

CONTRACT PLAN COMPONENTS

DRAINAGE PLANS

INDEX OF DRAINAGE PLANS

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16	DRAINAGE STRUCTURE DETAILS

*STRIKE THROUGH TEXT = (NOT INCLUDED IN THIS SUBMITTAL)

PERMITS

SWFWMD

GOVERNING DESIGN STANDARDS:

FLORIDA DEPARTMENT OF TRANSPORTATION, FY 2023-24 DESIGN STANDARDS, eBOOK (DSeB) AND APPLICABLE DESIGN STANDARDS REVISIONS (DSRs) AT THE FOLLOWING WEBSITE:
<https://www.fdot.gov/design/standardplans/current/default.shtm>

GOVERNING STANDARD SPECIFICATIONS:

FLORIDA DEPARTMENT OF TRANSPORTATION, FY 2023-24 STANDARD, SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AT THE FOLLOWING WEBSITE:
<http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

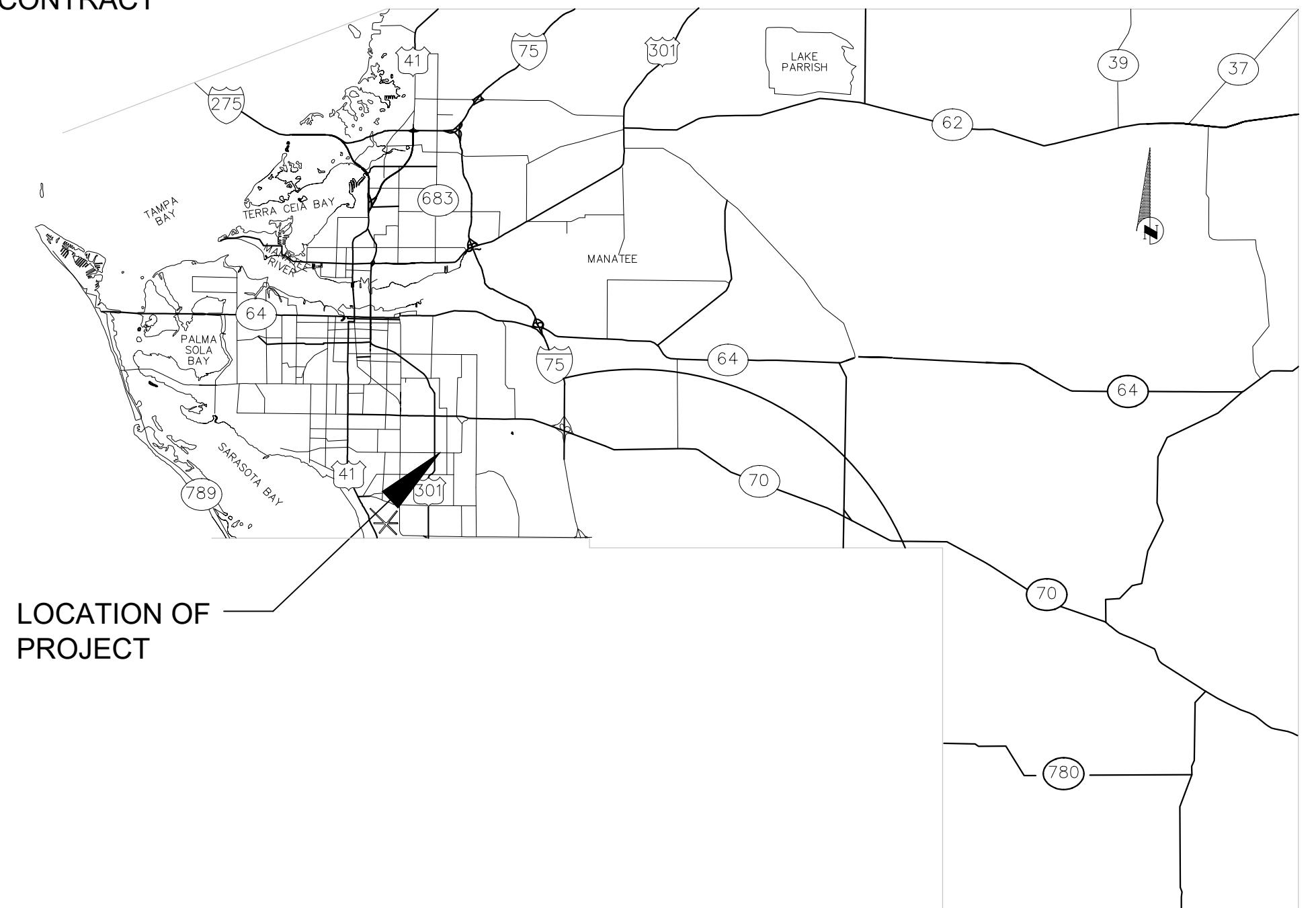


STATE OF FLORIDA
MANATEE COUNTY

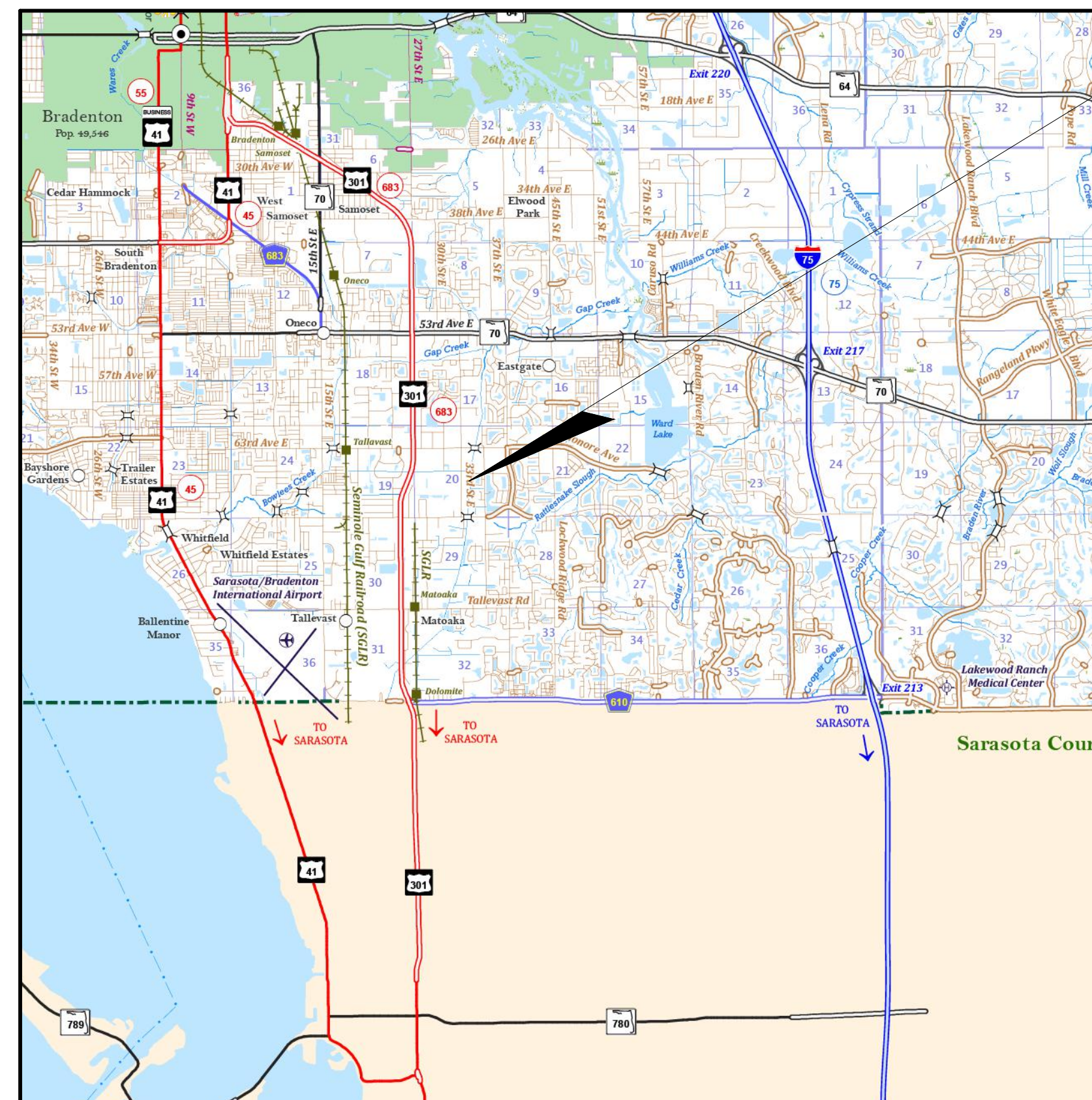
PROJECT TITLE
PEARCE DRAIN/GAP CREEK
WATERSHED FLOOD MITIGATION SITE

MANATEE COUNTY PROJECT No: 6115800

THIS PROJECT TO BE LET TO CONTRACT
WITH COUNTY PROJECT NO.:
6107860



LOCATION OF PROJECT



PROJECT SITE
6525 33RD STREET EAST
SARASOTA, FL



CONCEPTUAL

NOVEMBER 2023



ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN ENLARGED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

MANATEE COUNTY PROJECT MANAGER:
JERRY VARGHESE, PMP, LEED AP, CGC

SITE PLANS

PROFESSIONAL OF RECORD: AUSTIN T GOFF, P.E.

FLORIDA P.E. # 72437

PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637
PHONE: (813) 978-3100

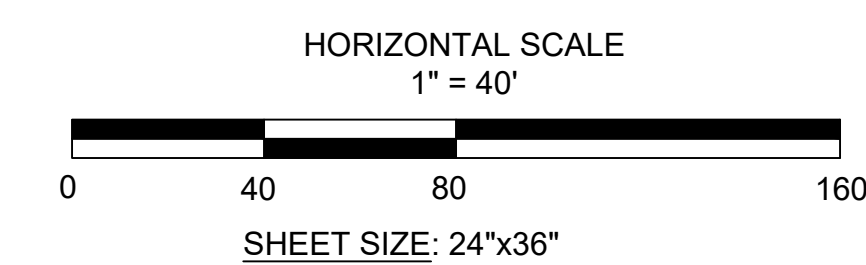
PROJECT AREA		
	SQUARE FEET	ACRES
OFF-SITE	121,532.00	2.78
ON-SITE	443,188.63	10.17

KEY SHEET REVISIONS	
DATE	DESCRIPTION

SHEET NO.

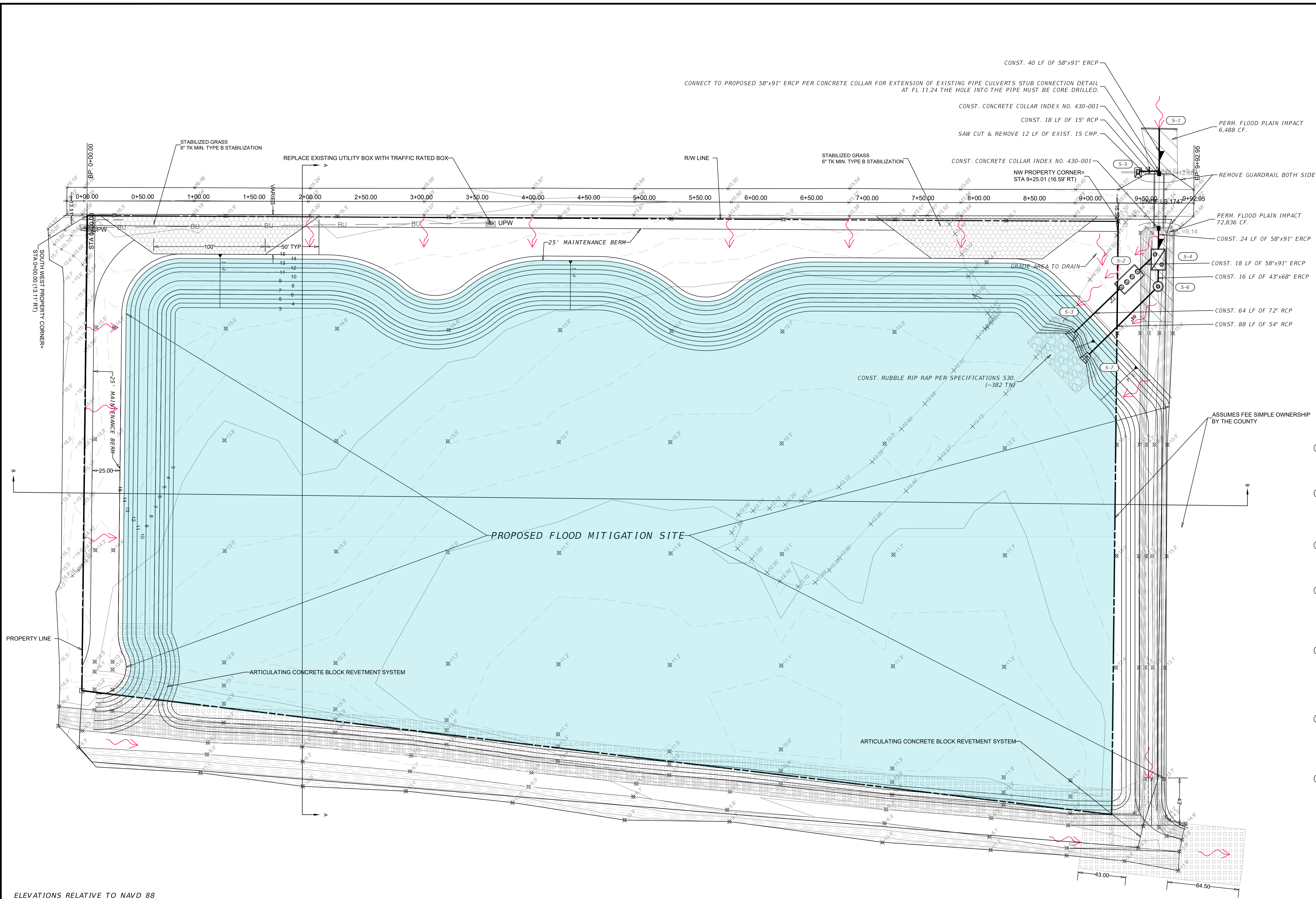
1

1"=40'



LEGEND

- STABILIZED GRASS
- ARTICULATING CONCRETE BLOCK REVEMENT SYSTEM (A.C.B.)
- RUBBLE RIP-RAP PER SECTION 530
- FLOW DIRECTION



- S-1**
STA. 9+61.88 (67.28' RT)
CONST. STRAIGHT CONCRETE ENDWALL
INDEX NO. 430-030
FL 9.54
- S-2**
STA. 9+35.20 (68.96' RT)
CONST. BAFFLE BOX
RIM EL. 15.00
FL 6.17 (RT)
FL 6.67 (LT)
- S-3**
STA. 8+85.75 (116.44' RT)
CONST. FLARED END SECTION
INDEX NO. 430-020 W/ TOE WALL & REINFORCE CONC. JACKET
FL 3.00
- S-4**
STA. 9+60.59 (51.50' RT)
CONST. MANHOLE TYPE J-7 18"X12"
INDEX NO. 425-001, 425-010
RIM EL. 15.90 (FLUSH WITH TOP SLAB)
FL 8.89 (RT)
FL 8.99 (LT)
- S-5**
STA. 9+42.72 (27.79' LT)
CONST. DBI TYPE C W/ TRAVERSABLE SLOT
INDEX NO. 425-052
GRATE EL. 15.08
SLOT EL. 14.50
FL 11.32 (AH)
FL 12.68 (BK)
- S-6**
STA. 9+61.03 (74.89' RT)
CONST. MANHOLE TYPE J-7 8' Dia.
INDEX NO. 425-001, 425-010
RIM EL. 15.00
FL 8.75 (LT)
FL 8.75 (RT)
- S-7**
STA. 8+87.39 (137.66' RT)
CONST. FLARED END SECTION
INDEX 430-020 W/ TOE WALL & REINFORCE CONC. JACKET
FL 3.00

ELEVATIONS RELATIVE TO NAVD 88

NUMBER	DESCRIPTION	DATE	SCALE	AS NOTED	DATE
	DESIGNED BY			ATG	11/13/2023
	DRAWN BY			ATG	PROJECT NO.
	CHECKED BY			RDU	6115800

PGA AUSTIN T. GOFF, P.E.
LICENSE NUMBER 72437
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

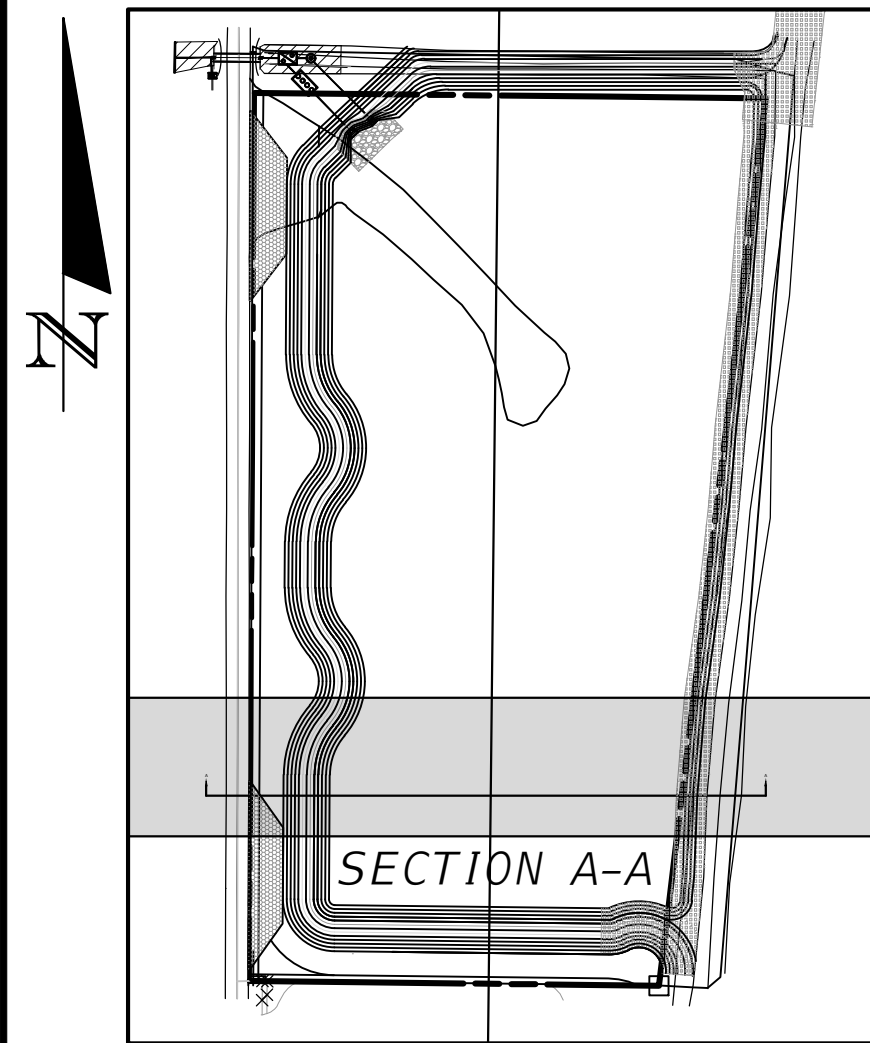
Manatee County PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East
Bradenton, FL 34208

811
Know what's below
Call before you dig

SITE PLAN

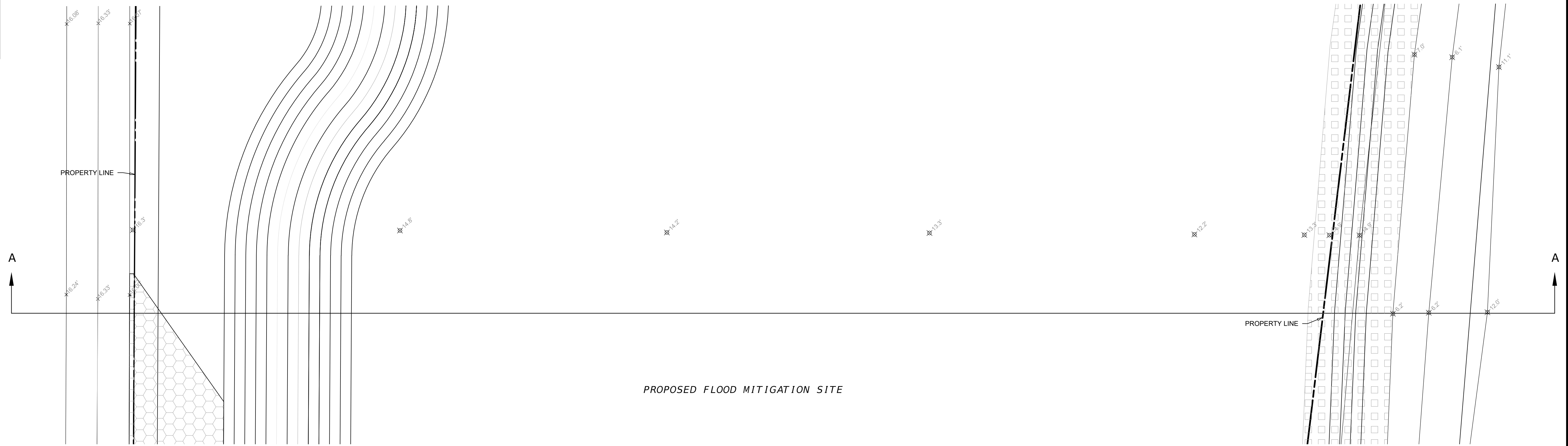
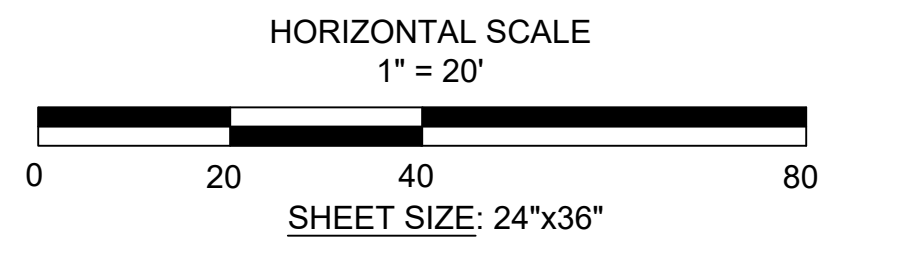
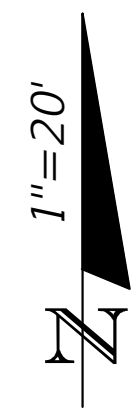
SHEET NO.
6

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



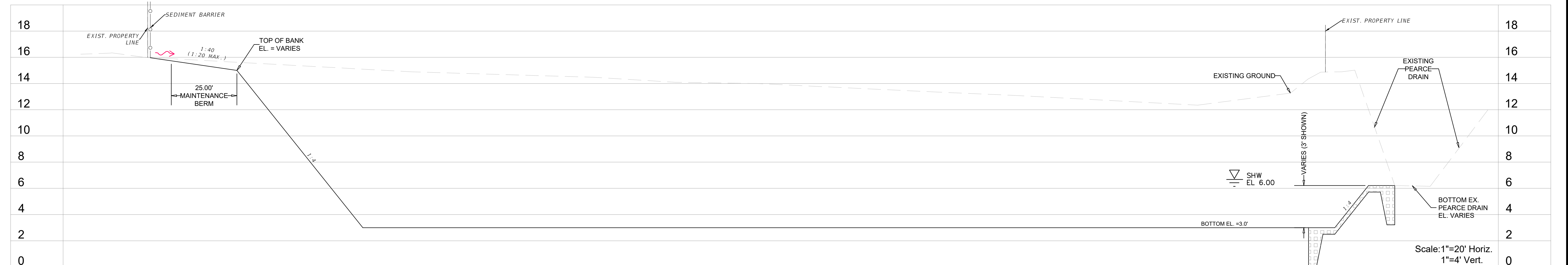
KEY MAP
N.T.S.

- LEGEND**
- STABILIZED GRASS
 - ARTICULATING CONCRETE BLOCK REVELTMENT SYSTEM (A.C.B.)
 - RUBBLE RIP-RAP PER SECTION 530
 - FLOW DIRECTION



PROPOSED FLOOD MITIGATION SITE

PLAN
1"=20' HORIZ.



SECTION A-A

Scale: 1"=20' Horiz.
1"=4' Vert.

ELEVATIONS RELATIVE TO NAVD 88

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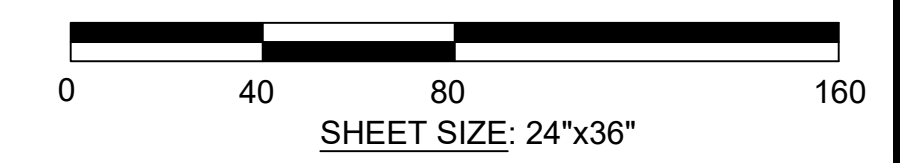
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East
Bradenton, FL 34208

POND SECTION (1)		SHEET NO. 7
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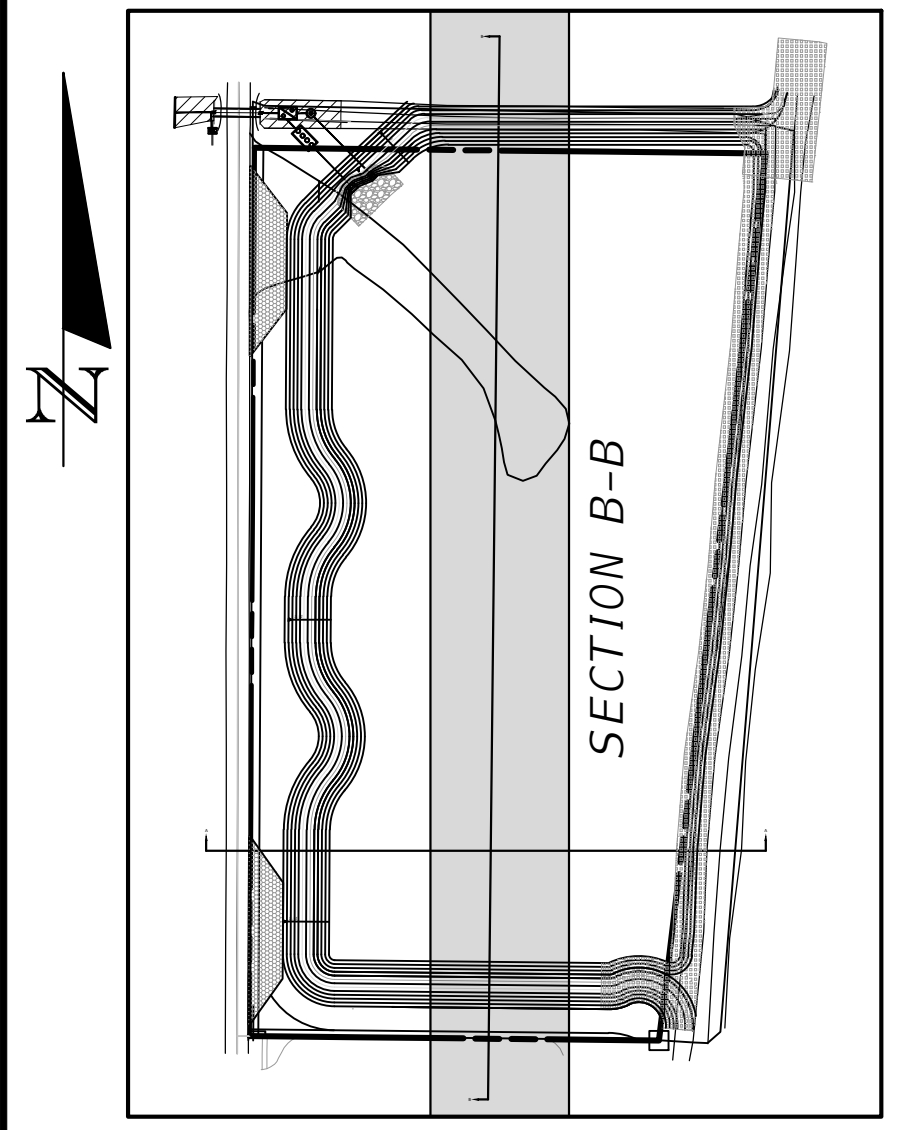
1"=40'

HORIZONTAL SCALE
1" = 40'

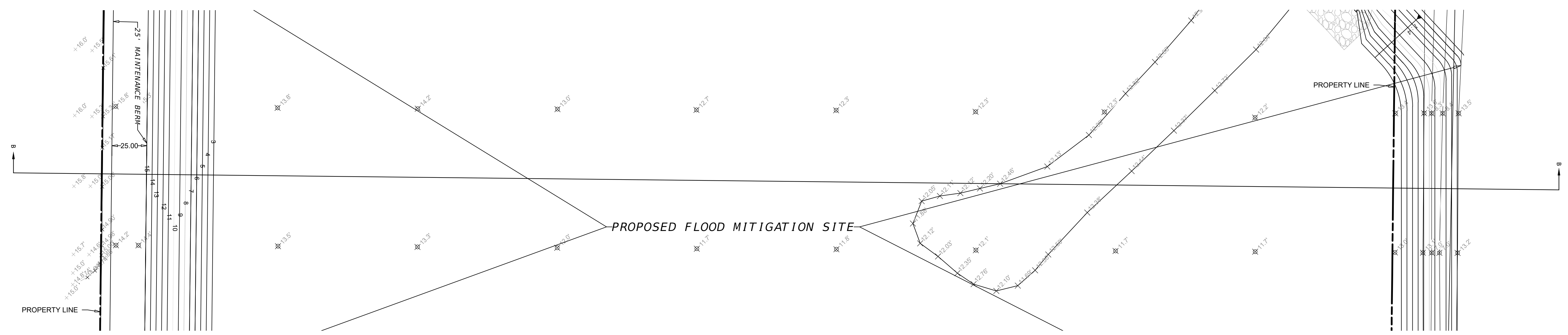


SHEET SIZE: 24"x36"

- LEGEND**
- STABILIZED GRASS
 - ARTICULATING CONCRETE BLOCK REVEMENT SYSTEM (A.C.B.)
 - RUBBLE RIP-RAP PER SECTION 530
 - FLOW DIRECTION

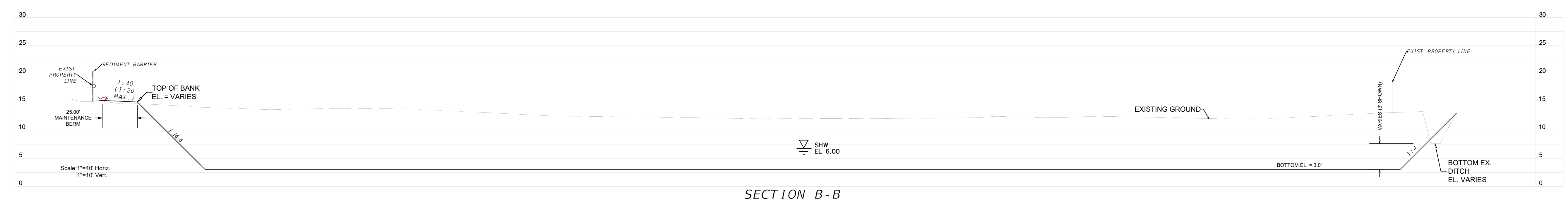


KEY MAP
N.T.S.



PROPOSED FLOOD MITIGATION SITE

PLAN
1"=40' HORIZ.



SECTION B-B

ELEVATIONS RELATIVE TO NAVD 88

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	DESIGNED BY		ATG		11/13/2023
	DRAWN BY		ATG		PROJECT NO.
	CHECKED BY		RDU		6115800

PGA
AUSTIN T. GOFF, P.E.
LICENSE NUMBER 72437
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

Manatee County
FLORIDA
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East
Bradenton, FL 34208

POND SECTION (2)

SHEET NO.
8

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GENERAL NOTES

1. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED.
2. THE REMOVAL OF ANY DRAINAGE STRUCTURE OR PIPE WITHIN 5 FEET OF ANY UTILITY THAT IS IN SERVICE SHALL BE ACCOMPLISHED SO AS NOT TO DAMAGE THE UTILITY.
3. ANY PORTION OF THE EXISTING RIGHT OF WAY THAT IS DISTURBED OUTSIDE THE LIMITS OF CONSTRUCTION SHALL BE REDRESSED AND SODDED AT THE CONTRACTOR'S EXPENSE.
4. NO STOCKPILE OF MATERIAL IS PERMITTED WITHIN THE PROJECT LIMITS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
5. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXISTING DRAINAGE INVERT ELEVATIONS THAT WILL REMAIN PART OF THE PROPOSED DRAINAGE SYSTEM. ANY DIFFERENCE FROM PLAN ELEVATION SHALL BE REPORTED TO THE ENGINEER.
6. EXISTING SIDEWALK, CURB & GUTTER, TRAFFIC SEPARATOR, FENCE, DRAINAGE STRUCTURES, AND PIPES WITHIN CONSTRUCTION LIMITS SHALL BE REMOVED, UNLESS OTHERWISE NOTED.
7. THE COUNTY RESERVES THE RIGHT TO PERFORM QUALITY ASSURANCE TESTING ON ALL MATERIAL DELIVERED TO THE PROJECT AND TO REJECT ALL MATERIALS NOT MEETING ACCEPTABLE STANDARDS.
8. ANY DAMAGE TO COUNTY OR LOCAL ROADS CAUSED BY THE CONTRACTOR'S HAULING OR EXCAVATION EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE COUNTY. PAYMENT SHALL NOT BE MADE FOR THIS WORK.
9. OVERALL CLEANUP SHALL BE ACCOMPLISHED BY THE CONTRACTOR TO THE SATISFACTION OF THE COUNTY. ANY AND ALL EXPENSES INCURRED FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR MOBILIZATION.
10. SEE COUNTY HIGHWAY & TRAFFIC STANDARD MANUAL ROAD CONNECTION DETAIL 403.3 AT ALL WIDENING AND CONNECTIONS TO EXISTING PAVEMENT.
11. THE CONTRACTOR IS TO FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF ALL DRAINAGE STRUCTURES AND PIPES PRIOR TO ORDERING, CASTING OR PLACING PROPOSED DRAINAGE STRUCTURES AND PIPES.
12. ALL CONSTRUCTION ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MANATEE COUNTY UTILITY AND TRANSPORTATION STANDARDS AND/OR FOOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" UNLESS OTHERWISE INDICATED ON THE PLANS.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.
14. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
15. AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA AT 1-800-432-4770 OR THE NATIONAL 811 ONE CALL NUMBER WHEN APPLICABLE FOR UTILITY LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITIES FOR THE POSSIBLE RELOCATION OR THE TEMPORARY MOVEMENT OF ANY EXISTING UTILITIES WITHIN THE RIGHTS-OF-WAY.
16. THE CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND UTILITIES, POWER LINES, ETC.
17. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THIS EXCLUSION DOES NOT ALLEVIATE THE CONTRACTOR FOR PROVIDING A CONTINUOUS SAFE WORKSPACE.
18. NO MATERIAL SHALL BE STOCKPILED IN ROADWAYS. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE DAILY. ROADS SHALL BE SHEET DAILY AS PART OF DAILY CLEAN UP.
19. THE CONTRACTOR IS TO CONTROL ALL FUGITIVE DUST ORIGINATING ON THIS PROJECT BY WATERING OR OTHER METHODS AS REQUIRED.
20. INGRESS AND EGRESS TO ALL THE PROPERTIES IN THE CONSTRUCTION AREA SHALL BE MAINTAINED AT ALL TIMES.

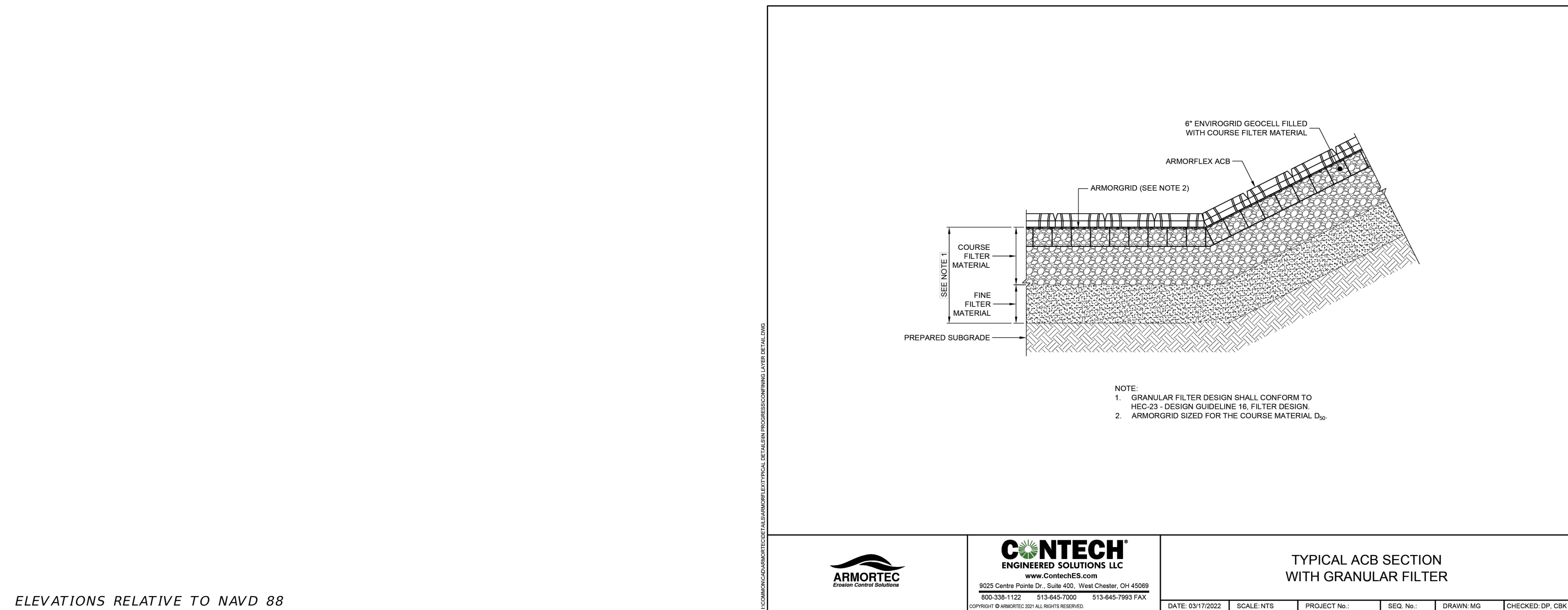
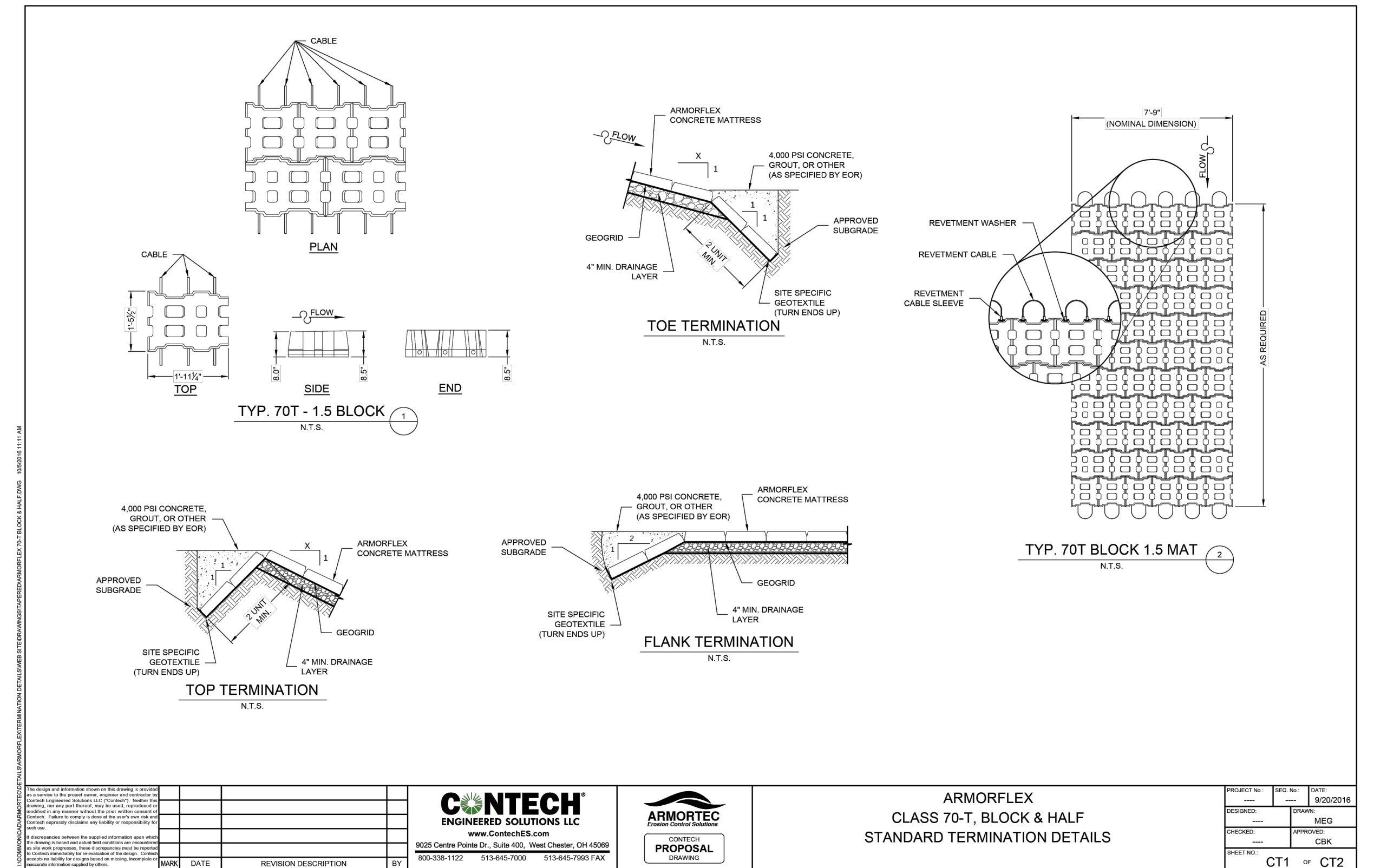
21. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, ETC. WHICH ARE WITHIN THE PROJECT AREA AND WHICH HAVE NOT BEEN LOCATED OR IDENTIFIED, MAY NOT BE IN THE EXACT LOCATION SHOWN OR RELOCATED SINCE THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) THAT MAY AFFECT HIS WORK. ALL EXISTING UTILITIES TO BE EXTENDED, CROSSED OR CONNECTION POINTS SHALL BE EXPOSED PRIOR TO CONSTRUCTION TO VERIFY LOCATION AND ELEVATION. ANY DISCREPANCIES OR CONFLICTS FOUND SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION.
22. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, WATER AND SEWER LINES, STORM DRAINS, UTILITIES, DRIVEWAYS, SIDEWALKS, SIGNS, MAIL BOXES, FENCES, TREES, LANDSCAPING, AND ANY OTHER IMPROVEMENT OR FACILITY IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGED ITEM DUE TO HIS CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER THAN PRE-CONSTRUCTION CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
23. IF THERE IS A DISCREPANCY OR CONFLICT BETWEEN PLAN NOTES AND MANUFACTURER RECOMMENDATIONS WHEN INSTALLING COMPONENTS, CONTACT THE ENGINEER FOR DIRECTION BEFORE PROCEEDING.
24. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM, 1988 ADJUSTMENT (NAVD 88).
25. ALL SURVEY INFORMATION WAS OBTAINED FROM A LICENSED FLORIDA PROFESSIONAL SURVEYOR AND MAPPER AND UTILIZED AS SUPPORTING DATA IN THE PRODUCTION OF DESIGN PLANS AND FOR CONSTRUCTION ON SUBJECT PROJECT. THE PROFESSIONAL SURVEY AND MAPPER OF RECORD IS:

TRAVIS D. PARK, P.S.M.
P.S.M. NO.: 6731
PARK COASTAL SURVEYING, LLC
1329 10TH STREET EAST
PALMETTO, FL 34221

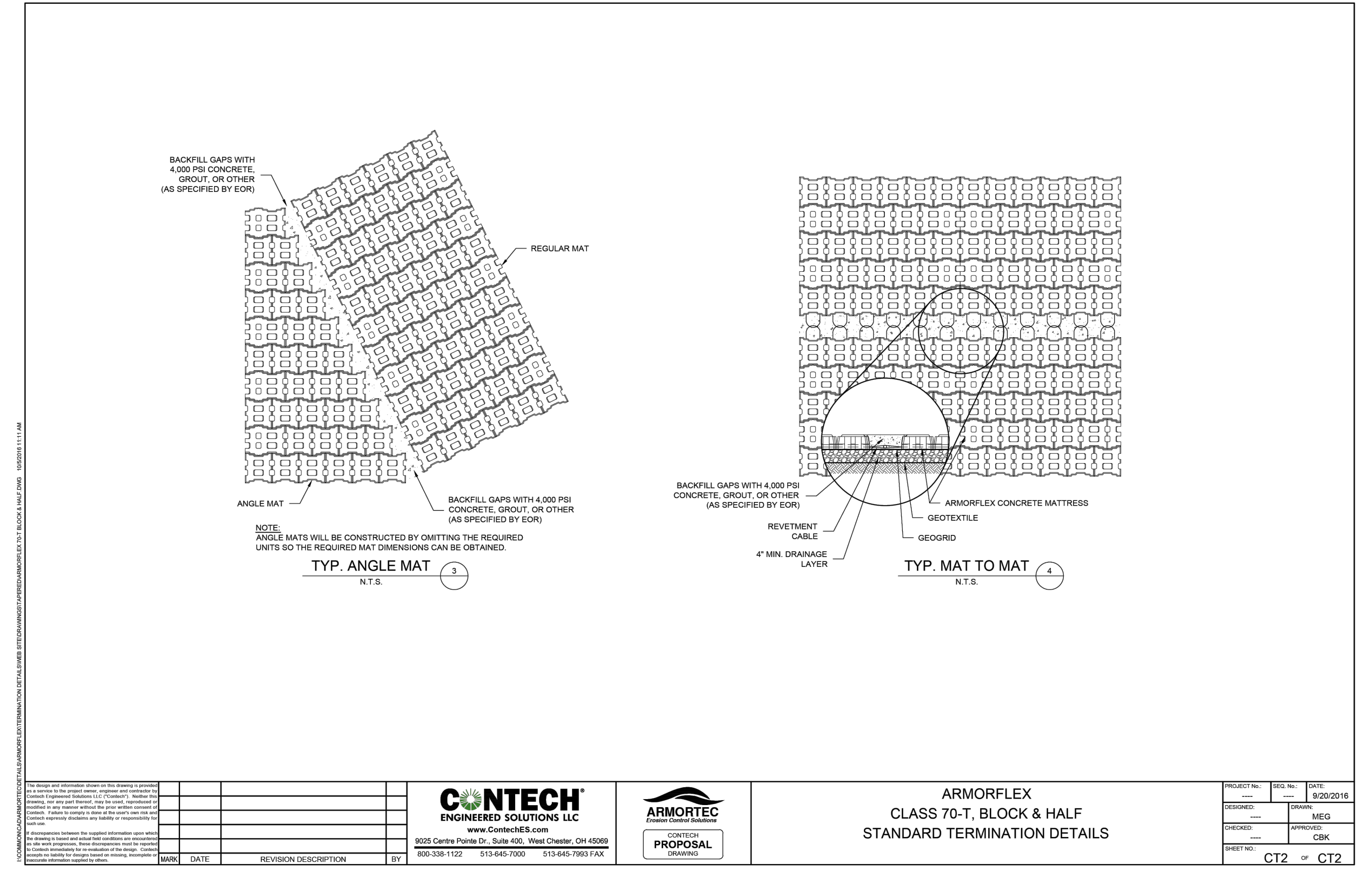
ARTICULATING CONCRETE BLOCK
REVESTMENT SYSTEM (A.C.B.)

ARTICULATING CONCRETE BLOCK REVESTMENT SYSTEM OPEN-CELL BLOCK (A.C.B.) DETAIL

DETAIL REPRESENTATIVE OF PROPOSED ACP. CONTRACTOR TO COORDINATE WITH VENDOR FOR MANUFACTURES SPECIFICATIONS ON SPECIFIED MATERIAL. SELECTED PRODUCT SHALL BE EQUAL OR BETTER THAN SHOWN.



- NOTE:
1. GRANULAR FILTER DESIGN SHALL CONFORM TO HEC-23 - DESIGN GUIDELINE 16, FILTER DESIGN.
 2. ARMORGRID SIZED FOR THE COURSE MATERIAL D_{15} .



ELEVATIONS RELATIVE TO NAVD 88

NUMBER	DESCRIPTION	DATE	SCALE	AS NOTED	DATE
	DESIGNED BY	ATG			11/13/2023
	DRAWN BY	ATG			PROJECT NO.
	CHECKED BY	RDU			6115800

RCA
AUSTIN T. GOFF, P.E.
LICENSE NUMBER 72437
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

Manatee County Florida
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East
Bradenton, FL 34208

GENERAL NOTES & DETAILS

SHEET NO.

14

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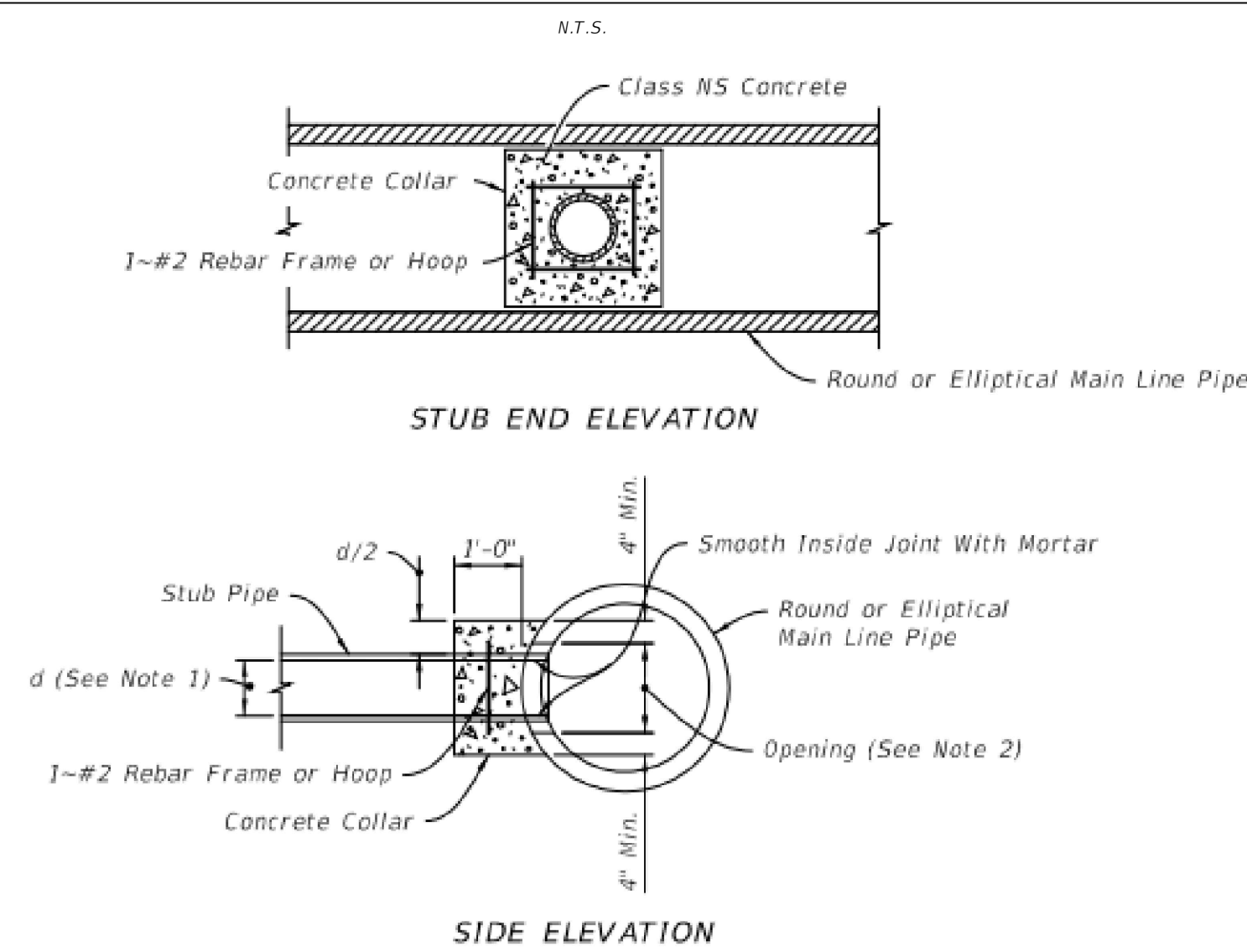
SUSERS

SDATES

STIMES

SFILES

CONCRETE COLLAR FOR JOINING MAINLINE PIPE TO STUB PIPE DETAIL



- NOTES:**
- Stub Pipes maximum diameter: 1/2 of a round main line pipe diameter, or 1/2 the height of elliptical main line pipes.
 - Opening by Pipe Manufacturer.

1

STORMWATER MANAGEMENT

OLDCASTLE NSBB® SIZING

SUMMARY
Municipalities across Florida utilize nutrient separating baffle box (NSBB) programs to treat outfalls that discharge to impaired waterbodies. This is because the NSBB has many features that maximize the pollutants captured, provides ideal access for maintenance, and allows for large flows to bypass internally without significant head loss.

GPI Southeast's 3rd party test report, Baffle Box Effectiveness Monitoring Project DEP Contract No. 502356, gives second generation baffle boxes 15.5% credit for TP and 19.05% for TN. While this report generally gives this credit to second generation baffle boxes, the specific products tested in this report were all Suntree (now Oldcastle) NSBB's.

SIZING
NSBB's are typically design based off pipe size and flowrate. In a typical application the width of the NSBB to be double the width of the pipe diameter. Additionally, the length of the vault (while in accordance with standard mold sizes) to be double the width. Thus a 48" pipe would be sized to have an 88" wide by 16" long interior concrete structure. After a vault size is selected, it is necessary to cross check the flowrate of the location to the peak flow rates or design flow rates of the structure.

The table below shows the standard vault sizes, peak flowrates, and other applicable information, based on the Oldcastle NSBB Operations and Maintenance Manual at the time of publication:

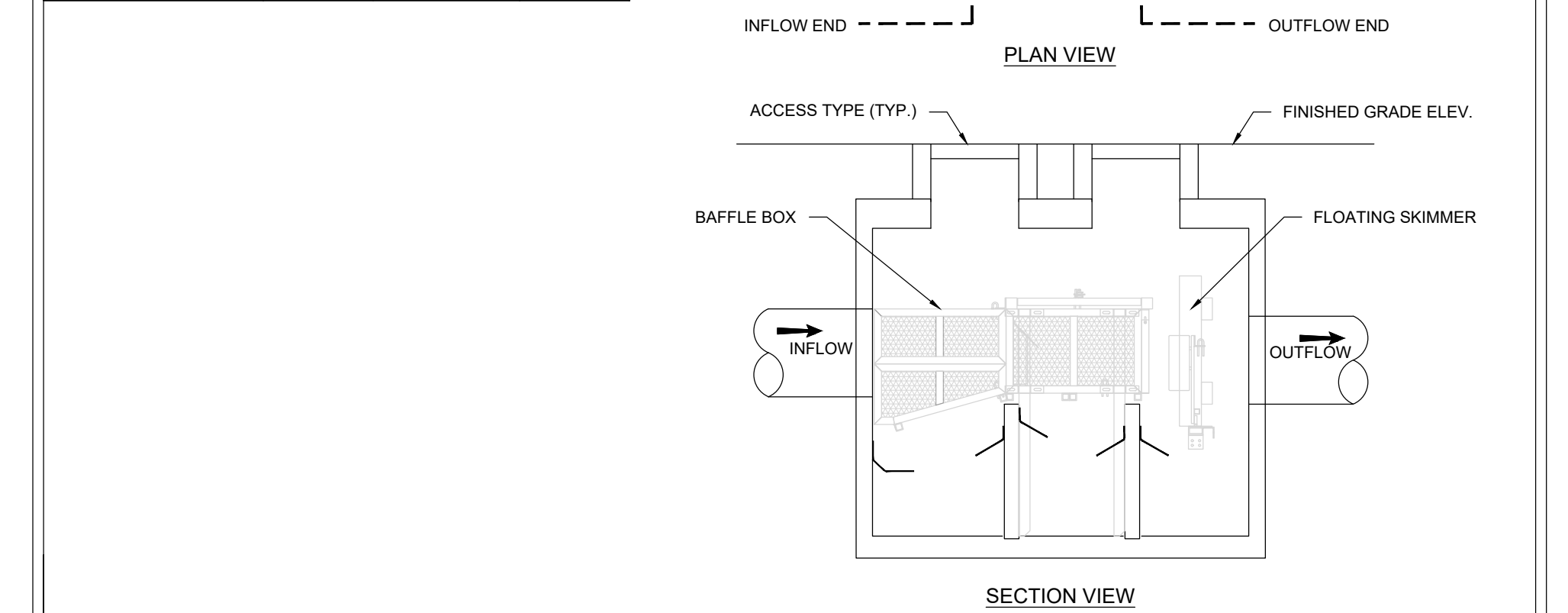
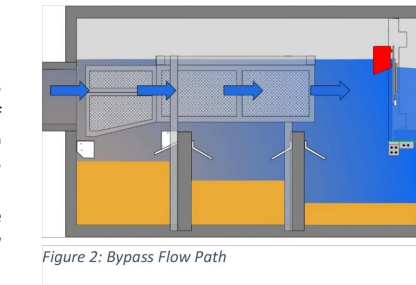
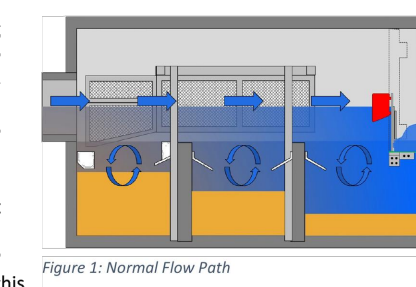
Model	Structure Size (FT x FT)	Max Pipe Size (IN)	Sump Depth (FT)	Sediment Storage (IC)	Treatment Flow Rate (CFS)	Max Peak Flow (CFS)
NSBB 48	4 x 8	24	3.0	15.0	21.50	21.5
NSBB 612	6 x 12	36	4.8	34.3	42.80	66.2
NSBB 816	8 x 16	48	6.2	61.3	72.00	94.1
NSBB 10-20	10 x 20	60	7.6	95.0	88.2	175.3
NSBB 12-24	12 x 24	72	9.0	138.0	109.5	287.7

* For additional information, review the NSBB Operation and Maintenance Manual and Stormwater Improvements with Nutrient Separating Baffle Boxes by Ferguson Waterworks.

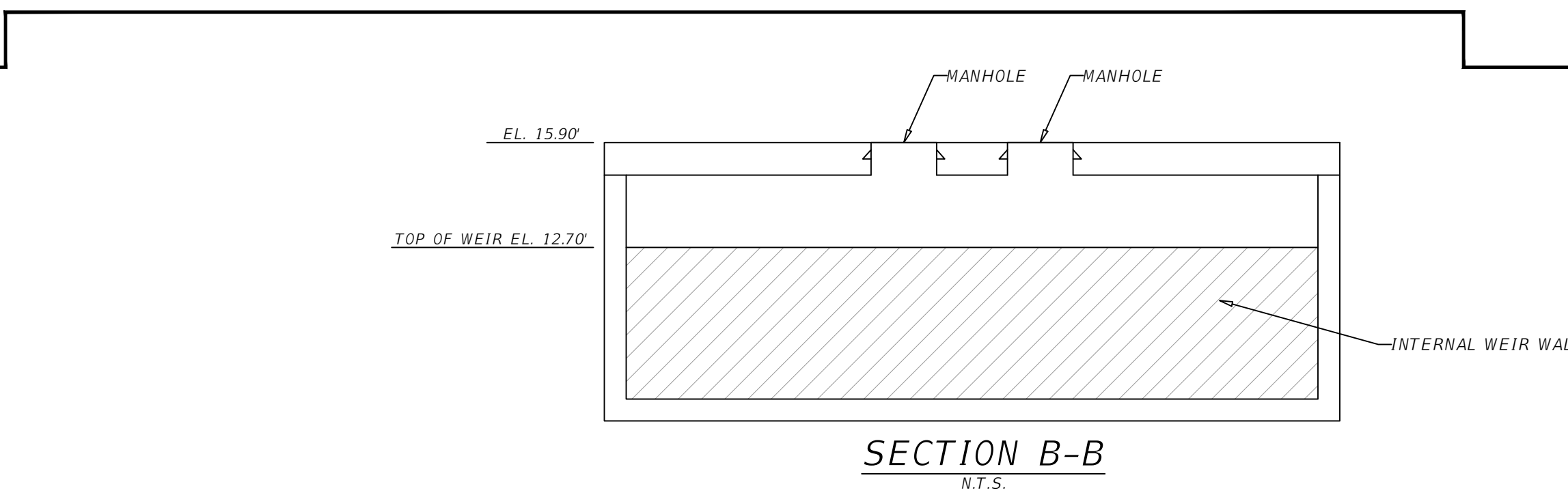
Rev: 07/20/23



DESIGN DATA			
UNIT DESCRIPTION	NSBB -		
FINISHED GROUND SURFACE	ROAD	PARKING LOT	GRASS
LOAD RATING	HS-20	PEDESTRIAN	OTHER
ACCESS COVER TYPE	GRATE	SOLID LID	HATCH
WD FLOW RATE	109.5 CFS		
PEAK FLOW RATE	287.7 CFS		
FINISHED GRADE ELEV.	15.00'		
TOP OF VAULT	15.00'		
WATER TABLE ELEV.	6.00'		
PIPE INFORMATION			
INFLOW	58"x91"	MATERIAL	ERCP
OUTFLOW	72"	INVERT	RCP
			6.17



NOT TO SCALE
NUTRIENT SEPARATING BAFFLE BOX (NSBB) BY OLDCASTLE INFRASTRUCTURE
01/08/2023



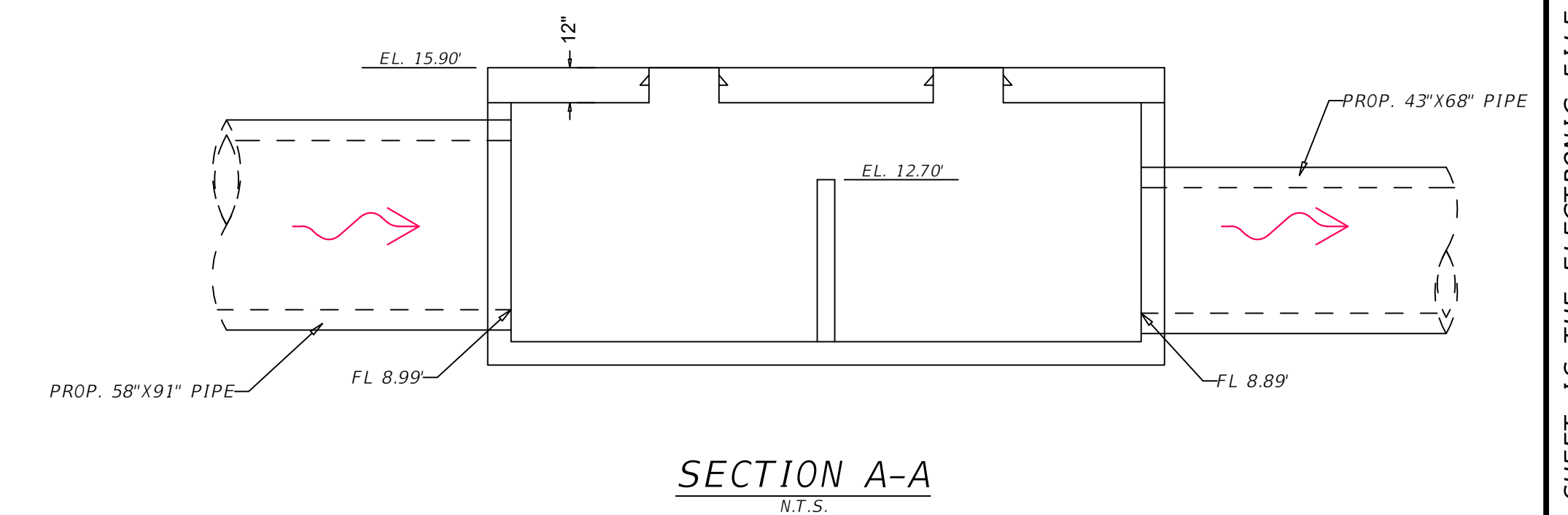
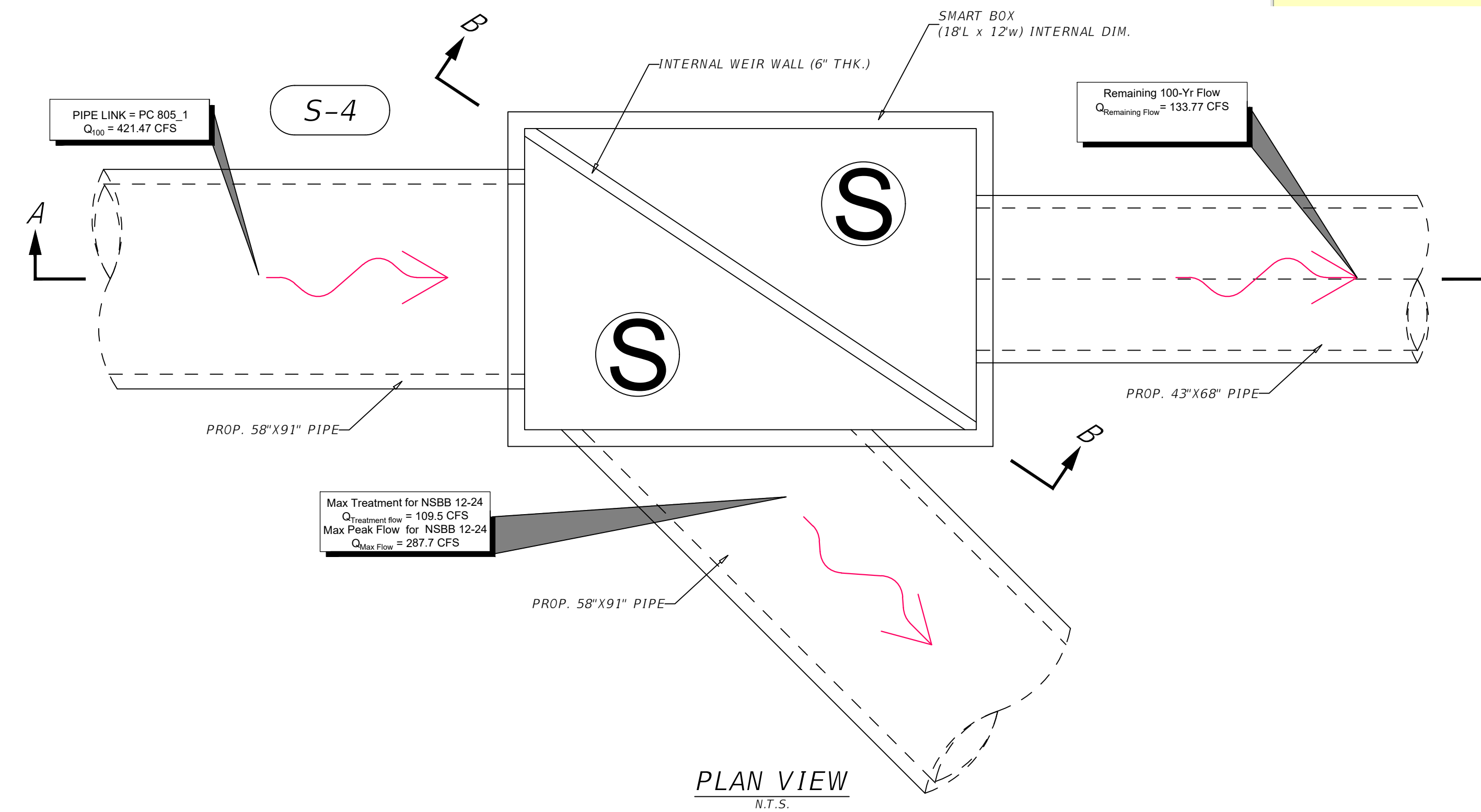
Weir Calculations

Rectangular Weir

Weir Coefficient (C) = 3.32
Discharge (Q) = 133.81 cfs
Height above Weir (H) = 1.54 feet
Weir Crest Length (L) = 21.09 feet

Coefficient of discharge - C is calculated from table 5-3 on page 5-40 in the sixth edition of Brater and King's Handbook of Hydraulics and is based on a 6" weir crest width.

Horizontal Broad Crested Weir Equation
 $Q = C L H^{3/2}$



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DRAINAGE STRUCTURE DETAILS

SHEET NO.

16