tierra SOUTH FLORIDA
GEOTECHNICAL ENGINEERING / MATERIAL TESTING / INSPECTION SERVICES

March 18, 2016

Kimley-Horn
600 North Pine Island Road, Suite 450
Plantation, FL 33324

Attention: Mr. Gary Ratay, P.E.

Re: Borehole Permeability Tests and Pavement Cores
Drainage Sub-Basin #59/60
Palmetto Bay, Miami, Florida
TSF File No. 7111-16-051

Dear Gary:

TIERRA SOUTH FLORIDA, Inc. (TSF) has completed the Borehole Permeability tests (BHP) and pavement cores at the above reference site. A total of two (2) Borehole Permeability tests were performed at 15 feet deep below existing ground surface, and two (2) pavement cores were taken at approximate locations indicated in the attached sketch as authorized by Kimley-Horn. The field permeability test results and pavement core data is attached to this report.

If you have any questions pertaining to this report, or if we may be of further service, please contact our office.

Respectfully submitted,

TIERRA SOUTH FLORIDA, INC.

3/18/16

Ramakumar V. Vedula, P.E.
Principal Engineer
FL. Registration No. 54873

Attachment: Location Plan
BHP Test Results
Pavement Core Data

J:\Tierra Documents\Projects\TSF 2016\7111-16-051.Drainage Subbasin#5960-BHP-PavCores (KHA)\7111-16-051.Drainage Sub-Basin #59_60_cover.docx

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USUAL OPEN - HOLE TEST EVALUATION
SOUTH FLORIDA WATER MANAGEMENT METHOD

Client:	Kimley-Horn	Test No.:	BHP-1	Date:	03/09/16
Project:	Drainage- Substation	Well Depth:	15.0 Feet	Analyst:	MP
Job No.:	7111-16-051	Location:	Palmetto Bay, Florida		

Elapsed Time (min)		Flow Rate (gpm)
0		0.00
1	0.40	0.40
2	0.80	0.40
3	1.20	0.40
4	1.60	0.40
5	2.00	0.40
6	2.40	0.40
7	2.80	0.40
8	3.20	0.40
9	3.60	0.40
10	4.00	0.40
Constant Flow Rate (gpm)		0.40

Equation for K Value: $\frac{4Q}{\pi * d(2H_2^{\prime} + 4H_2D_s + H_2d)}$

Soil profile:
0.'-0.3' TOPSOIL
0.3'-3' BROWN SANDY LIMEROCK (FILL)
3'-10' BROWN SANDY LIMESTONE

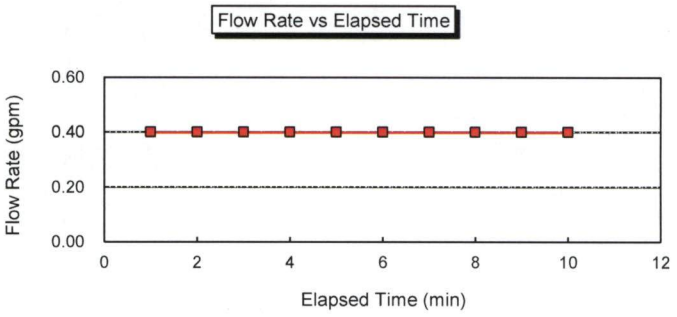
k = 6.97E-06 $CF/S/Ft^2$ - Ft Head
H_2 = 7.00 Ft Hydraulic Head
Ds = 8 ft
d = 0.5 ft

Depth of GWT (FT)= 7.00

Where:

Hydraulic Conductivity

K= 6.97E-06 $CF/S/Ft^2$ - Ft Head



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USUAL OPEN - HOLE TEST EVALUATION
SOUTH FLORIDA WATER MANAGEMENT METHOD

Client:	Kimley-Horn	Test No.:	BHP-2	Date:	03/08/16
Project:	Drainage- Substation	Well Depth:	15.0 Feet	Analyst:	MP
Job No.:	7111-16-051	Location:	Palmetto Bay, Florida		

Elapsed Time (min)		Flow Rate (gpm)
0		0.00
1	13.90	13.90
2	27.80	13.90
3	41.70	13.90
4	55.60	13.90
5	69.50	13.90
6	83.40	13.90
7	97.30	13.90
8	111.20	13.90
9	125.10	13.90
10	139.00	13.90
Constant Flow Rate (gpm)		13.90

Equation for K Value: $\frac{4Q}{\pi * d(2H_2^{\prime} + 4H_2D_s + H_2d)}$

Soil profile:
0.'-0.3' TOPSOIL
0.3'-2' BROWN SANDY LIMEROCK (FILL)
3'-10' BROWN SANDY LIMESTONE

k	=	2.25E-04	$CF/S/Ft^2$ - Ft Head
H_2	=	7.83 Ft	Hydraulic Head
Ds	=	7.17 ft	
d	=	0.5 ft	

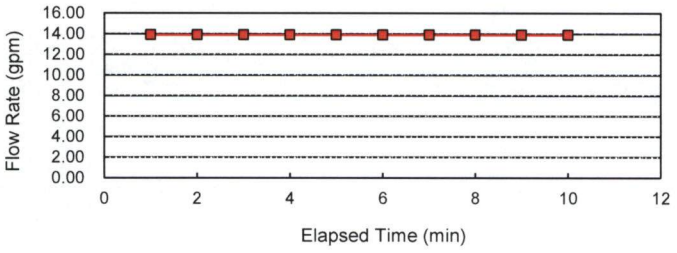
Depth of GWT (FT)= 7.83

Where:

Hydraulic Conductivity

K= 2.25E-04 $CF/S/Ft^2$ - Ft Head

Flow Rate vs Elapsed Time



PAVEMENT CORING DATA

Project No.: 7111-16-051

Date: 3/9/16

Name: Drainage Subbasin

Cored By: Yuniesky Rabassa

Core No.	Pavement Core Type	Total Core Length (in)	Base		Subgrade		CRACK	Comments
			Type	Thickness (in)	Type	Thickness (in)	Depth (in)	
PC-1	ASPHALT	2 1/8	LR	24			2 1/8	
PC-2	ASPHALT	2 1/4	LR	24			2 1/4	

Note: LR - Limerock

Pavement Core
PC-1

Pavement Core

PC-2