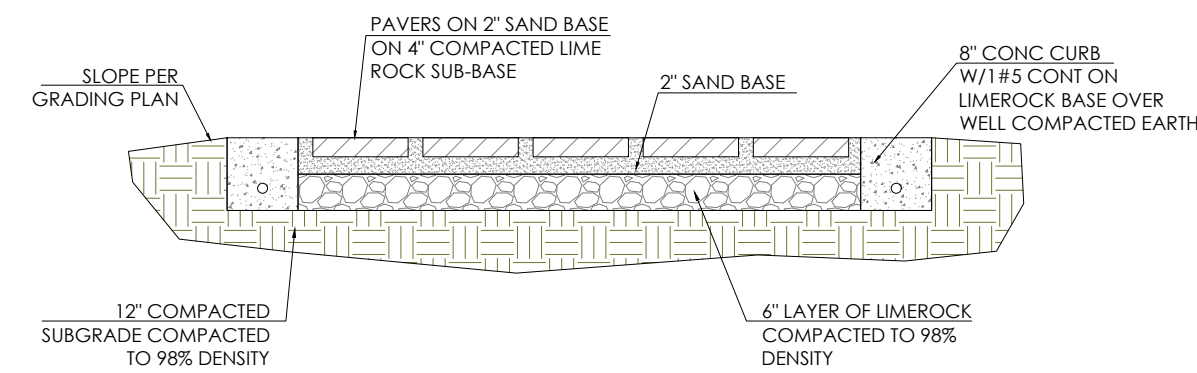
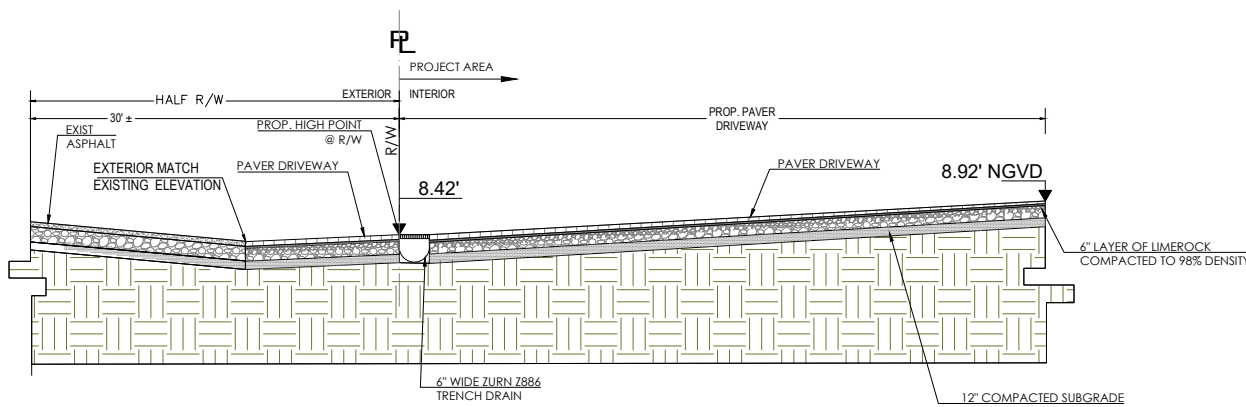


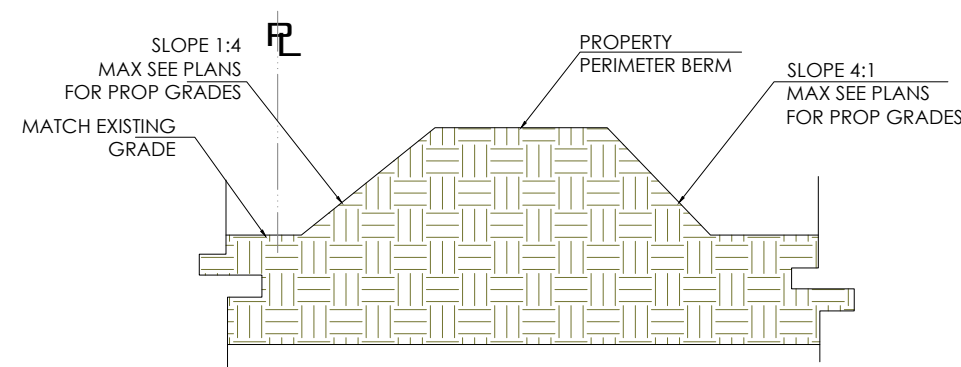
SECTION A-A (ALONG PROPERTY LINE)



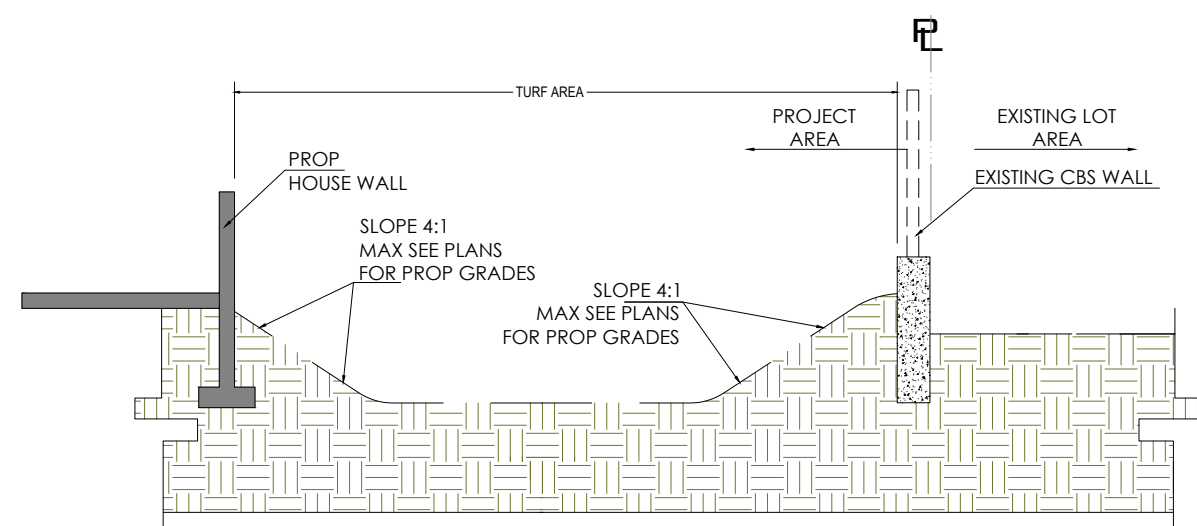
CONCRETE / BRICK PAVER DETAIL



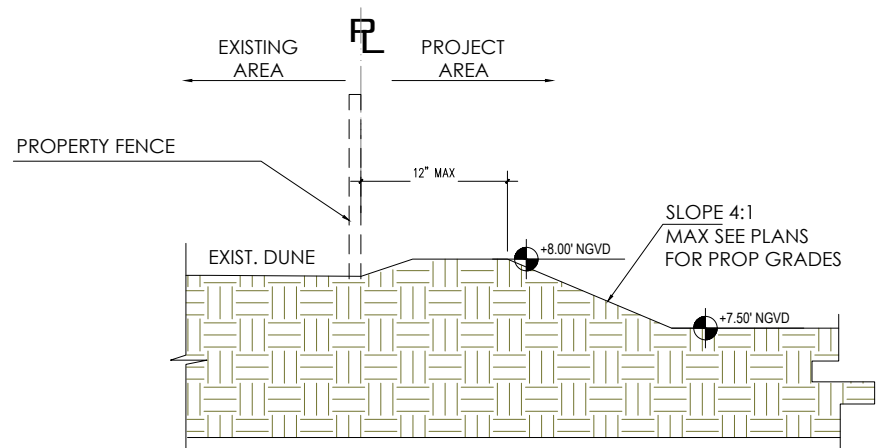
SECTION B-B THRU DRIVEWAY



PERIMETER BERM DETAIL



SECTION C-C



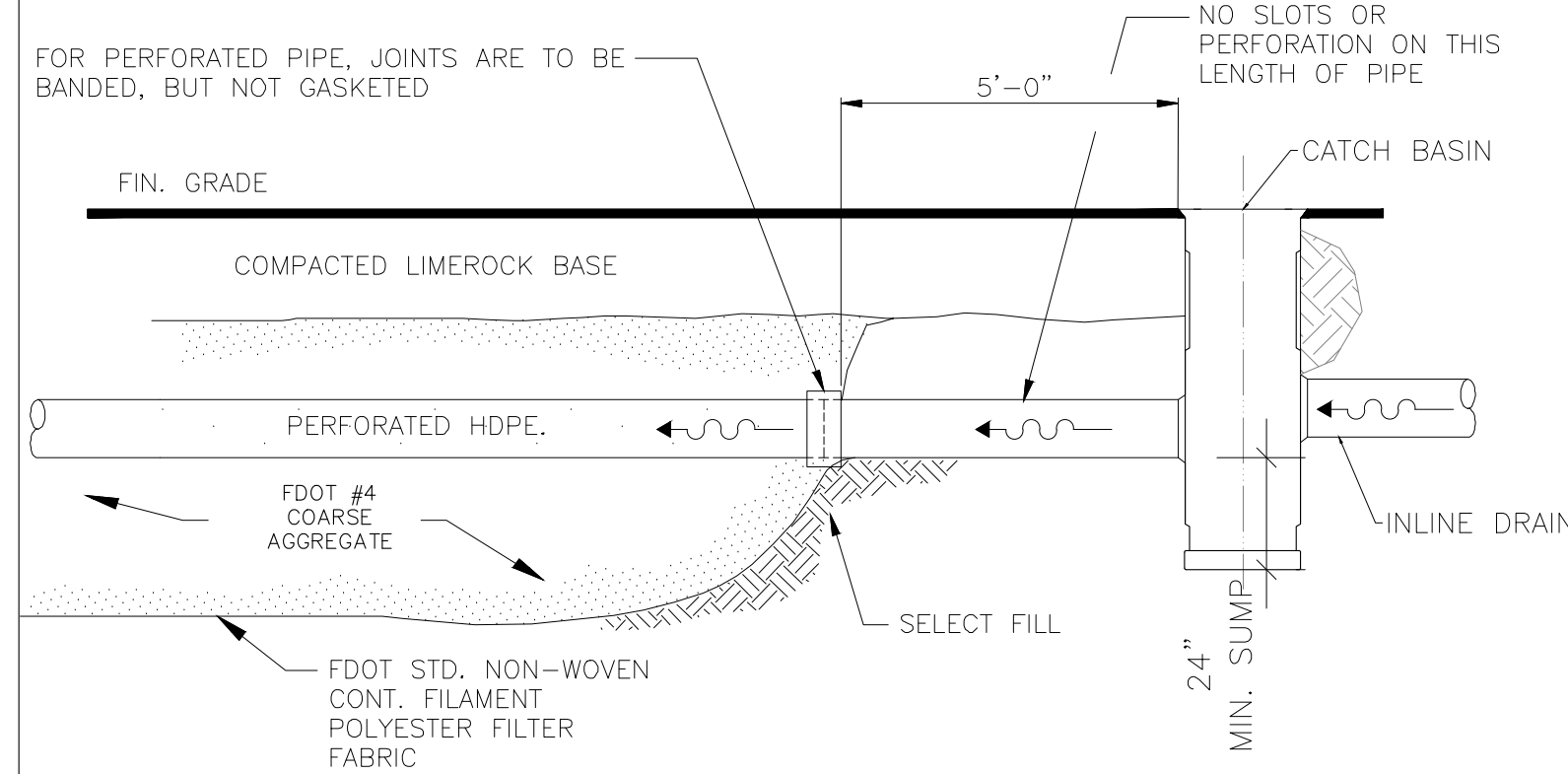
SECTION D-D (ALONG PROPERTY LINE)

LEGAL DESCRIPTION	LEGEND
LOT 6, BLOCK 5, OF CORRECTED PLAT ALTOS DEL MAR NO. 1, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 31, PAGE 40, OF THE PUBLIC RECORDS OF MIAMI-DADE COUNTY, FLORIDA. ADDRESS 7801 ATLANTIC WAY MIAMI BEACH, FLORIDA 33141-2120	PROPOSED ELEVATION
	EXISTING ELEVATION (NGVD1929)
	PROPOSED SWALE
	1. ALL ELEVATIONS AS SHOWN ON THIS SURVEY DRAWING ARE REFERRED TO THE NATIONAL GEODETIC VERTICAL DATUM, 1929 (NGVD). 2. INFORMATION ON THIS SITE PLAN IS BASED ON SURVEY BY: JORGE L. CABRERA, PROFESSIONAL LAND SURVEYORS & MAPPERS.

TOTAL VOLUME OF SWALE					
PROVIDE STORAGE					
SWALE AREA STORAGE = (TOP AREA + BOTTOM AREA) (2 X DEPTH OF SWALE AREA)					
SWALE	TOP AREA	BOTTOM AREA	(4'-6)0"	DEPTH OF SWALE	SWALE AREA STORAGE
1	629.00	228.02	428.51	0.50	214.26
2	39.96	15.17	27.57	0.25	6.89
3	136.91	42.99	69.65	0.50	44.83
4	93.74	30.61	62.18	0.25	15.54
TOTAL (CF)					281.52

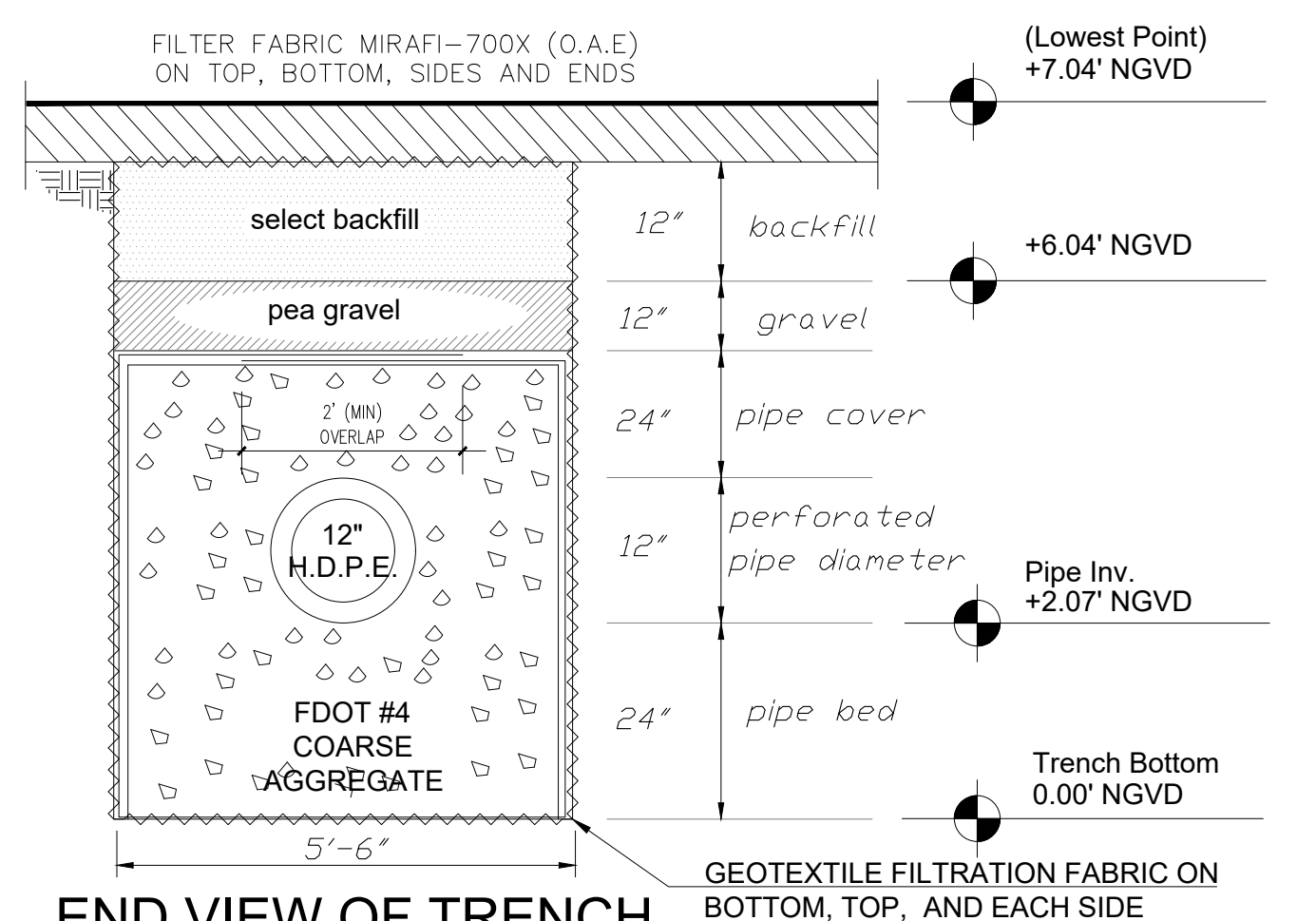
TOTAL RETENTION OF SWALE= 281.52 CUBIC FEET

1 STORM DRAINAGE DETAILS
N.T.S.



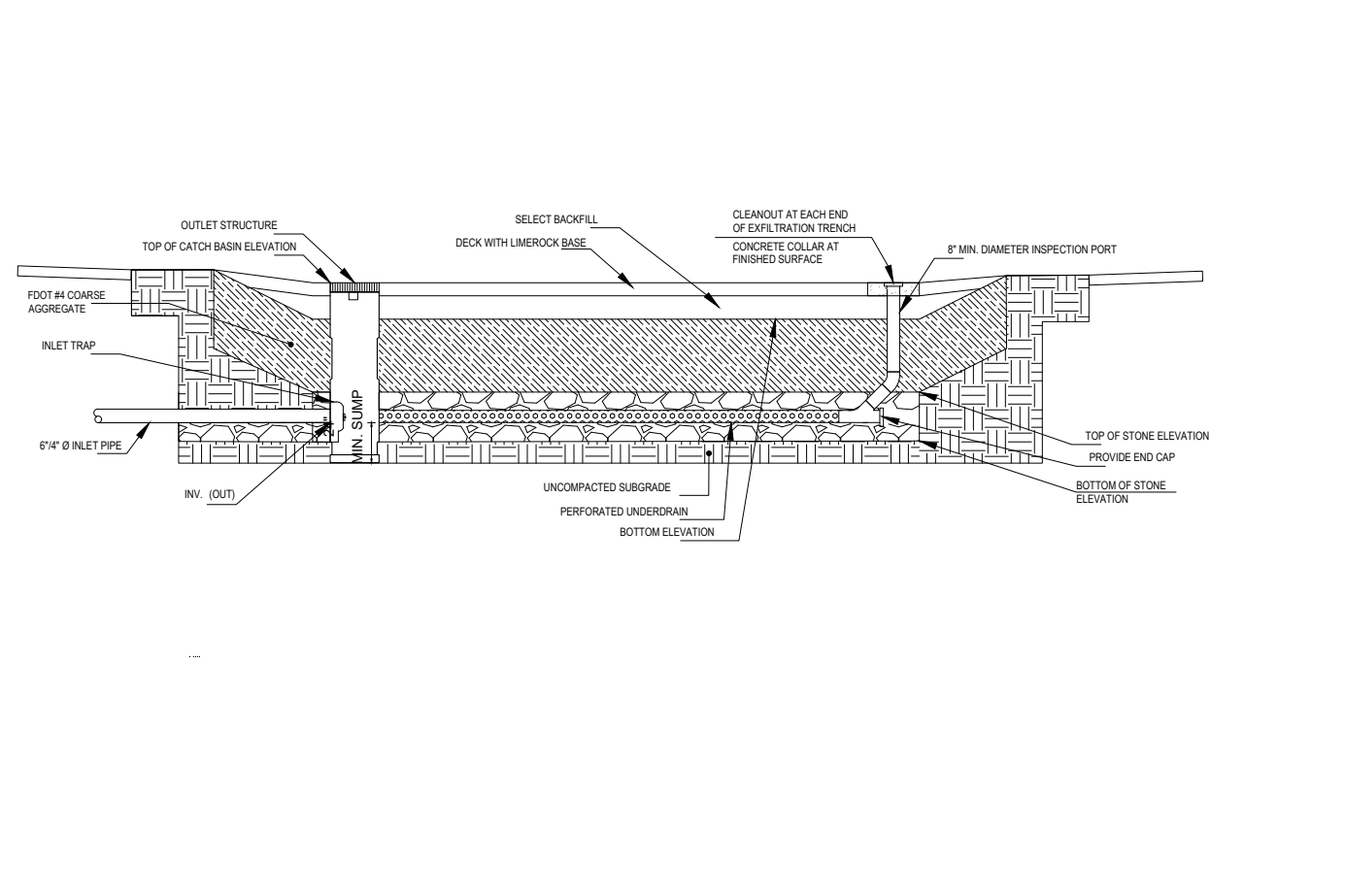
EXFILTRATION NOTES:
1. PLASTIC FILTER FABRIC (AT EACH SIDE, TOP & BOTT.) SHALL BE USED IN SANDY AREAS AS NOTED ON PLANS AND/OR DIRECTED BY THE ENGINEER.

2 TYP. CATCH BASIN DETAILS (C.B)
N/A

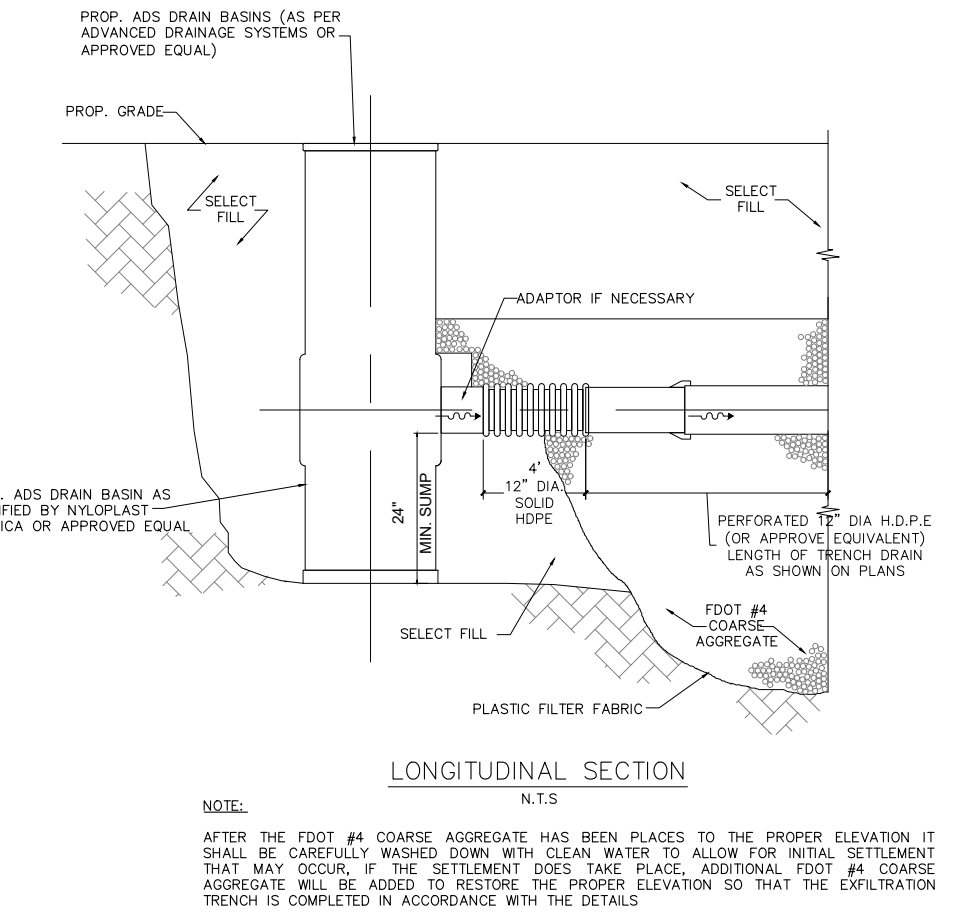


NOTES:
1. PLASTIC FILTER FABRIC (AT EACH SIDE, TOP & BOTTOM) SHALL BE USED IN THE TRENCH.
2. THE BOTTOM OF THE EXFILTRATION TRENCH SHALL BE A MIN 7.00'± BELOW EXISTING GROUND ELEVATION.
3. AFTER THE FDOT #4 COARSE AGGREGATE HAS BEEN PLACED TO THE PROPER ELEVATION, IT SHALL BE CAREFULLY WASHED DOWN WITH CLEAN WATER IN ORDER TO ALLOW FOR INITIAL SETTLEMENT THAT MAY OCCUR. IF IT DOES TAKE PLACE, ADDITIONAL FDOT #4 COARSE AGGREGATE WILL BE ADDED TO RESTORE THE FDOT #4 COARSE AGGREGATE TO THE PROPER ELEVATION, SO THAT THE EXFILTRATION TRENCH WILL BE COMPLETED IN ACCORDANCE WITH THE DETAILS.
4. AVERAGE OCTOBER GROUND WATER ELEV = +2.0' NGVD.
5. FILTER FABRIC SHALL BE FILTER X, POLY FILTER X, FILTERWEAVE 70, EXXON GTF-400E, MIRAFI 700X, BELTON AEF 650W, OR ARMCO 1199.
6. DESIGN VALUES:
6.1. H2= 5.00'
6.2. DU= 4.00'
6.3. DS= 2.00'
6.4. K= 1.54E-04

3 TYP. TRENCH SECTION
N/A



4 EXFILTRATION TRENCH CLEAN OUT
N/A



5 TYP. CATCH BASIN DETAILS
N/A

SDH_STUDIO
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FL. LIC. No. 74745

ALTOS DEL MAR
RESIDENCE

7801 ATLANTIC WAY, MIAMI
BEACH, FL 33141

OWNER

SEAL

NOTES/COMMENTS

REVISIONS / SUBMISSIONS

STORM DRAINAGE DETAILS

ALL DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTE THE ORIGINAL AND UNPUBLISHED WORK OF SDH STUDIO, AND MAY NOT BE REPRODUCED, COPIED, OR DISSEMINATED WITHOUT THE EXPRESS WRITTEN CONSENT OF STEPHANIE D. HALFEN

DRAWN BY: GCE
CHECKED BY: AG
INITIAL DRAWING
RELEASE DATE: ISSUE DATE

PROPOSED LAND USED : 7801 ATLANTIC WAY, MIAMI BEACH, FL 33141

IMPERVIOUS AREA		PERVIOUS AREA	
Building	2056.0 sf	Green Areas:	9212.0 sf
Paver/Conc./Asphalt	3453.0 sf	Permeable Decks:	0.0 sf
Pool & Pond	1274.0 sf		
Total Impervious Area:	6783.0 sf	Total pervious Area:	9212.0 sf
TOTAL AREA :	15995.0 sf	P =	8.75 in

STORAGE REQUIRED

Total Area = 15995.0 sf Rainfall Amount P = 8.75 in
 a) Total Storage To Contain **SFWMD 10-yr/24-hr**
 (P in X 1Ft/12inxTotal Area) = (11663.02 CF)

The Volume that you need to contain in your property (V) is equal to Total Site Area per the Accumulated Direct Runoff in Feet: $V=A \times Q/12$

Accumulated Direct Runoff (Q) = $(P-0.2S)^2/(P+0.8S)$

$S = (\text{Total Pervious Area} / \text{Total Site Area}) \times (\text{Compacted Water Storage})$

Total pervious Area : 9212.0 sf
 Total Site Area : 15995.0 sf
 Average Water Elev. 2.07 ft NGVD
 Average finished site grade (pervious areas) : 7 ft NGVD
 Depth to Water table : 4.9 ft
 Compacted Water Storage : 8.18 in (interpolation)
 S : 4.71 in
 Accumulated Direct Runoff (Q) : 4.87 in

Depth to Water	Compacted Water Storage [Inches]
1 FT	0.45 Inches
2 FT	1.88 Inches
3 FT	4.95 inches
4 FT	8.18 inches

Ref. SFWMD Soil Storage Table

Volume Of Runoff (V)

Note: The Volume of Runoff generated during a 10 year 24 hours storm (V) must be contained within the Property Boundaries. $V=AQ/12$

Volume of Runoff (V) : 6490.7 cf Soil Storage = 11663.02 - 6490.7 = (5172.31 CF)

Swale	Top Area (sf)	Bottom Area (sf)	Average Area (sf)	Height (ft)	Volume (cf)
1	629	228.02	428.51	0.5	214.26
2	39.96	15.17	27.565	0.25	6.89
3	136.31	42.99	89.65	0.5	44.83
4	93.74	30.61	62.175	0.25	15.54
5					
Total Swale Areas:					281.52

Volume of Runoff treated By Swale Areas : **281.5 cf**
 Volume of Runoff treated By Exfiltration Trench : **6209.2 cf**

TRENCH CALCULATION FOR THE STANDARD SFWMD TRENCH

EXFILTRATION TRENCH CALCULATION

PROPOSED CONDITION

H₂ = 5.0 ft

Water Table Elevation : 2.07 ft NGVD

D_u = 4.0 ft

Average Finish Site Grade : 7.07 ft NGVD

D_s = 2.0 ft

(From Pervious Areas)

W = 5.5 ft

Ex. Trench on Pervious Area 100.0%

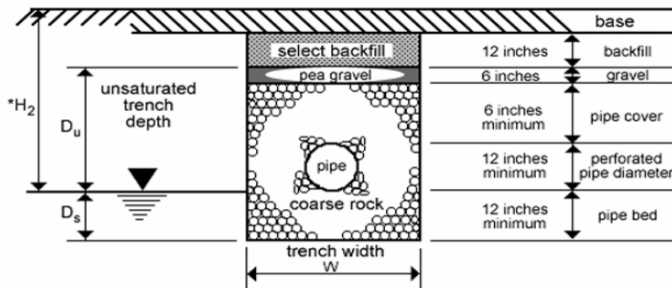
K (Soil) = 1.54E-04

Ex. Trench on Impervious Area 0.0%

Depth Of Trench = 7.0 ft

SFWMD - TYPICAL EXFILTRATION TRENCH SECTION

TYPICAL EXFILTRATION TRENCH



- L = Length of Trench Required (feet)**
- V = Volume Treated (acre – inches)**
- W = Trench Width (feet)**
- K = Hydraulic Conductivity (cfs/ft.² – ft. head)**
- *H₂ = Depth to Water Table (feet)**
- D_u = Non-Saturated Trench Depth (feet)**
- D_s = Saturated Trench Depth (feet)**

$$L = \frac{V}{K (H_2W + 2H_2D_u - D_u^2 + 2H_2D_s) + (1.39 \times 10^{-4}) WD_u}$$

* The value of H₂ to be used in the equation is the effective head on the saturated surface. A weir must be installed at the downstream end of the trench, to create true retention and to establish H₂. To achieve the design retention and exfiltration, the crest of the weir must be no lower than the top of the trench pipe.

SFWMD-LENGTH OF TRENCH REQUIRED

Exf. when D_s > D_u 0.00983 Using [K*(2*H₂*D_u-D_u²+2*H₂*D_s)+(1.39X10⁻⁴)*W*D_u]
 Exf. when D_s ≤ D_u 0.01407 Using [K*(H₂*W+2*H₂*D_u-D_u²+2*H₂*D_s)+(1.39X10⁻⁴)*W*D_u]

Used Exf For Design = **0.01407**

Required Retention Volume in (CF) : 6209.20 Amount of water (V) contained on the Trench

Required Retention Volume (ac-in) : **1.711**

Required L.F. of French Drain = 121.6 ft from equation L=V/Exf.

Use Length = 130.0 ft [OK] 1.07 Safety Factor