Debris removal tools (Weed wacker, hedge trimmer, shovel, tree pruner	4
Lawn Mower	1

Disposal Plan

Disposal/Recycling Procedures

- Dispose of all debris removed from stormwater management systems per Township of Neptune & Monmouth County Waste management standards. Items designated as recyclable materials must be recycled and placed in Townships; Approved containers for disposal. Similarly, items designated as waste material must also be stored in appropriate containers for disposal by a waste management company.

Description of the Offsite Disposal:

A proposed waste and recycling storage center is part of the planned improvements. All items to be discarded must be properly stored in appropriate containers for pick up & disposal by a Township, County or private waste management firm.

Cost Estimate

Cost Overview

Cost Type	Cost	Details
Cost of sediment , trash, and debris removal		
General cost for routine maintenance (e.g., quarterly maintenance)	$2,800.00	Table A
General cost – unscheduled maintenance	$600.00	Table B
Cost associated with special tasks for specific stormwater measures (e.g., biennial sand replacement for sand filter)	$4,040.00	Table C
Total cost	$7,440.00	

Table A: General cost for routine maintenance (e.g., quarterly maintenance)

Cost Type	Required Quantity	Unit Price	Cost
Personnel			
Crew	(2 persons per day)	$60/hour	$240.00
Equipment			
Mower		$100/Hour	$300.00
Supplies			
Seed	10 bags required)	$6.00/bag	$60.00
Topsoil	50 cubic yards required)	$40.00/CY	$2,000.00
Working garments/ gloves/protective measures			
Services			
Subcontractor for disposal			$200.00
Subtotal			
Overhead			
			$2,800.00
Total Cost			

Table B: General cost – unscheduled maintenance in a year (e.g., inspection after 1 inch of rain)

Cost Type	Required Quantity	Unit Price	Cost
Personnel			
Crew	1	$50/hour x 6 duration	$600,00
Subtotal			
			$600.00
Overhead			
Total Cost			**$600,00**

Cost Estimate of Unscheduled Inspections

Table C: Cost associated with special tasks for specific stormwater measures (e.g., biennial sand replacement)

Cost Type	Required Quantity	Unit Price	Cost
Personnel			
Crew	2 Man Crew	$80.00/Hour	$640.00
Supervisor			
Equipment			
Truck		$500.00	$1,000.00
Lightweight backhoe rental		$500.00	$1,000.00
Supplies			
Sand	100 bags	$6.00/bag	$600.00
Working garments/gloves/ protective measures			
Services			
Subcontractor for disposal			$800.00
Subtotal			
Overhead			
Total Cost			**$4,040.00**

Safety Measures and Procedures

Safety Regulations and Requirements

Safety Tools, Equipment and Garments

Safety Tools and Equipment	Location	Responsible Person/Contact #
To be Provided by Service Contractor		

Safety Procedures

List of precautions required before entering the Stormwater Management Facility:

- **Wear safety ropes,**
- **checking whether hazardous gases are present,**
- **checking whether poisonous plants are present.**
- **Work in tandem (2- man crew)**
- **Check access ladder for stability**

Emergency Procedures

911 – Neptune Police, Fire & Ambulance
Jean Claude Lavarin (Responsible Party Contact): 732 822 8767

Training Plan and Records

I. Training Plan

Types of Training

- Mandatory Stormwater Management Basic Training and Field Manual Usage Training for new maintenance crews
- Occupational Safety Training
- Subcontractor training, if applicable

Content of Training

- **Stormwater Management Basic Training**

- Purposes and Functions of BMPs

  Example Training Material
  - NJDEP Stormwater BMP Manual, Chapter Nine: Structural Stormwater Management Measures
    - Chapter 9.1 Bioretention Systems
    - Chapter 9.2 Constructed Wetlands
    - Chapter 9.3 Dry Wells
    - Chapter 9.4 Extended Detention Basins
    - Chapter 9.5 Infiltration Basins
    - Chapter 9.6 Manufactured Treatment Devices
    - Chapter 9.7 Pervious Paving Systems
    - Chapter 9.8 Rooftop Vegetated Cover
    - Chapter 9.9 Sand Filters
    - Chapter 9.10 Vegetative Filter Strips
    - Chapter 9.11 Wet Ponds
    - Chapter 9.12 Grass Swales
    - Chapter 9.13 Subsurface Gravel Wetlands

More training information is available at NJ Stormwater.org (http://www.nj.gov/dep/stormwater/training.htm)

- Vegetation Care

  Example Training Material
  - NJDEP Stormwater BMP Manual, Chapter Seven: Landscaping *(provides information on vegetation and landscaping for stormwater management measures)*
  - Other

- Field Manual Usage Training

  Example Training Material
  - Field Manuals attached to this Maintenance Plan

- Equipment and Tools Operation Training

  Example Training Material
  - Equipment or tool manufacturer's Operation & Maintenance Manual

- Occupational Safety Training

Example Training Material

- OSHA Training
- Equipment or tool manufacturer's Operation & Maintenance Manual
- Other

II. Training Records

Training attendance sheets should be attached by the responsible party after each training.

Attach training attendance sheets from each training

Annual Evaluation of the Effectiveness of the Plan

As per N.J.A.C. 7:8-5.8(g), the person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

The responsible party should evaluate the effectiveness of the maintenance plan by comparing the maintenance plan with the actual performance of the maintenance. The items to evaluate may include, but not limited to,

- Whether the inspections have been performed as scheduled;
- Whether the preventive maintenance has been performed as scheduled;
- Whether the frequency of preventative maintenance needs to increase or decrease;
- Whether the planned resources were enough to perform the maintenance;
- Whether the repairs were completed on time;
- Whether the actual cost was consistent with the estimated cost;
- Whether the inspection, maintenance, and repair records have been kept.

If actual performance of those items has been deviated from the maintenance plan, the responsible party should find the causes and implement solutions in a revised maintenance plan.

Annual Evaluation Records

Evaluator(s)	Date of Evaluation	Decision
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)

Document Attached

Subsurface Soil Investigation Report

ANS CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net
Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

March 08, 2021

B & G Engineering LLC
30 Bernard Dr
Ewing, NJ 08628

Attn: Mr. Besrick Plummer
President

Re: **Subsurface Soil Investigation Report**
Proposed Infiltration Basin
3313 Corlies Avenue
Township of Neptune
Monmouth County, NJ
Block # 3301, Lot # 4

Dear Mr. Plummer,

Enclosed, please find three (3) copies of the the Subsurface Soil Investigation and Foundation Recommendation report for two (2) soil borings and one (1) field percolation test performed on February 17, 2021 at the project referenced above.

Soil samples collected during the subsurface soil investigation program will be discarded after thirty (30) days from the date of this report, if not requested in advance to do otherwise. We thank you very much for providing us an opportunity to service you on this project.

Should you have any question or require additional information, please do not hesitate to contact the undersigned at (908)754-8383.

Sincerely,
ANS Consultants, Inc.

Atulkumar N. Shah, PE
President
New Jersey PE License # 24GE03443900
ANS / RM

Copy to: B & G Engineering LLC- (3), file- (1)

File: ANX-5349_01.SB

TABLE OF CONTENT

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Re: **Subsurface Soil Investigation Report**
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Block # 3301, Lot # 4

Dear Mr. Plummer,

Enclosed, please find three (3) copies of the Subsurface Soil Investigation and Foundation Recommendation report for two (2) soil borings and one (1) field percolation test performed on February 17, 2021 at the project referenced above. The work was performed as per our signed proposal dated February 11, 2021.

Our **Scope of Services** included the following:

1. Drilling and full-time inspection of two (2) soil borings down to maximum 17'-0" depth or to refusal, whichever comes first, including recording of groundwater level and also seasonal high-water table if encountered.
2. Perform field percolation test in one of the soil boring location.
3. Preparation of a written report summarizing all findings and recommendations.

PROPOSED CONSTRUCTION:

The project site is located at 3313 Corlies Avenue, Township of Neptune, NJ in Monmouth County. At present, the subject site consists of a 1½ story dwelling. We understand that the borings and field percolation test were conducted for the proposed Infiltration storm drain system at the subject site. The soil borings and the field percolation test were performed towards rear of the subject property. Please see soil boring & percolation test location plan in Appendix-A and photographs in Appendix-C for more details.

SITE CONDITIONS:

The subject site is located towards north side of Corlies Avenue. Primarily the subject site is located in residential & commercial surroundings. At the time of soil boring work, the site was noted to be fairly leveled. The subject site is located at latitude of N 40° 12' 34.93" and Longitude of W 74° 04' 13.97". As per the DeLorme Topo Quad Map the subject site is at the elevation of 37 feet above mean sea level. Please, see site location plan in Appendix-A and Photographs in Appendix-C for more details.

FIELD INVESTIGATIONS:

SOIL BORING:

Soil Boring locations were marked by the ANS field representative as per the proposed location Plan provided by the client and based upon the equipment access. Sub-Surface utility mark-out was performed by New Jersey-One call System. Once, cleared the soil boring work began on February 17, 2021.

Two (2) soil borings, B-1 and B-2 were drilled during the geo-technical investigation at the site on February 17, 2021. Both the borings were performed at the location shown in Soil Boring & Field Percolation Location Plan included in Appendix-A. The soil boring work was performed under the direction and supervision of our field Engineer Mr. Syed Abbas. Drilling work was performed using an Acker Track Rig XLS with hollow stem auger. As per the drawing provided by the client, the ground contour elevation was noted to be 44.50' which is the starting elevation for the borings. Soil samples were collected continuously down to 18 feet depth in boring B-1 and down to 20 feet depth in boring B-2. Soil samples were extracted using a 2" diameter split spoon sampler as the sampling procedure specified in ASTM 1586-99.

Samples were obtained by the Standard Penetration Test (SPT) Method (ASTM D 1586), which consists of driving a 2-inch outside-diameter split-spoon sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. The sampler was driven in four successive 6-inch increments, with the number of blows per increment being recorded. The number of blows required to advance the sampler the middle 12 inches is termed the Standard Penetration Resistance (N- value) and is presented on the Field Test Boring Logs in Appendix-A.

During drilling operations, extracted soil samples were visually examined and classified by our Field Engineer. The soil sample description, Standard Penetration Resistance Test (SPT) blow counts and locations, strata changes, groundwater depth and other pertinent information were recorded on a detailed field log. Soil samples obtained at the SPT locations were visually classified according to the Unified Soil Classification System (USCS). Samples were later returned to our laboratory for further review and testing.

FIELD PERCOLATION TEST:

One (1) field percolation test was performed on February 17, 2021 at a location shown on the attached location plan. Test was performed by drilling a hole at location using augurs to test depth and installing a 2" diameter PVC pipe. Bottom of pipe was secured at test depth and pipe was filled to top with water. Ground at test depth was saturated for 2 hours by refilling PVC pipe again and again whenever its level dropped down from top. After 2 hours of saturation, refilling of pipe was ceased and drop in water level was recorded for every 15 minutes interval.

1. Depth of test: 7'- 6" below existing ground elevation.
2. Water was filled to top of PVC pipe at 1:16p.
3. Two (2) hours saturation time ended at 3:16p.
4. Water was levelled off to top of pipe at 3:16p and drops in water level at 15 minutes interval were recorded.

Sr. No.	Time	Drop in Water Level	Remarks	Percolation Rate per Hour
1.	3:16 pm	Water was filled to top of PVC pipe.		

2.	3:31 pm	1 ¼"		5"
3.	3:31 pm		Refilled	
4.	3:46 pm	1 ¼"		5"
5.	3:46 pm		Refilled	
6.	4:01 pm	1 1/8"		4 1/2"
7.	4:01 pm		Refilled	
8.	4:16 pm	1 1/8"		4 1/2"
9.	4:16 pm		Refilled	
10.	4:31 pm	1 1/8"		4 1/2"
11.	4:31 pm		Refilled	
12.	4:46 pm	1 1/16"		4 1/4"
13.	4:46 pm		Refilled	
14.	5:01 pm	1 1/16"		4 1/4"
15.			Refilled	
16.	5:16 pm	1 1/16"		4 1/4"

Average Percolation per Hour $= \frac{2x5" + 3 \times 4\ 1/2" + 3x4\ 1/4"}{8}$

$= \frac{36\ 1/4"}{8}$

$= 4.53125"$

LABORATORY TESTING:

Two (2) soil samples, one each from borings B-1 and B-2 were laboratory tested to determine in-place moisture content and to classify the soil as per Unified Soil Classification System ASTM-D2487-93. The test results are summarized below and a complete Laboratory test results are included in Appendix-B.

Soil Boring No.	Soil Sample No.	Depth collected	Moisture Content (%)	Fines thru #200 Sieve	USCS Symbol
B-1	S-1	4' - 6'	10.2	18.2	SM
B-2	S-2	2' - 4'	7.6	8.3	SP-SM

SM: Silty Sands SP- SM: A mixture of Poorly Graded sands and Silty Sands

SUBSURFACE CONDITIONS:

A detailed description of the soil encountered during soil boring activities is documented in the summary table below. The following gives a general description of the subsurface conditions encountered. While the sampled area may indicate that the subsurface conditions appeared to be relatively uniform across the site, it should be recognized that the size of the sampled area was quite small compared to the size of the site, and that the existence of anomalies cannot be precluded.

According to NJ Geoweb website, the geological formation is upper stream terrace deposits and geologic age is middle to late Pleistocene. It consists of sand and pebble gravel, minor silt and cobble gravel; yellow, reddish yellow, yellowish brown. As much as 20 feet thick.

Based on the results of soil borings and our geo-technical laboratory testing, we estimate the general stratigraphy of the site to consist of the following major units, in an increasing order of depth.

Stratum 1: Fill material containing gray-black and grayish brown/black silt, trace fine gravel, trace fine roots & grayish brown silty fine sand, trace f/c gravel, some fragments of concrete, trace fragments of wood & dark gray-black/yellowish-orange f/c sand, trace silt, some f/c gravel, yellowish-orange clay/dark gray orange clayey silt was noted in top 8' in boring B-1 and down to 16' in boring B-2.

Stratum 2: Very dark gray-black silt, trace f/m sand, trace fine gravel was noted between 10' to 12' in only boring B-1.

Stratum 3: Gray-dark gray & orange clayey silt/dark gray clay trace fine sand, trace f/c gravel was noted between 12 feet to 18 feet in only boring B-1.

Stratum 4: Very dark gray sandy silt, trace coarse gravel and dark gray f/c sand and fine gravel, trace silt, trace fragments of clay was noted was noted between 18' to 20' depth in only boring B-2.

SUMMARY OF FINDINGS:

Boring Number	Depth in (feet)	Penetration Resistance N-Value	Soil Type	In-Place Soil Bearing Capacity (PSF)	Recommended Safe Soil Bearing Capacity (PSF)
B-1	0 – 2	12	FILL	2400	1500
B-1	2 – 4	6	FILL	1200	1500
B-1	4 – 6	7	FILL	1400	1500
B-1	6 – 8	31	FILL	+5000	1500
B-1	8 – 10	11	FILL	2200	1500
B-1	10 –12	2	SM-ML	400	1000
B-1	12 –14	5	CL-ML	1000	1000
B-1	14 –16	5	CL-ML	1000	1000
B-1	16 –18	8	CL	1600	1500

Boring Number	Depth in (feet)	Penetration Resistance N-Value	Soil Type	In-Place Soil Bearing Capacity (PSF)	Recommended Safe Soil Bearing Capacity (PSF)
B-2	0 – 2	16	FILL	3200	2000
B-2	2 – 4	9	FILL	1800	2000
B-2	4 – 6	25	FILL	5000	2000
B-2	6 – 8	16	FILL	3200	2000
B-2	8 – 10	10	FILL	2000	2000
B-2	10 –12	20	FILL	4000	2000
B-2	12 –14	16	FILL	3200	2000
B-2	14 –16	19	FILL	3800	2000
B-2	16 –18	5	No	1000	1000
B-2	18 –20	10	SP-SM	2000	2000

GROUNDWATER:

Groundwater was encountered at 9'-4" in boring B-1 (at elevation +34.00') and at 9'-9" in boring B-2 (at elevation +34.25') below existing grade surface. It should be noted that groundwater level will fluctuate due to variations in rainfall or other factors not evident at the time of our investigation.

SEASONAL HIGH WATER TABLE:

Due to fill material noted in both borings, mottling or Seasonal High water table was not noted in both borings.

CONCLUSIONS & RECOMMENDATIONS:

1. Groundwater was encountered at 9'-4" in boring B-1 and at 9'-9" in boring B-2 below existing grade surface. Consequently, we anticipate that groundwater management during construction will be critical if any excavation for utility will be placed below this level.

2. Fill was noted in top 8' in B-1 and down to 16' in B-2. The majority of on-site soil consisted of clayey-silt/clay with trace fine sand & f/c gravel in boring B-1 and sandy silt with trace coarse gravel in boring B-2. On site soil will be unsuitable as structural fill. Depending upon the time of the year when the actual construction takes place, drying of excavated soil and aeration may be required to reduce the moisture content. In-situ moisture content of soil varied in between 7.6 % to 10.2 % which is generally considered moist.

3. The safe soil bearing capacity in top 8 feet was noted between 1,500 PSF to 2,000 PSF in B-1 and B-2. We recommend utilizing 1,500 lbs/sq.ft in-place soil bearing capacity to design any footings for the structures.

4. Field percolation rate was noted to be 4.53125 inch/hr.

5. All fill material shall be placed in lifts on the order of twelve (12) inches in loose thickness and be uniformly compacted to at least 95% of its maximum dry density as determined by the modified proctor density values derived based upon ASTM D-1557-93 test procedure. In addition, we recommend that backfill soils placed in confined areas, such as foundation or utility excavations, to be spread in lifts on the order of six to eight inches in loose thickness and be compacted to the same degree using manually operated vibratory compaction equipment.

Soil Unit weight (total):	110 pcf
Angle of Internal Friction:	28 degrees
Coefficient of sliding friction:	0.4
Coefficient of active earth pressure:	0.28
Coefficient of passive earth pressure:	3.57

RECOMMENDED SERVICES:

It is recommended that we should be retained to provide continuous observation and Soil Engineering services during the excavation and foundation construction phases of the work. This is to observe compliance with the design concepts, specifications and recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

LIMITATIONS:

The recommendations contained in this report are our best professional judgment as to be

followed in the design and construction of the proposed project based on the subsurface information, plans and criteria referred to in this report. There may be subsurface conditions not disclosed by the explorations adequately identify subsurface conditions for the purpose of this study. If changes in location or character of this project are subsequently amended or if, during construction any differences are found between the report of the explorations and the actual subsurface conditions, they should be brought to our attention immediately so that the effect on our recommendations can be evaluated.

This report has been prepared in accordance with generally accepted Geotechnical Engineering practices for the exclusive use of B & G Engineering LLC and their designated representative (s). No other warranty, express or implied is made. Contractor's wishes to use the soil boring information may do at their own risk. Unless specifically indicated to the contrary in this report, this report does not address environmental considerations, which may affect the site development. The conclusions and recommendations of this report are not intended to supersede or overlook any NJDEP and Federal Environmental rules and regulations, which should be reflected in the site planning.

Should you have any questions or require additional information, please, do not hesitate to contact the undersigned at (908)754-8383.

Sincerely,
ANS Consultants, Inc.

Atulkumar N. Shah, PE
President
New Jersey PE License # 24GE03443900
ANS / RM

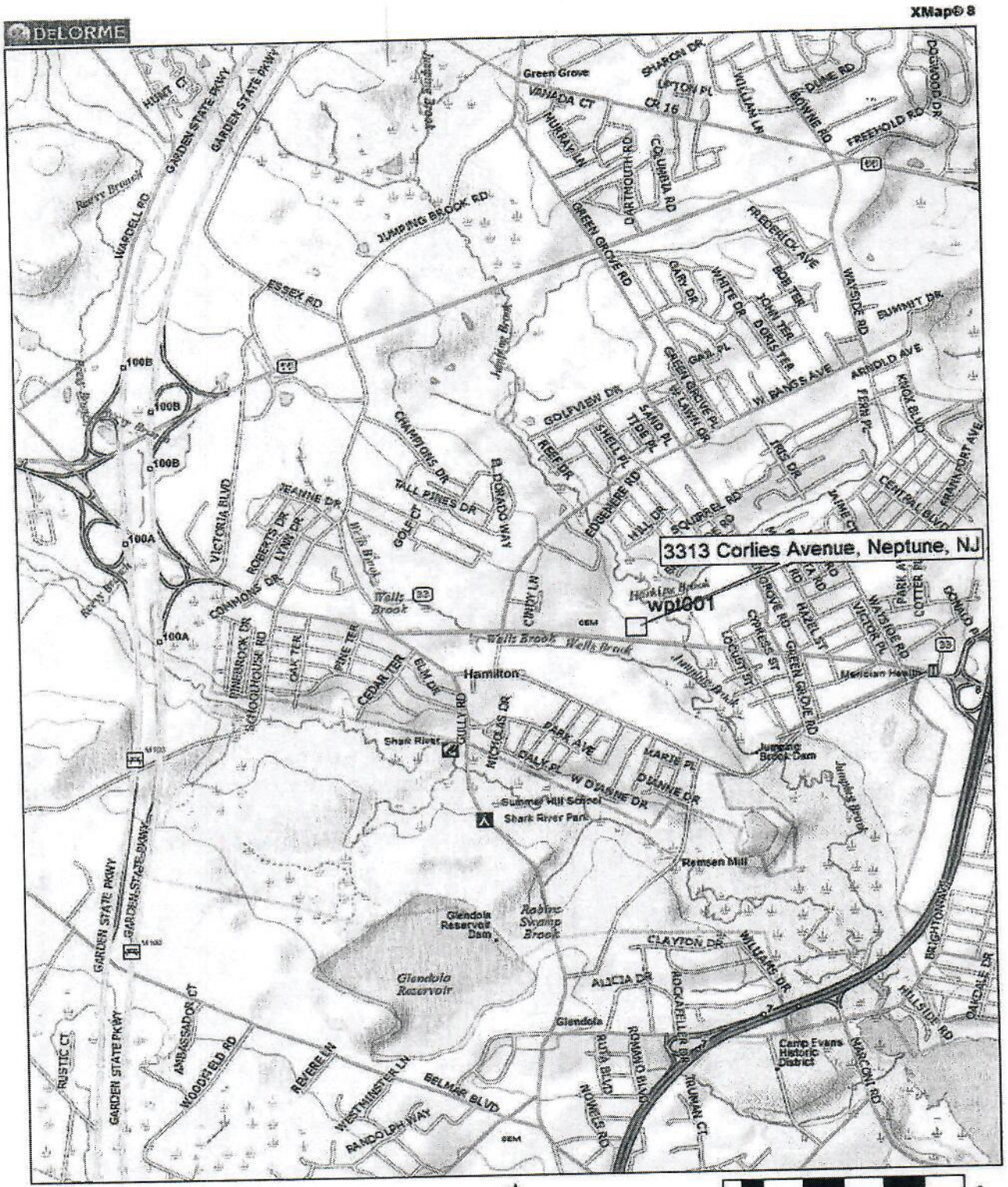
Copy to: B & G Engineering LLC- (3), file- (1)

Appendix-A

GOOGLE MAP

Client: B & G Engineering, LLC
Project: 3313 Corlies Avenue
Twp of Neptune, Monmouth County NJ

ANS CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

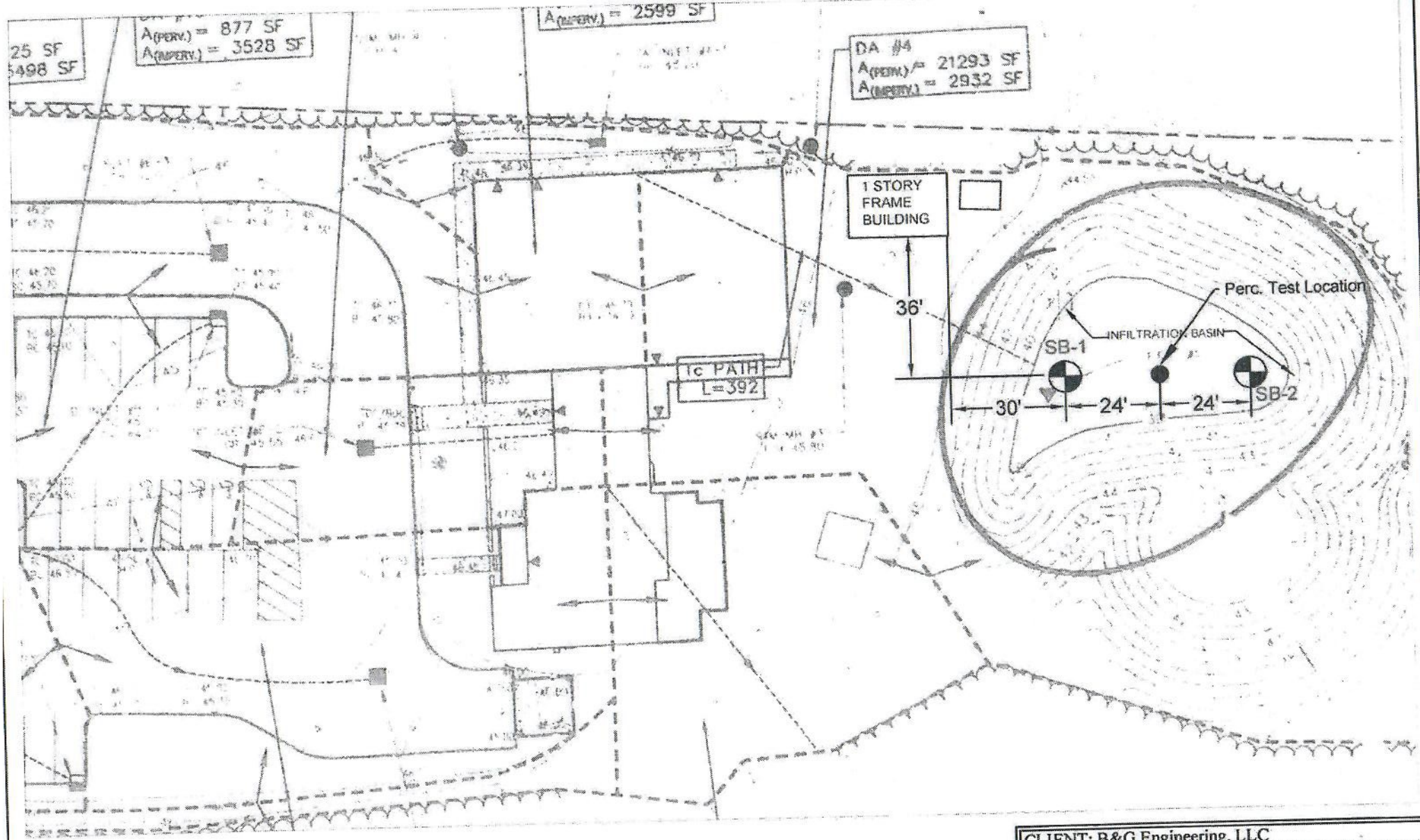


SITE LOCATION MAP

3313 Corlies Ave, Twp of Neptune, NJ

ANS CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

ANS



SOIL BORING LOCATION PLAN

SCALE: N.T.S.

LEGEND:
Soil boring location

CLIENT: B&G Engineering, LLC	
PROJECT: 3313 Corlies Ave, Neptune Twp, NJ	
ANS CONSULTANTS INC. 4405 SOUTH CLINTON AVE SO. PLAINFIELD, NJ, 07080	
PHONE: (908) 754 8383	FAX: (908) 754 8633
BY: Dharmin Parekh	DATE: 3/2/2021
	Project No: ANX-5349

Client: B & G Engineering, LLC

Project: 3313 Corlies Avenue, Neptune, NJ

Report of Testpit / Soil Boring

TP -1 /B-1

S. No.	Depth	N-Value	Recovery	Description of Soil
1.	0 - 2'	12	20"	Fill: 1. Top soil: 1" 2. Top 12": Gray black and grayish brown silt, trace fine gavel, trace fine roots, moist. 3. Bottom 7": Grayish brown silty fine sand, trace f/m gravel, moist.
2.	2' - 4'	6	5"	Fill: Dark gray silty fine sand, trace f/c gravel, moist.
3.	4' - 6'	7	10"	Fill: Dark gray and grayish brown silty fine sand, trace fine gravel, moist.
4.	6' - 8'	31	9"	Fill: Dark gray and grayish brown silty fine sand, trace fine gravel, some fragments of concrete, trace fragments of wood, moist.
5.	8' - 10'	11	11"	Fill: Dark gray silty fine sand and fragments of concrete, trace fine gravel, moist.
6.	10' - 12'	2	6"	Virgin Soil: Very dark gray-black silt, trace f/m sand, trace fine gravel, wet.
7.	12' - 14'	5	11"	Gray-dark gray and orange clayey silt, trace fine sand, trace fine gravel, wet.
8.	14' - 16'	5	24"	Gray-dark gray and yellowish orange clayey silt, trace f/c gravel, wet.
9.	16' - 18'	8	10"	Dark gray clay, moist.

Ground water @ 9'-4"

Client: B & G Engineering, LLC

Project: 3313 Corlies Avenue, Neptune, NJ

TP -2 /B-2

S. No.	Depth	N-Value	Recovery	Description of Soil
1.	0 - 2'	16	20"	Fill: Dark gray-black silt, trace fine sand, trace f/c gravel, trace roots, trace fragments of concrete (bottom of spoon), moist.
2.	2' - 4'	9	7"	Fill: Dark gray-black f/c sand, trace silt, some f/c gravel, moist.
3.	4' - 6'	25	10"	Fill: Yellowish-orange clay and fragments of concrete, some silt, some f/m gravel, moist.
4.	6' - 8'	16	13"	Fill: Dark gray-orange clayey silt, some fragments of concrete, some f/m gravel, s/wet.
5.	8' - 10'	10	10"	Fill: Gray f/c sand and fine gravel, trace silt, some fragments of concrete, s/moist.
6.	10' - 12'	20	12"	Fill: Gray-black and yellowish-orange f/c sand, trace silt, some fine gravel, some fragments of concrete, s/moist.
7.	12' - 14'	16	11"	Fill Top 8": Dark gray f/c sand, trace silt, some f/c gravel, trace fragments of concrete, wet. Fill Bottom 3": Grayish orange f/c sand and fine gravel, trace silt, wet.
8.	14' - 16'	19	17"	Fill: Top 11": Black and orange f/c sand, trace silt, some f/m gravel, trace fragments of concrete, wet. Fill Bottom 6": Black and brown fragments of wood, wet.
9.	16' - 18'	5	NR	
10.	18' - 20'	10	21"	Virgin Soil top 13": Very dark gray sandy silt, trace coarse gravel, wet. Bottom 8": Dark gray f/c sand and fine gravel, trace silt, trace fragments of clay, wet.

Ground water @ 9'-9"

Client: B & G Engineering, LLC

Project: 3313 Corlies Avenue, Neptune, NJ

Report of Field Percolation Test

One field percolation test was performed at a location shown on attached location plan. Test was performed by drilling a hole at location using augurs to test depth and installing a 2" diameter PVC pipe. Bottom of pipe was secured at test depth and pipe was filled to top with water. Ground at test depth was saturated for 2 hours by refilling PVC pipe again and again whenever its level dropped down from top. After 2 hours of saturation, refilling of pipe was ceased and drop in water level was recorded for every 15 minutes interval.

1. Depth of perc test: 7"-6" below existing ground elevation.
2. Water was filled to top of PVC pipe at 1:16 pm.
3. Two (2) hours saturation time ended at 3:16 pm.
4. Water was levelled off top of pipe at 3:16 pm and drops in water level at 15 minutes interval were recorded.

S. No.	Time	Drop in Water Level	Remarks	Percolation Rate Per Hour
1.	3:16 pm	Water was filled to top of PVC pipe		
2.	3:31 pm	1 ¼"		5"
3.	3:31 pm		Refilled	
4.	3:46 pm	1 ¼"		5"
5.	3:46 pm		Refilled	
6.	4:01 pm	1 1/8"		4 ½"
7.	4:01 pm		Refilled	
8.	4:16 pm	1 1/8"		4 ½"
9.	4:16 pm		Refilled	
10.	4:31 pm	1 1/8"		4 ½"
11.	4:31 pm		Refilled	
12.	4:46 pm	1 1/16"		4 ¼"
13.	4:46 pm		Refilled	
14.	5:01 pm	1 1/16"		4 ¼"
15.			Refilled	

Client: B & G Engineering, LLC

Project: 3313 Corlies Avenue, Neptune, NJ

16.	5:16 pm	1 1/16"		4 ¼"

$$\text{Average Percolation Rate Per Hour} = \frac{2\ X\ 5" + 3\ X\ 4\frac{1}{2}" + 3\ X\ 4\frac{1}{4}"}{8}$$

$$= \frac{36\frac{1}{4}"}{8}$$

$$= 4.53125"$$

File: ANS.NP_01

FIELD SOIL CLASSIFICATION SYSTEM

PARTICLE SIZE IDENTIFICATION

Boulders.....8 inch diameter or greater
Cobbles.....3 to 8 inch diameter
Gravel ..... Coarse -- 1 to 3 inch
Medium -- 1/2 to 1 inch
Fine -- 4.75 mm to 1/2 inch
Sand..... Coarse -- 2.0 mm to 4.75 mm
(dia. of pencil lead)
Medium -- 0.425 mm to 2.0 mm
(dia. of broom straw)
Fine -- 0.075 mm to 0.425 mm
(dia. of human hair)
Silt & Clay. . . Smaller than 0.075 mm

RELATIVE PORTIONS

Descriptive Term	Percent
Trace - tr	1 - 10
Some - sm	11 - 20
Adjective - ly	21 - 35
And - &	36 - 50

ABBREVIATIONS

Bn - Brown
Gy - Gray
Blk - Black
Rd - Red
Or - Orange
Bl - Blue
Lt - Light
Dk - Dark
Multi - Multi colored

Coarse grained - c
Medium grained - m
Fine grained- f

COHESIONLESS SOIL

(Gravel, Sand, Silt and Combinations)

DENSITY

Very Loose ..... 05 blows I ft or less
Loose .....06 to 10 blows / ft
Medium Dense .....11 to 30 blows / ft
Dense ..... 31 to 50 blows / ft
Very Dense .....51 blows / ft or more

COHESIVE SOIL

(Clay Silt and Combinations)

CONSISTENCY

Very Soft ..... . 01 blow / ft or less
Soft..... 02 to 4 blows / ft
Medium Stiff .....05 to 8 blows / ft
Stiff..... 09 to 15 blows / ft
Very Stiff ..... 16 to 30 blows / ft
Hard .....31 blows / ft or greater

ROCK

R.Q.D.	Rock Quality
00 – 25.....	Very Poor
25 - 50%	Poor
50 - 75%	Fair
75 - 90%.....	Good
90 - 100%.....	Excellent

HSA - Hollow Stem Auger
SS- Split Spoon Sampler
WOR - Weight of Rods
WOH - Weight of Hammer
NR - No Recovery of Sample

Part II- Field Manuals

Attachment of Field Manuals
for Stormwater Management Measures on this Site

As per N.J.A.C. 7:8-5.8(b)&(e), preventative and corrective maintenance shall be performed to maintain the function of stormwater management measures, including repair or replacement of the structure; removal of sediment, debris or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; repair or replacement of non-vegetated linings, and removal of rodent/wildlife and repair/restoration to damaged affected areas caused by them.

Each Field Manual attached to this Maintenance Plan is a separate document pertaining to one specific stormwater management measure, and should be used by inspections and maintenance crews in order to carry out the maintenance work required by N.J.A.C. 7:8-5.8(e).

Field Manual for (Infiltration Basin # 1)

Maintenance Logs and Inspection Records

As per N.J.A.C. 7:8-5.8(e), preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure(s), including repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of non-vegetated linings.

As per N.J.A.C. 7:8-5.8(f), the person responsible for maintenance shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

The responsible party shall maintain a record of all maintenance actions performed, including:

- Inspection checklists from each performed inspection
- Preventative maintenance logs
- Corrective maintenance logs, including work orders
- Other maintenance records

Surface Infiltration Basin
Basin # 1 on the Location Map

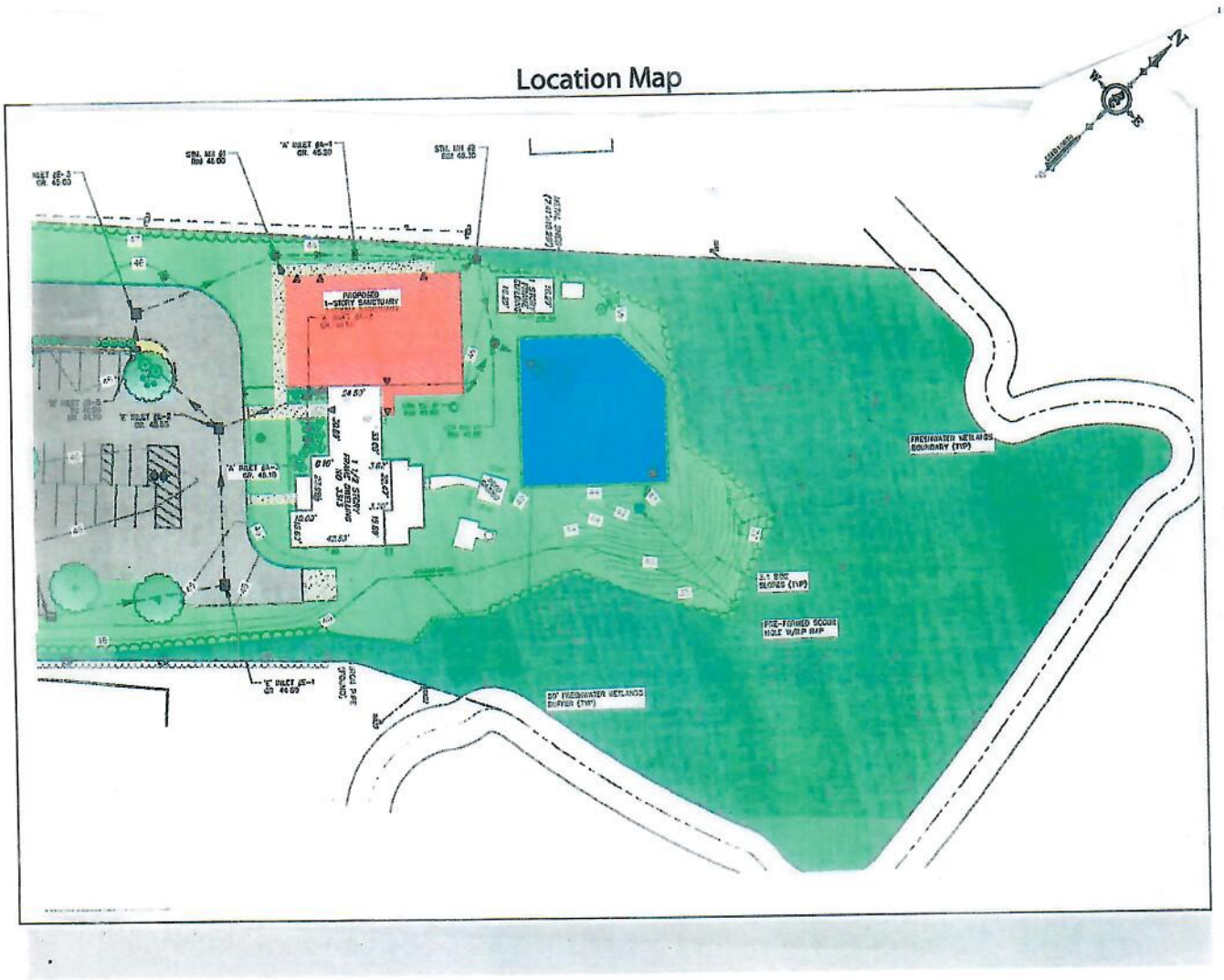
Development Name: Eglise Adeventiste Inc. Proposed Church

Township, County: Neptune Township, Monmouth County

Location of Basin: 612, 029 Ft (E) 501, 740 ft (N)

Location Description: Rear of site to the North behind proposed sanctuary.

Location Map



NOTE

Table of Contents

Surface Infiltration Basin Overview

Functionality

An infiltration basin is a stormwater management facility constructed of highly permeable soils, which provides temporary storage of stormwater runoff. Infiltration basins are used to remove pollutants and to infiltrate stormwater. In addition to pollutant removal and groundwater recharge, infiltration may help to reduce increases in both the peak rate and total runoff volume caused by land development. Pollutant removal is achieved through filtration of the runoff through the soil, as well as biological and chemical activity within the soil. The total suspended solids (TSS) removal rate attributed to infiltration basins is 80%.

Proper care and attention in the long-term maintenance of the stormwater management measure is critically important to the safety and health of the public.

Type of BMP – Dry Basin / Infiltration Only

An infiltration basin is a type of ***dry*** basin. Dry basins must fully drain within 72 hours of the most recent rainfall. Standing water in excess of 72 hours is a sign of basin failure. It may also contribute to mosquito breeding and other health and safety issues. The design drain time shall be closely monitored to ensure that potential failure is recognized early.

This surface infiltration basin is designed for **infiltration only** and is **not** designed for extended detention.

For the field manual for a surface infiltration basin with extended detention, please see:
Surface Infiltration – Extended Detention Basin Field Manual.

Basic Design Information

Hydrology Design Targets

1. This basin is designed with a subsoil permeability rate of 4.5 inches/hour (pre-construction) and 2.25 inches/hour (post-construction - tested on (02) / 17 / 2021).
2. The design drain time is 54.00 hours.
3. The elevation of the seasonal high water table of this basin was observed on (02) / (17) / (2021) and it was 4 feet below the basin bottom surface, at EL. 34.0 feet.
4. This basin will be exfiltrated.

Hydraulic Design Targets

1. This basin is designed to infiltrate the runoff from the 100-year storm event, which generates 0.784 AF of runoff.
2. The 100 year water surface elevation is at EL. _43.58 feet.
3. The emergency spillway is at EL. 44.5 feet (if applicable).

Basin Configuration Targets

1. Pretreatment is provided by deep sump hooded catch basins.
    - This basin bottom is covered by native sand layer.
    - The invert elevation of the sand layer is EL. 38.00 feet.
    - The sand layer is designed to be inspected every 6 months.
2. Vegetation
    - The top of basin bed is designed to have no vegetation (if the basin is vegetated, a Landscaping Plan should be included in the Reference Documents section.)

Critical Maintenance Features

1. No heavy equipment on the basin surface or sand layer.
2. Trash racks and discharge outlet shall be cleaned frequently.
3. Grass clippings shall be collected from the basin and properly disposed.

Visual Aid for Dry Type Stormwater Basin Inspection

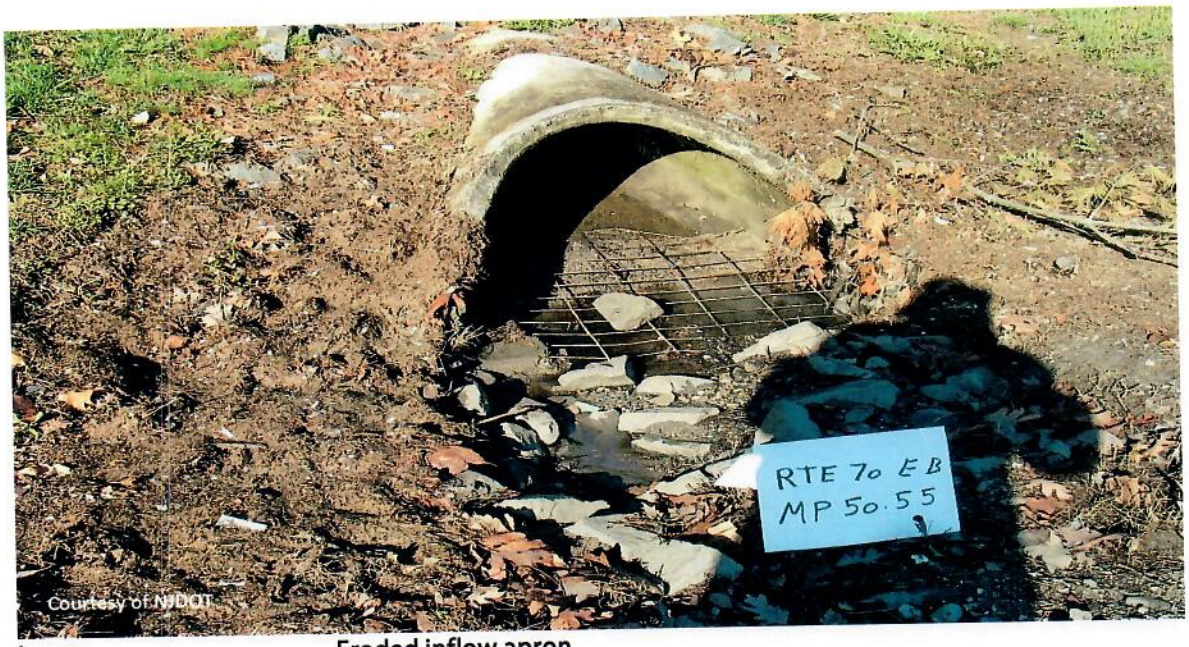
(Note: Basins shown here include various types of dry basins, not limited to the category of basin in this field manual.)

Issue:	**The inlet is not properly drained, assuming it has not rained within 72 hours.**
Corrective Action:	**Clear and remove sediment. Check whether the water table is at or above the bottom of the forebay. Also check the permeability of the underlying soil, if necessary.**
Preventative Action:	**Routine inspections and removal of sediment from the forebay.**

Issue:	**The Inflow pipe is clogged by sediment and vegetation.**
Corrective Action:	**Clear and remove sediment and unwanted vegetation.**
Preventative Action:	**Routine inspection and removal of sediment and unwanted vegetation.**

Issue:	The Inflow pipe is entirely clogged by sediment and trees.
Corrective Action:	Clear and remove sediment and trees.
Preventative Action:	Routine inspection & removal of sediment and unwanted vegetation.

Issue:	The excessive sediment in inflow pipe (shown above) might be caused by a blockage of flow to the basin due to excessive vegetation and overgrown trees.
Corrective Action:	Clear and remove trees and vegetation. If necessary, re-grade the bottom slope to ensure the flow properly spreads over the basin bottom.
Preventative Action:	Routine inspection and removal of sediment and unwanted vegetation.



Issue: Eroded inflow apron

Corrective Action: Repair apron.

Preventative Action: Routine inspection and rehabilitation, if necessary.

Issue: The vegetation loss and the blackish soil may indicate frequent inundation.

Corrective Action: Check the permeability rate of the soil and the water table elevation. Replace the soil if necessary.

Preventative Action: Routine inspection and tilling/aeration, if necessary.

Issue:	The low flow channel has excessive accumulation of sediment and debris. The outflow orifice is clogged by a trash bag and debris. Note that there is no trash rack installed.
Corrective Action:	Check the permeability rate of the soil and the water table elevation. Replace the soil if necessary.
Preventative Action:	Routine inspection and cleaning.

Issue:	Trash rack is damaged.
Corrective Action:	Repair the trash rack.
Preventative Action:	Routine inspection, especially after large storm events. Tighten any loose bolts and repair structural flaws.

A well maintained detention basin

Reference Documents

Groundwater Mounding Analysis

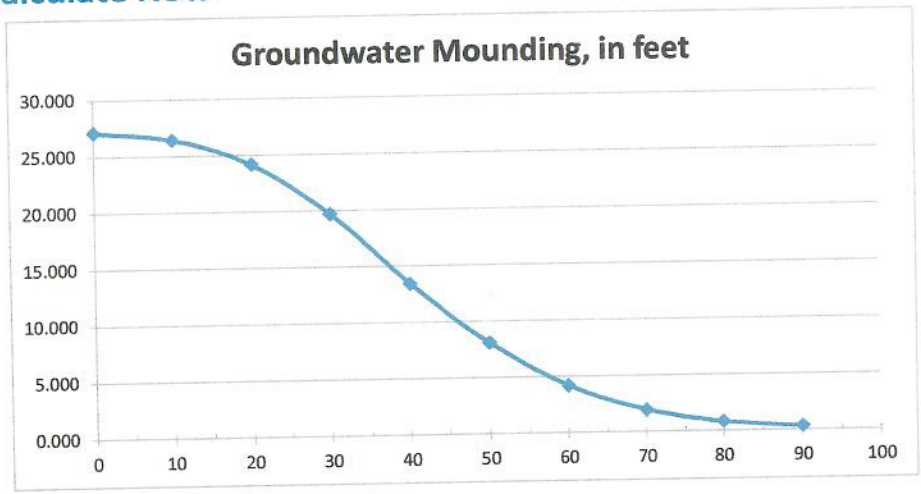
Input Values

2.25	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
2.00	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
31.600	x	1/2 length of basin (x direction, in feet)
31.600	y	1/2 width of basin (y direction, in feet)
42.00	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

37.100	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
27.100	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
27.100	0
26.397	10
24.130	20
19.679	30
13.393	40
8.042	50
4.177	60
1.913	70
0.807	80
0.325	90

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Inspection Checklist / Maintenance Actions
Surface Infiltration Basin

Checklist (circle one): Quarterly / Annual / Monthly / Special Event Inspection

Checklist No. _____ **Inspection Date:** _____

Date of most recent rain event: _____

Rain Condition (circle one):
Drizzle / Shower / Downpour / Other _____

Ground Condition (circle one):
Dry / Moist / Ponding / Submerged / Snow accumulation

The inspection items and preventative/corrective maintenance actions listed below represent general requirements. The design engineer and/or responsible party shall adjust the items and actions to better meet the conditions of the site, the specific design targets, and the requirements of regulatory authorities.

	For Inspector			For Maintenance Crew
Component No. Component Name	Inspection Item and Inspection Item No.		Result	Preventative / Corrective Maintenance Actions
A1 Pretreatment (Forebay)	1	Scouring or erosion is present at inlet structure and/or riprap apron	Y__ N__	Check the flow diversion device before the inlet pipe and whether the bypass flow channel is clogged Work Order # _____
	2	Clogged pipes or excessive sediment in the forebay	Y__ N__	Remove sediment or debris
	3	Damaged outlet structure (e.g., cracking, subsidence, spalling, erosion, or deterioration)	Y__ N__	Repair or replace the outlet structure Work Order # _____
A2 Pretreatment (MTD, if installed)	1	MTD inspection	Y__ N__	(If a MTD is used for pretreatment, see manufacturer's maintenance manual)
A3 Pretreatment (Structural BMP)	1	BMP inspection	Y__ N__	(See BMP No. _____ Field Manual)
Note:				

	For Inspector			For Maintenance Crew
Component No. Component Name	**Inspection Item and Inspection Item No.**		**Result**	**Preventative / Corrective Maintenance Actions**
B Infiltration Bed	1	Standing water is present after the design drain time The observed drain time is approximately _____ hours.	Y__ N__	Recheck to determine if there is standing water after 72 hours If standing water is present longer than 5 days, report to mosquito commission. Remove any sediment buildup Replace the sand layer (if sand layer is installed; volume of replacement sand is specified in the Basin Configuration Targets in the Basic Design Information Section of this Manual) Work Order # _____
	2	Excessive sediment, silt, or trash accumulation on basin bed	Y__ N__	Clean pretreatment system Remove silt, sediment, and trash Work Order # _____
Note:				

	For Inspector			For Maintenance Crew
Component No. Component Name	**Inspection Item and Inspection Item No.**		**Result**	**Preventative / Corrective Maintenance Actions**
B Infiltration Bed	3	Erosion or channelization is present	Y__ N__	Check whether the flow bypass or diversion device is clogged Re-grade the infiltration bed Work Order # _____
	4	Animal burrows/rodents are present	Y__ N__	Pest control Work Order # _____
	5	Uneven bed	Y__ N__	Use light equipment to resurface the bed Work Order # _____
	6	Evidence of sinkholes or subsidence	Y__ N__	Monitor for sinkhole development
Note:				

	For Inspector			For Maintenance Crew
Component No. Component Name	**Inspection Item and Inspection Item No.**		**Result**	**Preventative / Corrective Maintenance Actions**
C Vegetation	1	Large spot(s) showing bare soil	Y__ N__	Vegetative cover must be maintained at 85%. Revegetate the entire basin if 50% or more vegetation has been lost. Check Landscaping plan for guidance (if available) Work Order # _____
	2	Overgrown vegetation	Y__ N__	Mow/trim the vegetation Work Order # _____
	3	Tree growth in the basin	Y__ N__	Clear, trim, or prune the trees according to the original Landscaping Plan Inspect to determine if the tree roots caused any structural damage Work Order # _____
Note:				

	For Inspector			For Maintenance Crew
Component No. Component Name	Inspection Item and Inspection Item No.		Result	Preventative / Corrective Maintenance Actions
D Basin Embankment and Side Slopes	1	Signs of erosion, soil slide or bulges, seeps and wet spots, loss of vegetation, or erosion on the basin slope	Y__ N__	Check for excessive overland runoff flow through the embankment. Check for any sink hole development Direct the overland runoff to the forebay or pretreatment area Restabilize the bank Work Order # _____
Note:				

	For Inspector			For Maintenance Crew
Component No. Component Name	**Inspection Item and Inspection Item No.**		**Result**	**Preventative / Corrective Maintenance Actions**
E Outlet	1	Trash or debris accumulation more than 20%	Y__ N__	Clean and remove Determine source of trash and address to reduce future maintenance costs or basin failure
	2	Trash rack is damaged or rusted greater than 50% Trash rack is bent, loose, or missing parts	Y__ N__	Repair or replace trash rack Work Order #_____
	3	Outlet components (e.g., orifice plates or weir plate) skewed, misaligned, or missing	Y__ N__	Repair or replace component Work Order #_____
	4	Discharge pipe apron is eroded or scoured	Y__ N__	Restabilize the discharge riprap apron Work Order #_____
	5	Standing water is present in the outlet structure longer than 72 hours	Y__ N__	Pump out the standing water Work Order # _____
Note:				

	For Inspector			For Maintenance Crew
Component No. Component Name	**Inspection Item and Inspection Item No.**		**Result**	**Preventative / Corrective Maintenance Actions**
F Emergency Spillway	1	Trees or excessive vegetation present	Y__ N__	Remove trees and roots, and restore berms if necessary Work Order #_____
	2	Damaged structure	Y__ N__	Repair Work Order #_____
G Miscellaneous	1	Fence: broken or eroded parts	Y__ N__	Repair or replace Work Order #_____
	2	Gate: missing gate or lock	Y__ N__	Repair or replace Work Order #_____
	3	Sign/plate: tiled, missing, or faded	Y__ N__	Repair or replace Work Order #_____
	4	Excessive or overgrown vegetation blocking access to the basin	Y__ N__	Clear, trim, or prune the vegetation to allow access for inspection and maintenance Work Order #_____
Note:				

Follow Up Items (Component No. / Inspection Item No.):
(e.g., B/1, C/2)

Associated Work Orders: # _____, # _____, # _____, # _____, # _____

Inspector Name	Signature	Date

Report issues to the local authority and mosquito commission as required by local ordinances and regulatory authorities, if standing water is present longer than 5 days.

File this checklist in the Maintenance Log after performing maintenance.

Preventative Maintenance Record

Corresponding Checklist No. _____
Component No._____, Inspection Item No._____

Work Logs

Activities	Components	Date Completed
Sediment/debris removal **Sediment removal should take place when the basin is thoroughly dry**	A1/A2/A3 – Pretreatment	
	B – Infiltration Bed	
	D – Basin Embankment and Side Slopes	
	E – Outlet	
Vegetation removal	A1/A2/A3 – Pretreatment	
	B – Infiltration Bed	
	D – Basin Embankment and Side Slopes	
	E – Outlet	
	F – Emergency Spillway	

Vegetation is removed by hand with minimum disruption to the remaining vegetation.

Debris, sediment, and trash are handled by private contractor to disposal site _____). (See Part I: Maintenance Plan – Disposal Plan Section)

Crew member:_____/_____ **Date:** _____
(name/ signature)

Supervisor:_____/_____ **Date:** _____
(name/ signature)

File this Preventative Maintenance Record in the Maintenance Log after performing maintenance.

Corrective Maintenance Record

1. **Work Order #** _____ **Date Issued** _____

2. **Issue to be resolved:**
(e.g., orifice plate is loose and bent)

3. The issue was from **Corresponding Checklist No.** _____, **Component No.** (e.g., E – Outlet), **Inspection Item No.** (e.g., 2, 3) .

4. **Required Actions**

Actions	Planned Date	Date Completed
Repair riprap apron with 100 cubic yards of aggregate		
Revegetate		

5. **Responsible person(s):**
_____

6. **Special requirements**
   - Time of the season or weather condition:_____
   - Tools/equipment:_____
   - Subcontractor (name or specific type):_____

Approved by _____/_____ **Date** _____
(name/signature)

Verification of completion by _____/_____ **Date** _____
(name/signature)

File this Corrective Maintenance Record in the Maintenance Log after performing maintenance.