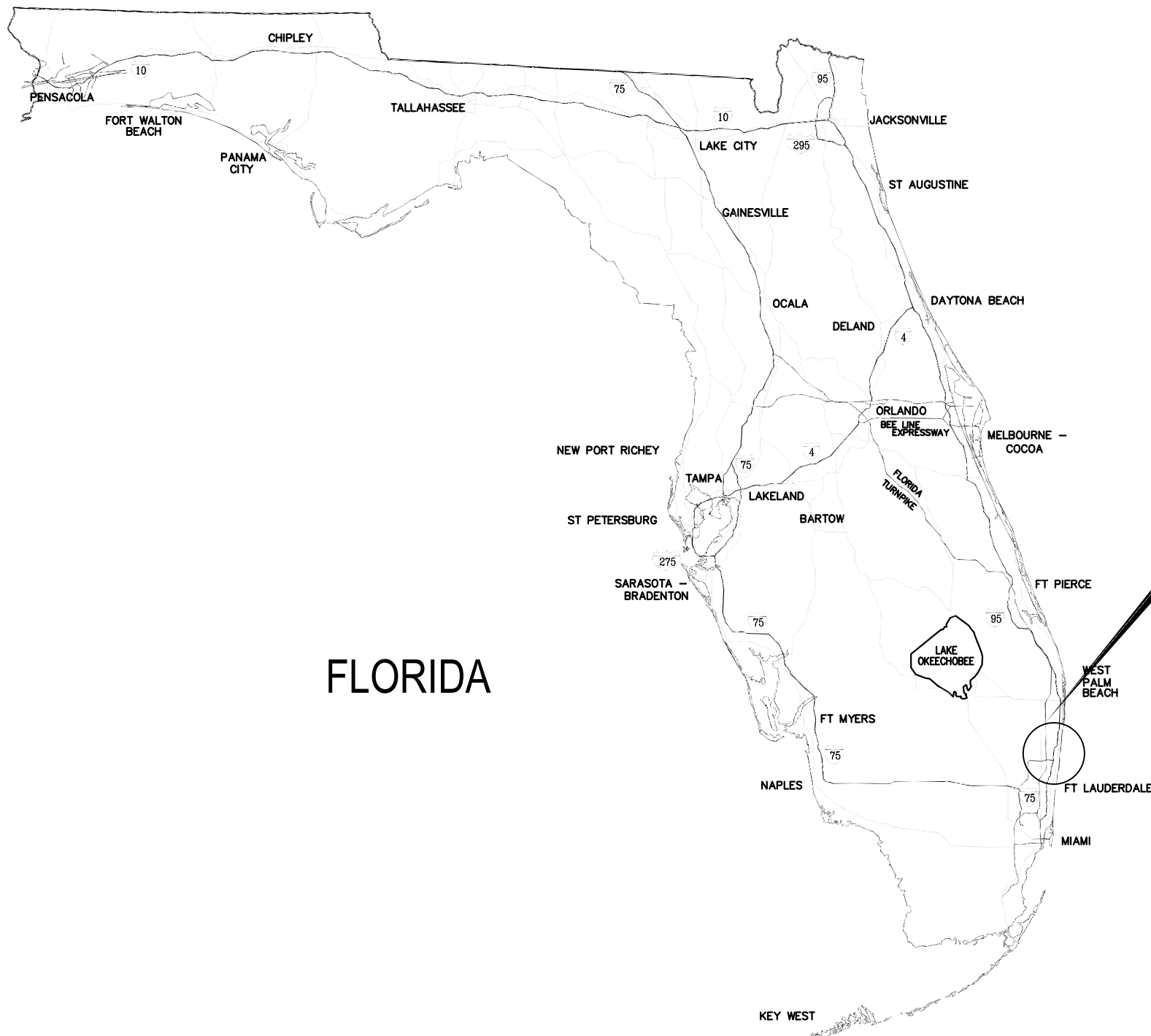




**CEC**  
CIVIL ENGINEERING CONSULTING, INC.  
CERTIFICATE OF AUTHORIZATION #33369  
8195 WHITE ROCK CIRCLE  
BOYNTON BEACH, FL 33436  
Phone: 561-847-0398  
www.cec-fl.com

andre@cec-fl.com

# CIVIL PLANS FOR ST. PHILIP CHURCH 2505 NW 3RD ST. POMPANO BEACH, FL.

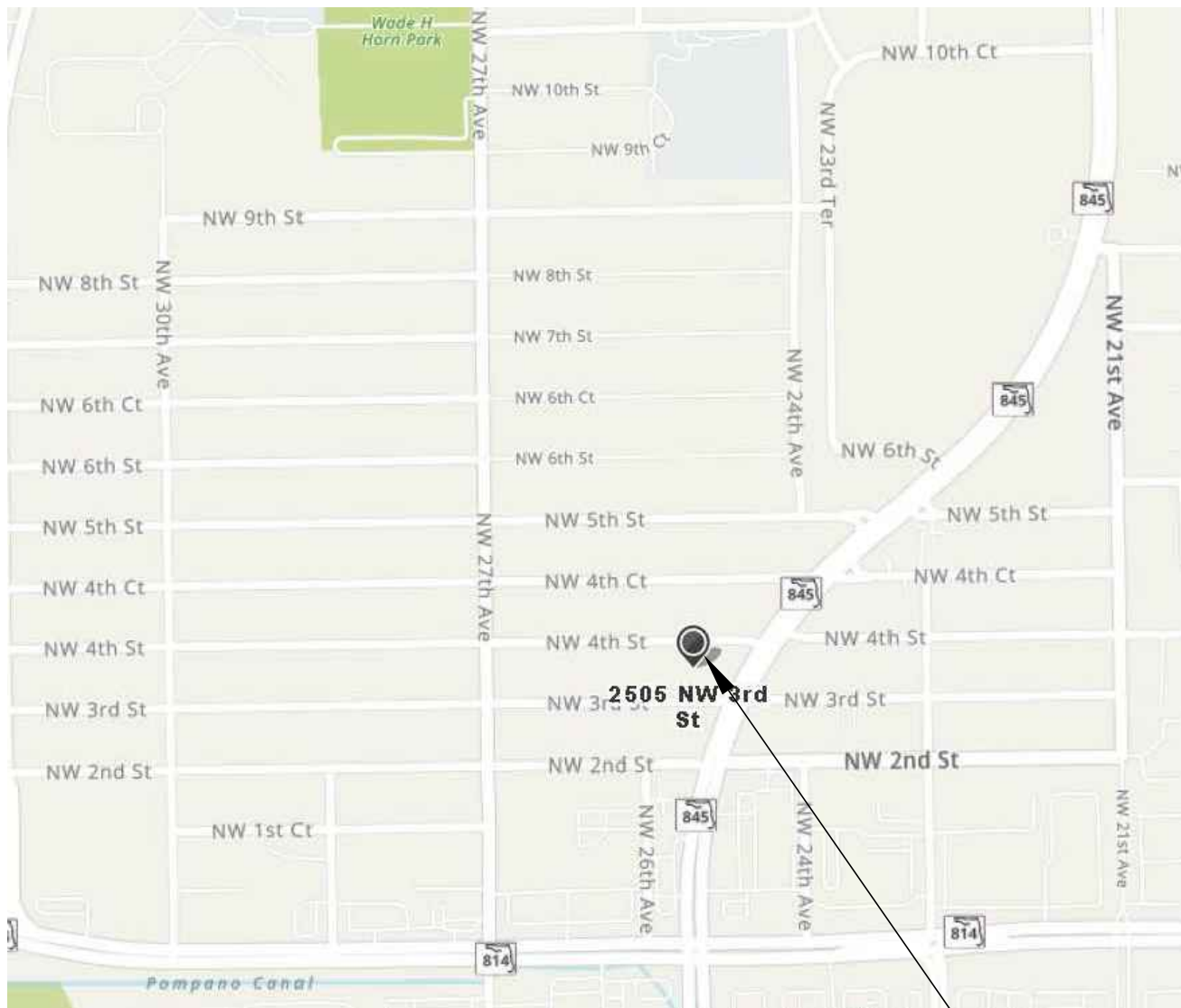
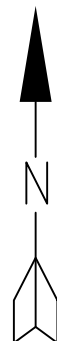


VICINITY MAP

SHEET INDEX:

- C-1 COVER SHEET
- C-2 DRAINAGE AND GRADING PLAN
- C-3 DRAINAGE AND GRADING DETAILS

PROJECT LOCATION



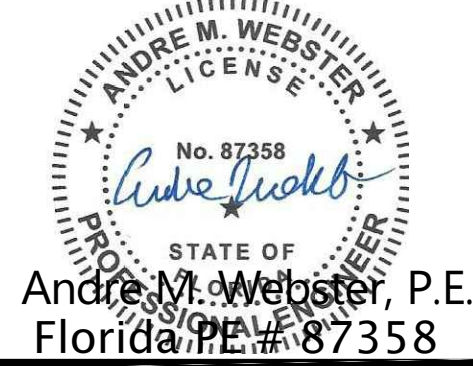
LOCATION MAP

PROJECT SITE

Andre M Webster  
Digitally signed by Andre M Webster  
Date: 2021.05.21 07:53:41 -04'00'

CIVIL PLANS FOR:  
ST. PHILIP CHURCH  
2505 NW 3RD ST.  
POMPANO BEACH, FL

Project #:	21-030
Issue Date:	05/17/21
Drawn By:	AMW
Chkd By:	AMW
Scale:	As Shown



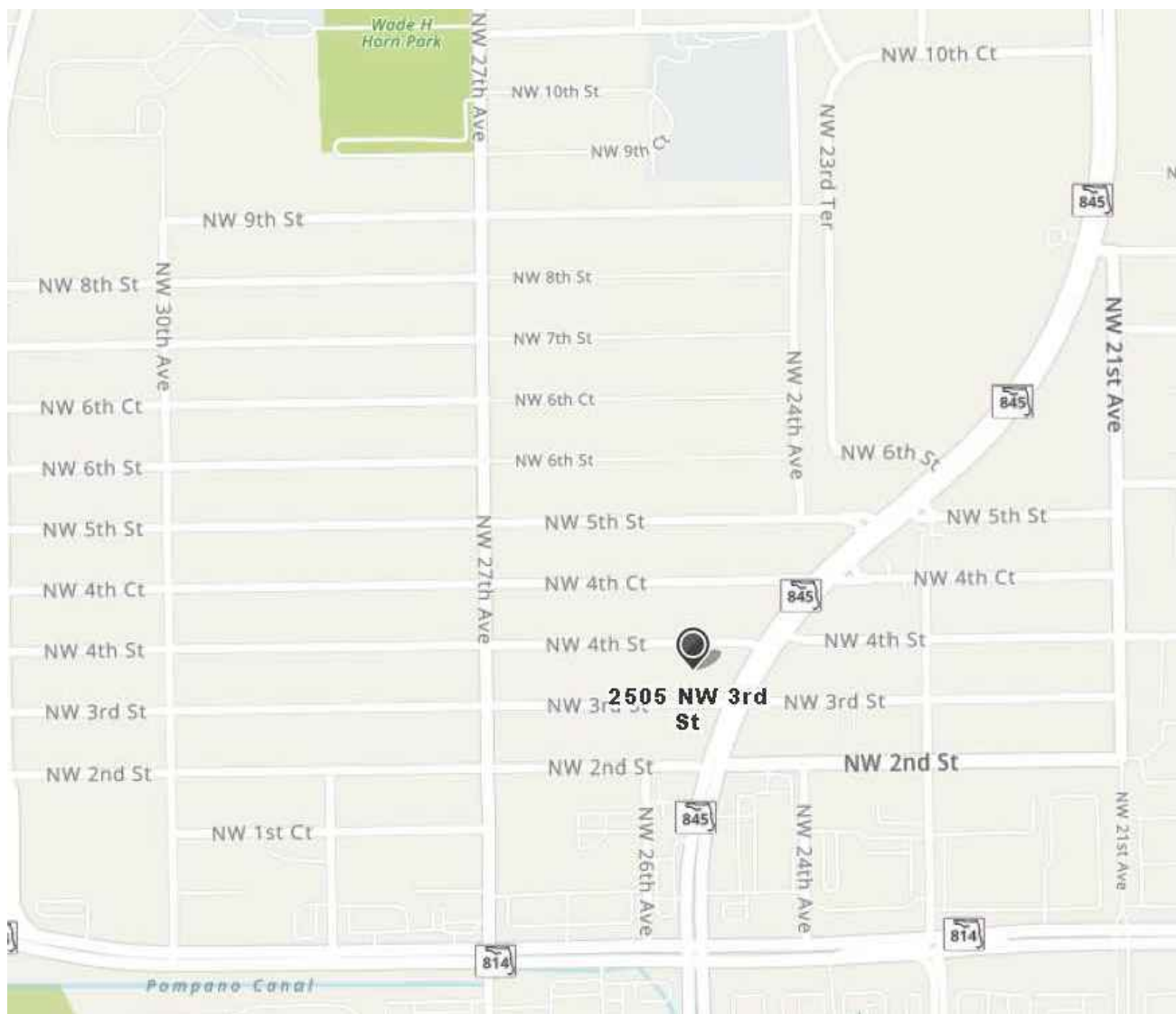
SHEET TITLE	COVER SHEET
NUMBER:	C-1

PZ21-12000028  
7/21/2021



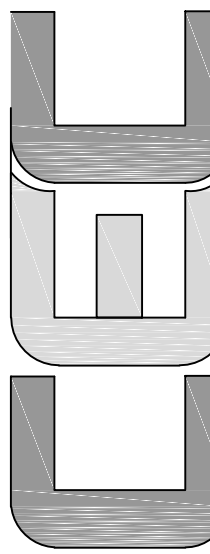


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### LEGEND

- EXISTING ELEVATION PER CAUFIELD & WHEELER, INC. (NAVD)
- PROPOSED ELEVATION (NAVD)
- FLOW DIRECTION.
- DOWNSPOUT
- "C" INLET
- EXFILTRATION TRENCH
- PROPOSED CONTOUR



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No: Revisions: Date:

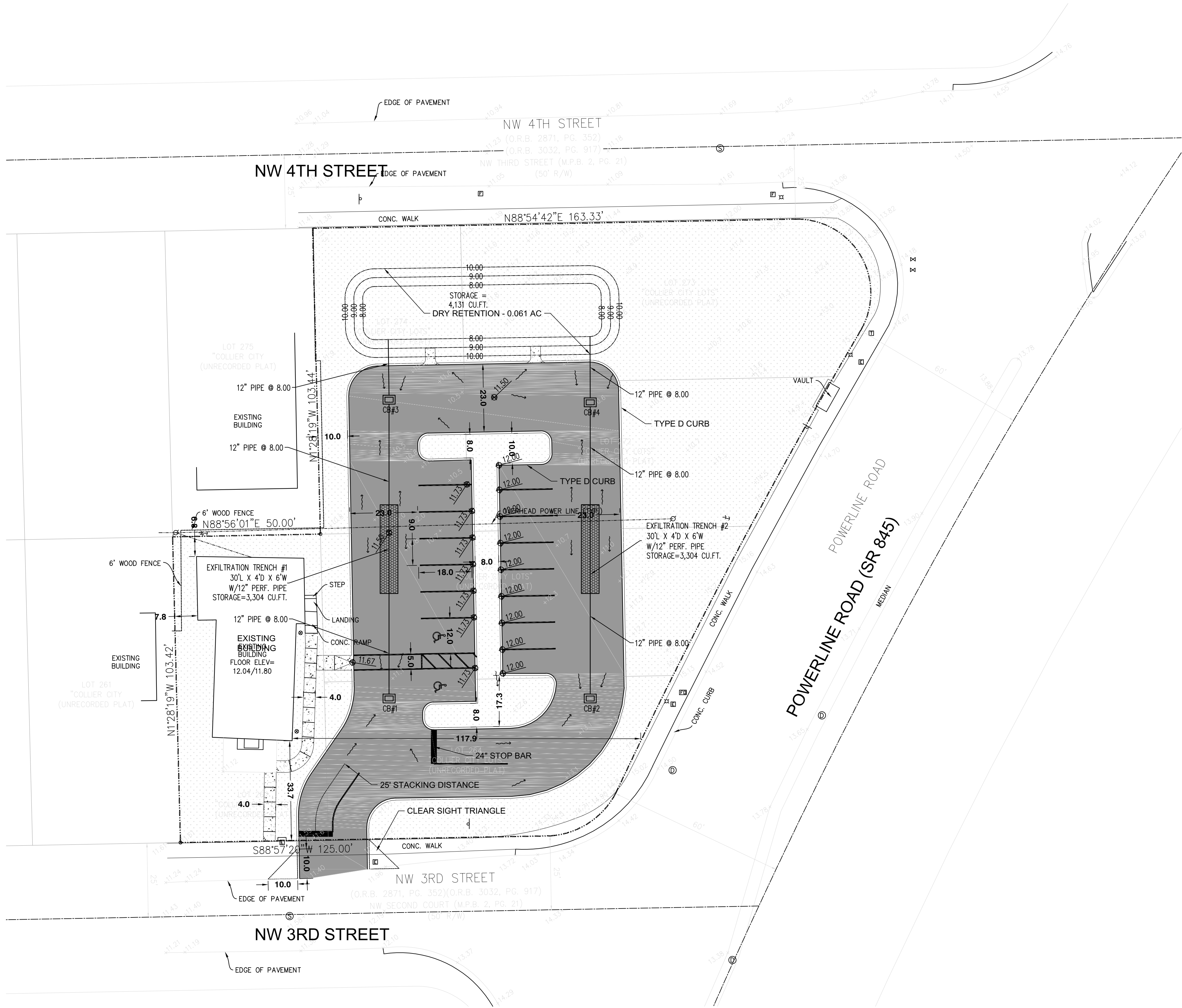
DRAINAGE AND GRADING PLANS FOR:  
**ST. PHILIP CHURCH**  
2505 NW 3RD ST.  
POMPAÑO BEACH, FL

Project #: 21-030  
Issue Date: 05/17/21  
Drawn By: AMW  
Chkd By: AMW  
Scale: As Shown



SHEET TITLE  
**DRAINAGE AND GRADING PLAN**  
NUMBER: C-2

**DRC**  
PZ21-12000028  
7/21/2021

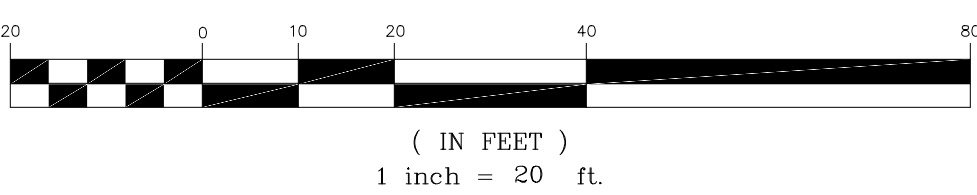
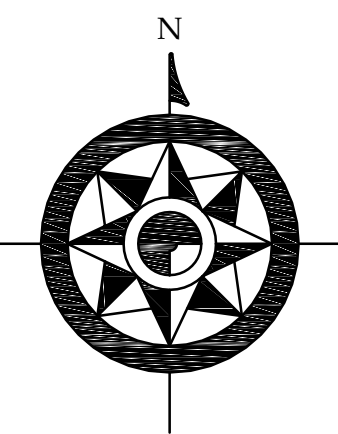


CB#1  
RIM=11.00  
INV. N= 8.00

CB#2  
RIM=11.00  
INV. N= 8.00

CB#3  
RIM=11.00  
INV. N= 8.00  
INV. S= 8.00

CB#4  
RIM=10.50  
INV. N= 8.00  
INV. S= 8.00



**DRAINAGE & GRADING PLAN**

- NOTE:
- EXISTING SITE GRADING/DRAINAGE FLOW PATTERNS TO REMAIN
  - FURTHER PROJECT COORDINATION MAY RESULT IN PLAN ADJUSTMENTS FOR PERMITTING.



ST. PHILIP CHURCH  
STORM WATER MANAGEMENT CALCULATIONS

1) SITE PLAN DATA:

Total Lot Area = 35,057 sq.ft. ± (0.805 acres ±)

The drainage area is considered to be 0.805 acres (35,057 sq.ft.) which is the entire area. The drainage area has been evaluated as follows:

A) IMPERVIOUS AREAS (Per various plans in CADD with area takeoffs):

ITEM	PROPOSED
Buildings	1,862 sq.ft.
Drive/Walkways/Decks/Pool	13,099 sq.ft.
IMPERVIOUS (total):	14,961 sq.ft.

Note: square footage has been rounded upward in some instances for estimating purposes; assumes pavers as impervious and includes roof overhangs.

B) PERVIOUS AREAS:

TOTAL = (35,057 sq.ft. - 14,961 sq.ft.) (1 acre/43,560 sq.ft.) = 20,096 sq.ft. or 0.461 acres

2) SFWM CRITERIA/DATA:  
5 Year, 1 Day Storm = 8.0" (refer to rainfall map)

Soil Storage Factor (S)

S<sup>DEVELOPED</sup> = 10.9" assumes: coastal soils  
compacted soils condition  
maximum 4' depth to water table

3) ESTIMATED RUNOFF RATE

SFWM Formula:  $Q = \frac{(P-0.2S)^2}{P+0.8S}$

Where Q = Runoff rate in inches  
S = Soil storage factor (see soil factor calculations)  
P = Rainfall = 8.0" (5 year, 1 Day storm)

S<sup>DEVELOPED</sup> =  $\frac{10.9" \times 0.461 \text{ acres}}{0.805 \text{ acres}} = 6.24"$   
Q<sup>DEVELOPED</sup> =  $\frac{[8.0" - 0.2 (6.24")]^2}{8.0" + 0.8 (6.24")} = 3.51"$

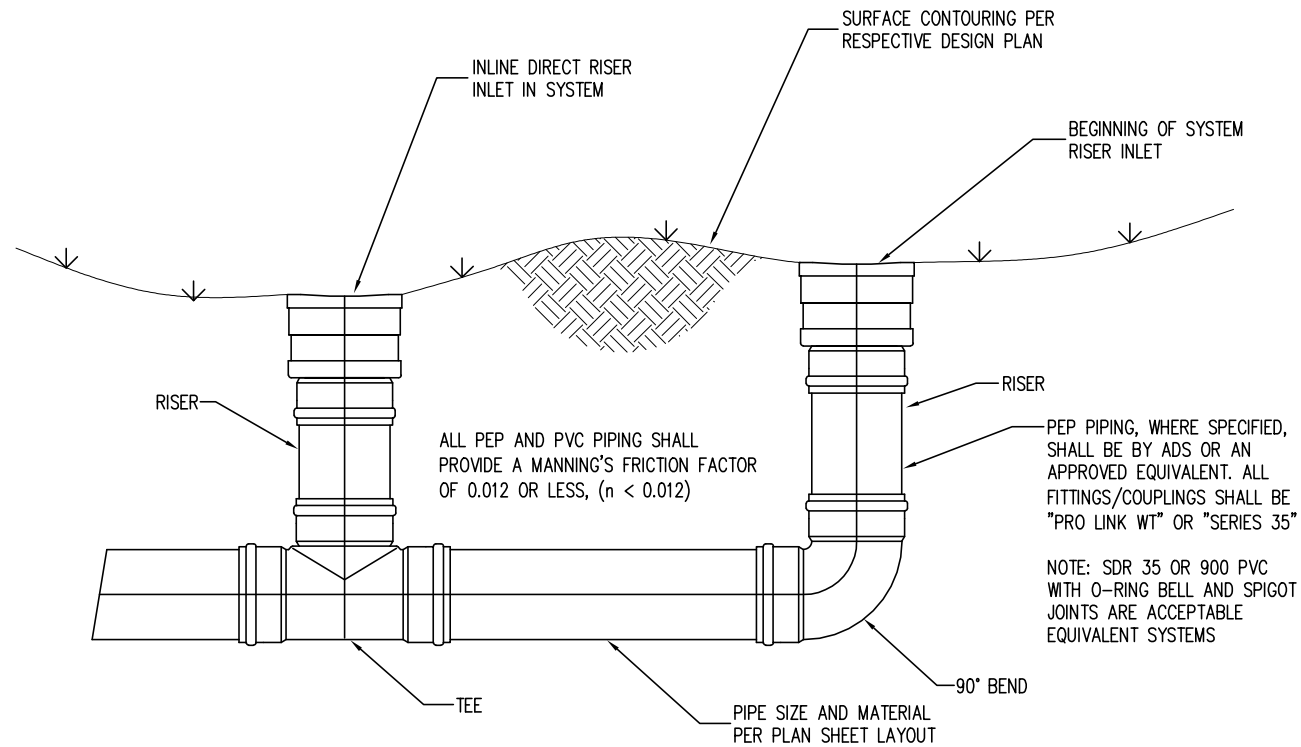
4) ESTIMATED RUNOFF VOLUME FOR 5 YEAR, 1 DAY STORM:

Runoff Volume = Runoff Rate x Area

(Runoff Volume)<sup>DEVELOPED</sup> = 3.51" x 0.805 acres x  $\frac{43,560 \text{ ft}^2}{12 \text{ in.} \times \text{acre}} = 10,257 \text{ ft}^3$

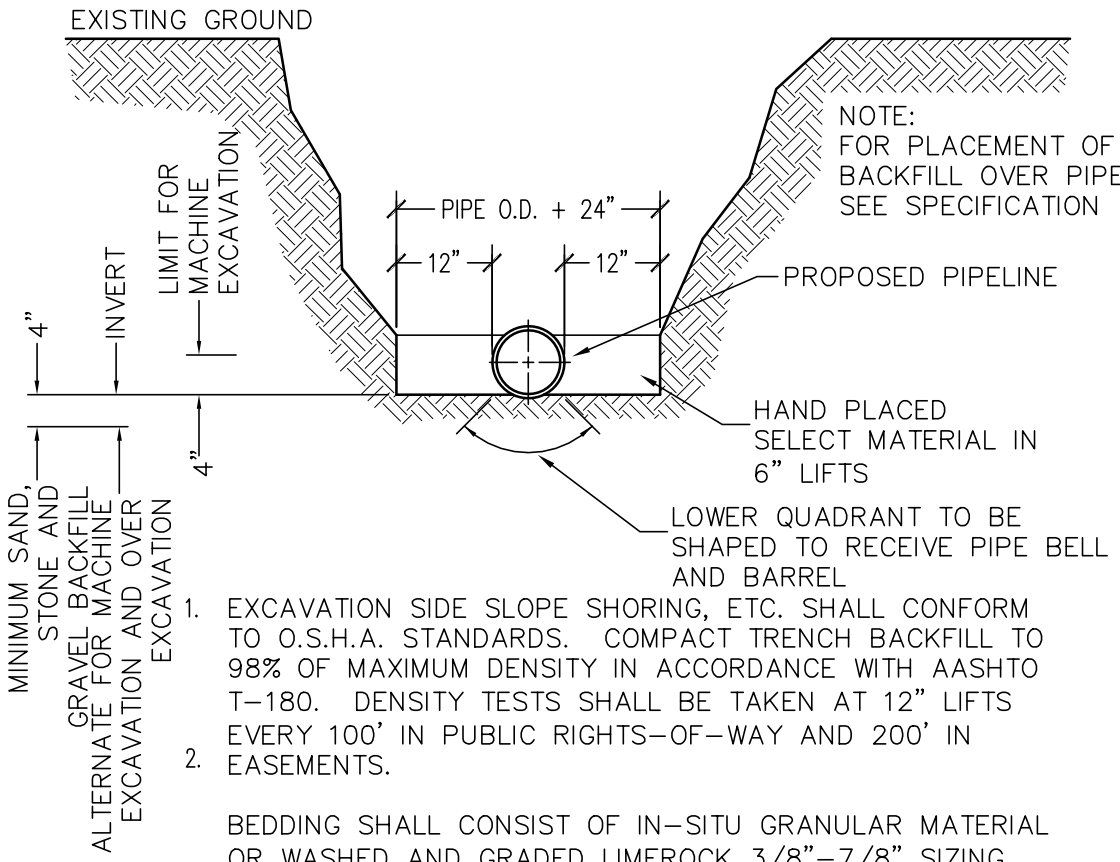
Dry Retention Storage = 4,131 cu.ft.  
Exfiltration Trench Storage = 6,608 cu.ft.

Existing site contours and recontouring of contours near proposed residential construction will "manage" this volume on-site within designated exfiltration trenches and high percolation rate soils.



DIRECT RISER INLET: TYPICAL INSTALLATION

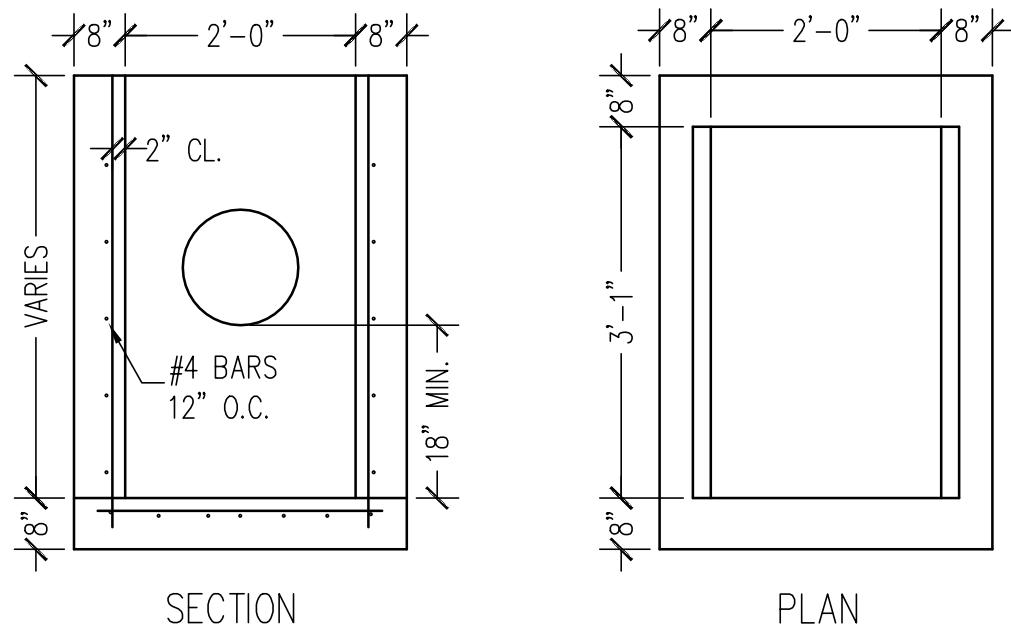
N.T.S.



- EXCAVATION SIDE SLOPE SHORING, ETC. SHALL CONFORM TO O.S.H.A. STANDARDS. COMPACT TRENCH BACKFILL TO 98% OF MAXIMUM DENSITY IN ACCORDANCE WITH AASHTO T-180. DENSITY TESTS SHALL BE TAKEN AT 12" LIFTS EVERY 100' IN PUBLIC RIGHTS-OF-WAY AND 200' IN EASEMENTS.
- BEDDING SHALL CONSIST OF IN-SITU GRANULAR MATERIAL OR WASHED AND GRADED LIMEROCK 3/8"-7/8" SIZING. UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS, HARDPAN AND LARGER ROCKS SHALL BE REMOVED.
- THE PIPE SHALL BE PLACED IN A DRY TRENCH.
- BACKFILL SHALL BE FREE OF UNSUITABLE MATERIAL SUCH AS LARGE ROCK, MUCK, HARDPAN AND DEBRIS.
- SEE SEPARATE DETAIL FOR "PIPE INSTALLATION UNDER EXISTING PAVEMENT-OPEN CUT.

TRENCH AND BACKFILL DETAIL

N.T.S.



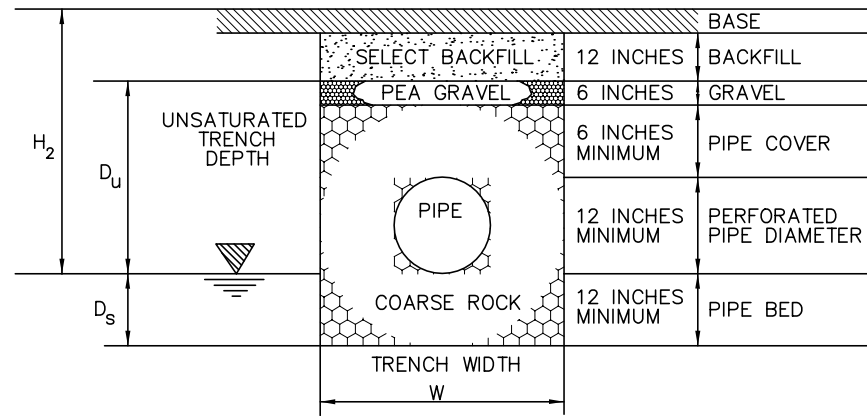
GENERAL NOTES

- BEVELED EDGES: ALL EXPOSED EDGES TO BE CHAMFERED 3/4"
- GRATES: CAST IRON GRATES IN ACCORDANCE WITH FLORIDA D.O.T. SPECIFICATIONS
- MATERIAL: INLET WALLS AND FOOTING MAY EITHER BE POURED IN PLACE 3000 LB. CONCRETE, OR PRECAST CLASS "A" 3000 LB. CONCRETE
- BAFFLE: INLET TO HAVE MIN. 18" SUMP AND MIN. 12" CLEARANCE BETWEEN BOTTOM OF BAFFLE AND BOTTOM OF INLET (SEE BAFFLE DETAIL)

TYPE "C" INLET

N.T.S.

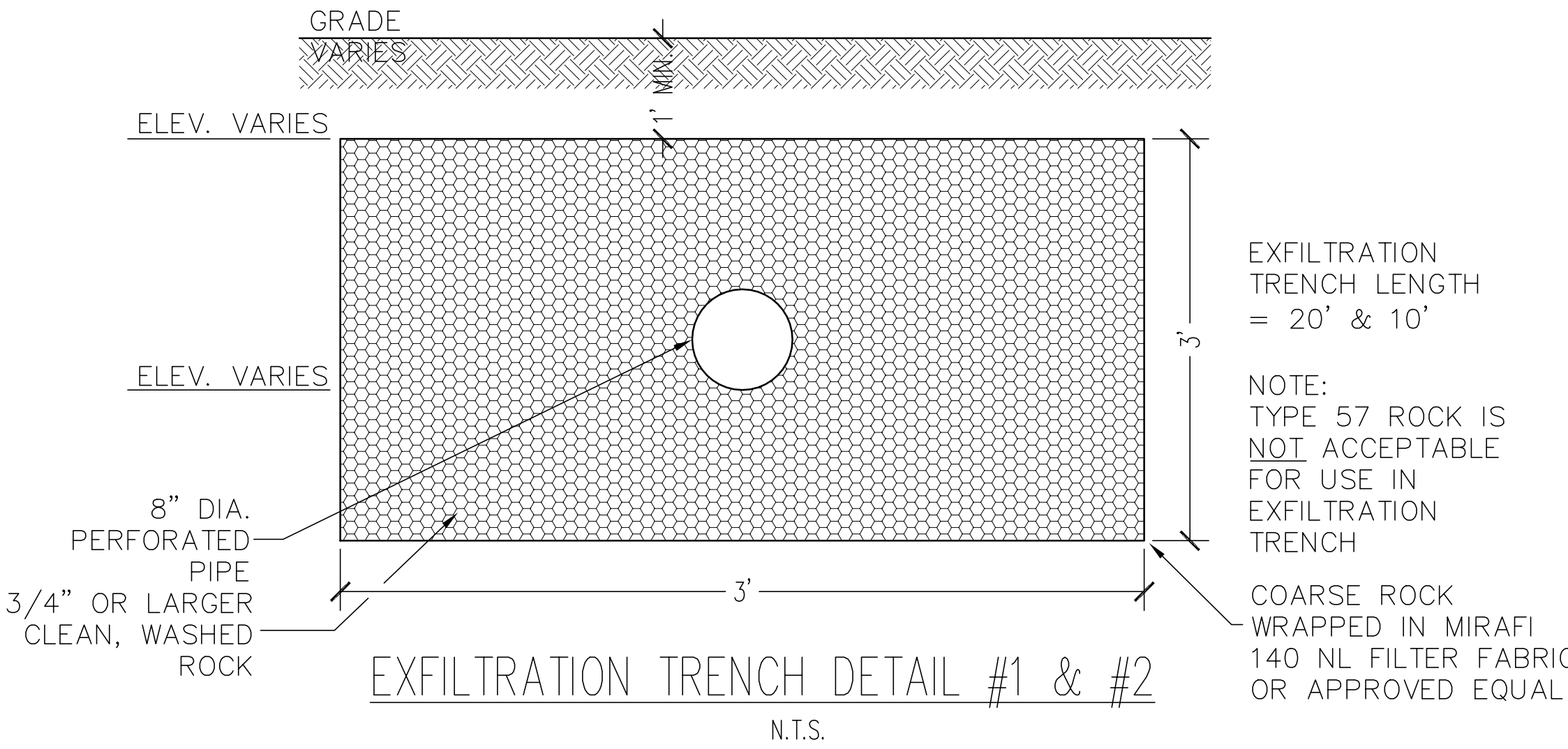
TYPICAL EXFILTRATION TRENCH



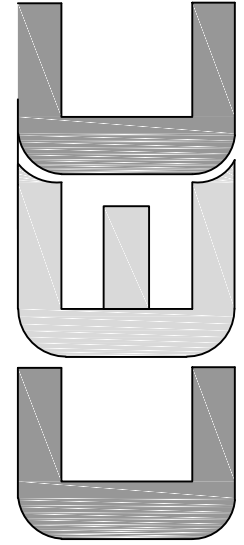
$$L = \frac{V}{K(H_2W + 2H_2D_u - D_u^2 + 2H_2D_8) + (1.39 \times 10^{-4})WD_u}$$

L = LENGTH OF TRENCH REQUIRED (FEET)  
V = VOLUME TREATED (ACRE-INCHES)  
W = TRENCH WIDTH (FEET)  
K = HYDRAULIC CONDUCTIVITY (CFS/FT.<sup>2</sup> - FT.HEAD)  
H<sub>2</sub> = DEPTH TO WATER TABLE (FEET)  
D<sub>u</sub> = NON-SATURATED TRENCH DEPTH (FEET)  
D<sub>8</sub> = SATURATED TRENCH DEPTH (FEET)

THE AFFECTED AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION OR AS SPECIFIED IN PERMIT/CONTRACT DOCUMENTS.



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SHEET TITLE  
DRAINAGE & GRADING  
DETAILS

PROJECT NUMBER:  
C-3

DRC  
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7/21/2021