STORMWATER RETENTION CALCULATIONS

A. SITE INFORMATION

Total Property Area = 13,500 sq.ft.

Drainage Area Impervious Surface = 7,425 sq.ft.

Drainage Area Pervious Surface = 6,075 sq.ft.

B. ESTIMATED STORMWATER RETENTION VOLUME

The retention volume is estimated using the Rational Method (Q=CiA)
where:
C = 1.0 (impervious surface)
C = 0.2 (pervious surface)
i = 2 in/hr

Impervious Surface Runoff Volume:
1.0 x 2 in/hr x 7,425 sq.ft. x 1 ft./12 in. = 1,238 cu.ft.

Pervious Runoff Volume:
0.2 x 2 in/hr x 6,075 sq.ft. x 1 ft./12 in. = 203 cu.ft.

Total Volume to be Retained = 1,441 cu.ft.

C. PROPOSED EXFILTRATION TRENCH SIZING

Exfiltration Trench #1

L	=	Total Length of Trench Provided	=	80 ft
W	=	Trench Width	=	15 ft
K	=	Hydraulic Conductivity	=	0.00005 cfs/sq.ft./ft. of head
H2	=	Depth to Water Table	=	1.75 ft
DU	=	Un-Saturated Trench Depth	=	1.50 ft
DS	=	Saturated Trench Depth	=	1.00 ft
V	=	Volume Treated	=	1,383 cu.ft.

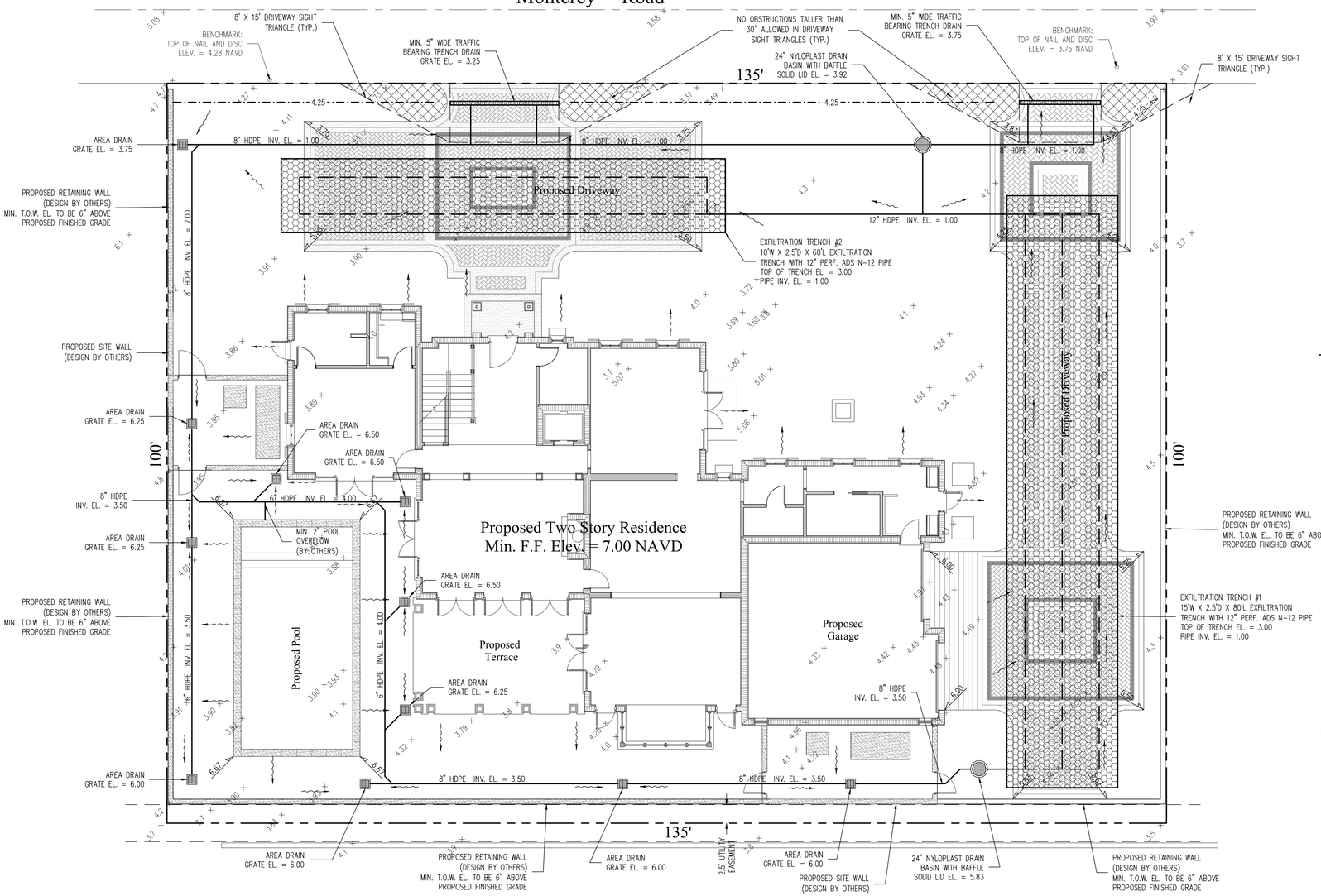
Exfiltration Trench #2

L	=	Total Length of Trench Provided	=	60 ft
W	=	Trench Width	=	10 ft
K	=	Hydraulic Conductivity	=	0.00005 cfs/sq.ft./ft. of head
H2	=	Depth to Water Table	=	1.75 ft
DU	=	Un-Saturated Trench Depth	=	1.50 ft
DS	=	Saturated Trench Depth	=	1.00 ft
V	=	Volume Treated	=	715 cu.ft.

Total Volume Retained in Exfiltration Trenches = 2,098 cu.ft.

Notes:

1) Exfiltration trenches and storm piping to be protected from roots with a root barrier.
2) Roof drain downspouts are to be connected to the proposed drainage system. Contractor to provide engineer with downspout locations prior to installation of drainage system.
3) Exfiltration trench design uses an assumed value of hydraulic conductivity. Client may obtain a site specific test for hydraulic conductivity prior to exfiltration trench installation.
4) Contractor shall mill and overlay all roadway cuts a minimum of 50 ft. on either side of the excavation the entire width of each affected lane.
5) Contractor is responsible for installing and maintaining erosion control measures during construction.
6) Video inspection of storm drainage system required prior to installation of sod.



48 HOURS BEFORE DIGGING CALL
1-800-432-4770
SUNSHINE STATE ONE CALL OF FLORIDA, INC.
Contractor is responsible for obtaining location of existing utilities prior to commencement of construction activities.

Location Map
N.T.S.

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Gruber Consulting Engineers, Inc.
2475 MERCER AVE., SUITE 305
WEST PALM BEACH, FL 33401
PHONE: 561.312.2041
office@gruberengineers.com

Project Information	
Project No.	2022-0133
Issue Date	12/08/2022
Scale	1/8" = 1'-0"
Drawn By	KM
Checked By	CG

Legend

- EXISTING ELEVATION PER WALLACE SURVEYING CORP. (NAVD-88)
- PROPOSED ELEVATION (NAVD-88)
- PROPOSED ELEVATION CONTOUR (NAVD-88)
- FLOW DIRECTION
- EXFILTRATION TRENCH
- AREA DRAIN
- 24" NYLOPLAST DRAIN BASIN WITH BAFFLE

N

0 4 8 16 32

Scale: 1/8" = 1'-0"

Conceptual Site Grading & Drainage Plan For:

Proposed Residence

274 Monterey Road

Palm Beach, Florida

Revisions	
1	02/04/2023
2	04/10/2023
3	
4	
5	
6	
7	
8	
9	
10	

1 02/04/23 UPDATE PLAN BACKGROUND; REVISE PROPOSED GRADING AND DRAINAGE
2 04/10/23 UPDATE PLAN BACKGROUND; REVISE PROPOSED GRADING AND DRAINAGE

Chad M. Gruber

FL P.E. No. 57466

CHAD M. GRUBER LICENSE No. 57466 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Chad M Gruber
Date: 2023.04.10 10:40:58 -04'00'

This item has been electronically signed and sealed by Chad M. Gruber on the date adjacent to the seal using a SHA authentication code. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

Plan Background from Hardscape Plan by Environment Design Group Received 4/10/23

ARC-23-025

Sheet No.
C-1