DRAINAGE CONNECTION PERMIT

To be completed by DOT

Drainage Connection Permit No. 2024-D-391-00036 Date 11/20/2024

Received By One-Stop Permitting System Maintenance Unit Panama City Operations

State Road No. 30 Work Program Project No. _____

Section No. 010 Construction Project No. _____

Milepost .206 - .425 Station _____ _____

Instructions for Drainage Connection Permit

Pursuant to 14-86.004(5), F.A.C. Once approved by the Department, the drainage connection application and supporting documents become the Drainage Connection Permit."

Each completed Drainage Connection Permit package shall include the following items. If an item does not apply to your project, indicate "Not Applicable" or "N/A."

Included	Part	Title	Completed by:	Special Instructions
	1	Permit Information Sheet	Applicant	
	2	Certification by a Licensed Professional	Licensed Professional	Signed and Sealed
	3	Certification	Applicant	Signature
	4	Owner's Authorization of a Representative	Owner	Signature
	5	Affidavit of Ownership or Control and Statement of Contiguous Interest	Owner	Signature
	6	Permit General Conditions	FDOT	
	7	Permit Special Conditions	FDOT	
	8	As-Built Certification	Licensed Professional	Signed and Sealed – Submit within 15 working days of completion of construction
	Attachment	Legal Description		
	Attachment	Photographs of Existing Conditions		
	Attachment	Location Map		
	Attachment	Grading Plan	Licensed Professional	Signed and Sealed
	Attachment	Soil Borings		
	Attachment	Water Table / Percolation		
	Attachment	Calculations		
	Attachment	CD with Electronic Files of all Submittal Items		Scanned Images in pdf format

Note: Different Licensed Professionals may complete parts of the permit package. For example, the Licensed Professional signing and sealing the as-built certification may be different from the Licensed Professional who signed and sealed the calculations for the permit package.

EXCEPTIONS: Activities that qualify for an Exception are listed in Rule 14-86, F.A.C. A permit application to the Department is NOT required. However, if you desire verification whether the work qualifies for an exception, send a completed copy of this permit package with its requested information to the applicable FDOT District Office.

PART 1 – Permit Information Sheet

Select one: ☑ **Permit** ☐ **Exception**

Pursuant to 14-86.002(2), F.A.C. "Applicant means the owner of the adjacent property or the owner's authorized representative."

Applicant

Select one: ☐ Property Owner ☑ Owner's Representative (Complete Part 4)

Name: SIGNE ULSAMER

Title and Company: GEORGE AND ASSOCIATES CONSULTING ENGINEERS

Address: 1967 Commonwealth Lane Suite 200

City: Tallahassee State: Florida Zip: 32303

Telephone: (850) 521-0344 ext. 115 FAX: Email: sulsamer@gaceng.net

Property Owner (If not applicant)

Name: David Matson

Title and Company: Assistant Bureau Chief, FDEP- Bureau of Design and Construction - DRP

Address: 3900 Commonwealth Blvd.

City: Tallahassee State: Florida Zip:

Telephone: (850) 245-2594 ext. FAX: Email: david.matson@floridadep.gov

Applicant's Licensed Professional

Name: James Peterson Florida License Number: 80485

Title and Company: Project Manger, George & Associates Consulting Engineers

Address: 1967 Commonweath Lane

City: Tallahassee State: Florida Zip: 32303

Telephone: (850) 521-0344 ext. 103 FAX: Email: sulsamer@gaceng.net

Project Information:

Project Name: Camp Helen Improvements

Location: SR 30 Panama City Beach
STREET SR. NO. US HWY NO. CITY

Bay 010 2S 17W
COUNTY SECTION(S) TOWNSHIP(S) RANGE(S)

*Geographic Coordinates: Latitude (DMS.SSS): 30.275565 Longitude (DMS.SSS): 85.992041

Benchmark Horizontal Datum: (/ _____.)

* State Plane Coordinates: Northing 0 Easting: 0

Projection Zone: ☑ Florida North ☐ Florida East ☐ Florida West

Coordinate shall be the center of the driveway intersection with FDOT R/W, or, if there is no driveway connection, near the center of the property line nearest the state highway.

**Check with the FDOT Office for requirement.*

Brief description of facility and proposed connection:
Please see attached Drainage Design Manual.

Briefly describe why this activity requires a Drainage Connection Permit (Include where the stormwater will discharge to FDOT right of way):
Please see attached Drainage Design Manual.

PART 2 – Certification by a Licensed Professional

In accordance with Rule 14-86, Florida Administrative Code (F.A.C.), I hereby certify that the following requirements are and/or will be met.

This project has been designed in compliance with all applicable water quality design standards as required by state or federal governmental entity(ies).

14-86.004(3)(f) (F.A.C.): Certification by a Licensed Professional that the complete set of plans and computations complies with one of the following Rules Sections:

☐ 14-86.003(2)(a) (F.A.C.), or ☐ 14-86.003(2)(b) (F.A.C). (check one)

I further certify that a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges associated with industrial activity from construction sites

☐ is required ☐ is not required. (check one)

I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

This certification shall remain valid for any subsequent revision or submittal of plans, computation or other project documents by me.

Name of Licensed Professional: James Peterson (JAMES H. PETERSON, IV)

Florida License Number: 80485

Company Name (if applicable): George & Associates Consulting Engineers

Certificate of Authorization Number (if applicable): _____

Address: 1967 Commonwealth Lane

City: Tallahassee State: Florida Zip: 32303

Telephone: (850) 521-0344 ext. 103 Fax: _____ Email: sulsamer@gaceng.net ✓

JPETERSON@GACENG.NET

Signature of Licensed Professional

11/19/2024

Date

(Affix Seal)

PART 3 – Certification by Applicant

I hereby certify that the information in this submittal is complete and accurate to the best of my knowledge.

Applicant's Signature: Signe Ulsamer Digitally signed by Signe Ulsamer Date: 2024.11.20 12:59:11 -05'00' Date: _____

Name (Printed): SIGNE ULSAMER

Title and Company: Project Engineer, GEORGE AND ASSOCIATES CONSULTING ENGINEERS

Address: 1967 Commonwealth Lane Suite 200, Tallahassee, Florida 32303

Phone Number: (850) 521-0344 ext. 115___ E-mail address: sulsamer@gaceng.net

PART 4 – Owner's Authorization of a Representative

I (we), the owner, David Matson FDEP/BDC Assistant Bureau Chief , do hereby authorize the following person, or entity, as my representative:

Name (Printed): SIGNE ULSAMER

Title and Company: Project Engineer, GEORGE AND ASSOCIATES CONSULTING ENGINEERS

Address: 1967 Commonwealth Lane Suite 200, Tallahassee, Florida 32303

Phone Number: (850) 521-0344 ext. 115___ E-mail address: sulsamer@gaceng.net

Part 5 – Affidavit of Property Ownership or Control and Statement of Contiguous Interest

I, David Matson FDEP/BDC Assistant Bureau Chief, certify that I own or lawfully control the following described property:

Camp Helen State Park, Parcel ID: 35205-000-000, 23937 PC BCH PKWY, PANAMA CITY BEACH 32413
31 2S 17W -7- 5C ALL OF GOVT LOTS 2, 7, 8, 10 & 11 LESS HWY 98 R/W IN SEC 31 ORB 1094 P 1910 ORB 1640 P1928

Does the property owner own or have any interests in any adjacent property?

☑ No ☐ Yes If yes, please describe.

Owner's Signature required for Parts 4 and/or 5

We will not begin on the drainage connection until I receive the Permit and I understand all the conditions of the Permit. When work begins on the connection, I am accepting all conditions listed in the Permit.

Name (Printed): David Matson

Address: 3900 Commonwealth Blvd., Tallahassee, Florida

Phone Number: (850) 245-2594 ext. _____

Signature: David Matson Digitally signed by David Matson Date: 2024.11.20 11:27:37 -05'00' Date: _____

Approved
2024-D-391-00036
Lisa Ward
1/16/2025

PART 6 – Permit General Conditions

1. This permit is a license for permissive use only and does not convey any property rights either in real estate or material, or any exclusive privilege and it does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State or local laws, rules or regulations; nor does it obviate the necessity of obtaining any required state or local approvals.

2. The drainage connection as authorized herein shall be constructed and thereafter maintained in accordance with the documents attached hereto and incorporated by reference herein. All work performed in the Department's right of way shall be done in accordance with the most current Department standards, specifications and the permit provisions. Such construction shall be subject to the inspection and approval of the Department, and the Department may at any time make such inspections as it deems necessary to assure that the drainage connection is in compliance with this permit.

3. The entire expense of construction within the Department right of way, including replacement of existing pavement or other existing features, shall be borne by the permittee.

4. The permittee shall maintain that portion of the drainage connection authorized herein located on permittee's property in good condition. The Department shall maintain that portion of the drainage connection authorized herein located within its right of way.

5. If the drainage connection is not constructed, operated or maintained in accordance with this permit, the permit may be suspended or revoked. In this event modification or removal of any portion of the drainage connection from the Department's right of way shall be at the permittee's expense.

6. The Department reserves the right to modify or remove the drainage connection to prevent damage or in conjunction with road improvements.

7. It is understood and agreed that the rights and privileges herein set out are granted only to the extent of the Department's right, title, and interest in the land to be entered upon and used by the permittee, and the permittee will, at all times, assume all risk of and indemnify, defend and save harmless the Department from and against any and all loss, damage, cost or expense arising in any manner on account of the exercise or attempted exercises by said permittee of these rights and privileges, regardless of the respective degrees of fault of the parties.

8. Utilities, including gas lines, may exist within the right of way. Prior to beginning work the permittee shall contact Sunshine State One Call of Florida, Inc at 811 or 800-432-4770, who will notify all utility owners near the scheduled project. The utility owners have two (2) full business days to provide locations of their respective facilities. The permittee shall be solely responsible for any damage to or conflicts with gas lines, utilities and/or third persons.

9. The permittee shall notify the Department of Transportation Maintenance Office located at Panama City Operations
Phone (850) 767-4914 ext. _____ 48 hours in advance of starting any work on the drainage connection authorized by this permit and also 24 hours prior to any work within the Department's right of way. Construction of any work on the right of way shall be completed within _____ days after such notification. If such construction is not completed within _____ days after such notification, the permittee shall notify the Department of the anticipated completion date.

10. This permit shall expire if construction on the drainage connection is not begun within one year from the date of approval and if construction on the drainage connection is not completed by (Date) 1/16/2026.

11. A permittee may request an extension of the Drainage Connection Permit expiration date by filing a written request for a permit time extension. All requests for time extensions must be received by the Department 15 working days prior to the expiration date.

12. All the provisions of this permit shall be binding on any assignee or successor in interest of the permittee.

PART 7 – Permit Special Conditions – To be completed by FDOT

The above request has been reviewed and has been found to meet the regulations as prescribed in Rule 14-86, F.A.C., and is hereby approved, subject to the following special conditions:

Department of Transportation:

Signature Lisa Ward

Title MAINTENANCE MANAGER/PERMITS Date 1/16/2025

Approved
2024-D-391-00036
Lisa Ward
1/16/2025

PART 8 – As-Built Certification

Within 15 working days of completion of construction, you must send this certification to the Department office in which you filed your DOT Drainage Permit.

1. STORMWATER FACILITY INFORMATION

Permit No.: _____

Source (Project) Name: _____

Source Location: Street _____

City: _____ County: _____

Source Owner: _____

Owner Address: _____

2. AS-BUILT CERTIFICATION

I hereby certify that this stormwater facility has been built substantially in accordance with the certified design plans, and that any substantial deviations (noted below) will not prevent the facility from functioning in compliance with the requirements of Chapter 14-86 F.A.C. when properly maintained and operated. These determinations have been based upon on-site observation of construction, scheduled and conducted by me or by a project representative under my direct supervision.

Name of Licensed Professional: _____

Florida License Number: _____

Company Name (if applicable): _____

Certificate of Authorization Number (if applicable): _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____ Email: _____

_____
Signature of Licensed Professional

_____
Date

(Affix Seal)

Substantial deviations from the approved plans and specifications (attach additional sheets if required).

_____

PART 2 – Certification by a Licensed Professional

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I further certify that a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges associated with industrial activity from construction sites

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This certification shall remain valid for any subsequent revision or submittal of plans, computation or other project documents by me.

Name of Licensed Professional: James Peterson (JAMES H. PETERSON, IV)

Florida License Number: 80485

Company Name (if applicable): George & Associates Consulting Engineers

Certificate of Authorization Number (if applicable): _____

Address: 1967 Commonwealth Lane

City: Tallahassee State: Florida Zip: 32303

Telephone: (850) 521-0344 ext. 103 Fax: _____ Email: sulsamer@gaceng.net ✓

JPETERSON@GACENG.NET

Signature of Licensed Professional

11/19/2024

Date

(Affix Seal)

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Approved
2024-D-391-00036
Lisa Ward
1/16/2025

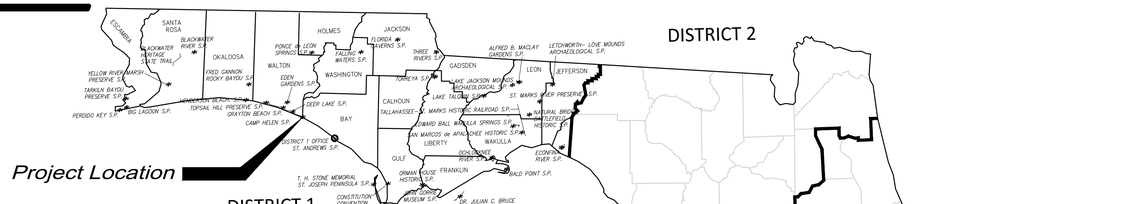
ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR
A.H.U.	AIR HANDLING UNIT
ALUM.	ALUMINUM
ALT.	ALTERNATE
APPROX.	APPROXIMATE
BD.	BOARD
BLDG.	BUILDING
BLK.	BLOCK
BLKG.	BLOCKING
BLT.	BUILT
BRK.	BRICK
BRKR.	BREAKER
BSMT.	BASEMENT
C.J.	CONTROL JOINT
CLG.	CEILING
CLR.	CLEAR
CMU	CONCRETE MASONRY UNIT
C.O.	CLEAN OUT
CONC.	CONCRETE
CU	COPPER
CU. FT.	CUBIC FOOT
CU. IN.	CUBIC INCH
CU. YD.	CUBIC YARD
DIA./ø.	DIAMETER
DBL.	DOUBLE
DBT.	DRY-BULB TEMPERATURE
DEG.	DEGREE
DEPT.	DEPARTMENT
DF	DRINKING FOUNTAIN
DISC.	DISCONNECT
DL	DEAD LOAD
DN.	DOWN
D.S.	DOWN SPOUT
DWG.	DRAWING
E.F.	EXHAUST FAN
EXH	EXHAUST
EXP. JT.	EXPANSION JOINT
EXT.	EXTERIOR
FIN.	FINISH
FL.	FLOOR
FLUOR.	FLUORESCENT
FP	FIREPLACE
FR	FIRE RATING
FT.	FOOT/FEET
FTG.	FOOTING
GALV.	GALVANIZED
GFI	GROUND FAULT CIRCUIT INTERRUPT
GOV'T.	GOVERNMENT
GR.FL.	GROUND FLOOR
GYP.	GYPSUM
H.C.	HOLLOW CORE
H.D.G.	HOT DIPPED GALVANIZED
HDR.	HEADER
HDWR.	HARDWARE
H.P.	HORSEPOWER
HT.	HEIGHT
HTR.	HEATER
HV.	HIGH VOLTAGE
HVAC.	HEATING, VENTILATING AND AIR CONDITIONING
HWY.	HIGHWAY
ID	INSIDE DIAMETER
IN	INCH
INCAND.	INCANDESCENT
INCL.	INCLUDED
INSUL	INSULATION
INT.	INTERIOR
INV. EL.	INVERT ELEVATION
JST.	JOIST
KD	KILN DRIED
KW	KILOWATT
KWH	KILOWATT HOUR
LAM.	LAMINATED
LAV.	LAVATORY
LB.	POUND
LTG.	LIGHTING
LGTH.	LENGTH
LIN.	LINEAR
LL	LIVE LOAD
MANUF.	MANUFACTURE
MAX.	MAXIMUM
MF.	MILL FINISH
MIN.	MINIMUM
MLDG.	MOLDING
MHW	MEAN HIGH WATER
MHHW	MEAN HIGHER HIGH WATER
MLW	MEAN LOW WATER
MLLW	MEAN LOWER LOW WATER
MSL	MEAN SEA LEVEL
MOD.	MODIFICATION
NTS	NOT TO SCALE
NO./#	NUMBER
OA	OVERALL
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OFC.	OFFICE
O/H	OVER HEAD
OPP.	OPPOSITE
PARTN.	PARTITION
PC	PORTLAND CEMENT
PCF	POUNDS PER CUBIC FOOT
P.E.	PROFESSIONAL ENGINEER
PERF.	PERFORATE
PERP.	PERPENDICULAR
PL	PLATE
PLG.	PILING
PLYWD.	PLYWOOD
PNL.	PANEL
PREFAB.	PREFABRICATED
PRELIM.	PRELIMINARY
PSF.	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
P.T.	PRESSURE TREATED
QS.	QUARTER SAWN
R	RADIUS
RCPT.	RECEPTACLE
REBAR	REINFORCING BAR
REFRIG.	REFRIGERATION
REINF.	REINFORCING
RFG	ROOFING
RGH	ROUGH
RM.	ROOM
R.O.	ROUGH OPENING
RS	ROUGH SAWN
S.C.	SOLID CORE
SCH	SCHEDULE
SDG.	SIDING
SECT.	SECTION
SFTWD.	SOFTWOOD
SGD	SLIDING GLASS DOOR
SH.	SHINGLES
SPEC	SPECIFICATION
SPR.	SPRUCE
SQ.	SQUARE
SQ. FT.	SQUARE FOOT
SQ. IN.	SQUARE INCH
SQ. YD.	SQUARE YARD
SS.	STAINLESS STEEL
STL.	STEEL
SUB. FL.	SUBFLOOR
SUP.	SUPPLY
SW.	SWITCH
SYM.	SYMMETRICAL
S.Y.P.	SOUTHERN YELLOW PINE
SYS.	SYSTEM
S4S.	SURFACED FOUR SIDES
TEL.	TELEPHONE
T&G	TONGUE-AND-GROOVE
TYP.	TYPICAL
U.E.	UNDERGROUND ELECTRIC
U.G.	UNDER GROUND
UL.	UNDERWRITERS LABORATORIES, INC.
V.	VOLT
VENT.	VENTILATOR
VERT.	VERTICAL
VIF.	VERIFY IN FIELD
VOL.	VOLUME
VP.	VENT PIPE
VTR.	VENT THRU ROOF
W.	WATER
WBT	WET BULB TEMPERATURE
WC.	WATER CLOSET
WD	WOOD
WP.	WATERPROOF
WWF.	WELDED WIRE FABRIC
YD.	YARD

REFERENCE LEGEND

G8 / A502 — SECTION IDENTIFICATION / SHEET NUMBER

G8 / A502 — DETAIL IDENTIFICATION / SHEET NUMBER



CAMP HELEN STATE PARK

DISTRICT 1

BAY COUNTY

PARK IMPROVEMENT

PROJECT # 61307C - N3803

APPLICABLE CODES AND DESIGN DATA

CODE LIST

FLORIDA BUILDING CODE, BUILDING (FBC-B)	2023 Edition
FLORIDA BUILDING CODE, FUEL GAS (FBC-FG)	2023 Edition
FLORIDA BUILDING CODE, MECHANICAL (FBC-M)	2023 Edition
FLORIDA BUILDING CODE, PLUMBING (FBC-P)	2023 Edition
FLORIDA BUILDING CODE, EXISTING BUILDING (FBC-EB)	2023 Edition
FLORIDA BUILDING CODE, RESIDENTIAL (FBC-R)	2023 Edition
FLORIDA FIRE PREVENTION CODE (FFPC)	Latest Edition
NATIONAL ELECTRICAL CODE NFPA-70	Latest Edition
FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONST.	Latest Edition
FDOT STANDARD PLANS FOR ROAD CONST.	Latest Edition
FLORIDA ACCESSIBILITY CODE	2023 Edition

SEE LS001 FOR DESIGN DATA

JAMES H. PETERSON IV. LICENSE No. 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by JAMES H PETERSON
DN: c=US, o=Unaffiliated, dnQualifier=A01410C0000019104FE2A27000077AFF, cn=JAMES H PETERSON
Date: 2024.11.19 16:43:31 -05'00'

NOT FOR CONSTRUCTION

SCOPE OF PROJECT

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SUPERVISION, AND PERMITTING TO SUCCESSFULLY CONSTRUCT ROADWAY ALTERATIONS, NEW DRIVEWAY, ENTERANCE PARKING AREA, RESTROOM, PAVILIONS, ADA ACCESSIBLE WALKWAYS, RAMPS, STAIRWAY, ADA ACCESSIBLE CANOE/KAYAK LAUNCH, AND ANY OTHER SITE WORK PER THE CONTRACT DOCUMENTS.

THE CONSTRUCTION OF A DAY-USE RESTROOM FACILITY CONSISTING OF 650 GSF OF ENCLOSED AREA INCLUDING A MEN'S RESTROOM, WOMEN'S RESTROOM, UNISEX RESTROOM AND CHASE AREA. THESE AREAS ARE NATURALLY VENTILATED. AN OPEN BREEZEWAY SHELTERS A VENDING AREA, THE ENTRANCES INTO THE RESTROOMS, AND A HIGH-LOW WATER FOUNTAIN. ALL WORK MUST BE PERFORMED PER CODE. ADA COMPLIANCE MUST BE MAINTAINED.

JAMES H. PETERSON IV, P.E.
DESIGNER

CN539-TA01
CONSULTANT CONTRACT No.

NOVEMBER 11TH 2024 100% PLANS
INITIAL ISSUE DATE

INDEX OF DRAWINGS

CAMP HELEN STATE PARK
PARK IMPROVEMENT

Florida Department of Environmental Protection

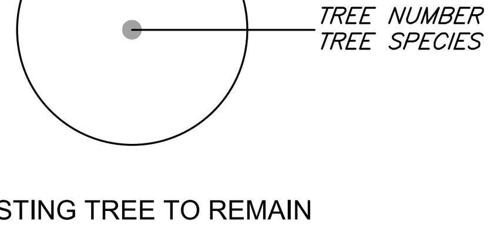
Approved
2024-D-3[illegible]0036
Clearinghouse Board
4/16/2025

Division of Recreation and Parks Bureau of Design and Construction

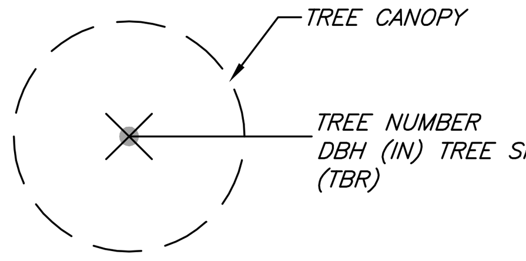
GENERAL NOTES

Abbreviation	Meaning
A	Area or Amperes
AAA	American Automobile Association
ABC	Asphalt Base Course
Abd.	Abandoned
ABS	Acrylonitrite–Butadiene–Styrene Pipe
AC, Ac.	Acre
Asph. Conc.	Asphaltic Concrete
Accel.	Acceleration
Act.	Actuated
ADA	The Americans With Disabilities Act
Adh.	Adhesive
Adj.	Adjust
ADT	Average Daily Traffic
AADT	Annual Average Daily Traffic
Agg.	Aggregate
AISC	American Institute Of Steel Construction
Alt.	Alternate
Al.	Aluminum
ANSI	American National Standards Institute
AOS	Apparent Opening Size
Appl.	Applied, Application
Approx.	Approximate
Artf.	Artificial
Asph.	Asphalt
Assem.	Assembly
Assn.	Association
Assoc.	Associate, Association
ASTM	American Society For Testing Materials
ATPB	Asphalt Treated Permeable Base
Attn.	Attention
Attnuatr.	Attenuator
Aux.	Auxiliary
Ave.	Avenue
AWG	American Wire Gauge
AWS	American Welding Society
Az.	Azimuth
B to B	Back to Back
Bd. or Bnd.	Bond or Bonded
BE	Buried Electric
Beg.	Begin
Bit.	Bituminous
Bk.	Back
BL, BLC	Base Line, Base Line Control
Bldg.	Building
Blkhd.	Bulkhead
Blvd.	Boulevard
BM	Bench Mark
Bndry.	Boundary
Bdr.	Border
Bot.	Bottom
BO	Basin Outlet
BOS	Beginning Of Survey
Br.	Bridge
Brg.	Bearing
Brkwy.	Breakaway
BT	Buried Telephone Cable or Duct
BW	Barbed Wire, Bottom Width or Both Ways
C/G	Curb And Gutter
CA	Coarse Aggregate
Cap.	Capacity
CAP	Corrugated Aluminum Pipe
Caps.	Capital Letters
CASP	Corrugated Aluminized Steel Pipe
CATV	Cable Television
CB	Catch Basin
CBC	Concrete Box Culvert
CBS	Concrete Box Structure
CC, C/C,	Center to Center, Crash Cushion
CCEW	Center to Center Each Way
CD	Cross Drain, Cross Direction (Geotextiles)
Cem.	Cemetery
CFS	Cubic Feet Per Second
CI	Cast Iron
CIP	Cast Iron Pipe
CIPL	Cast In Place
cir. or circ.	Circle or Circular
circ.	Circumference
Cl. or Clear	Clearance
CL,	Center Line
CM	Concrete Monument
CMB	Concrete Median Barrier
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
CO	Clean Out
Col.	Column
Conc.	Concrete
Const.	Construct or Construction
Cont.	Continuation
Contr.	Contractor
Coord.	Coordinate
Corr.	Corrugated
CP	Concrete Pipe
CPE	Corrugated Polyethylene Pipe
Crs. or Cse.	Course
CS	Curve To Spiral
CSP	Corrugated Steel Pipe
CT	Clear Trunk
CTPB	Cement Treated Permeable Base
Ctr.	Center
Culv.	Culvert
CY	Cubic Yard
D	Degree Of Curvature, Depth, Density, Distance, Diameter or Directional Distribution
DA	Deflection Angle
DBH	Diameter At Breast Height
Dbl.	Double
DCS	Degree Of Curvature (Spiral)
DD	Dry Density / Design Document
Deg.	Degree
Dept.	Department
Det.	Detour, Detection, Detectable
DGN or Dgn.	Design
DHV	Design Hourly Volume
DHW	Design High Water
Dia. or D	Diameter
Dim.	Dimension
Dist.	Distance
Disp.	Disposal
DOT	Department Of Transportation
DR	Design Review
Driv.	Driven
Drwy.	Driveway
DS	Design Speed
DSL	Design Service Life
Dwg.	Drawing
E	East or External Distance
e	Rate Of Superelevation
E to E	End to End
EA or Ea.	Each
EB	Eastbound
El. or Elev.	Elevation
Elec.	Electric
Ellip.	Elliptical
Engr.	Engineer
EOS	End Of Survey or Equivalent Opening Size
EOP	Edge Of Pavement
Eq.	Equation or Equal
Equip.	Equipment
Esmt.	Easement
Exist.	Existing
Exp.	Expansion
F or Final	Final Quantity
F & I	Furnish & Install
F to F	Face to Face
FA	Federal Aid or Fine Aggregate
FAC	Florida Administrative Code
FAP	Federal Aid Project
FC	Friction Course
FD	French Drain
Fdn.	Foundation
FFE	Finish Floor Elevation
Fed.	Federal
Fert.	Fertilizer
FES	Flared End Section
FETS	Flared End Terminal Section
FH	Fire Hydrant
FHWA	Federal Highway Administration
Fig.	Figure
Fin.	Finish
FIR	Found Iron Rod
FIP	Found Iron Pipe
Flex.	Flexible
FNC	Found Nail & Cap
FNL	Found Nail
FOC	Fiber Optics Cable
FPM or fpm	Feet Per Minute
FRP	Fiber Reinforced Pipe
FPS or fps	Feet Per Second
FR or Fr.	Frame
Frang.	Frangible
Freq.	Frequency
FS, F.S.	Far Side, Florida Statutes
Ft.	Foot or Feet
FTB	Floating Turbidity Barrier
Fut.	Future
Galv.	Galvanized
Ga.	Gauge or Gage
Ga. / Gal.	Gallon
GD	Gutter Drain
GIP	Galvanized Iron Pipe
GM	Gas Main
GP	Grade Point
Gr.	Grade, Guardrail or Grate
Gr. or Gro.	Gross
GRC	Galvanized Rigid Steel Conduit
Grd.	Ground
gross km	Gross Kilometer
Gr. Wt.	Gross Weight
Gttr.	Gutter
Gy	Gray
HAR	Highway Advisory Radio
HB	Hay Bales
HC	Horizontal Clearance
HD	High Density or Heavy Duty
HD or Hd.	Head
Hdwl.	Headwall
Hndrl	Handrail
Horiz.	Horizontal
HP	High Pressure or Horsepower
Hr.	Hour
HS	High Strength
HSHV	High Strength Horizontal Vertical
Ht.	Height
HW or H.W.	High Water or Hot Water
Hwy.	Highway
Hyd.	Hydrant or Hydraulic
ID	Inside Diameter or Identification
IMC	Intermediate Metal Conduit
Inc.	Incorporated or Including
Incl. or Inc.	Included
Ind.	Industry or Industrial
INV. or Inv.	Invert
IP	Iron Pipe
Install.	Installed
Isect.	Intersection
Isl.	Island
IR	Iron Rod
ITE	Institute Of Transportation Engineers
J	Joule
JB	Junction Box
Jct.	Junction
Jt.	Joint
K	Design Hour Factor or Kelvin
kg/m	Kilogram Per Meter
kg/m2	Kilogram Per Square Meter
kg/m3	Kilogram Per Cubic Meter
Kilo	One Thousand
Kip	1000 Pounds
kn	Knot
L	Length, Length Of Curve, Liter, Left
Lat.	Lateral or Latitude
Lb.	Pound
lb/sy	Pounds Per Square Yard
LBR	Limerock Bearing Ratio
LC	Long Chord
Lin.	Linear
lm	Lumen
Lmrk.	Limerock
LOS	Limit Of Clear Sight
Loc., LO	Location
Long.	Longitude
LS	Length Of Spiral
LT	Left Turn
Lt.	Left
Ltd.	Lighted or Limited
Lum.	Luminaire
L/W	Lightweight
Maint.	Maintenance
Matl.	Material
Max.	Maximum
Med.	Median
MES	Mitered End Section
Mfg.	Manufactured or Manufacturer
MH, M.H.	Manhole, Mounting Height
MHW	Mean High Water
Mi.	Mile
Mid.	Middle
Min.	Minimum or Minute
Misc.	Miscellaneous
MLW	Mean Low Water
Mobl.	Mobilization
Mod.	Modify or Modified
Mon.	Monument
MOT	Maintenance Of Traffic
MSL	Mean Sea Level
Mtd.	Mounted
MUTCD	Manual On Uniform Traffic Control Device
MUTS	Manual On Uniform Traffic Studies
N	North or Newton
NA or N/A	Not Available or Not Applicable
NAVD	National American Vertical Datum
NC	National Coarse or Normal Crown
NEMA	National Electrical Manufacturers Association
NGVD	National Geodetic Vertical Datum of 1929
NGS	National Geodetic Survey
NHS	National Highway System
NHW	Normal High Water
NIC	Not In Contract
NTS	Not To Scale
NW	Northwest
Opass	Overpass
O to O,	Out to Out
OA	Overall
O.B.G.	Optional Base Group
OC or O.C.	On Center
OD or O.D.	Outside Diameter
OE	Overhead Electric
OH,	Overhead
Opt.	Option, Optional or Optically
OT	Overhead Telephone
Oz.	Ounce
P	Passenger Car & Light Delivery Truck
Part.	Participation or Partition
Pavt.	Pavement
PC	Point Of Curvature
PE	Professional Engineer
Ped	Pedestrian or Pedestal
Pen.	Penetration
PG	Profile Grade
PGL	Profile Grade Line
pH	Measure Of Acidity or Alkalinity
PI	Point Of Intersection
PL or P L	Property Line or Plate
POB	Point of Beginning
POC	Point Of Commencement
POST	Point On Semi–Tangent
POT	Point On Tangent
PRC	Point Of Reverse Curvature
Prest.	Prestressed
Prob.	Probability
Prod.	Product, Production, Producer or Produced
Prog.	Program or Progression
Proj.	Project or Projection
PS & E	Plans, Specifications And Estimates
PT	Point Of Tangency or Pressure Treated
PVC	Polyvinyl Chloride
PRC	Point Of Reverse Curvature
Prcst.	Precast
Prest.	Prestressed
Proj.	Project or Projection
Q	Peak Discharge or Flow Volume
QPL	Qualified Products List
R	Right
R or Rad.	Radius
R or Rng.	Range
RC	Reverse Crown
RCP	Reinforced Concrete Pipe
RCPA	Reinforced Concrete Pipe Arch
Rd.	Road or Round
Rdsd.	Roadside
Rdwy.	Roadway
Rect.	Reticuline or Rectangular
Ref.	Reference
Reg.	Region, Regular, Registered or Regulation
Reinf.	Reinforced or Reinforcing
Reloc.	Relocated
Req.	Required
RPM	Raised Reflective Pavement Markers
r/s	Revolution Per Second
RR	Railroad
Rt.	Right
R/W, ROW	Right Of Way
S or s	Speed, South, Seimens, Or Second
SAN or San.	Sanitary
Sch.	Schedule
SCST	Sand–Clay Surface Treatment
SD	Side Drain, Storm Drain
SE	Southeast
Seq.	Sequential
Serv.	Service
SF	Silt Fence
Sht.	Sheet
Shldr.	Shoulder
SHW	Seasonal High Water
Spec.	Specification
Sq. Ft.,/S.F.	Square Foot
Sq. In.	Square Inch
Sq. Yd.,/S.Y.	Square Yard
SR or S.R.	State Road
SRD	State Road Department
SS	Sanitary Sewer
St. or ST.	Street
Sta.	Station
Std.	Standard
Stl.	Steel
Sub. or Subst.	Substitute
Subgr.	Subgrade
SUR or Sur.	Survey
Surf.	Surface
T	Tangent, Length Of Curve,
TBM	Temporary Bench Mark
TC	Tangent To Curve
TCB	Temporary Concrete Barrier
TCE	Temporary Construction Easement
TCP	Terra Cotta Pipe
TCZ	Traffic Control Zone
TDLC	Transportation Design For Livable Communities
Tel.	Telephone
Temp.	Temperature or Temporary
Thick.	Thickness
Tn.	Ton
Trans.	Transition, Transverse,
TS	Tangent To Spiral
TSC	Length Of Tangent (Spiral Curve)
TTC	Temporary Traffic Control
Typ.	Typical
UAO	Utility Agent/Owner
Upass.	Underpass
UG	Underground
UL	Underwriters Laboratories
Ultd.	Unlimited
Unddr.	Underdrains
Undrdwy.	Underroadway
USC & GS	US Coast and Geodetic Survey
USGS	US Geological Survey
USPS	United States Postal Service
Util.	Utilities
V	Volt, Velocity, Volume or Hourly Volume
Var.	Varies, Variable or Variance
VC	Vertical Curve
VCP	Vitrified Clay Pipe
Vert.	Vertical
Vh	Verified Horizontal Location
Vol.	Volume
VP	Vertical Panel
VPD or Vpd.	Vehicles Per Day
VPH or Vph.	Vehicles Per Hour
VPHPL or Vphpl.	Vehicles Per Hour Per Lane
VRMS	Volts Root Mean Square
Vv	Verified Vertical Elevation
VW	Variable Width
W	Width, Wide, West or Watt
WB	Westbound
Wb.	Weber
WB40	Intermediate Semi Trailer
WB50	Large Semi Trailer
WB60	Tandem Semi Trailer
WM	Water Main
WT	Water Table Or Weight
WWF	Welded Wire Fabric
X	Coordinate Value (East–West Direction) or Extra
X Rd.	Cross Road
Xing.	Crossing
Xsec.	Cross Section
Y	Coordinate Value (North–South Direction)

TREE LEGEND



EXISTING TREE TO REMAIN



EXISTING TREE TO BE REMOVED

CIVIL GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN A SAFE MANNER. ALL SAFETY RULES AND GUIDELINES OF O.S.H.A. SHALL BE PERFORMED. THE CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR ANY INJURIES OF HIS EMPLOYEES, AND ANY DAMAGE TO PRIVATE PROPERTY OR PERSONS DURING THE COURSE OF THIS PROJECT. ALL COSTS ASSOCIATED WITH COMPLYING WITH O.S.H.A. REGULATIONS AND THE FLORIDA TRENCH SAFETY ACT (SEE NOTE 16) MUST BE INCLUDED IN THE CONTRACTOR'S PRICE FOR PERFORMING THE WORK.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE JOB SITE PRIOR TO PREPARING THE BID FOR THE PURPOSE OF FAMILIARIZING HIMSELF WITH WITH THE NATURE AND THE EXTENT OF THE WORK AND LOCAL CONDITIONS, EITHER SURFACE OR SUBSURFACE, WHICH MAY AFFECT THE WORK TO BE PERFORMED, AND THE EQUIPMENT, LABOR AND MATERIALS REQUIRED. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF COMPLETE PERFORMANCE UNDER THIS CONTRACT. THE CONTRACTOR IS URGED TO TAKE COLOR PHOTOGRAPHS ALONG THE ROUTE OF THIS PROJECT TO RECORD EXISTING CONDITIONS PRIOR TO CONSTRUCTION, AND TO AID IN RESOLVING POSSIBLE FUTURE COMPLAINTS THAT MAY OCCUR DUE TO CONSTRUCTION OF THE PROJECT.
3. ALL IMPROVEMENTS SHOWN ARE TO BE WARRANTED BY THE CONTRACTOR TO THE OWNER FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
4. THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION WITH ALL OTHER CONTRACTORS. IN THE EVENT OF ANY CONFLICT WHATSOEVER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION.
5. "AS–BUILT" DRAWINGS – AS–BUILT DRAWINGS ARE REQUIRED TO BE PROVIDED AND SIGNED AND SEALED BY A FLORIDA REGISTERED LAND SURVEYOR. THEREFORE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTRACT WITH A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA FOR THE PREPARATION, FIELD LOCATIONS, CERTIFICATION, AND SUBMITTAL OF "AS–BUILT" DRAWINGS.
6. "AS–BUILT" RECORD DATA AND INFORMATION SHALL BE MAINTAINED BY THE CONTRACTOR. RECORD DRAWINGS SHALL BE SUPPLIED TO THE BDC, DODSTONE ARCHITECTS, AND GEORGE & ASSOCIATES CONSULTING ENGINEERS, INC.
7. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL SURVEY AND PROPERTY MONUMENTS. IF A MONUMENT IS DISTURBED, THE CONTRACTOR SHALL CONTRACT WITH THE SURVEYOR OF RECORD FOR REINSTALLATION OF THE MONUMENT.
8. ALL DEBRIS RESULTING FROM ALL ACTIVITIES SHALL BE DISPOSED OF OFF–SITE BY CONTRACTOR ON A WEEKLY BASIS.
9. ALL EXCESS UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR UNLESS DIRECTED OTHERWISE.
10. ALL EXISTING TREES TO REMAIN SHALL BE PRESERVED AND PROTECTED, EXCEPT FOR REMOVAL AS REQUIRED FOR CONSTRUCTION.
11. THE LOCATION OF ALL EXISTING UTILITIES, STRUCTURES, AND IMPROVEMENTS SHOWN ON THE DRAWINGS IS BASED ON LIMITED INFORMATION AND MAY NOT HAVE BEEN FIELD VERIFIED. THE LOCATIONS ARE APPROXIMATE. THE CONTRACTOR SHALL NOTIFY RESPECTIVE UTILITY OWNERS AND FIELD VERIFY LOCATIONS OF EXISTING UTILITIES AND OTHER IMPROVEMENTS PRIOR TO COMMENCING ANY CONSTRUCTION. IF THE LOCATIONS SHOWN ARE CONTRARY TO THE ACTUAL FIELD LOCATIONS, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER OF THE DISCREPANCY. THE DISCREPANCY SHOULD BE RESOLVED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING IN AREAS NEAR EXISTING UTILITIES AND IMPROVEMENTS AND SHALL BE RESPONSIBLE FOR AND SHALL REPAIR OR PAY FOR ALL DAMAGE MADE TO EXISTING UTILITIES OR OTHER IMPROVEMENTS. PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL GRADES, INVERTS, AND TYPE OF MATERIAL OF EXISTING UTILITIES TO WHICH HE SHALL CONNECT.
12. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON ALL MATERIALS, FOR REVIEW AND APPROVAL, PRIOR TO PURCHASE OR CONSTRUCTION OF ANY UTILITY PIPE OR STRUCTURE.
13. UNSUITABLE MATERIALS BENEATH WATER AND SEWER PIPE AND/OR STRUCTURES SHALL BE REMOVED AND REPLACED WITH SELECTED BACK FILL PROPERLY COMPACTED IN ACCORDANCE WITH SPECIFICATIONS.
14. ALL WATER & SEWER CONSTRUCTION SHALL BE ACCOMPLISHED BY AN UNDERGROUND UTILITY CONTRACTOR LICENSED UNDER THE PROVISIONS OF CHAPTER 489 FLORIDA STATUTES.
15. CONTRACTOR SHALL PROVIDE SEDIMENT AND EROSION CONTROL DURING THE ENTIRE DURATION OF THE PROJECT. ALL JURISDICTIONAL WETLANDS SHALL BE PROTECTED FROM SEDIMENTATION AND EROSION AS WELL AS ENCROACHMENT OF ANY KIND. ANY WETLAND JURISDICTIONAL LINES ARE SHOWN ON THE PLANS FOR REFERENCE. CONTRACTOR SHALL MEET THE REQUIREMENTS SET FORTH BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE U.S. ARMY CORPS OF ENGINEERS AS RELATED TO JURISDICTIONAL WETLANDS.
16. CONTRACTOR SHALL COMPLY WITH THE CURRENT FLORIDA TRENCH SAFETY ACT (F.S. 553.60–553.64) AND THE OSHA EXCAVATION SAFETY STANDARDS 29, CFR PART 1926.650 SUBPART P. WHERE TRENCH EXCAVATION EXCEEDS 5 FT IN DEPTH, SEE FLORIDA STATUTE 553.60–553.64.
17. CONTRACTOR SHALL COMPLY WITH STORM WATER POLLUTION PREVENTION PLAN. A COPY OF THIS PLAN AND FORMS ARE INCLUDED IN THE SPECIFICATIONS.

AS BUILT / RECORD DRAWINGS:

1. CONTRACTOR SHALL PROVIDE GEORGE & ASSOCIATES CONSULTING ENGINEERS TWO SIGNED AND SEALED COPIES OF AS–BUILT DRAWINGS OF ALL FINISHED IMPROVEMENTS.
2. CONTRACTOR SHALL PROVIDE THE BDC, DODSTONE ARCHITECTS, AND GEORGE & ASSOCIATES CONSULTING ENGINEERS AS–BUILT DRAWINGS OF ALL FINISHED IMPROVEMENTS IN PDF AND DWG FORMAT.
3. AS–BUILT DRAWINGS TO BE PERFORMED AND CERTIFIED BY A FLORIDA LICENSED PROFESSIONAL LAND SURVEYOR.
4. AS–BUILT DRAWINGS SHALL BE SUBMITTED AFTER COMPLETION OF ALL IMPROVEMENTS AND PRIOR TO FINAL INSPECTION.
5. AS BUILT DRAWINGS SHALL INCLUDE, BUT NOT BE LIMITED TO:

A. FINISHED FLOOR ELEVATIONS FOR ALL BUILDINGS.
B. SHOW ENTIRE SANITARY SEWER CONVEYANCE SYSTEM INCLUDING THE SIZE TYPE AND INVERT OF ALL PIPES AND MANHOLES. MANHOLES SHALL INCLUDE "X" AND "Y" COORDINATES.
C. SHOW ENTIRE POTABLE WATER SYSTEM INCLUDING THE SIZE AND TYPE OF ALL PIPES AND LOCATIONS OF APPURTENANCES.
D. SHOW ENTIRE FIRE WATER SYSTEM INCLUDING THE SIZE AND TYPE OF ALL PIPES AND LOCATIONS OF APPURTENANCES.
E. SHOW ENTIRE STORM WATER CONVEYANCE SYSTEM INCLUDING THE SIZE TYPE AND INVERT OF ALL PIPES, CHANNELS, ROOF DRAIN SYSTEMS, STRUCTURES, CURBING AND SPOT SHOT ELEVATIONS IN VEHICLE USE AREAS. DRAINAGE STRUCTURES SHALL INCLUDE "X" AND "Y" COORDINATES.
F. SHOW ALL SIDEWALK AND VEHICLE USE AREAS. PROVIDE ADEQUATE SPOT ELEVATIONS TO VERIFY ADA COMPLIANCE FOR REVIEW BY ENGINEER AND ADA COMPLIANCE REPORT.
G. SHOW ALL TRAFFIC CONTROL DEVICES INCLUDING SIGNS, SIGNALS, PARKING STRIPPING AND PAVEMENT MARKINGS.
H. SITE DATA TABLE TO INCLUDE IMPERVIOUS AREAS, URBAN FOREST AREAS, GREEN SPACE AREAS, AND NUMBER OF PARKING SPACES.
I. POST CONSTRUCTION TREE SURVEY INCLUDING LOCATION, SIZE AND SPECIES OF ALL EXISTING AND NEW TREES INCLUDING URBAN FOREST AND REPLANTED TREES AND IRRIGATION SYSTEMS.
J. DELINEATE CONSERVATION AND DRAINAGE EASEMENT BOUNDARIES AND LABEL WITH THE "OR" BOOK AND PAGE NUMBER.
K. POST DEVELOPMENT SITE DATA TABLE INCLUDING IMPERVIOUS AREA, URBAN FOREST AREA, GREEN SPACE AREA, NUMBER OF STANDARD PARKING STALLS, NUMBER ADA PARKING STALLS PROVIDED.
L. DELINEATE ALL UTILITIES CAPPED WITH "X" "Y" "Z" COORDINATES.
M. ANY ADDITIONAL ITEMS REQUIRED BY PERMITTING JURISDICTION.

DESIGN STANDARDS:

1. THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, UNLESS OTHERWISE NOTED.
2. THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
3. 2023 FLORIDA BUILDING CODES, 8TH EDITION.
4. FLORIDA STORMWATER EROSION AND SEDIMENTATION CONTROL INSPECTORS MANUAL, LATEST EDITION.
5. INLET BEACH WATER SYSTEM STANDARD DESIGN AND CONSTRUCTION SPECIFICATIONS, LATEST EDITION.

CONSTRUCTION SEQUENCE:

1. CONSTRUCT EROSION AND SEDIMENT CONTROL PRACTICES AS DESCRIBED IN THE APPROVED EROSION CONTROL PLAN.
2. ESTABLISH MAINTENANCE OF TRAFFIC PLAN WITH PARK MANAGER.
3. CONTRACTOR SHALL PROVIDE CONSTRUCTION SEQUENCE TO FDEP, PARK MANAGER, ENGINEER AND ARCHITECT.
4. DESIGNATE EMPLOYEE PARKING AREAS, MATERIALS STORAGE AREAS, AND TOPSOIL STORAGE AREAS.
5. CONSTRUCT ALL IMPROVEMENTS AS INDICATED IN THE PLANS AND SPECIFICATIONS.
6. REMOVE ALL STOCKPILE FROM SITE, INSTALL LANDSCAPING. SOD ALL DISTURBED AREAS.
7. PRIOR TO FINAL CLOSE–OUT, THE CONTRACTOR SHALL FURNISH THE ARCHITECT, ENGINEER AND THE OWNER'S PROJECT MANAGER WITH SIGNED AND SEALED COPIES OF THE AS–BUILT SURVEY AND A COMPLETE SET OF RECORD DOCUMENTS.
8. FIELD INSPECTION AND CLEAN UP.

ADA COMPLIANCE NOTES:

THE CONTRACTOR WILL BE HELD ACCOUNTABLE DURING CONSTRUCTION FOR ALL SITE IMPROVEMENTS. COMPLIANCE WITH FLORIDA STATUTES 553.5041 (F.S.), AND THE 2023 FLORIDA BUILDING CODE, ACCESSIBILITY, 8TH EDITION (FBC–A), IS MANDATORY. IF NON–COMPLIANT AT FINAL INSPECTION, CONTRACTOR WILL BE REQUIRED TO MODIFY CONSTRUCTION TO COMPLY WITH F.S. AND FBC–A. THE FOLLOWING ITEMS TAKE PRECEDENCE AND SUPERSEDE OTHER SITE DETAILS ON DRAWINGS:

1. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON AN ACCESSIBLE ROUTE NO LESS THAN 44" WIDE SO THAT USERS WILL NOT BE COMPELLED TO WALK OR WHEEL BEHIND PARKED VEHICLES EXCEPT BEHIND HIS OR HER OWN VEHICLE. §208.1 AND §502.3, FBC–A AND F.S. 553.5041.
2. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SERVING A PARTICULAR BUILDING SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTE FROM THE ACCESSIBLE (H/C) PARKING TO AN ACCESSIBLE ENTRANCE. §208.3.1 FBC–A AND F.S. 553.5041(5)(B).
3. ACCESSIBLE PARKING SPACES SHALL BE 12' WIDE , AND OUTLINED WITH BLUE PAINT. §502.2 AND §502.6, FBC–A
4. ACCESS AISLES REQUIRED ADJACENT TO PARKING SPACES SHALL BE 5' WIDE WITH DIAGONAL STRIPING. §502., FBC–A
5. ACCESSIBLE PARKING AND ACCESS AISLES SHALL BE LEVEL (NOT TO EXCEED 1:48) ON A STABLE FIRM & SLIP RESISTANT SURFACE. RE: §302.1, §502.3. FBC–A
6. ACCESSIBLE PARKING SIGNS SHALL BE FDOT APPROVED AND SHALL READ 'PARKING BY DISABLED PERMIT ONLY' AND SHALL INDICATE A $250 FINE FOR ILLEGAL USE. INSTALL SIGNS A MINIMUM 60"(INCHES) FROM THE GROUND TO THE BOTTOM OF THE SIGN(S). RE: §502.6 AND F.S 553.5041.
7. CURB RAMPS SHALL NOT EXCEED 1:12 SLOPE, AND CURB RAMP FLARES SHALL NOT EXCEED 1:10 SLOPE. CURB RAMPS AND FLARED SIDES SHALL NOT ENCROACH UPON PARKING SPACES, ACCESS AISLES, OR VEHICULAR TRAFFIC LANES. THE COUNTER SLOPE OF ADJACENT ROAD SURFACES & GUTTERS SHALL NOT EXCEED 1:20. RE: §405.2, §406., FBC–A
8. CURB RAMPS SHALL HAVE A LANDING WITH A MINIMUM CLEAR LENGTH OF 36" SHALL BE LOCATED AT THE TOP SIDE OF EACH CURB RAMP, A CLEAR WIDTH AT LEAST AS WIDE AS THE CURB RAMP (EXCLUDING FLARED SIDES) LEADING TO IT. EXCEPTION: FOR ALTERATIONS, WHERE THERE IS NO LANDING, CURB RAMP FLARES SHALL BE PROVIDED, AND SHALL NOT BE STEEPER THAN 1:12 SLOPE. RE: §406, FBC–A
9. ALL RAMPS WITH A RISE GREATER THAN 6" SHALL PROVIDE EDGE PROTECTION COMPLYING WITH §405.9 FACBC. RAMPS SHALL HAVE 60" MIN LEVEL LANDINGS AT THE TOP & BOTTOM. RE: §405.7. FBC–A.
10. ALL RAMPS WITH A RISE GREATER THAN 6" SHALL PROVIDE EDGE PROTECTION COMPLYING WITH §405.9 FACBC. RAMPS SHALL HAVE 60" MIN LEVEL LANDINGS AT THE TOP & BOTTOM. RE: §405.7. FBC–A.
11. ACCESSIBLE ROUTES TO "MAIN ENTRY" FROM AN ACCESSIBLE PARKING SPACE, AND FROM THE "PUBLIC WAY", SHALL NOT EXCEED 1:20 SLOPE (UNLESS RAMPS, HANDRAILS WITH PROPER EXTENSIONS ARE PROVIDED) WITH CROSS SLOPE NOT IN EXCESS OF 1:48. RE: §206, §402 AND §403., FBC–A.
12. CONNECT BUILDINGS WITHIN THE SAME SITE WITH AN ACCESSIBLE ROUTE WHICH SHALL NOT EXCEED 1:20 SLOPE (UNLESS RAMPS AND HANDRAILS ARE PROVIDED) AND A MAXIMUM CROSS SLOPE OF 1:48. RE: §206 FBC–A.

PROJECT SPECIFIC NOTES:

1. SHOP DRAWINGS FOR THE PICNIC PAVILIONS, ADA FLOATING KAYAK LAUNCH, NEW SIGNS, GRINDER PUMP STATION, PIPES, VALVES, DRAINAGE STRUCTURES AND ANY OTHER ITEMS LISTED IN THE SPECIFICATIONS SHALL BE SUBMITTED TO THE E.O.R. FOR APPROVAL.
2. POWELL LAKE IS AN OUTSTANDING FLORIDA WATER (OFW), ALL DUE CAUTION SHALL BE TAKEN TO PREVENT STORMWATER FROM CARRYING SEDIMENT INTO THE LAKE.
3. IF SHORELINE CONSTRUCTION IS TO OCCUR DURING TURTLE NESTING SEASON (MARCH–OCTOBER), A PRE–CONSTRUCTION SURVEY OF THE SHORELINE SHALL BE DONE TO CONFIRM THAT NO SEA TURTLE NESTS ARE PRESENT IN THE AREA OF IMPACT.
4. IT IS RECOMMENDED THAT SHORELINE CONSTRUCTION AVOID SHOREBIRD NESTING SEASON (MAY–JUNE).
5. BRUSH FINISH ALL CONCRETE SURFACES (UNLESS POROUS CONCRETE IS SPECIFIED).
6. CONTRACTOR TO SUBMIT SHOP DRAWINGS OF THE PICNIC PAVILION(S), UTILITY PARTS AND OTHER PICNIC AREA ACCESSORIES PRIOR TO ORDERING.
7. ALL SEWER AND WATER UTILITY WORK MUST COMPLY WITH INLET BEACH WATER SYSTEM STANDARD DESIGN AND CONSTRUCTION SPECIFICATIONS, UNLESS NOTED OTHERWISE ON THE PLANS.
8. MAINTENANCE OF TRAFFIC (MOT) TECHNICIAN SHALL NOTIFY ENGINEER OF RECORD AND SUBMIT THEIR INFORMATION TO THE FDOT REGULATING OFFICE:

LISA WARD
FDOT PERMITS MANAGER
MARIANNA/PANAMA CITY OPERATIONS
3633 HWY 390
PANAMA CITY, FL, 32405
(850) 767 4914
LISA.WARD@DOT.STATE.FL.US

SURVEY LEGEND & ABBREVIATIONS:

Symbol	Description	Symbol	Description
	= BACKFLOW PREVENTER		= WATER METER
	= BENCH		= WIRING PULL BOX
	= BUSH		= UTILITY VALVE
	= TELEPHONE PEDESTAL	–BFO–	= BURIED FIBER OPTIC LINE
	= DRAINAGE MANHOLE	–BT–	= BURIED TELEPHONE LINE
	= FIRE HYDRANT	–G–	= GAS MAIN
	= GUY ANCHOR	–OE–	= OVERHEAD UTILITY LINE
	= UTILITY POLE	–WM–	= WATER LINE
	= NON–TRAFFIC SIGN	–NPW–	= RECLAIM WATER LINE
	= TEST HOLE		= TREE LINE
	= TRAFFIC SIGN		= UTILITY MARKER

BUREAU OF DESIGN AND CONSTRUCTION GENERAL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND ACCEPTING THE EXISTING CONDITIONS OF THE SITE PRIOR TO BIDDING.
2. ALL DISTURBED AREAS WITHIN THE LIMITS OF RESTORATION SHALL BE REVEGETATED AS SPECIFIED BY THE PARK SERVICE BIOLOGIST.
3. EXISTING UNDERGROUND UTILITIES SHOWN ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL ENSURE THAT THE UTILITY SYSTEMS DO NOT CONFLICT WITH THE PROPOSED PROJECT. CONFLICTS SHALL BE REPORTED TO THE PROJECT MANAGER IMMEDIATELY.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. REMOVAL AND/OR RELOCATION OF EXISTING UTILITIES IN CONFLICT WITH THE WORK, CONSTRUCTION OF TEMPORARY UTILITIES IN THE EVENT THAT EXISTING UTILITY SERVICE MUST BE INTERRUPTED AND ANY OTHER CONSTRUCTION RELATED ACTIVITIES THAT MAY AFFECT EXISTING OR PROPOSED UTILITIES. THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES IS BASED ON INFORMATION PROVIDED BY THE UTILITY OWNERS, AVAILABLE RECORDS, AND SURVEYED FIELD INFORMATION. THE INFORMATION MAY NOT REFLECT ACTUAL CONDITIONS, INCLUDE ALL UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED, OR SHOW THE UTILITIES IN THE CORRECT HORIZONTAL OR VERTICAL LOCATIONS. THE CONTRACTOR WILL MAKE IS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS NECESSARY TO ESTABLISH THEIR LOCATIONS AND AVOID DAMAGE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING ALL GRADE STAKES, LINES AND LEVELS.
6. THE CONTRACTOR SHALL SOLID SOD ALL DISTURBED AREAS UNLESS OTHERWISE SPECIFIED OR SHOWN.
7. NO SEPARATE PAYMENT WILL BE MADE FOR DEWATERING. THE COSTS FOR DEWATERING ARE INCLUDED IN THE UNIT PRICES FOR CONSTRUCTING THIS PROJECT.
8. ALL AREAS, STREETS, DRIVEWAYS, PARKING LOTS, ETC. DISTURBED BY CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL OR BETTER CONDITION.
9. THE CONTRACTOR WILL HAVE ALL REQUIRED PERMITS IN–HAND PRIOR TO BEGINNING CONSTRUCTION, AND WILL PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMITS OBTAINED BY THE OWNER AND THOSE PERMITS OBTAINED BY THE CONTRACTOR.
10. PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR WILL SUBMIT TO THE OWNER'S PROJECT MANAGER A SCHEDULE OF VALUES, A CONSTRUCTION SCHEDULE, AND A SAFETY PLAN.
11. THE CONSTRUCTION SCHEDULE WILL DESCRIBE IN DETAIL HOW THE CONSTRUCTION IS TO BE PHASED, ESTABLISH START AND FINISH DATES FOR ALL SIGNIFICANT CONSTRUCTION ACTIVITIES, AND IDENTIFY ALL CONTROLLING ITEMS OF WORK. THE SCHEDULE IS TO BE APPROVED BY THE OWNER'S PROJECT MANAGER, AND WILL BE UPDATED ON A MONTHLY BASIS TO REFLECT ACTUAL WORK PROGRESS. PAYMENT FOR PREPARING, UPDATING AND SUBMITTING THE SCHEDULE WILL BE INCLUDED IN THE PAY ITEM FOR MOBILIZATION OR OTHER PAY ITEMS AS APPROPRIATE.
12. THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR APPROVAL BY THE OWNER'S PROJECT MANAGER AND WILL ADDRESS THE INSTALLATION AND MAINTENANCE OF ALL TEMPORARY AND PERMANENT SEDIMENT AND EROSION CONTROL DEVICES TO BE USED DURING EACH PHASE OF CONSTRUCTION, INCLUDING TREE REMOVAL, CLEARING AND GRUBBING, EXCAVATION, HAULING OF EXCAVATED MATERIALS, AND PLACEMENT OF EMBANKMENT AND BACKFILL. THE PLAN ALSO WILL DETAIL THE EROSION CONTROL MEASURES TO BE EMPLOYED AT ALL STOCKPILE AND CONSTRUCTION STAGING AREAS AND WILL DEFINE THE MAXIMUM LIMITS OF ALL ACTIVE CONSTRUCTION ZONES.
13. ANY NATIONAL GEODETIC SURVEY MONUMENT WITHIN THE LIMITS OF CONSTRUCTION MUST BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE PROJECT MANAGER AND:
    FDEP, BUREAU OF SURVEY AND MAPPING, MS 105
    3900 COMMONWEALTH BLVD.
    TALLAHASSEE, FLORIDA 32399
    (850) 245–2606 (OFFICE)
    (850) 245–2645 (FAX)
14. PRIOR TO ANY SCHEDULED INTERRUPTION OF UTILITY SERVICE, THE CONTRACTOR WILL COORDINATE SUCH INTERRUPTION WITH THE UTILITY PROVIDER AND WILL PROVIDE A MINIMUM 24–HOUR NOTICE TO THE AFFECTED PARTIES. THE CONTRACTOR WILL NOTIFY THE ELECTRIC UTILITY A MINIMUM OF TWO WEEKS PRIOR TO CONSTRUCTION IN THE VICINITY OF THEIR FACILITIES.
15. NO TRENCHES WILL BE ALLOWED TO REMAIN OPEN OVERNIGHT.
16. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF VEGETATION ON AND ADJACENT TO THE PROJECT SITE, AND WILL BE SOLELY LIABLE FOR DAMAGE TO VEGETATION ON PROPERTIES ADJACENT TO CONSTRUCTION WORK ZONES. ALL TREES WITHIN THE LIMITS OF CONSTRUCTION ARE TO BE PROTECTED EXCEPT THOSE TREES IDENTIFIED ON THE PLANS TO BE REMOVED. ALL TREES OUTSIDE THE CONSTRUCTION WORK ZONE ARE TO BE PROTECTED TO THE MAXIMUM EXTENT PRACTICABLE. TREE BARRICADES WILL BE INSTALLED AND MAINTAINED AROUND ALL TREES TO BE PROTECTED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT MANAGER.
17. THE CONTRACTOR IS RESPONSIBLE TO PLACE AND MAINTAIN ROADSIDE WARNING SIGNS WHEN WORK IS BEING CONDUCTED IN THE PROPERTY RIGHT OF WAY OR WHEN MACHINERY IS ENTERING AND LEAVING THE PROJECT SITE.
18. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF EXCAVATED MATERIAL OFF–SITE UNLESS OTHERWISE DIRECTED BY THE PROJECT MANAGER.
19. ENSURE THAT ALL EQUIPMENT, PRIOR TO BRINGING ON–SITE, IS WASHED AND FREE OF SOIL, SEED, OR OTHER ORGANIC MATTER. EQUIPMENT MAY BE INSPECTED BY THE OWNER'S REPRESENTATIVE PRIOR TO OFF–LOADING FOR USE. ADDITIONAL CLEANING WILL BE PERFORMED BY THE CONTRACTOR IF THE OWNER'S REPRESENTATIVE DETERMINES IT IS NEEDED.

EROSION CONTROL NOTES:

1. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
2. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE INSPECTED DAILY AND REPAIRS MADE AS NECESSARY TO ENSURE THE PROPER AND CONTINUED FUNCTION OF THE CONTROL(S).
3. ALL EROSION AND SEDIMENTATION CONTROL SHALL REMAIN IN PLACE UNTIL A PERMANENT VEGETATIVE COVER HAS BEEN ESTABLISHED.
4. UNDER NO CIRCUMSTANCES SHALL SEDIMENTS BE PERMITTED TO EXIT THE PROJECT LIMITS, INCLUDING TRACKING BY VEHICLES ONTO PAVED ROADWAYS. THE CONTRACTOR SHALL MAKE IMMEDIATE REPAIRS OR ENHANCEMENTS TO ANY EROSION CONTROL SYSTEM THAT ALLOWS THE RELEASE OF SEDIMENTS.

NOT FOR CONSTRUCTION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245–2157

DATE | REVISION | SYMBOL | DATE | REVISION | SYMBOL

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP

Consultant:
George & Associates Consulting Engineers, Inc.
CIVIL - ENVIRONMENTAL - TRANSPORTATION - SYSTEMS PLANNING - LAND USE
ENGINEERING BUSINESS NO. 7879
1967 Commonwealth Lane, Suite 200, Tallahassee, FL 32303
PHONE 850.521.0344 - FAX 850.521.0345

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV LICENSE No 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK
SHEET TITLE: GENERAL NOTES
PROJECT TITLE: PARK IMPROVEMENT
SHEET NO. C003

Distance from Proposed Entrance to Nearest Road (West)	Distance from Proposed Entrance to Bridge (East)
1680 ft.	710 ft.

PARCEL BOUNDARY (GIS)

POWELL LAKE

LIMITS OF CONSTRUCTION (1.980 ACRES)

PROPOSED NORTHSIDE DAY-USE FACILITY

HA-1 HA-2 HA-3 HA-4 HA-5 HA-6 HA-10 HA-12 HA-13 HA-14 HA-15 HA-16 HA-17 HA-18

C-1 C-2

SW1/DRI

WETLANDS DEFINED BY FELSI (GIS)

PROPOSED ENTRANCE

PROPOSED TURN LANE ADDITION

LIMITS OF CONSTRUCTION (0.555 ACRES)

R/W

SR 30 (US HWY 98)

WEST BOUND

EAST BOUND

R/W

TO INLET BEACH

TO PANAMA CITY BEACH

LIMITS OF CONSTRUCTION (0.408 ACRES)

EXISTING PARK ENTRANCE

LIMITS OF CONSTRUCTION (0.081 ACRES)

PROPOSED DRAINAGE IMPROVEMENTS AREA

PROPOSED TURN LANE ADDITION

LIMITS OF CONSTRUCTION (0.161 ACRES)

PROPOSED ADA CANOE/KAYAK LAUNCH AND RAMP IMPROVEMENTS

WETLANDS DEFINED BY FELSI (GIS)

CAMP HELEN STATE PARK

POWELL LAKE / PHILLIPS INLET

PROJECT LOCATION MAP

SCALE: 1" = 100'

100 0 50 100

1 inch = 100 ft.

NOT FOR CONSTRUCTION

LINETYPE LEGEND

- W — WETLAND LINE
- LOC — LIMITS OF CONSTRUCTION
- GEOTECHNICAL BORINGS

	DATE	SYMBOL	REVISION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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George & Associates Consulting Engineers, Inc.
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DESIGNER: SMU
DRAWN BY: KOP
REVIEWED BY: JHP
Consultant:

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CAMP HELEN STATE PARK

SHEET TITLE: PROJECT LOCATION MAP

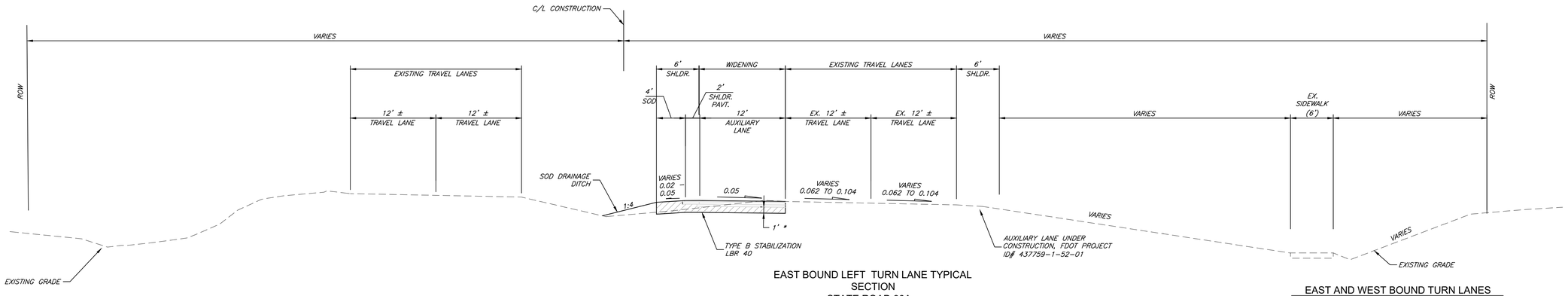
PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C004

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

Approved
Date: 20250109100036
Lisa Ward
1/16/2025

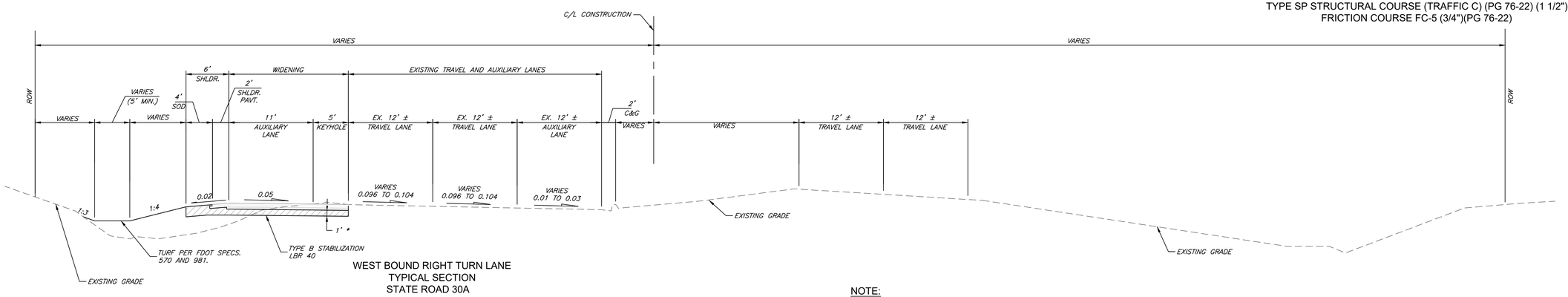
JPETERSON November 15, 2024 P:\Projects\21-5436 (EDC Camp Helen State Park\Drawings\Civil\02 General Notes signature Location map\0204 Project Location Map.dwg



EAST BOUND LEFT TURN LANE TYPICAL SECTION
STATE ROAD 30A
STA. 143+33.78 TO STA. 148+63.00
(LOOKING EAST)

EAST AND WEST BOUND TURN LANES
OPTIONAL BASE GROUP 9
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (PG 76-22) (3")
FRICTION COURSE FC-5 (3/4")(PG 76-22)

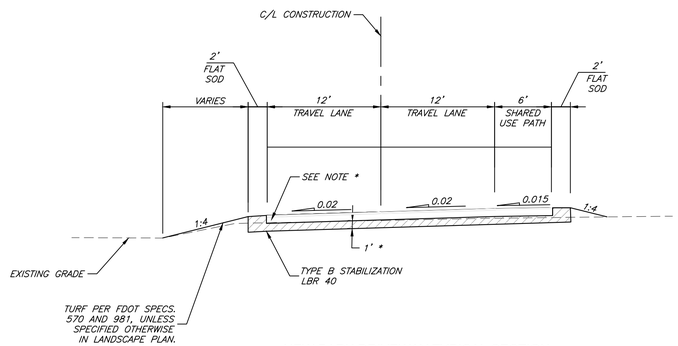
SHOULDER PAVEMENT
OPTIONAL BASE GROUP 1
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (PG 76-22) (1 1/2")
FRICTION COURSE FC-5 (3/4")(PG 76-22)



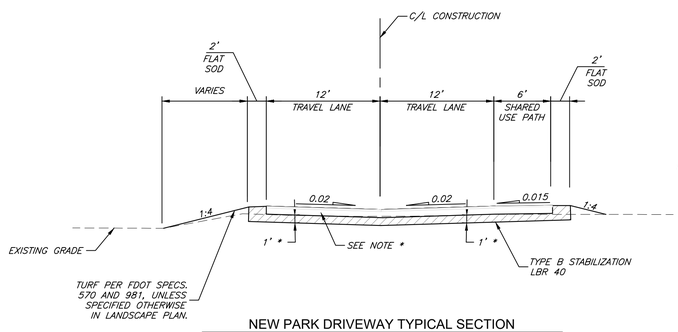
WEST BOUND RIGHT TURN LANE
TYPICAL SECTION
STATE ROAD 30A
STA. 149+12.00 TO STA. 153+93.00
(LOOKING EAST)

NOTE:

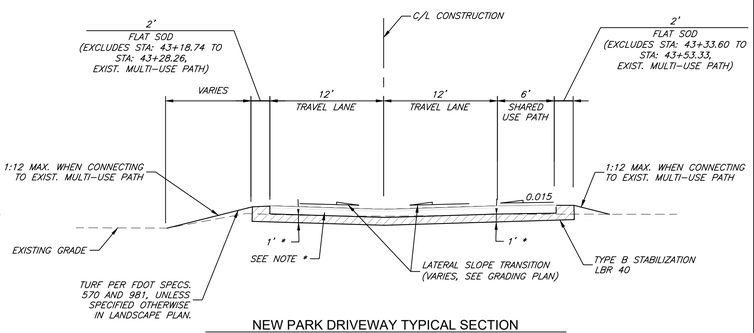
* DRIVEWAY AND PARKING AREA TO HAVE A SP 12.5 ASPHALTIC CONCRETE WEARING SURFACE WITH A MINIMUM THICKNESS OF 2 INCHES. BASE COURSE MATERIAL SHALL BE EITHER LIME ROCK OR GRADED AGGREGATE BASE (GAB) WITH A MINIMUM THICKNESS OF 6 INCHES. THE CONTRACTOR SHALL USE GAB IN LIEU OF LIME ROCK IN ALL AREAS WITHIN 24 INCHES OF WATER TABLE PER FINDINGS OF GEOTECH REPORT.



NEW PARK DRIVEWAY TYPICAL SECTION
OPTIONAL BASE GROUP 4
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2")
STA. 43+52.00 TO STA. 45+46.00



NEW PARK DRIVEWAY TYPICAL SECTION
OPTIONAL BASE GROUP 4
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2")
STA. 41+88.34 TO STA. 43+09.05
STA. 43+39.50 TO STA. 43+52.00



NEW PARK DRIVEWAY TYPICAL SECTION
OPTIONAL BASE GROUP 4
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2")
STA. 43+09.05 TO STA. 43+39.50

TYPICAL SECTIONS

NOT FOR CONSTRUCTION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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	DATE	SYMBOL	REVISION

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP
Consultant:

PROFESSIONAL REGISTRATION

JAMES H. PEDERSON IV LICENSE No 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER

JAMES H. PEDERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

SHEET TITLE: TYPICAL SECTIONS

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C005

Approved
Okaloosa County
Lisa Ward
1/16/2025

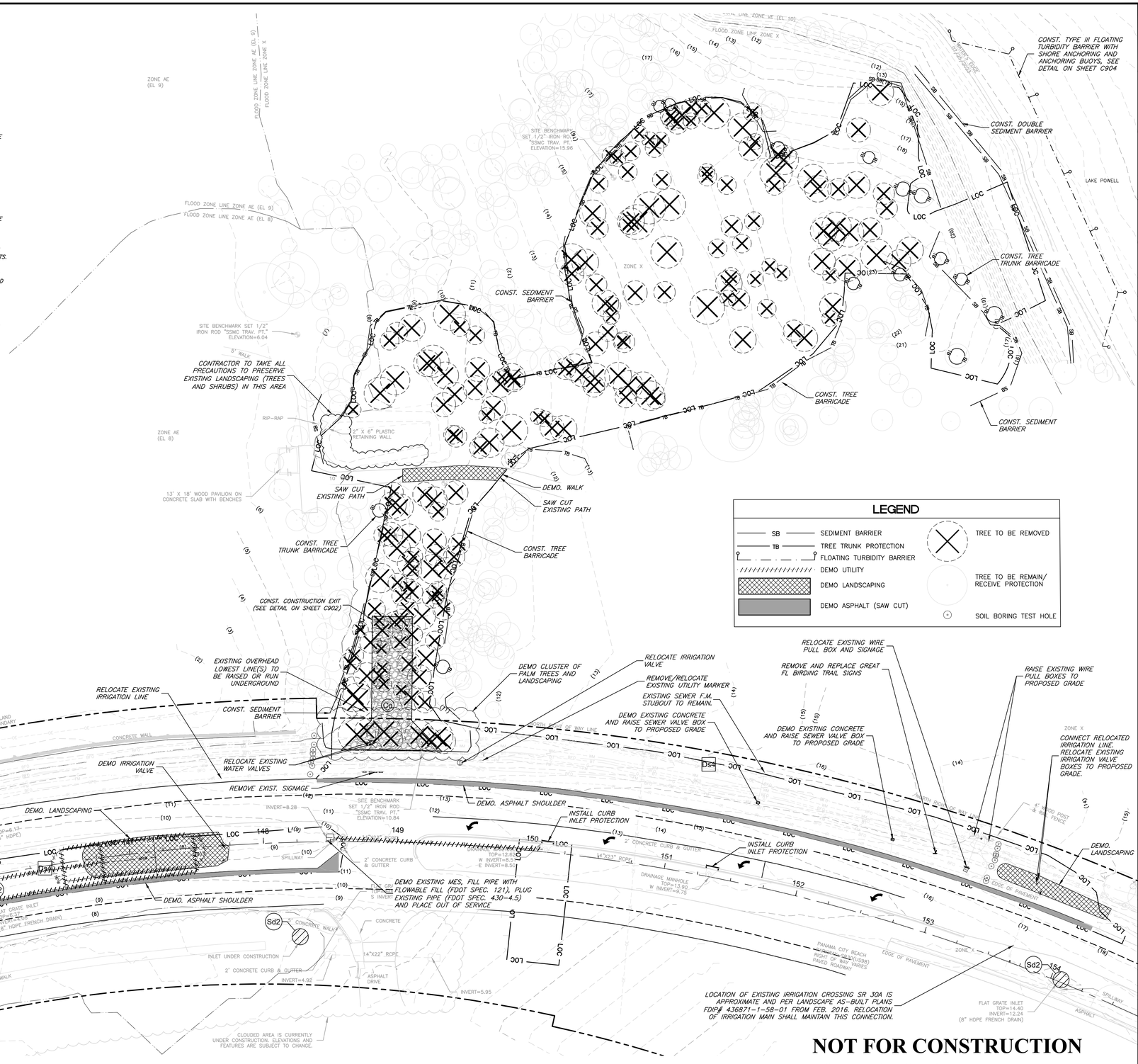
DRGDD October 31, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\04 Typical Sections\0059 Typical Sections.dwg

DEMO AND EROSION CONTROL NOTES:

1. *THIS SITE MAY CONTAIN EXISTING UTILITY LINES, UTILITY STRUCTURES AND MISCELLANEOUS UTILITY EQUIPMENT THAT MAY NOT HAVE BEEN SURVEYED AND IN CONFLICT WITH PROPOSED CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL UTILITIES WITHIN PROJECT AREA PRIOR TO CONSTRUCTION.*
2. *ALL UTILITIES MUST REMAIN IN OPERATION THROUGHOUT CONSTRUCTION ACTIVITIES FOR THIS PROJECT. FOR ANY ANTICIPATED DISRUPTION IN SERVICE, COORDINATE WITH OWNER AND UTILITY PROVIDER TWO WEEKS IN ADVANCE.*
3. *CONTRACTOR TO COORDINATE WITH BDC PROJECT MANAGER, UTILITY PROVIDER(S) AND CIVIL ENGINEER FOR ANY AND ALL UTILITIES THAT MAY BE IN CONFLICT WITH PROPOSED CONSTRUCTION ACTIVITIES.*
4. *WHERE EXISTING ITEMS SUCH AS ASPHALT, CONCRETE CURB AND GUTTER, ETC. ARE SHOWN TO BE REMOVED. THESE ITEMS SHALL BE SAWCUT.*
5. *CONTRACTOR TO VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.*
6. *CONTRACTOR RESPONSIBLE TO ADJUST ALL UTILITIES AND VALVE BOXES TO FINISH GRADE.*
7. *CONTRACTOR RESPONSIBLE TO DEFLECT ANY UTILITIES NECESSARY TO CONSTRUCT PROPOSED IMPROVEMENTS, PER MANUFACTURED RECOMMENDED TOLERANCES.*
8. *CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO EXISTING INFRASTRUCTURE, TREES, LANDSCAPE OR ANY OTHER MISC ITEMS THAT ARE TO REMAIN. CONTRACTOR SHALL RESTORE TO PRE-DEVELOPMENT CONDITION.*
9. *AN EFFORT HAS BEEN MADE TO IDENTIFY ALL UTILITIES IN THE AREA INCLUDING COORDINATING WITH UTILITY OWNERS. THE DEPICTED UTILITIES SHOULD NOT BE CONSIDERED THE EXTENT OF UTILITIES IN THE PROJECT AREA, AND ALL REQUIRED DUE CAUTION, SUCH AS AN 811 TICKET AND ADDITIONAL QUALITY LEVEL SUE 'A' SURVEY, SHOULD BE TAKEN PRIOR TO EXCAVATION TO VERIFY UTILITY EXTENTS.*
10. *ALL SIGNAGE WITHIN LIMITS OF CONSTRUCTION THAT WILL BE IMPACTED BY THE WORK SHALL BE REMOVED IN A MANNER THAT DOES NOT DAMAGE THE SIGNAGE OR POSTS. COORDINATE ALL REINSTALLATION OF SIGNAGE AND LOCATION WITH BDC PROJECT MANAGER AND PARK MANAGER. SIGNAGE TO BE REUSED SHALL BE STORED IN A MANNER THAT IS SAFE AND DOES NOT DAMAGE THE SIGNS. ANY DAMAGED SIGNAGE PROPOSED FOR REUSE SHALL BE REPLACED IN-KIND BY THE CONTRACTOR. BDC PROJECT MANAGER AND PARK MANAGER SHALL APPROVE OF ALL SIGNAGE TO BE REPLACED AND THE PROPOSED LOCATION FOR SIGNAGE. SIGNAGE NOT APPROVED FOR REUSE OR CLAIMED BY THE PARK SHALL BECOME THE CONTRACTOR'S RESPONSIBILITY FOR PROPER DISPOSAL.*
11. *COORDINATE ALL DEMOLITION ACTIVITIES WITH BDC PROJECT MANAGER AND PARK STAFF. PARK SHALL RETAIN RIGHT OF REFUSAL FOR ANY MATERIAL CALLED OUT FOR DEMOLITION. RETURN IN GOOD WORKING ORDER ANY MATERIALS REQUESTED BY THE BDC PROJECT MANAGER OR PARK STAFF AS SALVAGED MATERIAL. LAWFULLY DISPOSE, AT EXPENSE OF THE CONTRACTOR, ALL REMAINING ITEMS CALLED OUT FOR DEMOLITION.*

SEDIMENTATION and EROSION CONTROL LEGEND

SYMBOL	DESCRIPTION	
Fr	FILTER RING	A TEMPORARY STONE BARRIER CONSTRUCTED AT STORM DRAIN INLETS AND POND OUTLETS A SLOPE
Sd1	SEDIMENT BARRIER	A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, STRAWBALES OR HAY, BRUSH, LOG POLES, GRAVEL OR SILT FENCE.
Sd2	INLET SEDIMENT TRAP	AN IMPOUNDING AREA CREATED BY EXCAVATING AROUND A STORM DRAIN DROP INLET. EXCAVATED AREA TO BE FILLED AND STABILIZED ON COMPLETION OF CONSTRUCTION ACTIVITY.
St	STORM DRAIN OUTLET PROTECTION	A PAVED OR SHORT SECTION OF RIPRAP CHANNEL AT THE OUTLET OF A STORM DRAIN SYSTEM PREVENTING EROSION FROM THE CONCENTRATED RUNOFF.
Co	CONSTRUCTION EXIT	A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES THEREBY PROTECTING PUBLIC STREETS
Ds2	DISTURBED AREA STABILIZATION WITH SEEDING ONLY	ESTABLISHING TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS.
Ds3	DISTURBED AREA STABILIZATION WITH PERMANENT VEGETATION	ESTABLISHING A PERMANENT VEGETATIVE COVER SUCH AS TREES, SHRUBS, VINES, GRASSES, SOD OR LEGUMES ON DISTURBED AREAS.
Ds4	DISTURBED AREA STABILIZATION WITH SODDING	ESTABLISHING A PERMANENT VEGETATIVE COVER USING CENTIPEDE SOD AND TURF PER FDOT SPECS 570 AND 981
Du	DUST CONTROL ON DISTURBED AREAS	CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITES, ROADWAYS AND SIMILAR SITES.
Ch	CHANNEL STABILIZATION	IMPROVING, CONSTRUCTING OR STABILIZING AN OPEN CHANNEL, EXISTING STREAM OR DITCH
Cr	CONSTRUCTION ROAD STABILIZATION	A TRAVEL WAY CONSTRUCTED AS PART OF A CONSTRUCTION PLAN INCLUDING ACCESS ROADS, SUBDIVISION ROADS, PARKING AREAS, AND OTHER ON-SITE VEHICLE TRANPORTATION ROUTES



LEGEND

- SB — SEDIMENT BARRIER
- TB — TREE TRUNK PROTECTION
- FLOATING TURBIDITY BARRIER
- DEMO UTILITY
- DEMO LANDSCAPING
- DEMO ASPHALT (SAW CUT)
- TREE TO BE REMOVED
- TREE TO BE REMAIN/ RECEIVE PROTECTION
- SOIL BORING TEST HOLE

NOT FOR CONSTRUCTION

DEMOLITION AND EROSION CONTROL PLAN

SCALE:1" = 40'

40 0 20 40

1 inch = 40 ft.

DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP

Consultant: George & Associates Consulting Engineers, Inc. CA - HOUSTON ENGINEERING, INC. ENGINEERING BUSINESS NO. 2929 1367 Commonwealth Lake, Suite 200, Tallahassee, FL 32303 PHONE: (850)210-5344 FAX: (850)210-5345

DATE	SYMBOL	REVISION

DATE	SYMBOL	REVISION

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV LICENSE No 80465 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80465

CAMP HELEN STATE PARK

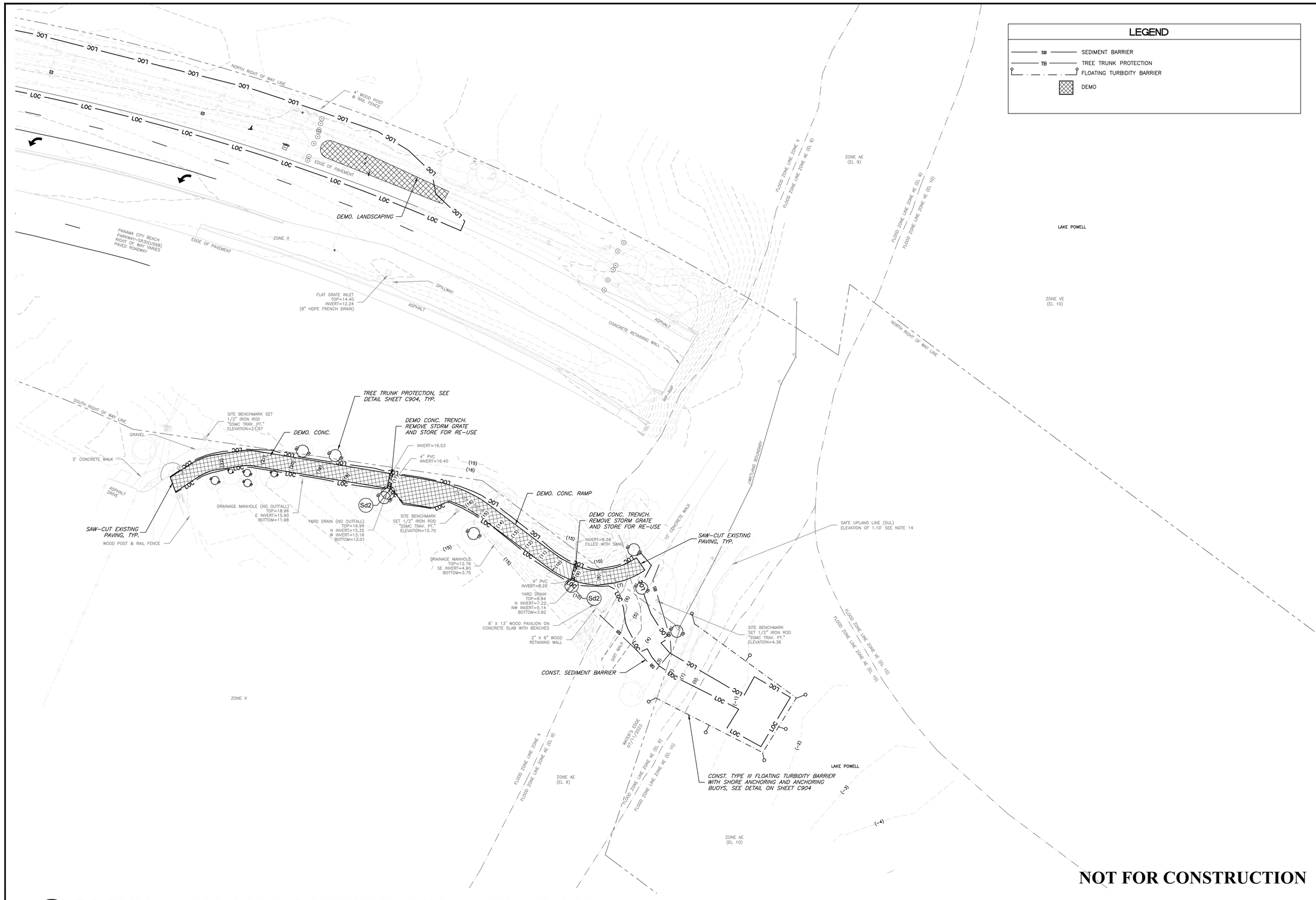
SHEET TITLE: DEMOLITION AND EROSION CONTROL PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C201

Approved
Digitally signed by 12391500036
Date: 2025.01.16 08:39:36 -06'00'
Adobe Acrobat Version: 24.001.20604
1/16/2025

D:\DOD\0 November 4, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\03 Existing Conditions, Demo,Tree Removal\C201 Demolition and Erosion Control Plan.dwg



DEMOLITION AND EROSION CONTROL PLAN

SCALE:1" = 30'

ISSUE DATE: 11/11/2024 100% PLANS					
COMP. FILE No.: 21-5436					
STATE PROJECT No.: 61307C-N3803					

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP
Consultant:

PROFESSIONAL REGISTRATION
JAMES H. PETERSON LICENSE No 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON P.E. # 80485
State of Florida P.E. #

CAMP HELEN STATE PARK

SHEET TITLE: DEMOLITION AND EROSION CONTROL PLAN

PROJECT TITLE: PARK IMPROVEMENT

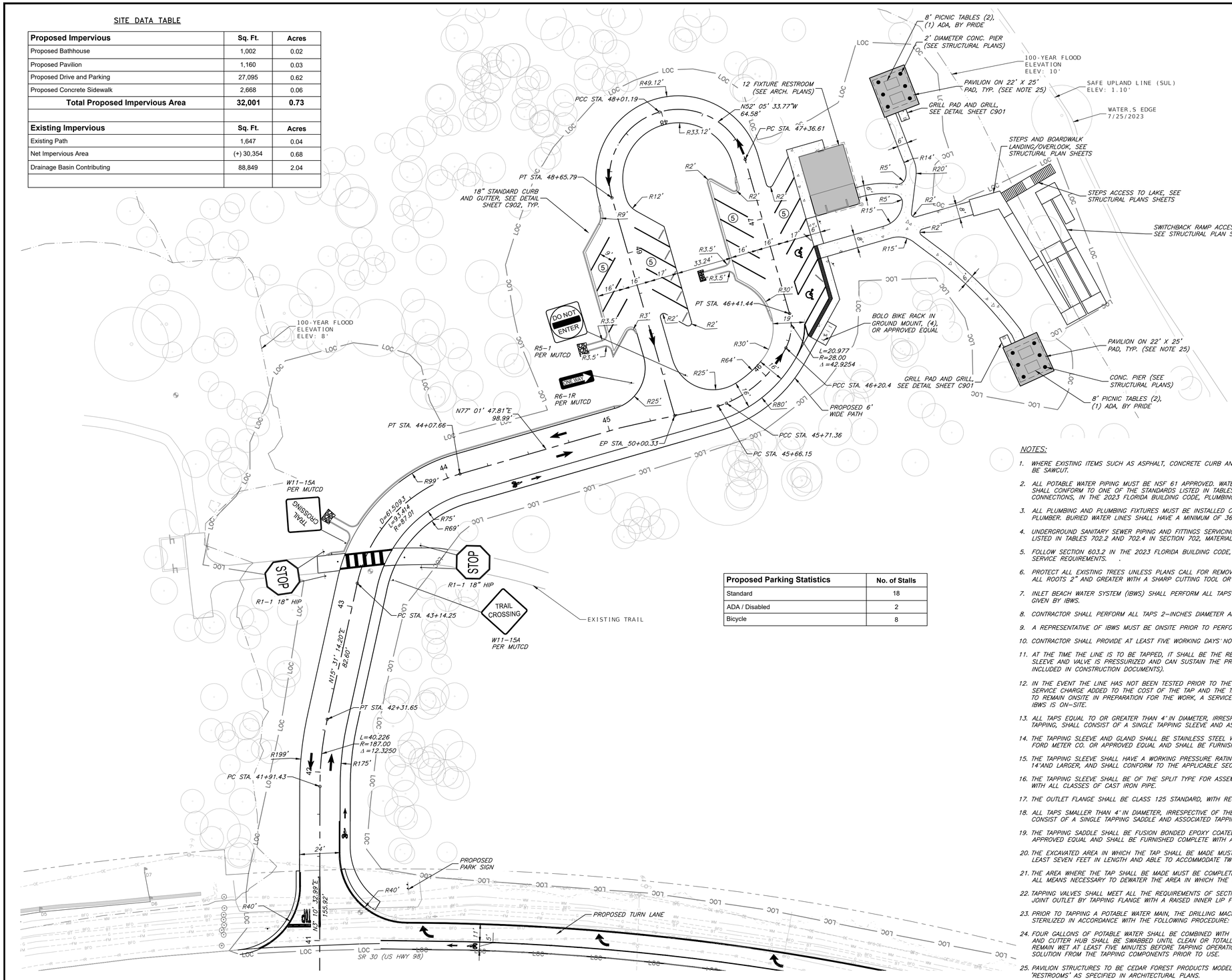
SHEET NO.
C202

Approved
Permit #391100036
Date Valid
1/16/2025

DRDWG November 8, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\00 Existing Conditions, Demo,Tree Removal\C202 Demolition and Erosion Control Plan.dwg

SITE DATA TABLE

Proposed Impervious	Sq. Ft.	Acres
Proposed Bathhouse	1,002	0.02
Proposed Pavilion	1,160	0.03
Proposed Drive and Parking	27,095	0.62
Proposed Concrete Sidewalk	2,668	0.06
Total Proposed Impervious Area	**32,001**	**0.73**
Existing Impervious	**Sq. Ft.**	**Acres**
Existing Path	1,647	0.04
Net Impervious Area	(+) 30,354	0.68
Drainage Basin Contributing	88,849	2.04



Proposed Parking Statistics	No. of Stalls
Standard	18
ADA / Disabled	2
Bicycle	8

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE SIDEWALK
- PROPOSED BUILDING
- SUE TEST HOLE
- YARD HYDRANT
- BACKFLOW PREVENTER
- VALVE
- REDUCER
- WATER METER
- VEHICLE PARKING COUNT

NOTES:

1. WHERE EXISTING ITEMS SUCH AS ASPHALT, CONCRETE CURB AND GUTTER, ETC. ARE SHOWN TO BE REMOVED. THESE ITEMS SHALL BE SAWCUT.
2. ALL POTABLE WATER PIPING MUST BE NSF 61 APPROVED. WATER SERVICE PIPING, DISTRIBUTION PIPING AND PLUMBING FIXTURES SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLES 605.3, 605.4, 605.5 IN SECTION 605, MATERIALS, JOINTS AND CONNECTIONS, IN THE 2023 FLORIDA BUILDING CODE, PLUMBING, 8TH EDITION.
3. ALL PLUMBING AND PLUMBING FIXTURES MUST BE INSTALLED OR THE INSTALLATION MUST BE SUPERVISED BY A FLORIDA LICENSED PLUMBER. BURIED WATER LINES SHALL HAVE A MINIMUM OF 36" OF COVER.
4. UNDERGROUND SANITARY SEWER PIPING AND FITTINGS SERVICING THE RESTROOM SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLES 702.2 AND 702.4 IN SECTION 702, MATERIALS, IN THE 2023 FLORIDA BUILDING CODE, PLUMBING, 8TH EDITION.
5. FOLLOW SECTION 603.2 IN THE 2023 FLORIDA BUILDING CODE, PLUMBING, 8TH EDITION FOR SEPARATION OF SEWER AND WATER SERVICE REQUIREMENTS. .
6. PROTECT ALL EXISTING TREES UNLESS PLANS CALL FOR REMOVAL. IF TREE ROOTS ARE ENCOUNTERED DURING EXCAVATION CUT ALL ROOTS 2" AND GREATER WITH A SHARP CUTTING TOOL OR SAW. DO NOT DAMAGE THE TREE TRUNK OR BARK.
7. INLET BEACH WATER SYSTEM (IBWS) SHALL PERFORM ALL TAPS GREATER THAN 2" IN DIAMETER, UNLESS WRITTEN PERMISSION IS GIVEN BY IBWS.
8. CONTRACTOR SHALL PERFORM ALL TAPS 2–INCHES DIAMETER AND LESS.
9. A REPRESENTATIVE OF IBWS MUST BE ONSITE PRIOR TO PERFORMING ANY AND ALL TAPS.
10. CONTRACTOR SHALL PROVIDE AT LEAST FIVE WORKING DAYS' NOTICE TO IBWS PRIOR TO PERFORMING THE WORK.
11. AT THE TIME THE LINE IS TO BE TAPPED, IT SHALL BE THE RESPONSIBILITY OF CONTRACTOR TO ENSURE THAT THE TAPPING SLEEVE AND VALVE IS PRESSURIZED AND CAN SUSTAIN THE PRESSURE TEST (SEE SECTION 6.3.7 OF IBWS SPECIFICATION, INCLUDED IN CONSTRUCTION DOCUMENTS).
12. IN THE EVENT THE LINE HAS NOT BEEN TESTED PRIOR TO THE ARRIVAL OF IBWS AT THE JOB SITE, THERE SHALL BE A $50.00 SERVICE CHARGE ADDED TO THE COST OF THE TAP AND THE TAP SHALL BE RESCHEDULED. SHOULD CONTRACTOR PREFER IBWS TO REMAIN ONSITE IN PREPARATION FOR THE WORK, A SERVICE CHARGE EQUAL TO $50.00 AN HOUR SHALL APPLY SO LONG AS IBWS IS ON–SITE.
13. ALL TAPS EQUAL TO OR GREATER THAN 4" IN DIAMETER, IRRESPECTIVE OF THE DIAMETER OF THE LINE TO WHICH YOU ARE TAPPING, SHALL CONSIST OF A SINGLE TAPPING SLEEVE AND ASSOCIATED TAPPING VALVE.
14. THE TAPPING SLEEVE AND GLAND SHALL BE STAINLESS STEEL WRAPAROUND "FAST STYLE", AND SHALL BE AS MANUFACTURED BY FORD METER CO. OR APPROVED EQUAL AND SHALL BE FURNISHED COMPLETE WITH ALL NECESSARY ACCESSORIES.
15. THE TAPPING SLEEVE SHALL HAVE A WORKING PRESSURE RATING OF 200 PSI FOR SIZES 4" THROUGH 12" AND 150 PSI FOR SIZES 14"AND LARGER, AND SHALL CONFORM TO THE APPLICABLE SECTIONS OF AWWA STANDARD C110 OF LATEST REVISION.
16. THE TAPPING SLEEVE SHALL BE OF THE SPLIT TYPE FOR ASSEMBLY ON THE PIPE AND THE SLEEVE SHALL BE SIZED FOR USE WITH ALL CLASSES OF CAST IRON PIPE.
17. THE OUTLET FLANGE SHALL BE CLASS 125 STANDARD, WITH RECESS FOR STANDARD TAPPING VALVES.
18. ALL TAPS SMALLER THAN 4" IN DIAMETER, IRRESPECTIVE OF THE DIAMETER OF THE LINE TO WHICH YOU ARE TAPPING, SHALL CONSIST OF A SINGLE TAPPING SADDLE AND ASSOCIATED TAPPING VALVE.
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20. THE EXCAVATED AREA IN WHICH THE TAP SHALL BE MADE MUST BE A MINIMUM OF 4" BELOW THE BOTTOM OF THE VALVE, AT LEAST SEVEN FEET IN LENGTH AND ABLE TO ACCOMMODATE TWO PEOPLE WORKING.
21. THE AREA WHERE THE TAP SHALL BE MADE MUST BE COMPLETELY DRY. IT IS THE RESPONSIBILITY OF CONTRACTOR TO PURSUE ALL MEANS NECESSARY TO DEWATER THE AREA IN WHICH THE TAP IS TO BE MADE.
22. TAPPING VALVES SHALL MEET ALL THE REQUIREMENTS OF SECTION 6.3 OF IBWS SPECIFICATIONS AND SHALL BE A MECHANICAL JOINT OUTLET BY TAPPING FLANGE WITH A RAISED INNER LIP FOR ALIGNMENT WITH THE TAPPING SLEEVE.
23. PRIOR TO TAPPING A POTABLE WATER MAIN, THE DRILLING MACHINE'S PILOT DRILL, SHELL CUTTER AND CUTTER HUB SHALL BE STERILIZED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:
24. FOUR GALLONS OF POTABLE WATER SHALL BE COMBINED WITH 8 OZ. OF SODIUM HYPOCHLORITE; THE PILOT DRILL, SHELL CUTTER AND CUTTER HUB SHALL BE SWABBED UNTIL CLEAN OR TOTALLY IMMERSED IN THE STERILIZING SOLUTION AND ALLOWED TO REMAIN WET AT LEAST FIVE MINUTES BEFORE TAPPING OPERATION COMMENCES. IT IS NOT NECESSARY TO RINSE THE STERILIZING SOLUTION FROM THE TAPPING COMPONENTS PRIOR TO USE.
25. PAVILION STRUCTURES TO BE CEDAR FOREST PRODUCTS MODEL #LB2020 OR APPROVED EQUAL. METAL ROOFING SHALL MATCH 'RESTROOMS' AS SPECIFIED IN ARCHITECTURAL PLANS.

SITE PLAN NORTH SIDE PICNIC AREA

SCALE:1" = 30'

30 0 15 30

1 inch = 30 ft.

NOT FOR CONSTRUCTION

JPETERSON November 15, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\05 Site Plan - Plan and Profile\C301 Site Plan North Side Picnic Area.dwg

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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George & Associates Consulting Engineers, Inc.
CERTIFICATE OF AUTHORIZATION NO. 7870
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DATE	SYMBOL	REVISION

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP
Consultant:

PROFESSIONAL REGISTRATION

JAMES H. PETERSON LICENSE No 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER

JAMES H. PETERSON III
State of Florida P.E. # 80485

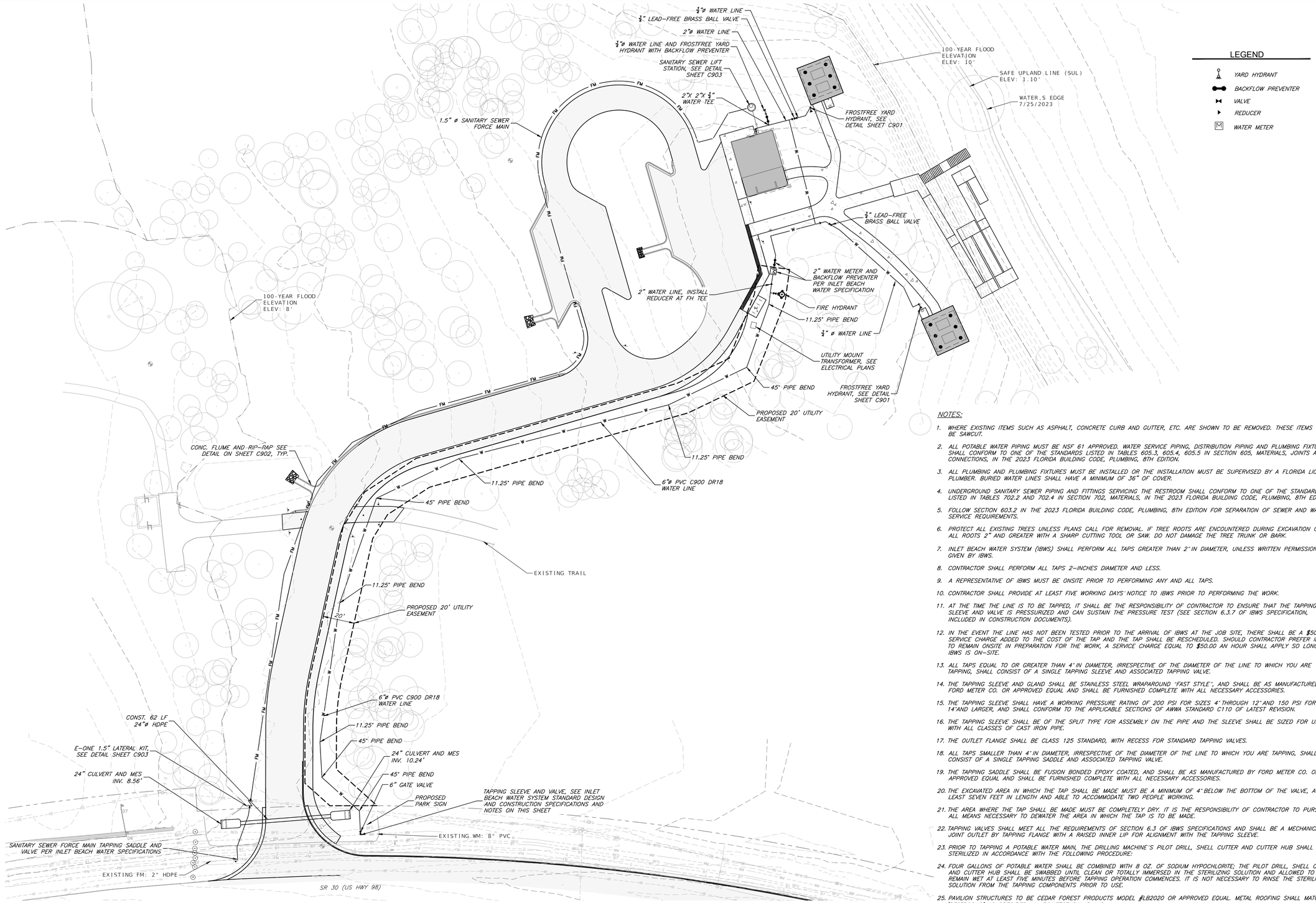
CAMP HELEN STATE PARK

SHEET TITLE: SITE PLAN NORTH SIDE PICNIC AREA

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C301

Approved
DEP20241139100036
Date Word
1/16/2025



PROPOSED UTILITY PLAN NORTH SIDE PICNIC AREA

SCALE:1" = 30'

LEGEND

- YARD HYDRANT
- BACKFLOW PREVENTER
- VALVE
- REDUCER
- WATER METER

NOTES:

1. WHERE EXISTING ITEMS SUCH AS ASPHALT, CONCRETE CURB AND GUTTER, ETC. ARE SHOWN TO BE REMOVED. THESE ITEMS SHALL BE SAWCUT.
2. ALL POTABLE WATER PIPING MUST BE NSF 61 APPROVED. WATER SERVICE PIPING, DISTRIBUTION PIPING AND PLUMBING FIXTURES SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLES 605.3, 605.4, 605.5 IN SECTION 605, MATERIALS, JOINTS AND CONNECTIONS, IN THE 2023 FLORIDA BUILDING CODE, PLUMBING, 8TH EDITION.
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30 0 15 30

1 inch = 30 ft.

NOT FOR CONSTRUCTION

JPETERSON, November 15, 2024 P:\Projects\21-0436 BDC Camp Helen State Park\Drawings\Civil\05 Site Plan - Plan and Profile\C302 Proposed Utility Plan North Side Picnic Area.dwg

	DATE	SYMBOL	REVISION

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-0436
STATE PROJECT No.: 61307C-N3803

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

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DRAWN BY: SMU
REVIEWED BY: JHP
Consultant:

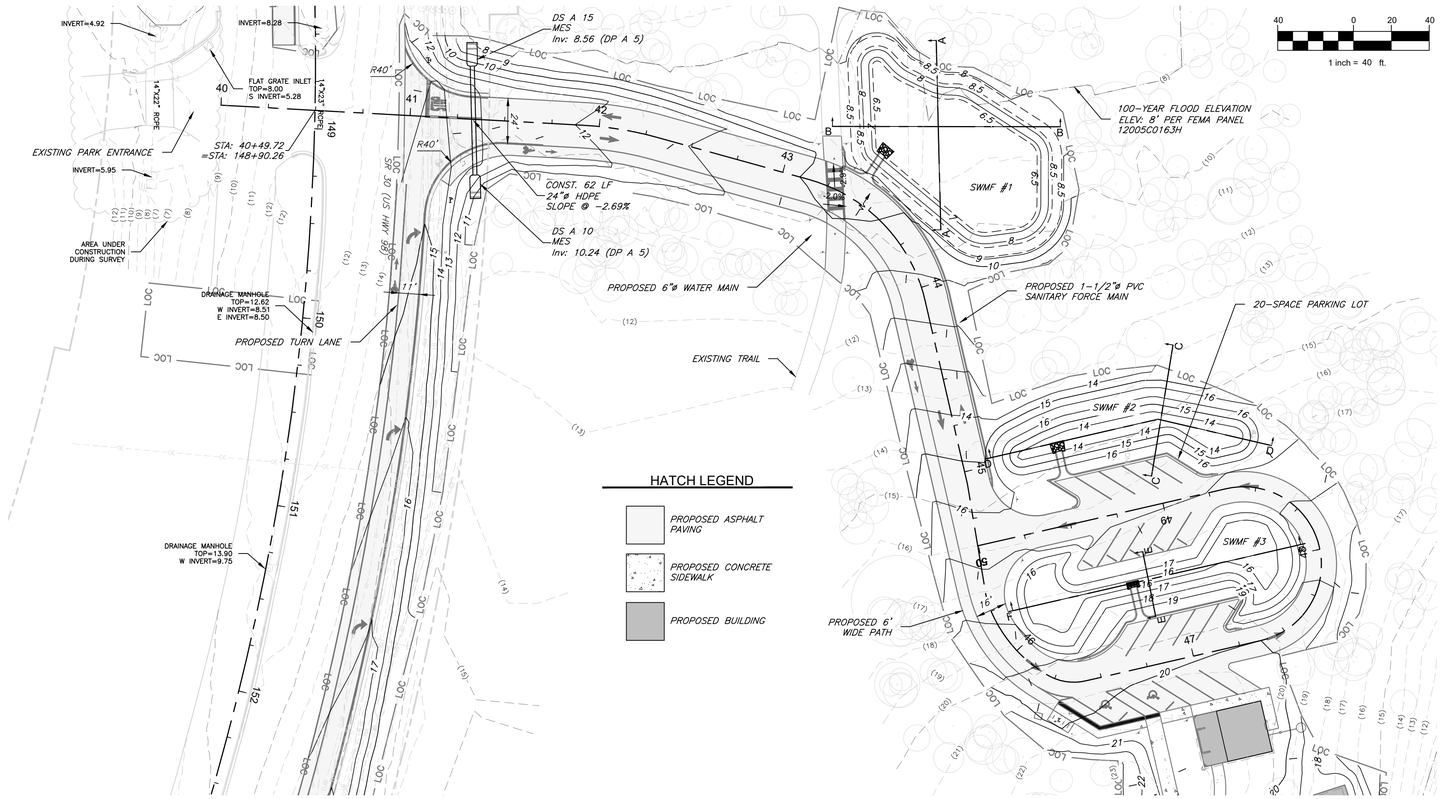
PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV LICENSE No 86485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 86485

CAMP HELEN STATE PARK

SHEET TITLE: PROPOSED UTILITY PLAN NORTH SIDE PICNIC AREA

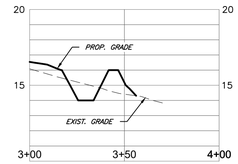
PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C302



SWMF #1 SECTION A-A
Horiz. Scale: 1"=40' Vert. Scale: 1"=5'

SWMF #1 SECTION B-B
Horiz. Scale: 1"=40' Vert. Scale: 1"=5'



SWMF #2 SECTION C-C
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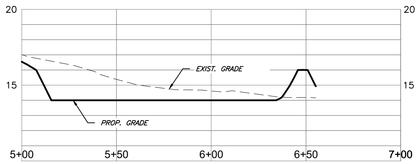
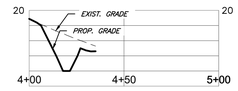
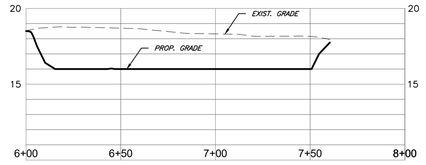


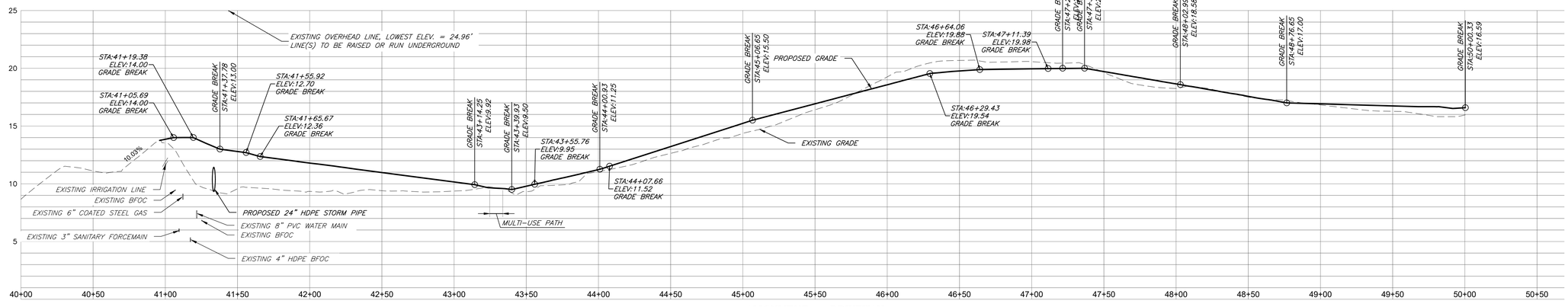
SWMF #2 SECTION D-D
Horiz. Scale: 1"=40' Vert. Scale: 1"=5'



SWMF #3 SECTION E-E
Horiz. Scale: 1"=40' Vert. Scale: 1"=5'



SWMF #3 SECTION F-F
Horiz. Scale: 1"=40' Vert. Scale: 1"=5'



ALIGNMENT - DRIVEWAY
Horiz. Scale: 1"=40' Vert. Scale: 1"=5'

DRIVEWAY PLAN AND PROFILE

SCALE:1" = 40'

NOT FOR CONSTRUCTION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

Consultant:
George & Associates Consulting Engineers, Inc.
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PHONE (850)531-0344 FAX (850)531-0345

DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP

DATE	SYMBOL	REVISION

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV
LICENSE No 80465
STATE OF FLORIDA
PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80465

CAMP HELEN STATE PARK

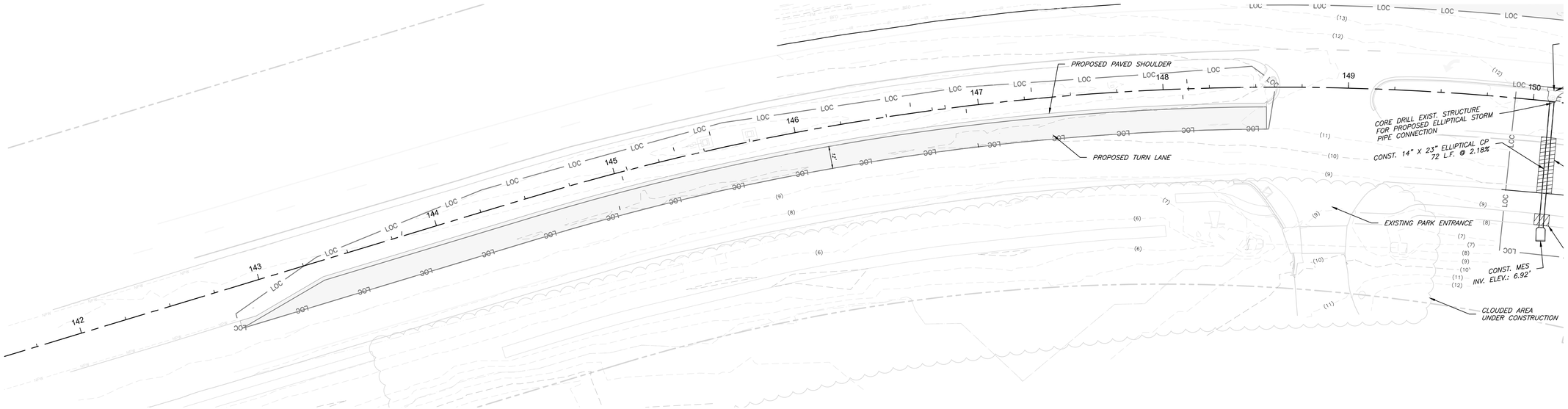
SHEET TITLE: DRIVEWAY PLAN AND PROFILE

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C303

Approved
Okaloosa County
2024091100036
Lisa Ward
1/16/2025

BLKSAMER, November 11, 2024, P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\05 Site Plan - Plan and Profile\C303 Driveway Plan and Profile.dwg



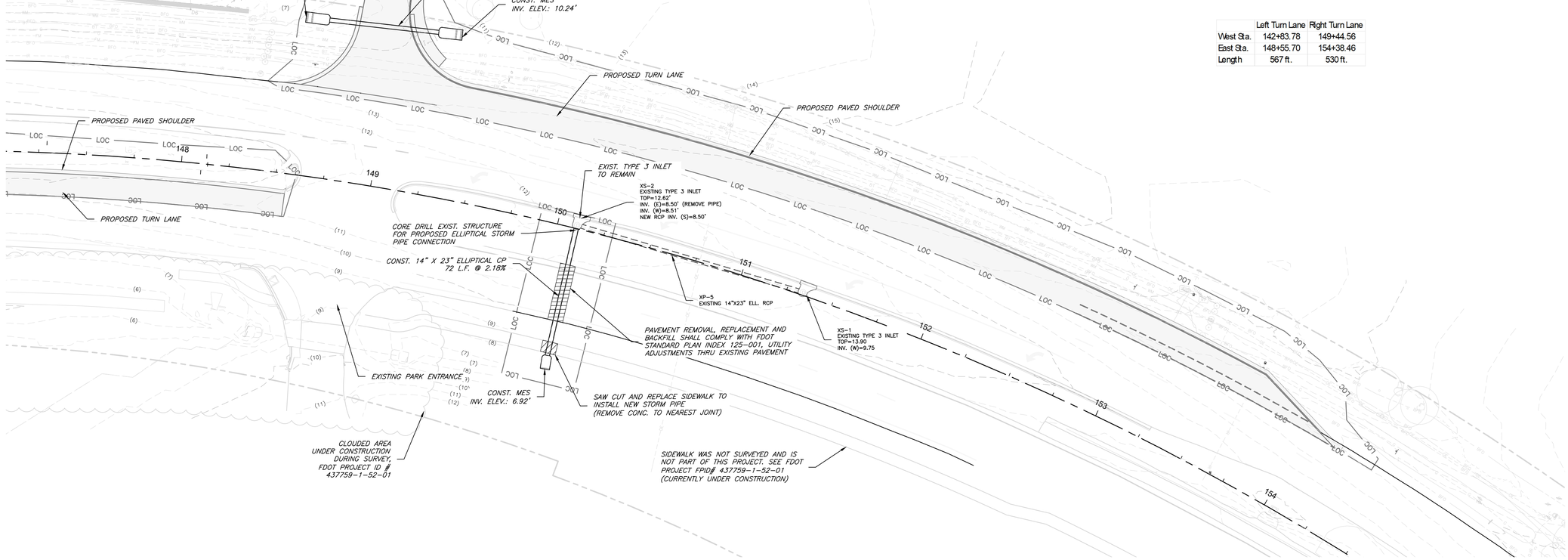
EAST BOUND LEFT TURN LANE PLAN

SCALE: 1" = 30'

LEGEND

PROPOSED ASPHALT PAVING

	Left Turn Lane	Right Turn Lane
West Sta.	142+83.78	149+44.56
East Sta.	148+55.70	154+38.46
Length	567 ft.	530 ft.



WEST BOUND RIGHT TURN LANE PLAN

SCALE: 1" = 30'

NOT FOR CONSTRUCTION

30 0 15 30

1 inch = 30 ft.

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

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ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

SYMBOL	REVISION	DATE

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP

PROFESSIONAL REGISTRATION
JAMES H. PEDERSON IV LICENSE No 89485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PEDERSON IV
State of Florida P.E. # 89485

CAMP HELEN STATE PARK

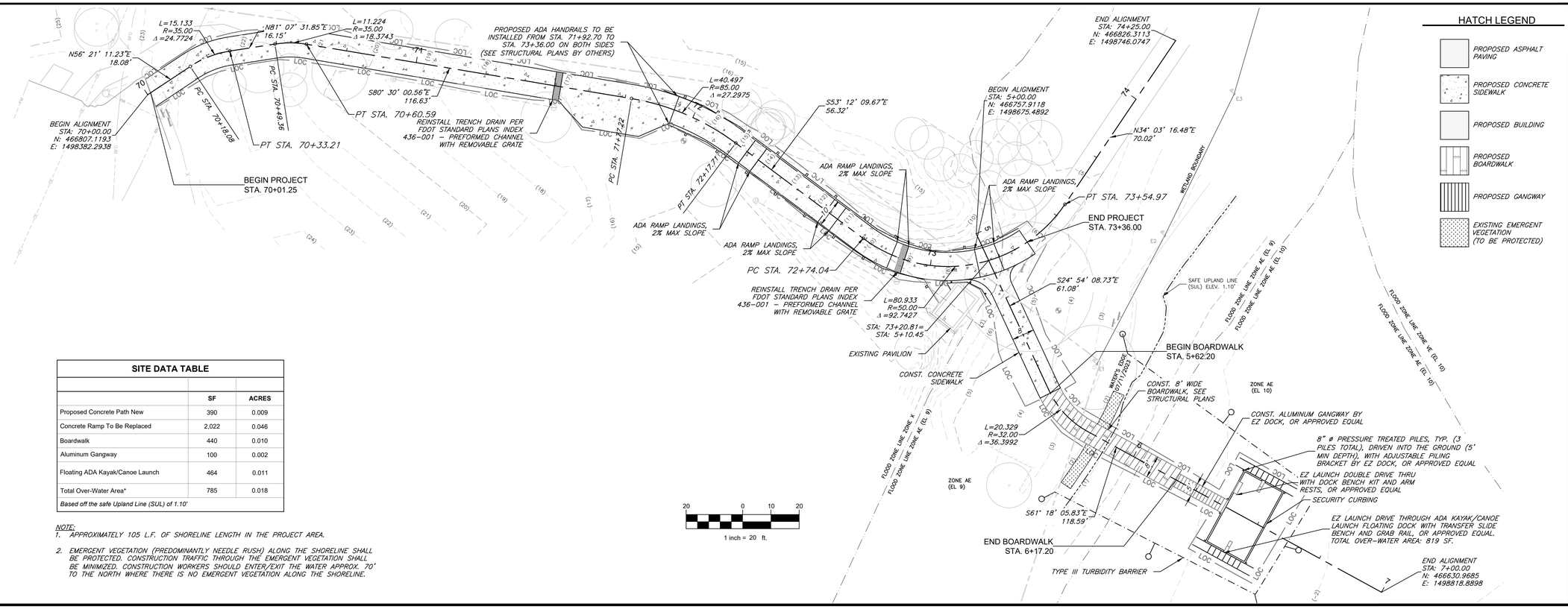
SHEET TITLE: SITE PLAN TURN LANES

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C304

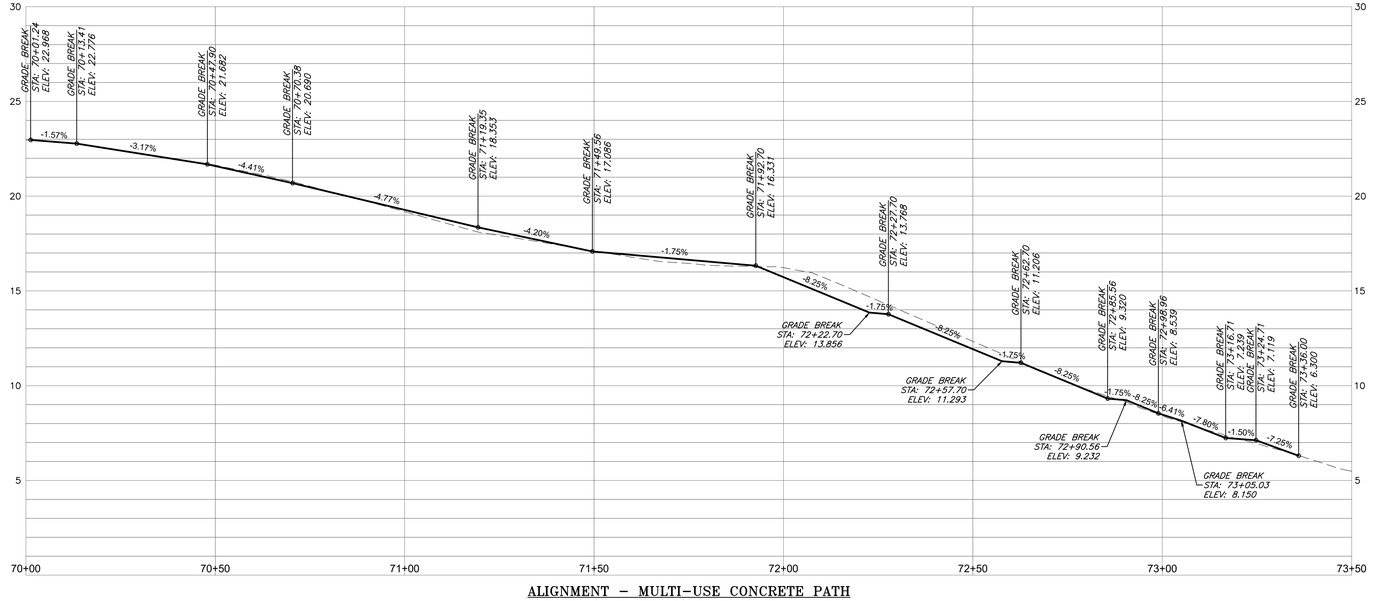
Approved
Log #1241100036
Dan Ward
1/16/2025

D:\2021\ November 8, 2024 P:\Projects\21-5436 (BDC Camp Helen State Park\Drawings\Civil\03 Site Plan - Plan and Profile\C304 Site Plan Turn Lanes.dwg

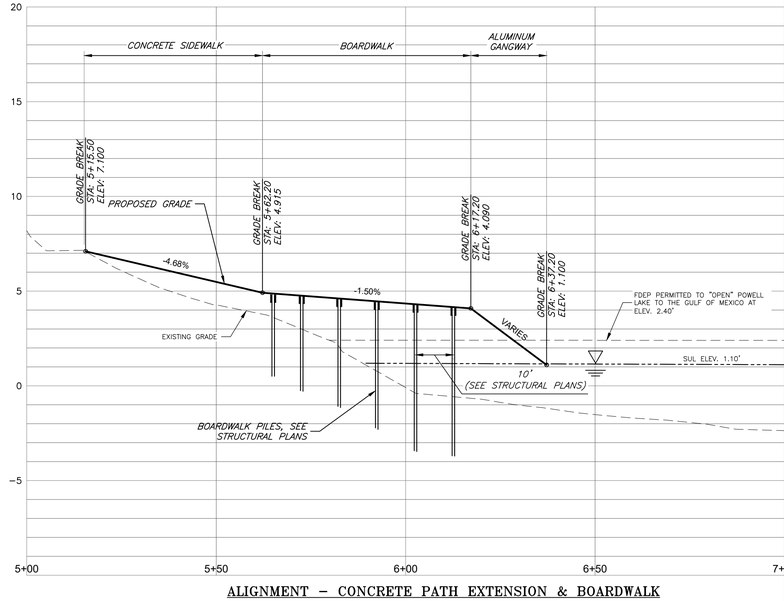


SITE DATA TABLE		
	SF	**ACRES**
Proposed Concrete Path New	390	0.009
Concrete Ramp To Be Replaced	2,022	0.046
Boardwalk	440	0.010
Aluminum Gangway	100	0.002
Floating ADA Kayak/Canoe Launch	464	0.011
Total Over-Water Area*	785	0.018
Based off the safe Upland Line (SUL) of 1.10'		

NOTE:
1. APPROXIMATELY 105 L.F. OF SHORELINE LENGTH IN THE PROJECT AREA.
2. EMERGENT VEGETATION (PREDOMINANTLY NEEDLE RUSH) ALONG THE SHORELINE SHALL BE PROTECTED. CONSTRUCTION TRAFFIC THROUGH THE EMERGENT VEGETATION SHALL BE MINIMIZED. CONSTRUCTION WORKERS SHOULD ENTER/EXIT THE WATER APPROX. 70' TO THE NORTH WHERE THERE IS NO EMERGENT VEGETATION ALONG THE SHORELINE.



ALIGNMENT – MULTI-USE CONCRETE PATH
Horiz. Scale: 1"=20' Vert. Scale: 1"=4'



ALIGNMENT – CONCRETE PATH EXTENSION & BOARDWALK
Horiz. Scale: 1"=20' Vert. Scale: 1"=4'

ADA KAYAK LAUNCH PLAN & PROFILE

SCALE:1" = 20'

NOT FOR CONSTRUCTION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

Consultant:
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DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP

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PROFESSIONAL REGISTRATION
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LICENSE No 80465
STATE OF FLORIDA
PROFESSIONAL ENGINEER
JAMES H. PETERSON IV P.E. # 80465
State of Florida P.E. #

CAMP HELEN STATE PARK

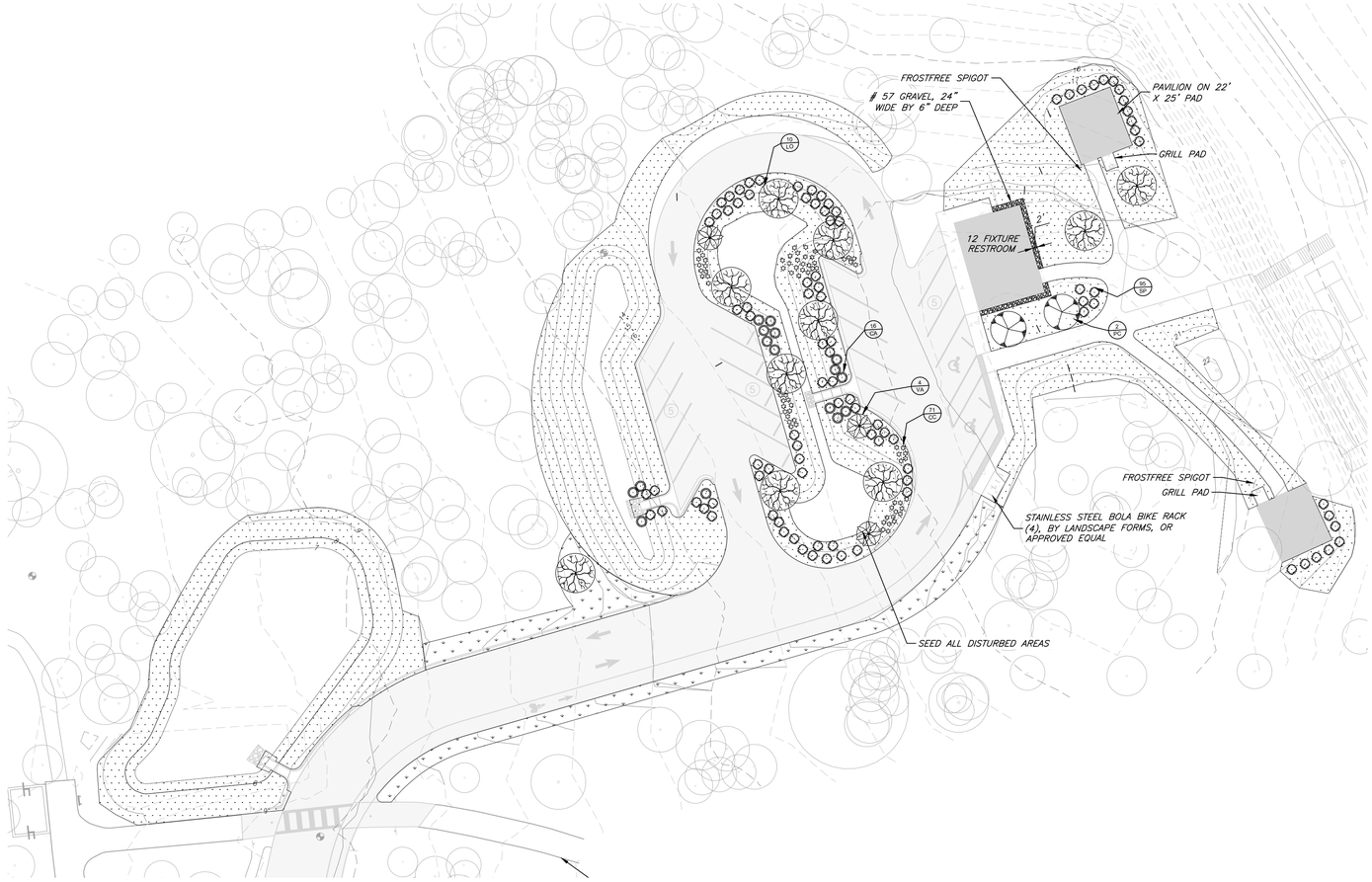
SHEET TITLE: ADA KAYAK LAUNCH PLAN & PROFILE

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C305

Approved
Okaloosa County
20250109100036
Luis Wild
1/16/2025

BSEXAMER November 11, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\05 Site Plan - Plan and Profile\C305 ADA Kayak Launch Plan & Profile.dwg



Symbol	I.D.	Quantity	Scientific Name	Common Name	Installed Size	Spacing	Remarks
	LO	10	Quercus geminata	Sand Live Oak	30 GAL	Per Plan	1.75"-2" Cal., 8'-9', 6' Min. clearance from paved surfaces and 10' from buildings, measured from the center of the plant.
	PC	2	Pinus clausa	Sand Pine	30 GAL	Per Plan	2"-2.25" Cal., 9'-10', 6' Min. clearance from paved surfaces and 10' from buildings, measured from the center of the plant.
	VA	3	Vaccinium arboreum	Sparkleberry	7 GAL	Per Plan	
	SP	95	Seronoa repens	Saw Palmetto	7 GAL	Per Plan	Plant in natural drifts, 3' Min. clearance from paved surfaces, measured from the center of the plant.
	CC	71	Conradina canescens	False Rosemary	1 GAL	Per Plan	Plant in natural drifts, 1.5' Min. clearance from paved surfaces, measured from the center of the plant.
	CA	16	Callicarpa americana	American beautyberry	7 GAL	Per Plan	Plant in natural drifts, 3' Min. clearance from paved surfaces, measured from the center of the plant.

LANDSCAPE PLAN

SCALE:1" = 30'

LANDSCAPING NOTES

1. LANDSCAPE CONTRACTOR SHALL VERIFY SIZE, LOCATIONS OF ALL PLANTING AREAS AND APPROPRIATE PLANT QUANTITIES NEEDED PRIOR TO INSTALLATION. NOTIFY ENGINEER OF RECORD OF DETECTED DISCREPANCIES.
2. PERFORM ALL WORK IN STRICT ACCORDANCE WITH SOUND HORTICULTURAL PRACTICES.
3. CLEARANCES OF 7 1/2' SHALL BE MAINTAINED TO THE FRONT AND SIDES AND 4' TO THE REAR OF ALL FIRE APPLIANCES (I.E., HYDRANTS, BACKFLOW PREVENTERS, POST INDICATORS, VALVES, FIRE DEPARTMENT CONNECTIONS).
4. MULCH NON-SEEDED DISTURBED AREAS ADJACENT TO IMPERVIOUS AREAS WITH 3" OF PINE STRAW.
5. STAKE TREES AS NECESSARY.
6. INSTALL TREES AND PLANTS GRADED FLORIDA #1 OR BETTER AS DESCRIBED IN THE MOST RECENT EDITION OF "GRADES AND STANDARDS FOR NURSERY PLANTS", STATE OF FLORIDA.
7. IF SPECIFIED SIZE OR SPECIES IS UNAVAILABLE, SUBMIT PROPOSED REPLACEMENT PLANT(S) TO THE ENGINEER OF RECORD FOR APPROVAL, PRIOR TO PURCHASING.
8. PLANT TREES, SHRUBS AND PERENNIALS IN A NATURAL MANNER. PLANTING IS TO LOOK SIMILAR TO THE SURROUNDING UNDISTURBED AREAS. AVOID EVEN SPACING AND PLANTING IN STRAIGHT LINES.
9. FERTILIZE ALL TREES WITH AGRIFORM 21 GRAM TABLETS, SLOW RELEASE 20-10-5 (OR APPROVED EQUAL) WITH ONE TABLET PER ½" OF TRUNK DIAMETER.
10. FERTILIZE GROUNDCOVER PERENNIALS AND SHRUBS WITH A SLOW RELEASE FERTILIZER SUCH AS OSMOCOTE 15-9-12 AT A RATE OF 1 TABLESPOON PER 1 GAL PLANT.
11. BACKFILL ALL PLANTING WITH A MIXTURE OF ½ ON SITE SOIL AND ½ CLEAN FRIABLE TOPSOIL.
12. PLANTING HOLES SHOULD BE TWICE THE DIAMETER OF THE ROOT BALL AND 2"-4" DEEPER THAN THE ROOT BALL HEIGHT.
13. ONCE PLANTED, PLANTS SHOULD BE AT THE SAME LEVEL IN RELATION TO THE GROUND AS THEY WERE PRIOR TO TRANSPLANTING.
14. RESTORE ALL DISTURBED AREAS WITH SPECIFIED SEED OR 3" OF PINE STRAW. DISTURBED SOIL SHALL NOT BE LEFT EXPOSED AND VULNERABLE TO EROSION FROM STORM WATER.
15. LANDSCAPE IMPROVEMENTS SHALL BE INSTALLED BY THE CONTRACTOR PER FDOT STANDARD SPECIFICATION 580 AND INDEX 544.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY IRRIGATION.
17. THE WARRANTY SHALL BEGIN AFTER THE INITIAL LANDSCAPE INSPECTION AND ACCEPTANCE, OR AS PER THE CONTRACT DOCUMENTS.
18. INSPECTION SHALL BE MADE BY THE OWNER OR OWNERS REPRESENTATIVE WITHIN 1 WEEK OF WRITTEN NOTIFICATION FROM THE LANDSCAPE CONTRACTOR THAT INSTALLATION IS COMPLETE.
19. TREES AND SHRUBS SHALL HAVE A 1 YEAR WARRANTY.
20. PLANTS ARE GUARANTEED TO BE HEALTHY AND FLOURISHING FOR 1 YEAR FROM INITIAL INSPECTION ACCEPTANCE.
21. REPLACEMENT PLANTS MUST BE THE SAME SIZE AS THE ORIGINAL.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING AND MAINTAINING THE LANDSCAPING FOR THE WARRANTY PERIOD WHICH IS 1 YEAR.
23. CONTRACTOR SHALL NOT COMPACT POND BOTTOMS. SEE POND SIDES ONLY.

UTILITY NOTES

1. THE LOCATION(S) OF UTILITIES SHOWN ON THE PLANS SHALL BE CONSIDERED APPROXIMATE.
2. CONTRACTOR SHOULD CONTACT THE SUNSHINE STATE 811 ONE CALL SYSTEM 1-800-432-4770 PRIOR TO ANY DIGGING SO THAT UNDERGROUND UTILITIES MAY BE FIELD LOCATED.

LEGEND

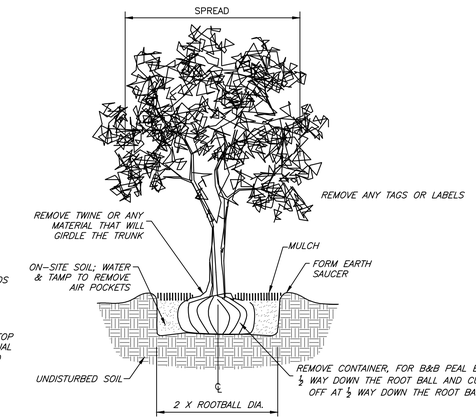
GRASS SEED MIX - OVER 50% PENSACOLA BAHIA SEED

FLORIDA UPLAND MEADOW MIX, ERNST SEEDS ITEM #ERNMX-601, OR APPROVED EQUAL.*

*WILDFLOWER MIX MUST BE COMBINED WITH A COVER CROP OF BROWN TOP MILLET AT A RATE OF 10 LBS PER ACRE FROM APRIL TO SEPT OR ANNUAL RYE AT A RATE OF 30 LBS/ACRE FROM OCT-MARCH. FL UPLAND MIX TO BE APPLIED AT A RATE OF 15 LBS PER ACRE. SEE MANUFACTURERS INSTRUCTIONS FOR MORE DETAILS.

REFERENCE LEGEND

QUANTITY OF PLANTINGS
PLANT I.D.



PLANT SO THAT TOP OF ROOT FLARE IS 1" ABOVE THE FINISHED GRADE

PURSUANT TO A.A.N. STANDARDS CALIPER MEASUREMENTS SHALL BE MADE 6 INCHES ABOVE GROUND LEVEL (ROOTBALL) UP TO AND INCLUDING 4 INCH CALIPER; 12 INCHES ABOVE GROUND LEVEL FOR LARGER SIZES.

TREE PLANTING DETAIL

SCALE: NTS

30 0 15 30

1 inch = 30 ft.

NOT FOR CONSTRUCTION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

George & Associates Consulting Engineers, Inc.
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ENGINEERING BUSINESS NO. 2870
1367 Commonwealth Lane, Suite 200, Tallahassee, FL 32303
PHONE: (850)210-5344 FAX: (850)210-5345

	DATE	SYMBOL	REVISION

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP
Consultant:

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV
LICENSE No. 80485
STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

SHEET TITLE: LANDSCAPE PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C306

Approved
2025091100036
Tate Ward
1/16/2025

10/31/2024 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

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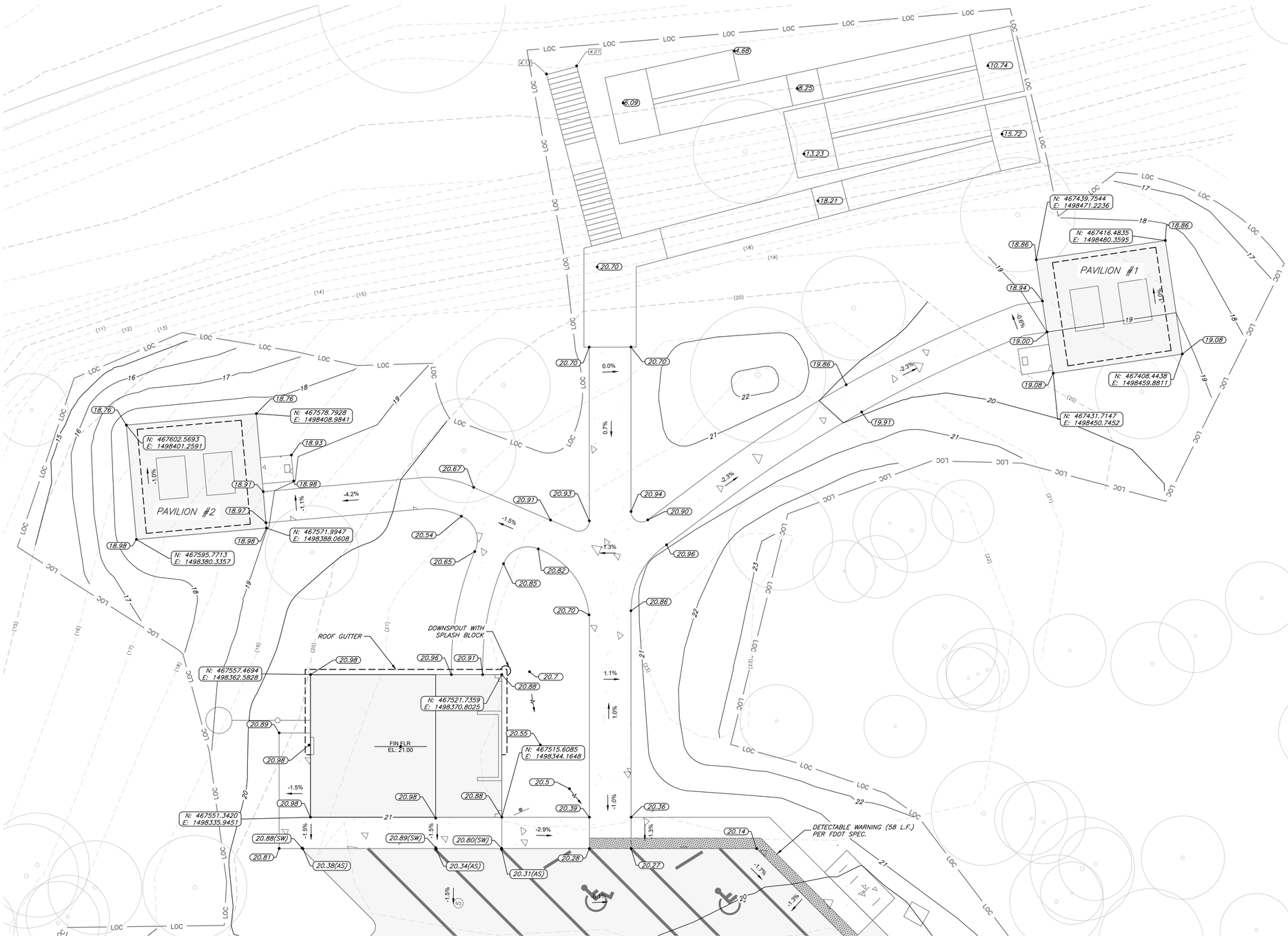


NORTH PICNIC AREA GRADING PLAN

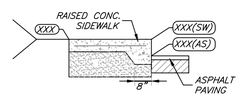
SCALE:1" = 10'

1 inch = 10 ft.

NOT FOR CONSTRUCTION

SPOT ELEVATION LEGEND

- XXX — EXISTING SPOT ELEVATION
- XXX(AS) — PROPOSED SPOT ELEVATION FOR ASPHALT PAVING WITH RAISED CONC. SIDEWALK
- XXX(SW) — PROPOSED SPOT ELEVATION FOR RAISED CONC. SIDEWALK
- XXX — PROPOSED TYPICAL SPOT ELEVATION



		SYMBOL	REVISION	DATE
ISSUE DATE:	11/11/2024 100% PLANS			
COMP. FILE No.:	21-5436			
STATE PROJECT No:	61307C-N3803			

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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PHONE: (850)531-0344 FAX: (850)531-0345

DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP
Consultant:

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV
LICENSE No. 80485
STATE OF FLORIDA
PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

SHEET TITLE: NORTH PICNIC AREA GRADING PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO.
C401

Approved
4-0513910036
Tom Wood
1/16/2025

NORTH PARKING LOT GRADING PLAN

SCALE:1" = 10'

NOT FOR CONSTRUCTION

POND BOTTOM EL: 16.00 SWMF #3

POND BOTTOM EL: 16.00 SWMF #3

POND BOTTOM EL: 14.00 SWMF #2

STANDARD 18" CURB ,SEE DETAIL SHEET C902, TYP.

CONCRETE FLUME AND RIP-RAP DISSAPATOR, SEE DETAIL SHEET C902, TYP.

GRASSED WEIR 30 L.F. EMERGENCY SPILLWAY BOTTOM WIDTH 30 FT 4:1 SIDES, INVERT ELEV.: 17.25'

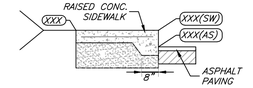
GRASSED WEIR 56 L.F. EMERGENCY SPILLWAY BOTTOM WIDTH 56 FT 4:1 SIDES, INVERT ELEV.: 17.25'

PROPOSED EMERGENCY SPILLWAY, SEE CONSTRUCTION DETAILS SHEET C902.

PROPOSED RIP-RAP

SPOT ELEVATION LEGEND

- XXX — EXISTING SPOT ELEVATION
- XXX(AS) — PROPOSED SPOT ELEVATION FOR ASPHALT PAVING WITH RAISED CONC. SIDEWALK
- XXX(SW) — PROPOSED SPOT ELEVATION FOR RAISED CONC. SIDEWALK
- XXX — PROPOSED TYPICAL SPOT ELEVATION



10 0 5 10

1 inch = 10 ft.

DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP
Consultant:

George & Associates Consulting Engineers, Inc.
CERTIFICATE OF AUTHORIZATION NUMBER: 00000970
ENGINEERING BUSINESS NO. 2929
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	SYMBOL	REVISION	DATE

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No: 61307C-N3803

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

PROFESSIONAL REGISTRATION

JAMES H. PETERSON IV — LICENSE — No 86485 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

JAMES H. PETERSON IV
State of Florida P.E. # 86485

CAMP HELEN STATE PARK

SHEET TITLE: NORTH PARKING LOT GRADING PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C402

Approved
4-59-291100036
Date Word
1/16/2025

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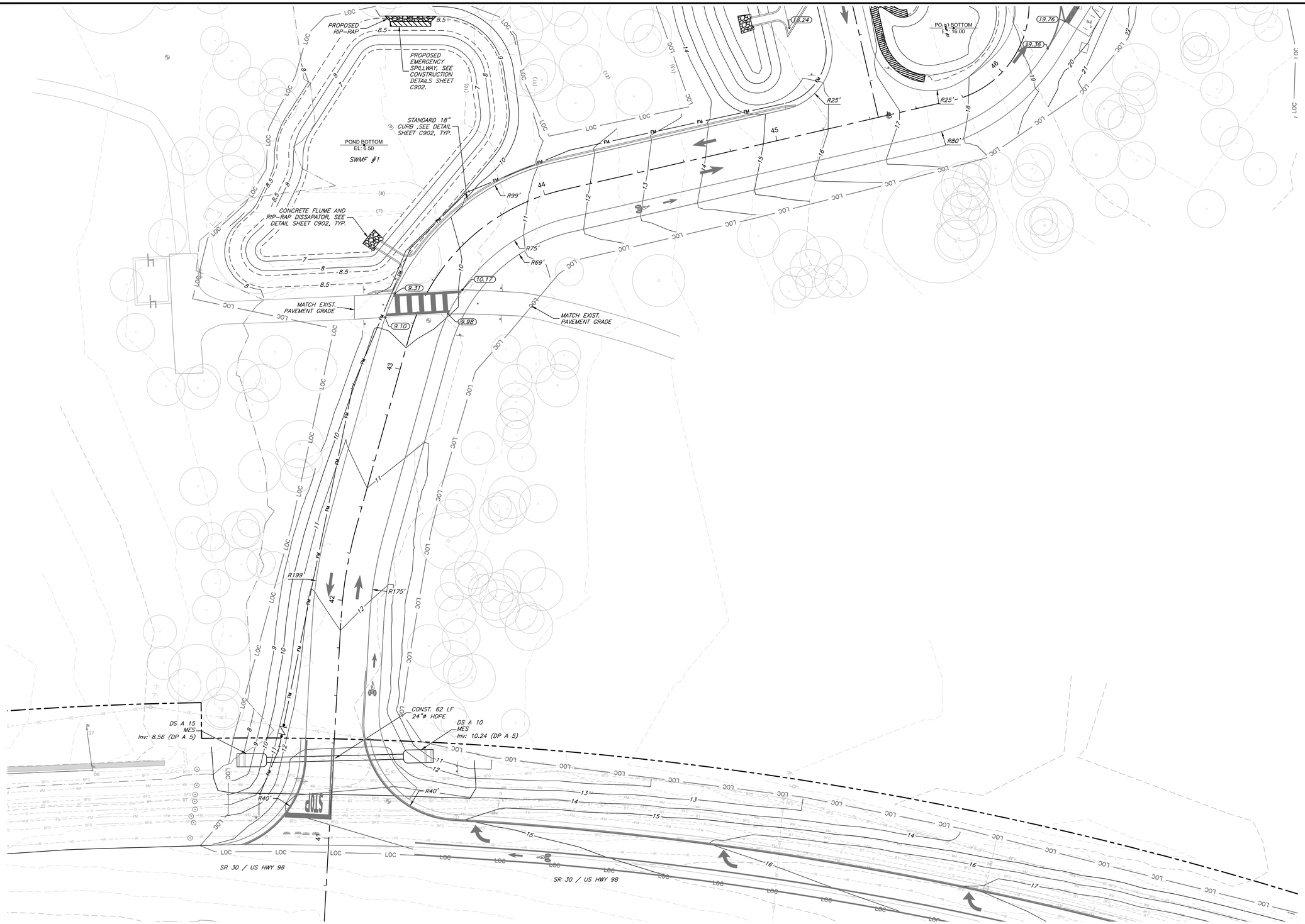

NORTH DRIVEWAY GRADING PLAN

SCALE:1" = 20'

NOT FOR CONSTRUCTION

1 inch = 20 ft.

DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP
Consultant:

George & Associates Consulting Engineers, Inc.
DBA: George & Associates, Inc. ENGINEERING BUSINESS NO. 2929
1967 Commonwealth Lane, Suite 200, Tallahassee, FL 32303
PHONE: (850)210-5434 FAX: (850)210-5435

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

SYMBOL	REVISION	DATE

Department of Environmental Protection
Division of Recreation and Parks
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PROFESSIONAL REGISTRATION

JAMES H. PETERSON IV
LICENSE No. 80485
STATE OF FLORIDA
PROFESSIONAL ENGINEER

JAMES H. PETERSON IV, P.E. # 80485
State of Florida

CAMP HELEN STATE PARK

SHEET TITLE: NORTH DRIVEWAY GRADING PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO.
C403

Approved
4391100036
Lisa Ward
1/16/2025

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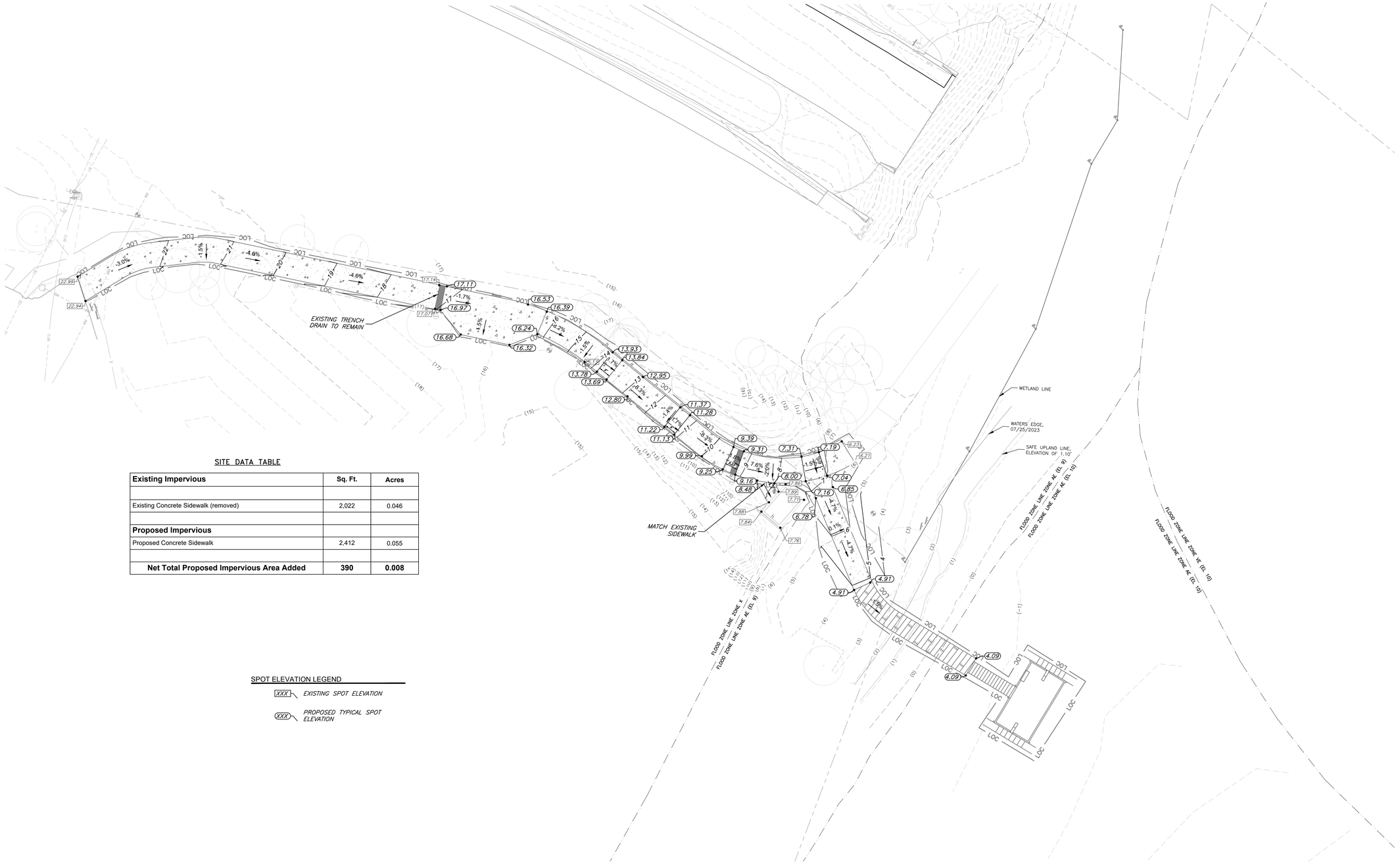

SITE DATA TABLE

Existing Impervious	Sq. Ft.	Acres
Existing Concrete Sidewalk (removed)	2,022	0.046
Proposed Impervious		
Proposed Concrete Sidewalk	2,412	0.055
Net Total Proposed Impervious Area Added	**390**	**0.008**

SPOT ELEVATION LEGEND

XXX — EXISTING SPOT ELEVATION

XXX — PROPOSED TYPICAL SPOT ELEVATION

ADA KAYAK LAUNCH GRADING PLAN

SCALE:1" = 20'

NOT FOR CONSTRUCTION

20 0 10 20

1 inch = 20 ft.

DESIGNER: SMU
DRAWN BY: TJM
REVIEWED BY: JHP
Consultant: George & Associates Consulting Engineers, Inc. (GA) ENGINEERING BUSINESS NO. 2929
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ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

SYMBOL	REVISION	DATE

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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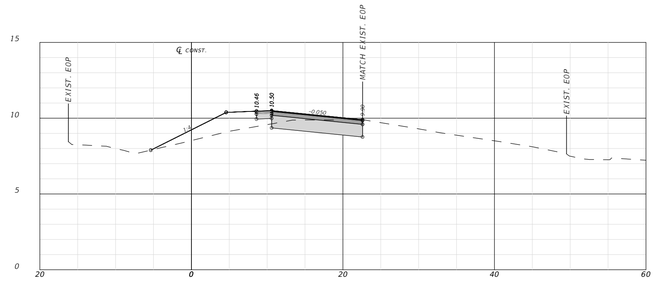
PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV LICENSE No 86486 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 86486

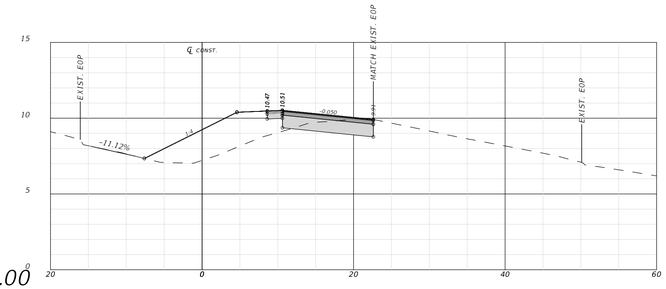
CAMP HELEN STATE PARK

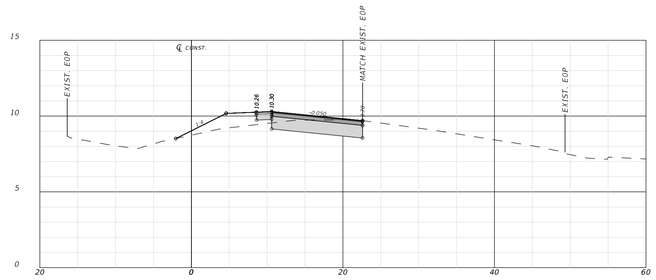
SHEET TITLE: ADA KAYAK LAUNCH GRADING PLAN

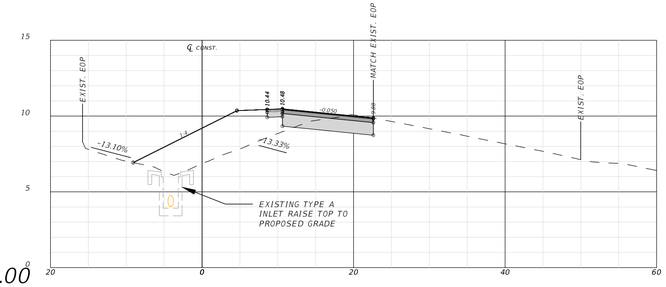
PROJECT TITLE: PARK IMPROVEMENT

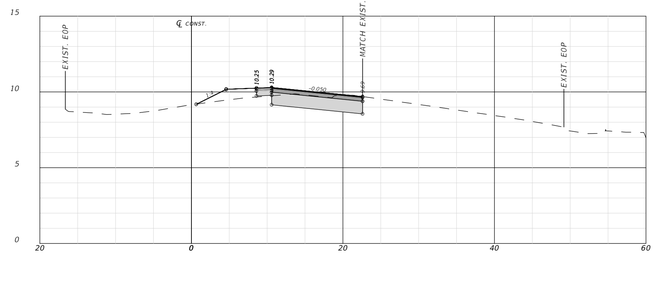
SHEET NO. C404

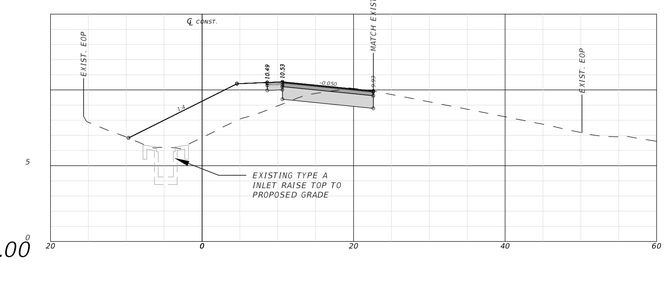


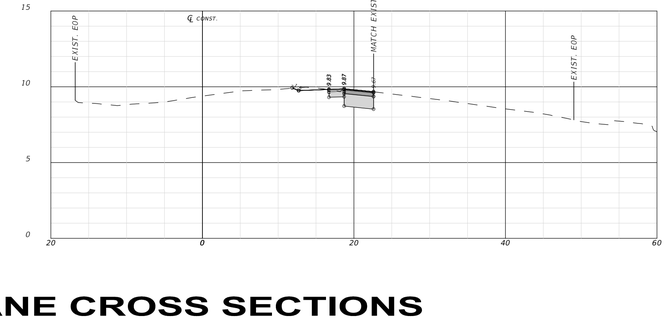


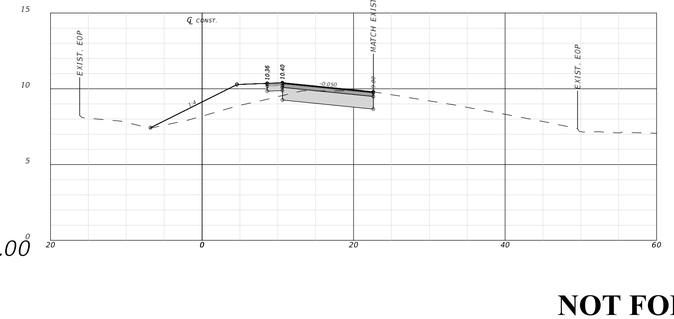












EAST BOUND TURN LANE CROSS SECTIONS

HORIZ SCALE:1" = 10' VERT. SCALE: 1" = 5'

NOT FOR CONSTRUCTION

George & Associates
Consulting Engineers, Inc.
CA # 0000870 ENGINEERING BUSINESS NO. 2870
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	ISSUE DATE: 11/11/2024 100% PLANS
DESIGNER: SMU	
DRAWN BY: TJM	COMP. FILE No.: 21-5436
REVIEWED BY: JHP	STATE PROJECT No.: 61307C-N3803

SYMBOL	REVISION	DATE

PROFESSIONAL REGISTRATION

JAMES H. PETERSON IV
State of Florida, P.E. # 80485

CAMP HELEN STATE PARK

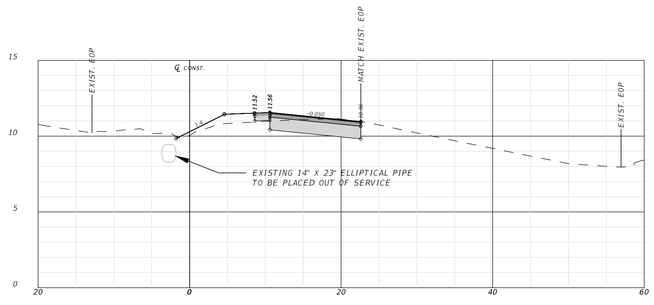
SHEET TITLE: EAST BOUND TURN LANE CROSS SECTIONS

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C405

Approved
4-0391100036
Use Wild
1/16/2025

JPETERSON, November 1, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\06 Cross Sections\C405 North Turn Lane Cross Sections.dwg



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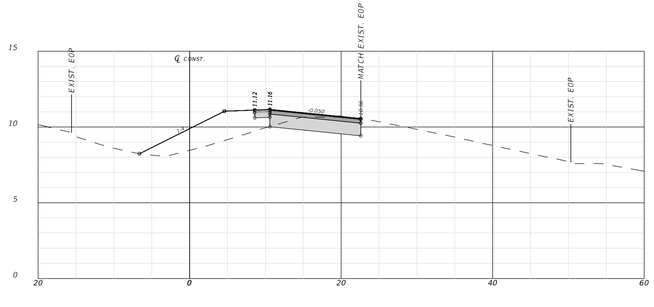

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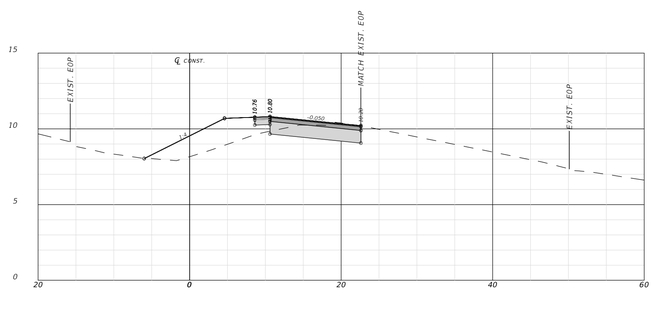

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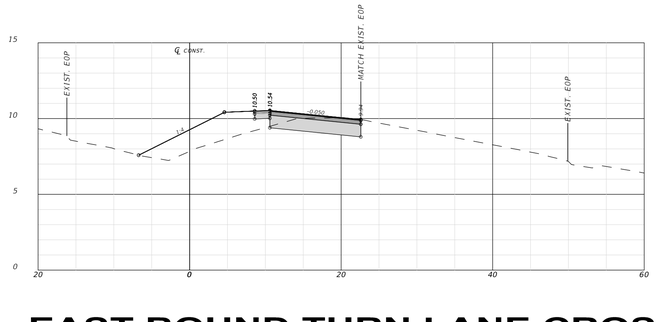


147+00.00

EAST BOUND TURN LANE CROSS SECTIONS

HORIZ SCALE: 1" = 10' VERT. SCALE: 1" = 10'

NOT FOR CONSTRUCTION

JPETERSON November 1, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\06 Cross Sections\C406 North Turn Lane Cross Sections.dwg

DESIGNER:	SMU				
DRAWN BY:	TJM				
REVIEWED BY:	JHP				
Consultant:	George & Associates Consulting Engineers, Inc. CA # 0000350 ENGINEERING BUSINESS NO. 28291 1867 Commonwealth Lane, Suite 200, Tallahassee, FL 32303 PHONE (850)210-5194 FAX (850)210-5195				
ISSUE DATE: 11/11/2024 100% PLANS		SYMBOL	REVISION	DATE	
COMP. FILE No.: 21-5436					
STATE PROJECT No.: 61307C-N3803					

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

PROFESSIONAL REGISTRATION

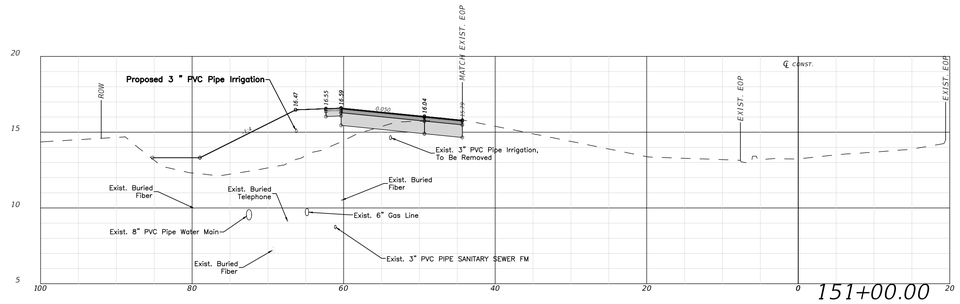
JAMES H. PETERSON IV
State of Florida P.E. # 80485

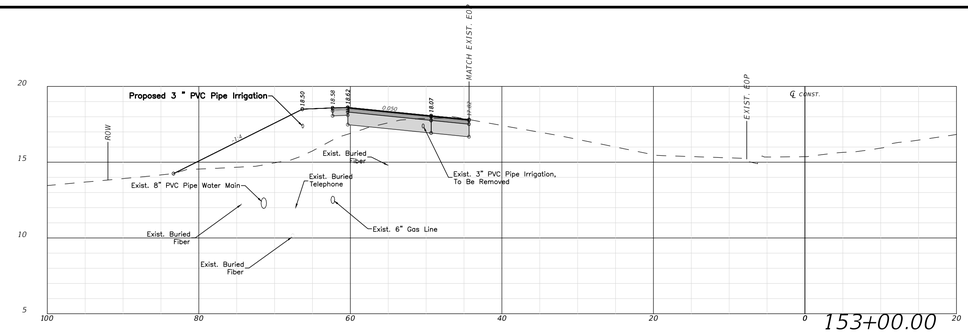
CAMP HELEN STATE PARK

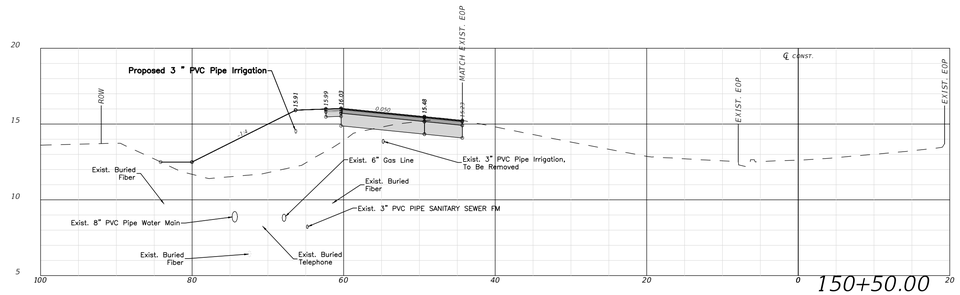
SHEET TITLE: EAST BOUND TURN LANE CROSS SECTIONS

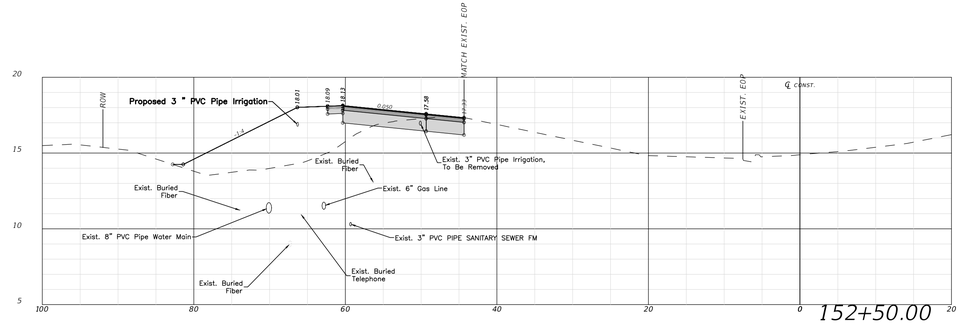
PROJECT TITLE: PARK IMPROVEMENT

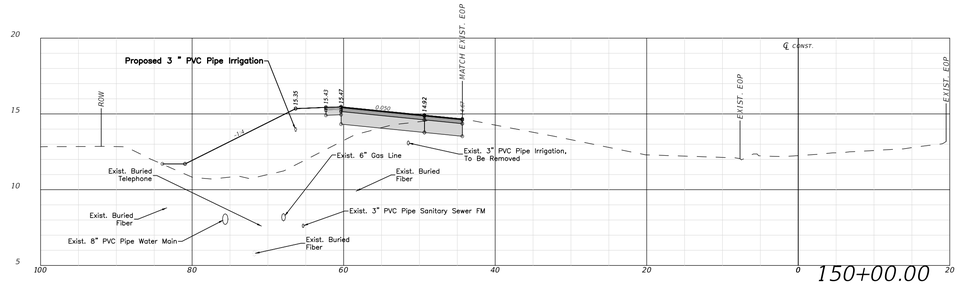
SHEET NO. C406

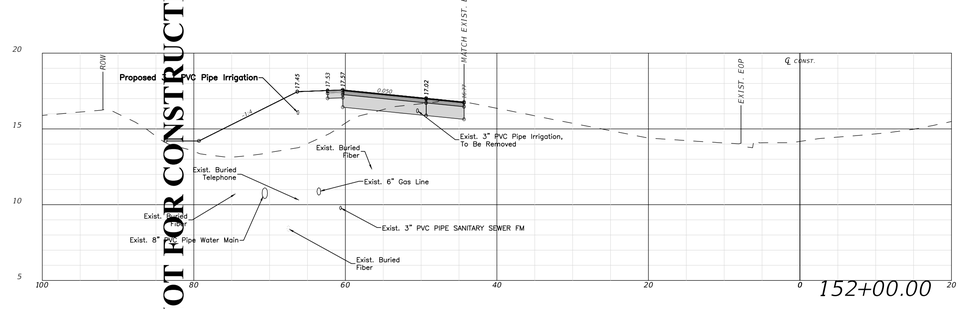


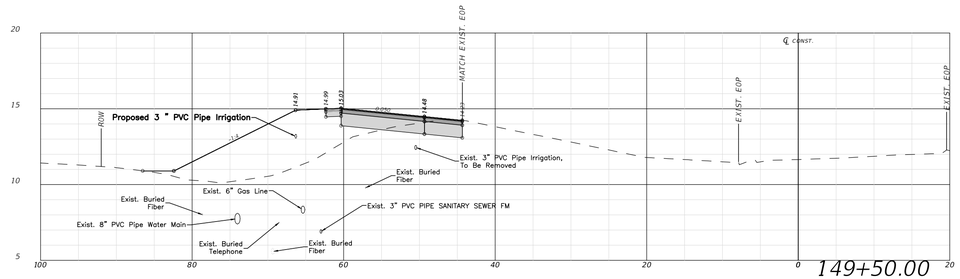


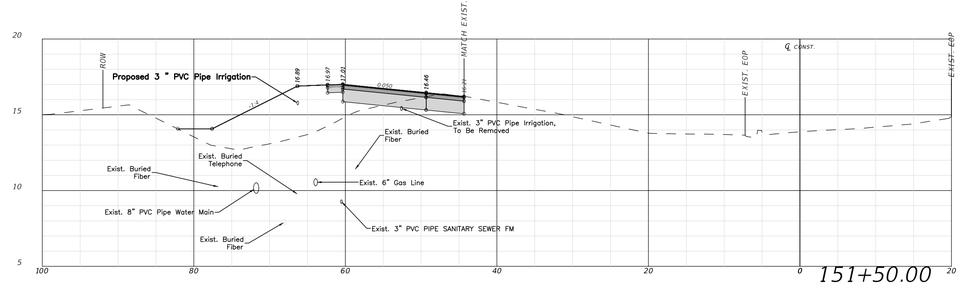












WEST BOUND TURN LANE CROSS SECTIONS

HORIZ SCALE: 1" = 10' VERT. SCALE: 1" = 5'

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

George & Associates
Consulting Engineers, Inc.
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Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

	DATE	SYMBOL	REVISION	DATE

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No: 61307C-N3803

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP
Consultant: GA

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV LICENSE No 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

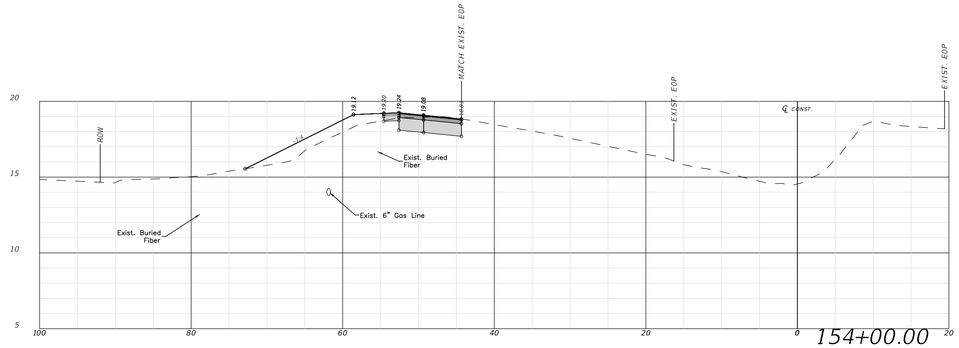
SHEET TITLE: WEST BOUND TURN LANE CROSS SECTIONS

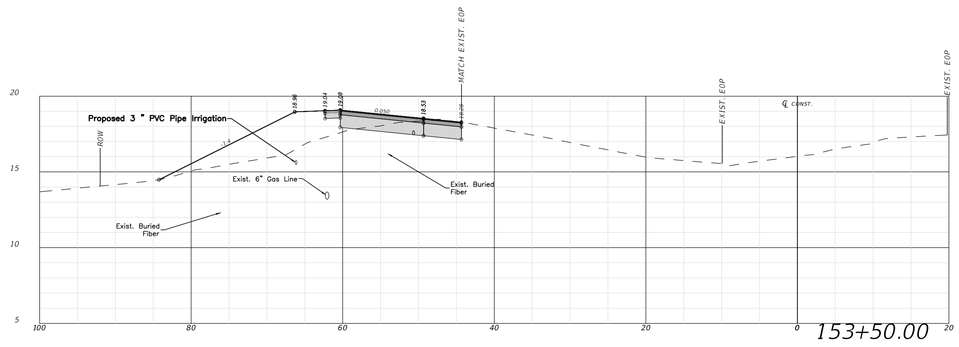
PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C407

Approved
Exception 20250139100036
Lisa Ward
1/16/2025

JPETERSON November 1, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\06 Cross Sections\C406 North Turn Lane Cross Sections.dwg





WEST BOUND TURN LANE CROSS SECTIONS

HORIZ SCALE: 1" = 10' VERT. SCALE: 1" = 5'

NOT FOR CONSTRUCTION

jPETERSON November 1, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\00 Cross Sections\C408 North Turn Lane Cross Sections.dwg

DESIGNER: SMU	ISSUE DATE: 11/11/2024 100% PLANS	SYMBOL	REVISION	DATE	SYMBOL	REVISION	DATE
DRAWN BY: SMU	COMP. FILE No.: 21-5436						
REVIEWED BY: JHP	STATE PROJECT No: 61307C-N3803						

Consultant:

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PROFESSIONAL REGISTRATION

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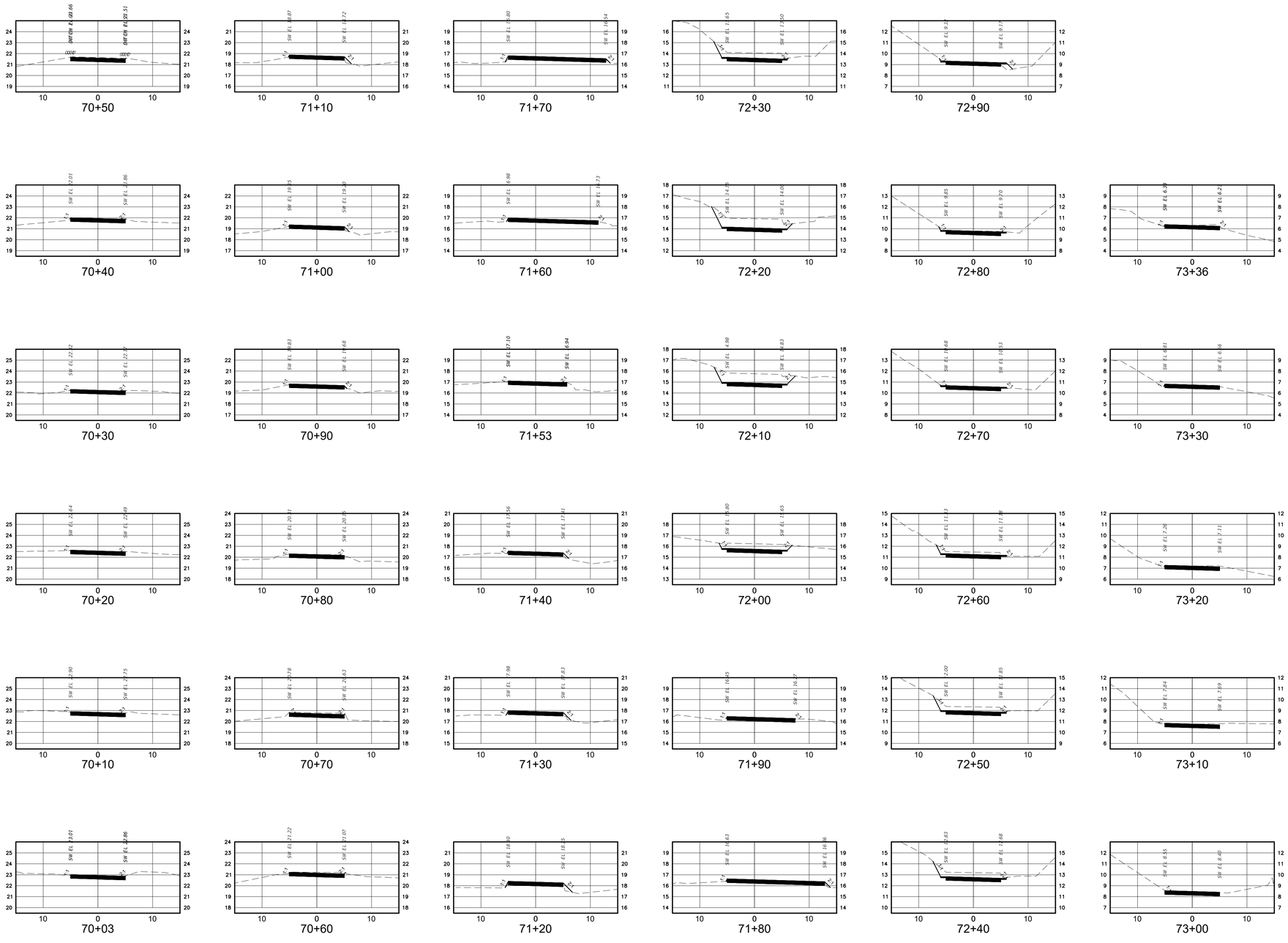
JAMES H. PETERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

SHEET TITLE: WEST BOUND TURN LANE CROSS SECTIONS

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C408



MULTI-USE PATH CROSS SECTIONS

HORIZ SCALE: 1" = 10' VERT. SCALE: 1" = 5'

NOT FOR CONSTRUCTION

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ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

SYMBOL | REVISION | DATE

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP

Consultant:

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JAMES H. PETERSON LICENSE No 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80485

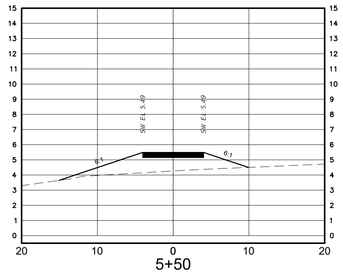
CAMP HELEN STATE PARK

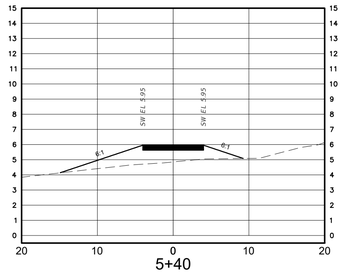
SHEET TITLE: MULTI-USE PATH CROSS SECTIONS

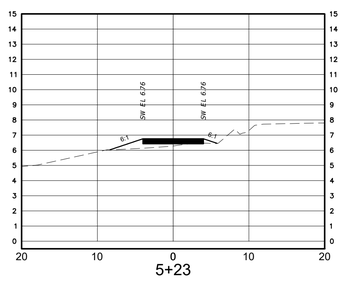
PROJECT TITLE: PARK IMPROVEMENT

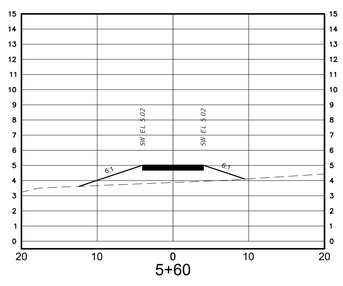
SHEET NO. C409

Approved
Permit #0291100036
Lisa Ward
1/16/2025









CONCRETE PATH EXTENSION CROSS SECTIONS

HORIZ SCALE: 1" = 10' VERT. SCALE: 1" = 5'

NOT FOR CONSTRUCTION

DRDWG: November 6, 2024 P:\Projects\21-5436\BDC Camp Helen State Park\Drawings\Civil\06 Cross Sections\C410 Proposed 8' Path Cross Sections.dwg

ISSUE DATE: 11/11/2024 100% PLANS	SYMBOL	REVISION	DATE	SYMBOL	REVISION	DATE
COMP. FILE No.: 21-5436						
STATE PROJECT No.: 61307C-N3803						

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DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP
Consultant:

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JAMES H. PETERSON P.E. # 80485
State of Florida

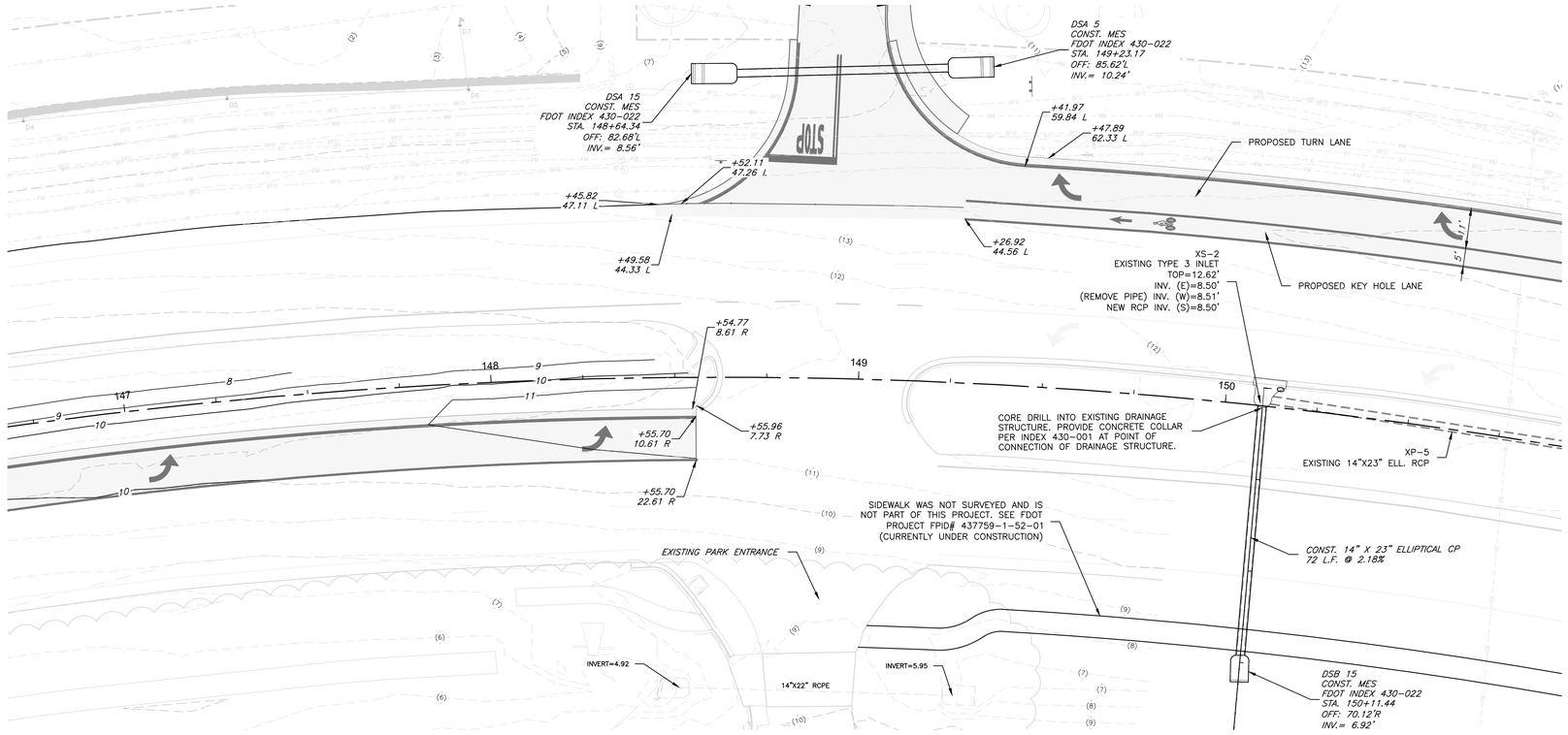
CAMP HELEN STATE PARK

SHEET TITLE: CONCRETE PATH EXTENSION CROSS SECTIONS

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C410

Approved
4210-091-00036
Leo Ward
1/16/2025



LEGEND

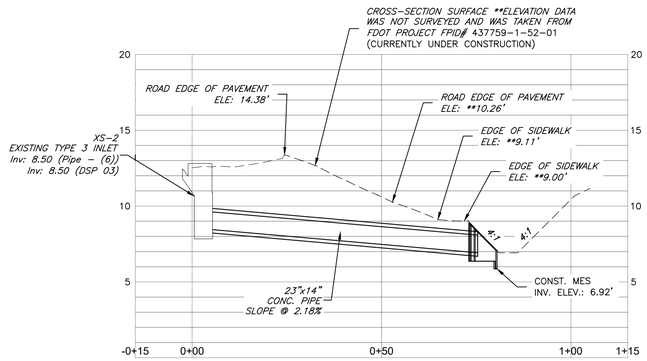
PROPOSED ASPHALT PAVING

20 0 10 20

1 inch = 20 ft.

DRAINAGE PLAN TURN LANE

SCALE: 1" = 20'



DRAINAGE OUTFALL PROFILE

HORIZ. SCALE: 1" = 20' VERT. SCALE: 1" = 5'

NOT FOR CONSTRUCTION

ISSUE DATE	11/11/2024 100% PLANS
COMP. FILE No.	21-5436
STATE PROJECT No.	61307C-N3803
DESIGNER:	SMU
DRAWN BY:	SMU
REVIEWED BY:	JHP
Consultant:	George & Associates Consulting Engineers, Inc.

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3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

SYMBOL	REVISION	DATE

PROFESSIONAL REGISTRATION

JAMES H. PEDERSON LICENSE No 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER

JAMES H. PEDERSON III
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

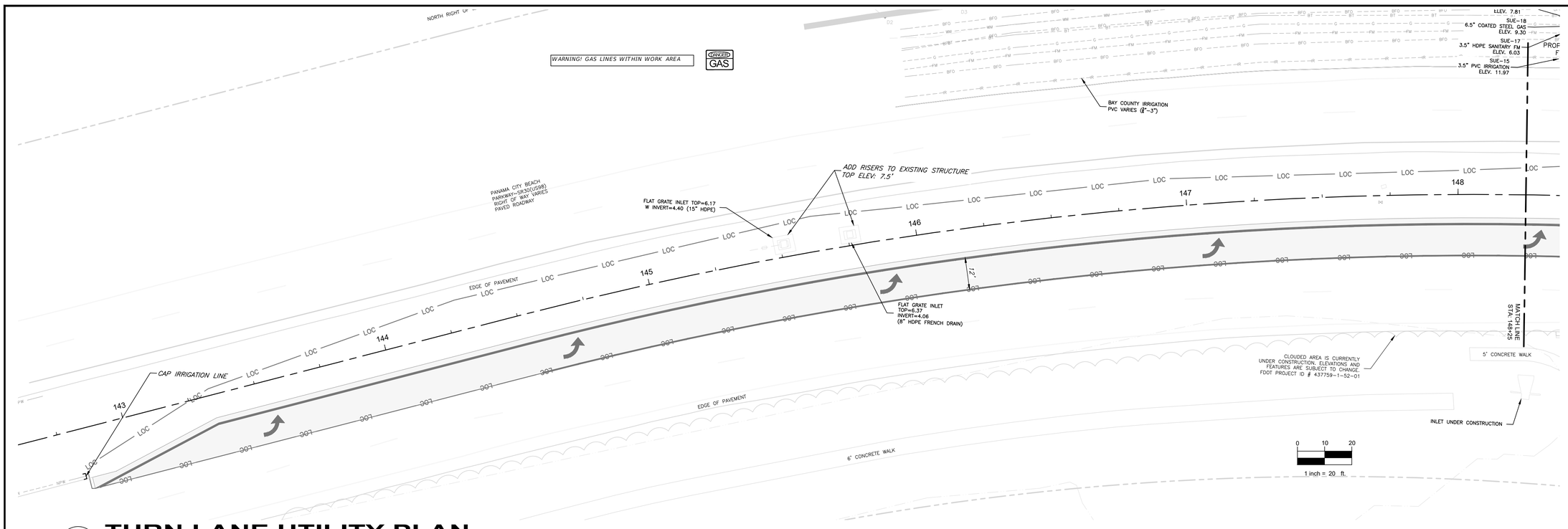
SHEET TITLE: DRAINAGE PLAN TURN LANES

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C501

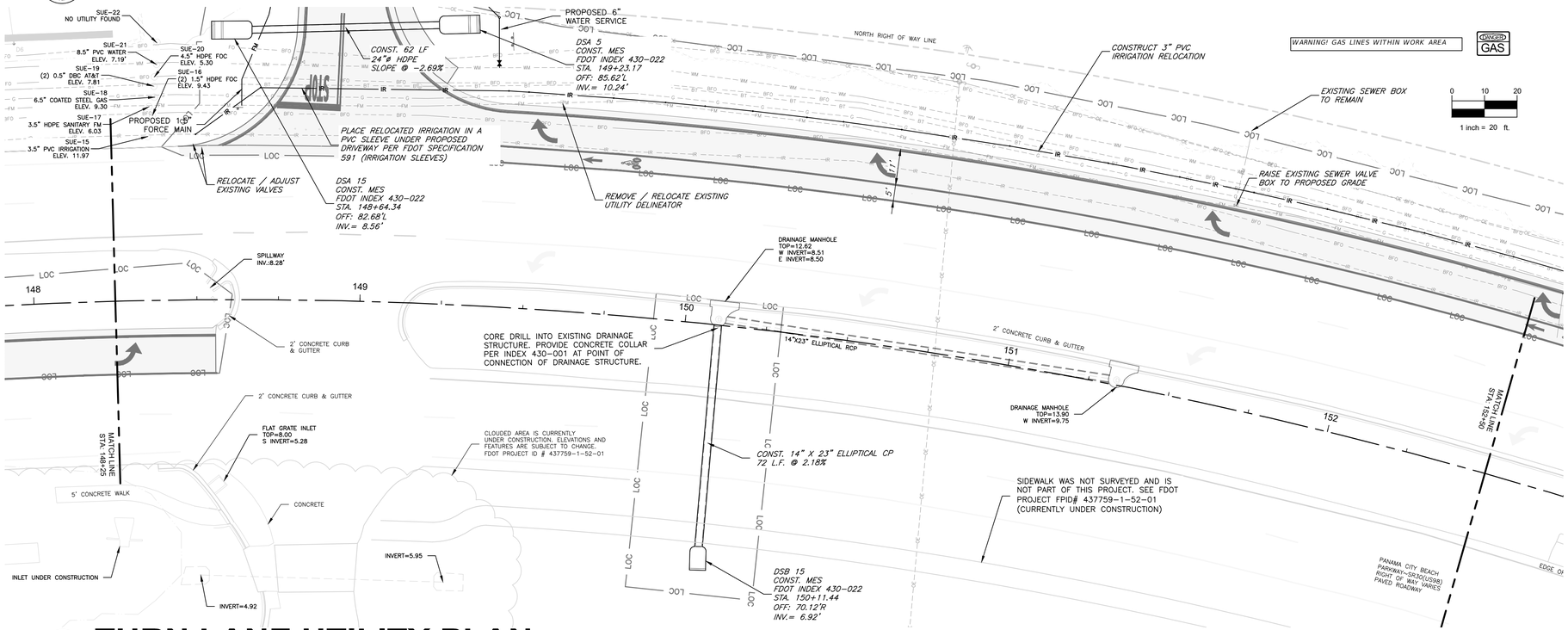
Approved
No. 20241139100036
DEP Ward
1/16/2025

D:\2024 November 19, 2024 P:\Projects\21-5436 EDC Camp Helen State Park\Drawings\Civil\07 Drainage\C501 Drainage Plan Turn Lanes.dwg



TURN LANE UTILITY PLAN

SCALE:1" = 20'



TURN LANE UTILITY PLAN

SCALE:1" = 20'

NOT FOR CONSTRUCTION

		DATE	REVISION	SYMBOL	DATE	REVISION	SYMBOL
ISSUE DATE: 11/11/2024 100% PLANS							
COMP. FILE No.: 21-5436							
STATE PROJECT No.: 61307C-N3803							

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Division of Recreation and Parks
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DRAWN BY: SMU
REVIEWED BY: JHP
Consultant:

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JAMES H. PETERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

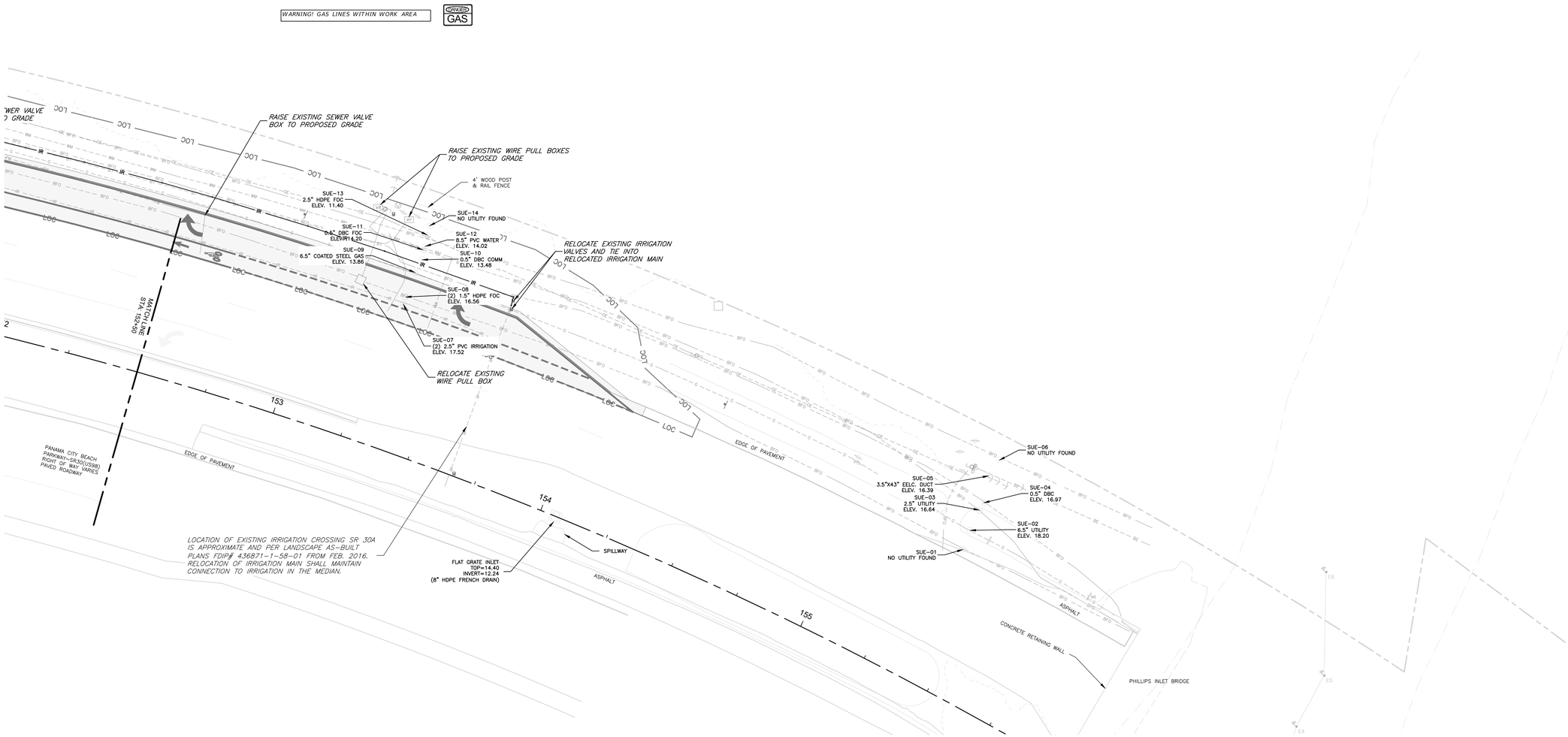
SHEET TITLE: TURN LANE UTILITY PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C601

Approved
Bay County 20240139100036
Andy Ward
1/16/2025

D:\FDOD November 8, 2024 P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\08 Utility Plans\C601 Turn Lane Utility Plan.dwg



TURN LANE UTILITY PLAN

SCALE:1" = 20'

NOT FOR CONSTRUCTION

		SYMBOL	REVISION	DATE
DESIGNER:	SMU			
DRAWN BY:	SMU			
REVIEWED BY:	JHP			
Consultant:	George & Associates Consulting Engineers, Inc.			

ISSUE DATE 11/11/2024 100% PLANS
COMP. FILE No. 21-5436
STATE PROJECT No. 61307C-N3803

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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EB #27 LB #6667 CERTIFICATE OF AUTHORIZATION NUMBER FOR ENGINEERING BUSINESS NO. 2929
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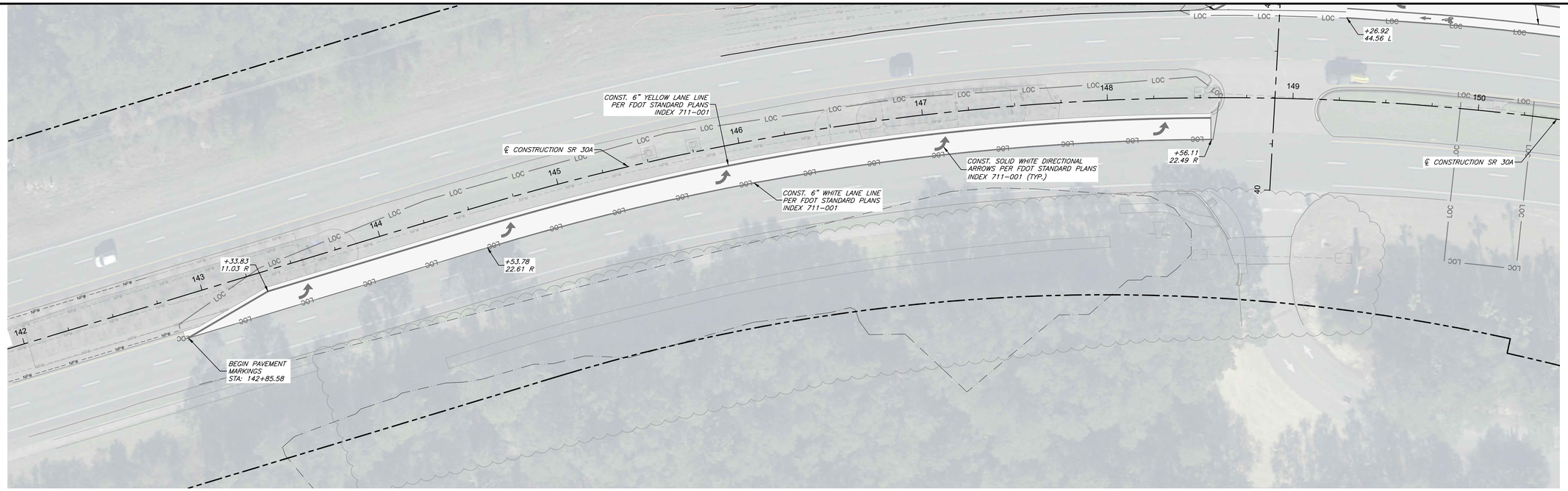
JAMES H. PETERSON P.E. # 80485
State of Florida

CAMP HELEN STATE PARK

SHEET TITLE: TURN LANE UTILITY PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C602

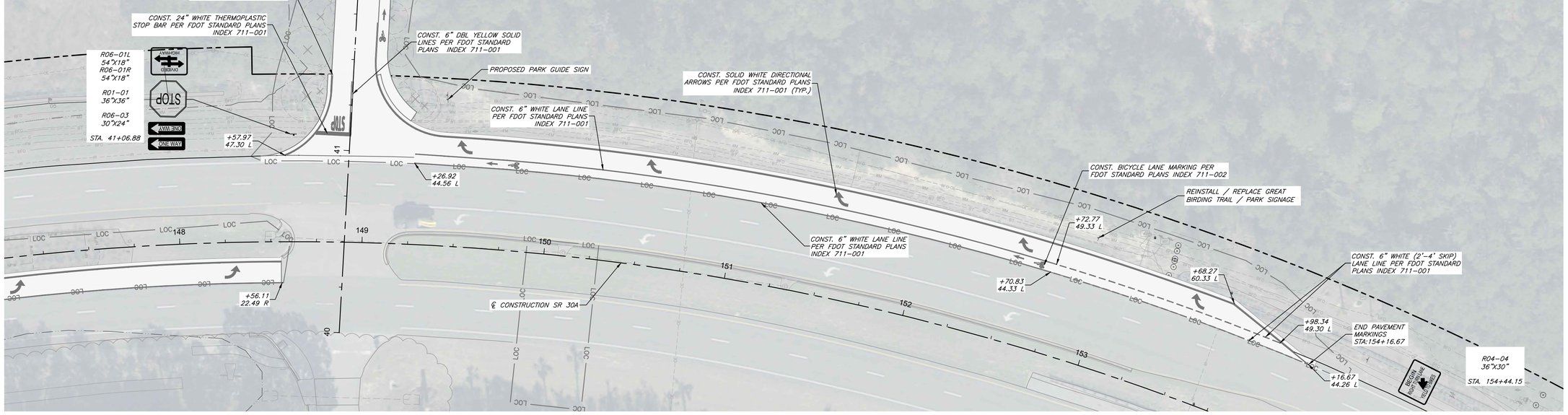


0 15 30

1 inch = 30 ft.

SIGNAGE & PAVEMENT MARKING PLAN

SCALE:1" = 30'



0 15 30

1 inch = 30 ft.

SIGNAGE & PAVEMENT MARKING PLAN

SCALE:1" = 30'

NOT FOR CONSTRUCTION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

Consultant:
George & Associates Consulting Engineers, Inc.
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PHONE: (850)210-5344 FAX: (850)210-5345

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

SYMBOL	REVISION	DATE

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV LICENSE No. 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

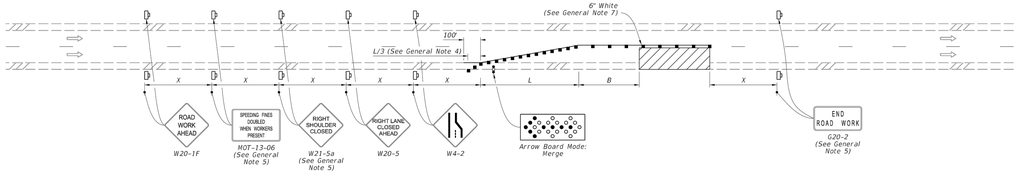
SHEET TITLE: SIGNAGE & PAVEMENT MARKING PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO.
C701

Approved
21-5436391100036
Tue, Wed
1/16/2025

D:\DOCS\ November 19, 2024, P:\Projects\21-5436 BDC Camp Helen State Park\Drawings\Civil\09\Pavement Marking_Signage\C701 Signage & Pavement Marking Plan.dwg



SINGLE LANE CLOSURE

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Arrow Board
- Lane Identification and Direction of Traffic

GENERAL NOTE:

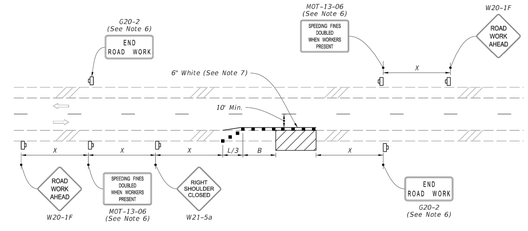
1. L = Taper Length
   B = Buffer Length
   X = Work Zone Sign Distance
   See Index 102-600 for "L", "B", "X", and channelizing device spacing values.
2. On undivided highways the median signs as shown are to be omitted.
3. On limited access facilities, omit "Right Shoulder Closed" signs (W21-5a) and associated work zone sign spacing distances.
4. If the paved shoulder is less than 4' in width, omit the taper and channelizing devices from the paved shoulder.
5. The "Speeding Fines Doubled When Workers Present" signs (M0T-13-06) and "End Road Work" signs (G20-2) and "Right Shoulder Closed" (W21-5a), along with associated work zone sign distances, may be omitted when the work operation will be in place for 24 hours or less. For Single Lane Closures, arrow boards and buffer (B) may also be omitted when the work operation will be in place for 60 minutes or less and the speed limit is 45 mph or less.
6. Use inverted plan of the illustrations for work on left side of roadways.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.

10:36:24 AM
2/2/2023

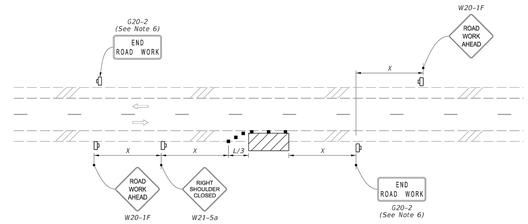
LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX	SHEET
11/01/21					102-613	1 of 5

NOTE:

1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
2. L = Taper Length
   X = Work Zone Sign Spacing
   B = Buffer Length
   See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
3. Where work activities are between 2' and 15' from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.
4. When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.
5. For work less than 2' from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
6. The "Speeding Fines Doubled When Workers Present" signs (M0T-13-06) and "End Road Work" Signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the work operation is in place for 24 hours or less.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.
8. Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.
9. When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).



TWO-LANE ROADWAY
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY
WITH WORK ZONE SPEED OF 45 MPH OR LESS



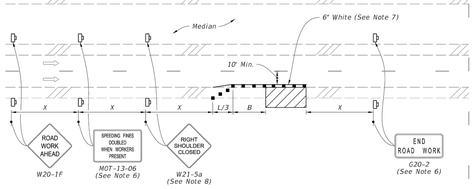
TWO-LANE ROADWAY
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

SYMBOLS:

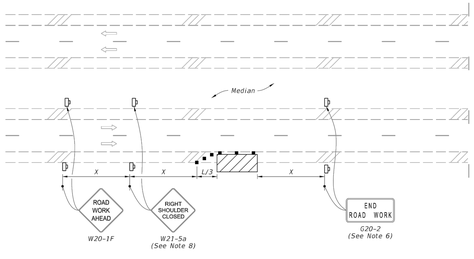
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Lane Identification and Direction of Traffic

10:33:33 AM
2/2/2023

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX	SHEET
11/01/21					102-602	1 of 2



MULTILANE ROADWAY
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY
WITH WORK ZONE SPEED OF 45 MPH OR LESS



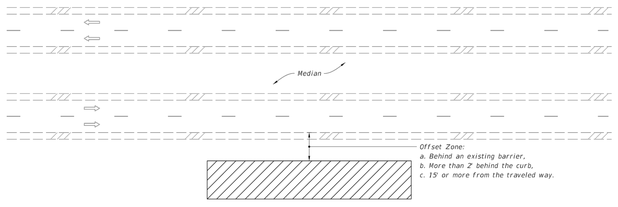
MULTILANE ROADWAY
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Lane Identification and Direction of Traffic

10:33:38 AM
2/2/2023

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX	SHEET
11/01/20					102-602	2 of 2



MULTILANE ROADWAY SHOWN, TWO-LANE ROADWAY SIMILAR

NOTES:

1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work beyond the shoulder.
2. Use Index 102-602 when the work operation (excluding establishing and terminating the work area) requires that two or more work vehicles cross the Offset Zone in any one hour period.
3. Use Index 102-660 when Work Area encroaches a Sidewalk.

SYMBOLS:

- Work Area
- Lane Identification and Direction of Traffic

1:20:51 PM
2/6/2023

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE ROADWAY, WORK BEYOND THE SHOULDER	INDEX	SHEET
11/01/20					102-601	1 of 1

NOT FOR CONSTRUCTION

REVISION	SYMBOL	DATE

REVISION	SYMBOL	DATE

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

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DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP

PROFESSIONAL REGISTRATION
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JAMES H. PETERSON IV
State of Florida P.E. # 80465

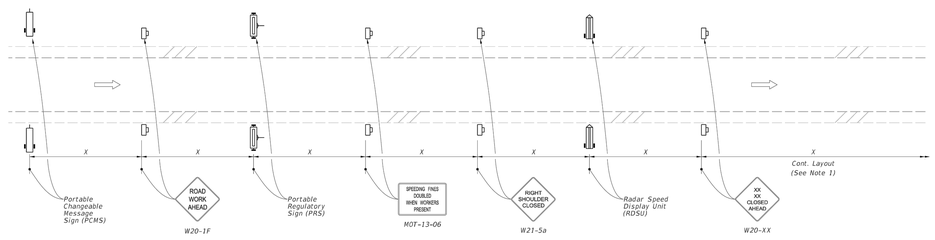
CAMP HELEN STATE PARK

SHEET TITLE: TRAFFIC CONTROL PLAN

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO.
C801

D:\DONO September 11, 2024 P:\Projects\21-5436 (DOC Camp Helen State Park\Drawings\Civil\09 Pavement Marking Signage\C801 Traffic Control Plan.dwg



MOTORIST AWARENESS SYSTEM

SYMBOLS:

- Work Zone Sign
- (1) PCMS= Portable Changeable (Variable) Message Sign
- (2) PRS= Portable Regulatory Sign-Speed Limit When Flashing
- (2) RSDU= Radar Speed Display Unit
- Lane Identification and Direction of Traffic

NOTES:

1. Use the Motorist Awareness System (MAS) for lane closures of at least 5 days (consecutive or not) on multilane divided facilities with a posted speed of 55 or greater when workers are present and not protected by a barrier.
2. Locate the Motorist MAS devices (i.e., PCMS, PRS, and RDSU) within the advance warning signs as shown. Continue with the remainder of the work zone signs and devices in accordance with the Plans or Standard Plans after the appropriate "Lane Closed Ahead" (W20-XX) sign.
3. For a posted speed of 65 mph or greater, display speed with a ten mph reduction. For a posted speed of 60 mph, display a reduced speed of 55 mph. For areas outside of the lane closure, use the posted speed as the work zone speed.
4. Omit the PCMS in the median for roadways with three lanes or less in the same direction of traffic.

TYPICAL PCMS DISPLAY:

With speed reduction:
Message 1: WORKERS PRESENT AHEAD
Message 2: SPEED REDUCED NEXT XXMI

Without speed reduction:
Message 1: WORKERS PRESENT AHEAD
Message 2: NEXT XX MILES

LAST REVISION 11/01/21	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 5 of 5

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NOT FOR CONSTRUCTION

DRDGN: September 11, 2024 P:\Projects\21-5436 EDC Camp Helen State Park\Drawings\Civil\99 Pavement Marking Signage\0901 Traffic Control Plan.dwg

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
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	SYMBOL	REVISION	DATE

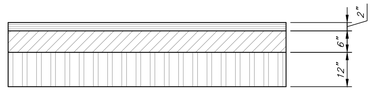
ISSUE DATE 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP
Consultant:

PROFESSIONAL REGISTRATION
JAMES H. PEIDSON IV LICENSE No 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PEIDSON IV
State of Florida P.E. # 80485

SHEET TITLE: TRAFFIC CONTROL PLAN
PROJECT TITLE: CAMP HELEN STATE PARK
PARK IMPROVEMENT

SHEET NO.
C802



SURFACE COURSE – TYPE SP ASPHALTIC CONCRETE (NOT TO EXCEED 15% RAP)

BASE COURSE – LIMEROCK (6" COMPACTED THICKNESS) WITH PRIME COAT

SUBGRADE – TYPE B STABILIZATION

TYPE SP ASPHALTIC CONCRETE SURFACE (2" MIN. COMPACTED THICKNESS) SHALL BE PLACED IN TWO LAYERS.

FIRST LAYER SHALL BE TYPE SP-9.5 AND HAVE A MIN. COMPACTED THICKNESS OF 1.00 INCH.

SECOND AND FINAL LAYER SHALL BE TYPE SP-9.5 AND HAVE A MIN. COMPACTED THICKNESS OF 1.00 INCH.

THE FIRST LAYER SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF THE BASE COURSE.

THE FINAL LAYER SHALL BE PLACED AT THE COMPLETION OF THE PROJECT AND SHALL MEET ALL REQUIREMENTS (INCLUDING MIXING AND PLACING REQUIREMENTS) AS SET FORTH BY F.D.O.T. FOR AN ASPHALTIC CONCRETE SURFACE COURSE TYPE SP.

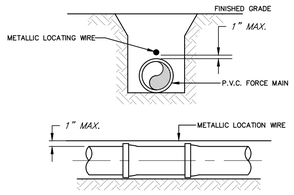
WHERE REFERENCE IS MADE TO A STANDARD SPECIFICATION OR DETAIL, THE FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS, LATEST EDITION, SHALL BE USED AS IF PART OF THIS PLAN. COMPACTION AND DENSITY REQUIREMENTS ARE SUBJECT TO RECOMMENDATIONS OF THE GEOTECH (SOILS) SURVEY.

ALL PAVEMENT, PAVEMENT MARKINGS, SIGNAGE AND MESSAGES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE FDOT STANDARD SPECIFICATIONS.

ASPHALT MIX TO CONTAIN MAXIMUM 15% RAP WITH PG 67-22 ASPHALT BINDER GRADE AND MUST MEET FDOT SPECIFICATION 334.

TYPE SP PAVEMENT DETAIL

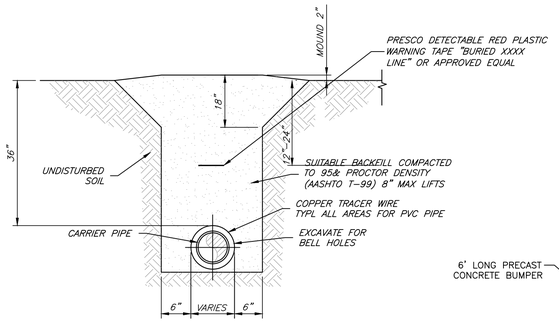
SCALE: NTS



NOTES:
1. PVC PIPE SHALL REQUIRE INSULATED METALLIC LOCATING WIRE (12 GAUGE COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE BURIED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE.
2. LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX AND BE CAPABLE OF EXTENDING 12" ABOVE TOP OF BOX IN SUCH A MANNER SO AS NOT TO INTERFERE WITH VALVE OPERATION.
3. USE DUCT TAPE AS NECESSARY TO HOLD WIRE ON THE TOP OF THE PIPE.
4. ALL SPLICES SHALL BE MADE USING A WATER-TIGHT SEALING METHOD APPROVED BY THE CITY.

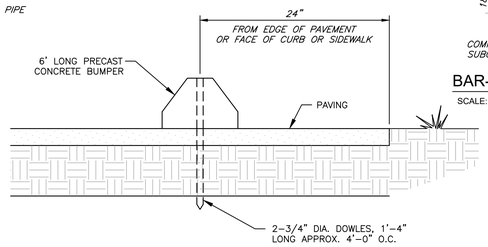
PVC WIRE LOCATING DETAIL

SCALE: NTS



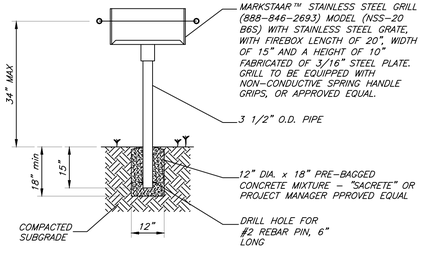
TYPICAL UNPAVED PIPE TRENCH DETAIL

SCALE: NTS



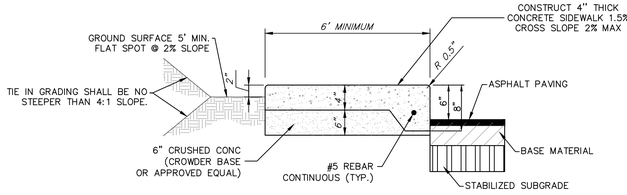
PARKING BUMPER DETAIL

N.T.S.



BAR-B-QUE GRILL DETAIL

SCALE: NTS



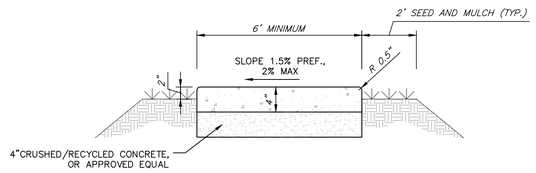
RAISED 4" CONCRETE SIDEWALK

SCALE: NTS

NOTE:
CONSTRUCT 4" THICK CONCRETE SIDEWALK IN ACCORDANCE WITH FDOT INDEX LATEST EDITION

PROVIDE A BROOM FINISH TO CONCRETE SURFACE.

FINISH OUTER EDGES OF THE CONCRETE WITH AN EDGING TOOL HAVING A RADIUS OF 1\2 INCH.



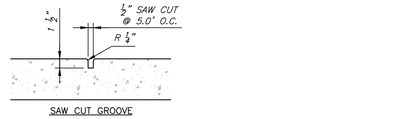
TYPICAL 4" PROPOSED CONCRETE SIDEWALK

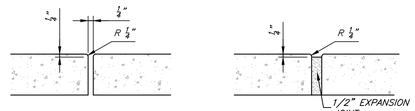
SCALE: NTS

NOTE: CONSTRUCT 4" THICK CONCRETE SIDEWALK IN ACCORDANCE WITH FDOT STANDARD PLANS LATEST EDITION. CONTRACTOR SHALL SUBMIT JOINTING PLAN FOR REVIEW AND APPROVAL BY OWNERS REPRESENTATIVE.

PROVIDE A BROOM FINISH ON CONCRETE SURFACE.

FINISH OUTER EDGES IF THE CONCRETE WITH AN EDGING TOOL HAVING A RADIUS OF ½ INCH.





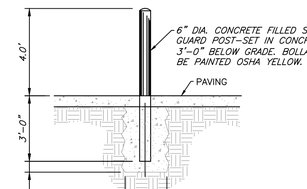
CONSTRUCTION JOINT
20.0' O.C. MAX
OR 1/2 LENGTH OF SIDEWALK

EXPANSION JOINT
EXPANSION JOINTS 30'-0" O.C. MAX.
PROVIDE AT EVERY SIDEWALK INTERSECTION

EXPANSION JOINT MATERIAL SHALL BE CLOSED CELL NEOPRENE MATERIAL (TYP.). CONTRACTOR SHALL SUBMIT JOINTING PLAN FOR REVIEW AND APPROVAL BY OWNERS REPRESENTATIVE (TYP.).

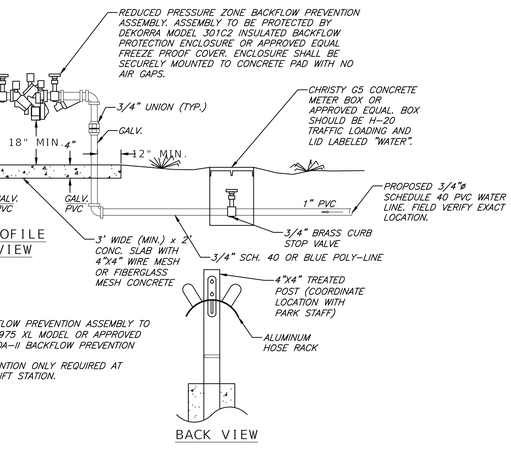
TYPICAL CONCRETE SIDEWALK JOINT DETAILS

SCALE: NTS



BOLLARD DETAIL

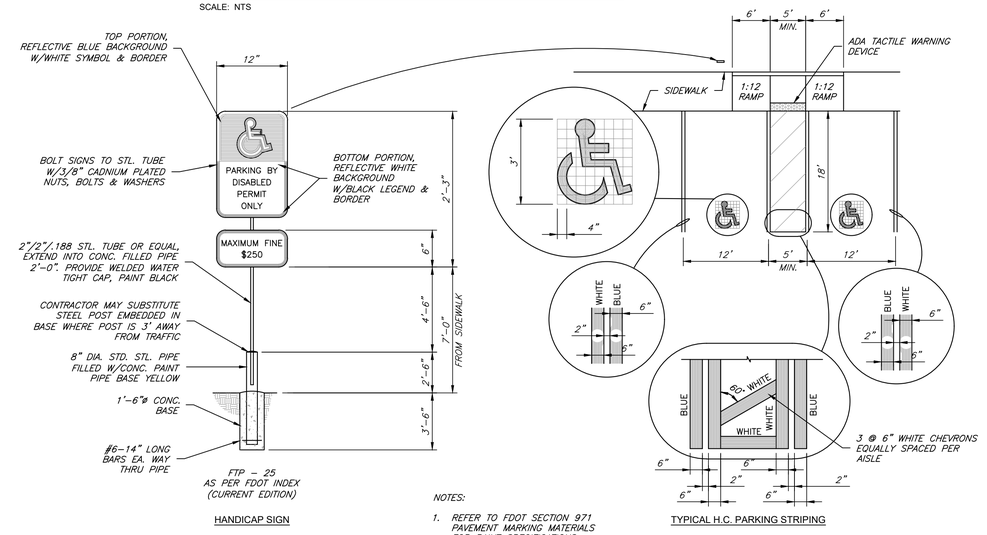
N.T.S. DETAIL S-002



NOTES:
1. PROPOSED BACK FLOW PREVENTION ASSEMBLY TO BE 3/4" WILKINS 975 XL MODEL OR APPROVED RP, RPDA, OR RPDA-II BACKFLOW PREVENTION ASSEMBLY.
2. BACK FLOW PREVENTION ONLY REQUIRED AT SANITARY SEWER LIFT STATION.

FROSTFREE YARD HYDRANT, INCLUDING AT LIFT STATION

SCALE: NTS



NOTES:
1. REFER TO FDOT SECTION 971 PAVEMENT MARKING MATERIALS FOR PAINT SPECIFICATIONS
2. INSTALL RAMPS AS NECESSARY

WHERE S.W. IS ADJACENT TO BUILDING MOUNT SIGNS ON FACE OF BUILDING

HANDICAP PARKING DETAILS

SCALE: NTS

CONSTRUCTION DETAILS

NOT FOR CONSTRUCTION

DRDWG November 6, 2024 P:\Projects\21-5436 EDC Camp Helen State Park\Drawings\Cover to Details\C901 Construction Details.dwg

DATE	SYMBOL	REVISION

DATE	SYMBOL	REVISION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP

Consultant:
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CAMP HELEN STATE PARK

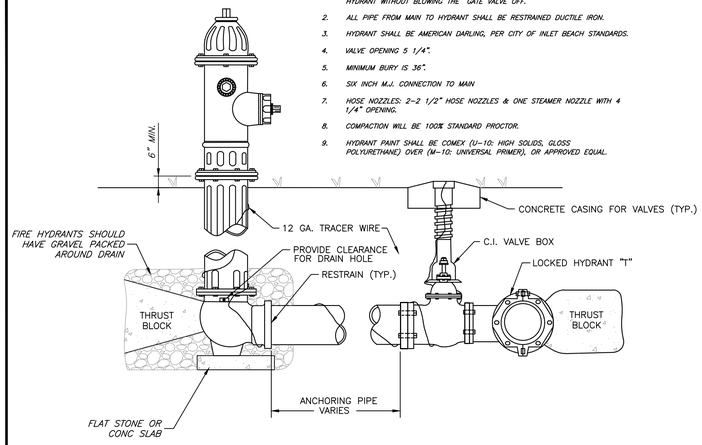
SHEET TITLE: CONSTRUCTION DETAILS

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C901

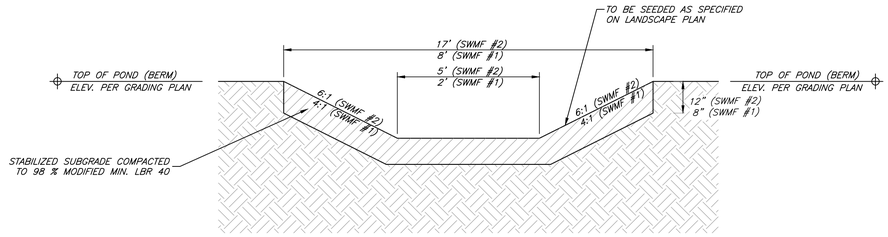
NOTE:

1. GATE VALVE IS TO BE RESTRAINED TO THE MAIN TO ALLOW REMOVAL OF FIRE HYDRANT WITHOUT BLOWING THE GATE VALVE OFF.
2. ALL PIPE FROM MAIN TO HYDRANT SHALL BE RESTRAINED DUCTILE IRON.
3. HYDRANT SHALL BE AMERICAN DARLING, PER CITY OF INLET BEACH STANDARDS.
4. VALVE OPENING 5 1/4".
5. MINIMUM BURY IS 36".
6. SIX INCH M.J. CONNECTION TO MAIN
7. HOSE NOZZLES: 2-2 1/2" HOSE NOZZLES & ONE STEAMER NOZZLE WITH 4 1/4" OPENING.
8. COMPACTION WILL BE 100% STANDARD PROCTOR.
9. HYDRANT PAINT SHALL BE COMEX (U-10: HIGH SOLIDS, GLOSS POLYURETHANE) OVER (M-10: UNIVERSAL PRIMER), OR APPROVED EQUAL.



FIRE HYDRANT ASSEMBLY - AMERICAN-DARLING MODEL B-84-B, OR APPROVED EQUAL

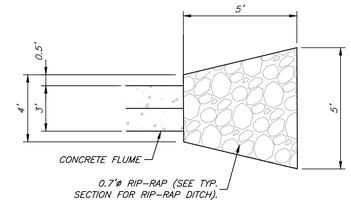
SCALE: NTS



FRONT SECTION

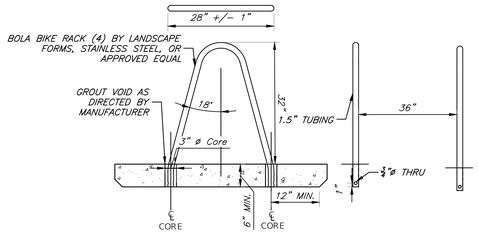
EMERGENCY SPILLWAY - GRASSED WEIR (SWMF #1 AND #2)

SCALE: NTS



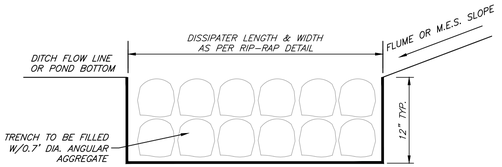
RIP-RAP DETAIL AT END OF CONCRETE FLUME

SCALE: NTS



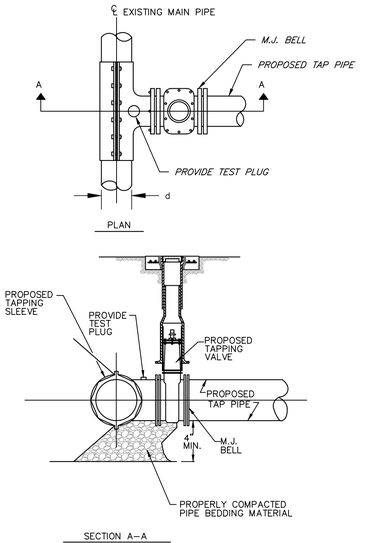
BIKE RACK

N.T.S.



TYPICAL RIP-RAP DETAIL: CROSS SECTION

SCALE: NTS



NOTES:

1.) NO CUTS SHALL BE MADE BEFORE:
(A) A TEST OF 150 P.S.I. FOR 30 MINUTES IS MADE.

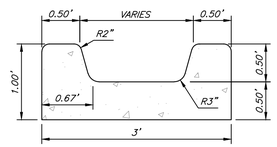
2.) ALL TAPS MUST BE OF A SMALLER SIZE THAN THE MAIN BEING TAPPED & PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP PIPE DIAMETERS (WHICHEVER IS LARGER) FROM A JOINT OR FITTING.

2.) CONTRACTOR SHALL ADHERE TO INLET BEACH WATER SYSTEM SPECIFICATIONS

3.) CONTRACTOR TO SUPPLY A DRY HOLE FOR TAPPING CREW TO WORK AND A BACK-HOE TO LOWER MACHINE INTO HOLE.

TAPPING SLEEVE AND VALVE DETAIL

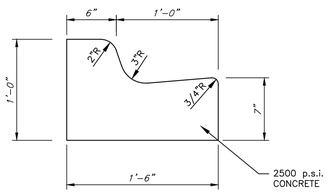
SCALE: NTS



NOTES:
1. CONTRACTOR IS TO PROVIDE 1/8" TO 1/4" CONTRACTION JOINTS AT 10' ON CENTER (MAX). THIS EXPANSION JOINTS SHALL BE LOCATED IN ACCORDANCE WITH SECTION 520 OF THE FDOT STANDARD SPECIFICATIONS.

CONCRETE FLUME

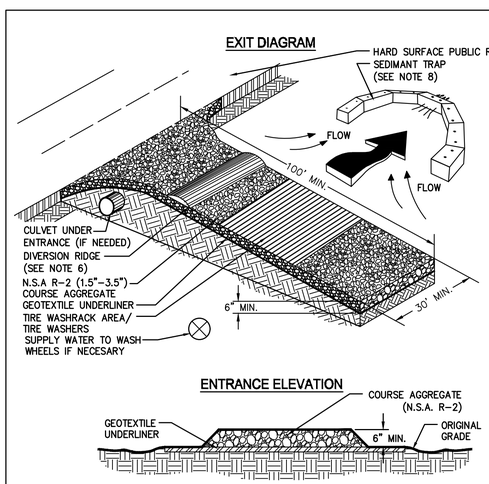
SCALE: NTS



NOTE: WHEN USING ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT

18" STANDARD CURB AND GUTTER

SCALE: NTS



MAINTENANCE:
THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1.5-3.5 INCH STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES TO TRAP SEDIMENT. ALL MATERIAL SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
11. THE GEOTEXTILE UNDERLINER MUST BE PLACED THE FULL LENGTH AND WIDTH OF THE ENTRANCE. GEOTEXTILE SELECTION SHALL BE BASED ON AASHTO M288-06 SPECIFICATION:
A. FOR SUBGRADES WITH CBR GREATER THAN OR EQUAL TO 3 OR SHEAR STRENGTH GREATER THAN 90 kPa, GEOTEXTILE MUST MEET REQUIREMENTS OF SECTION AASHTO M288-06 SECTION 7.3, SEPERATION REQUIREMENTS.
B. FOR SUBGRADES WITH CBR BETWEEN 1 AND 3 OR SHEER STRENGTH BETWEEN 30 AND 90 kPa, GEOTEXTILE MUST MEET REQUIREMENTS OF SECTION AASHTO M288-06 SECTION 8, GEOTEXTILE PROPERTY REQUIREMENTS FOR SUBSURFACE DRAINAGE, SEPARATION, STABILIZATION, AND PERMANENT EROSION CONTROL (GEOTEXTILE PROPERTY REQUIREMENTS).

Co **CONSTRUCTION EXIT**
NOT TO SCALE

CONSTRUCTION DETAILS

NOT FOR CONSTRUCTION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

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DATE	SYMBOL	REVISION

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ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP
Consultant:

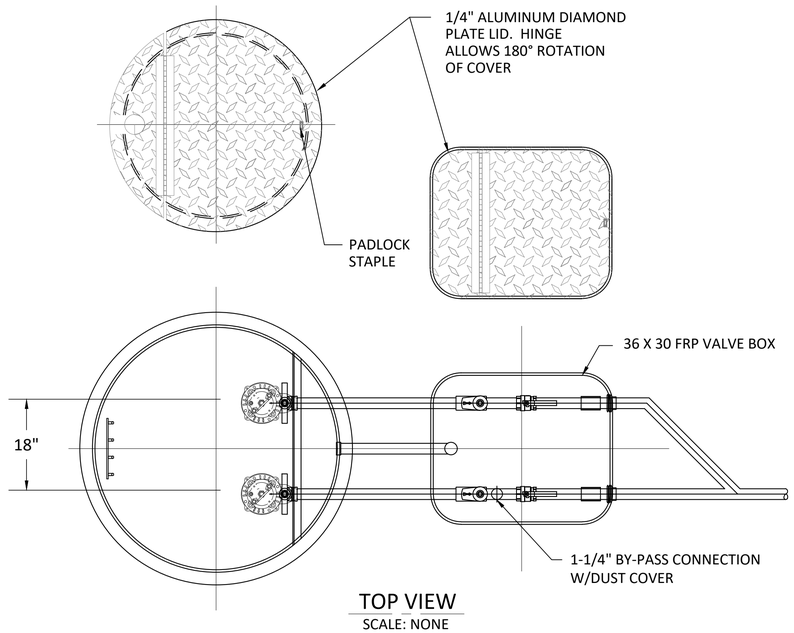
PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV LICENSE NUMBER 80485 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV
State of Florida P.E. # 80485

CAMP HELEN STATE PARK

SHEET TITLE: CONSTRUCTION DETAILS

PROJECT TITLE: PARK IMPROVEMENT

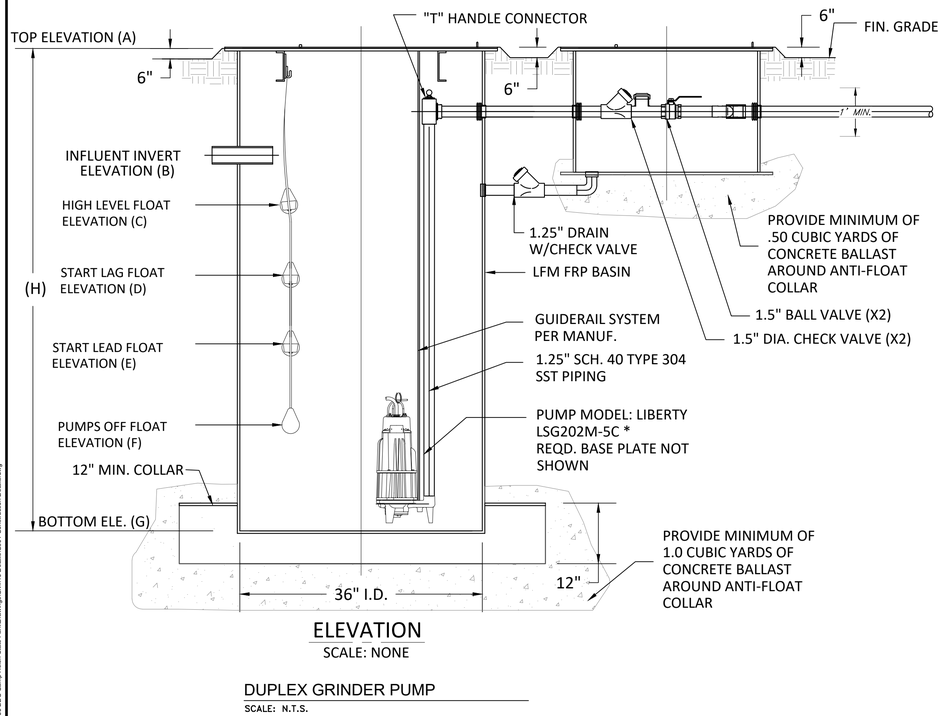
SHEET NO.
C902



TOP VIEW
SCALE: NONE

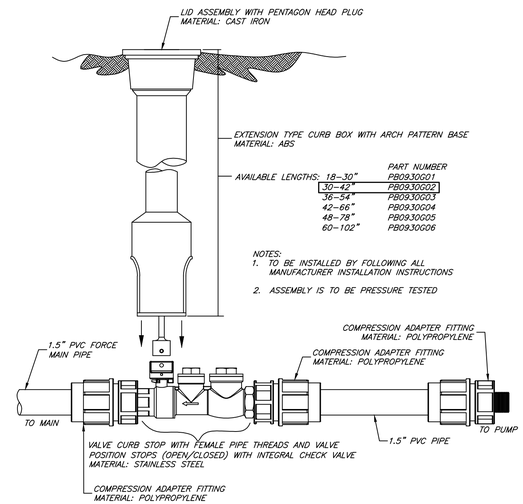
LIFT STATION INFORMATION		
DESCRIPTION	REF.	STATION #1
TOP	'A'	19.25'
INFLUENT INVERT	'B'	17.5'
ALARM	'C'	16.5'
TWO PUMPS ON	'D'	17.33'
ONE PUMP ON	'E'	16.83'
PUMPS OFF	'F'	16.33'
BOTTOM	'G'	14.25'
WET WELL DEPTH	'H'	5'
WET WELL DIAMETER	'I'	36"
# OF PUMPS		2
GPM		20
TDH (FT)		85
VOLTAGE / PHASE		230 V / 1 PH
HP		2
PUMP MODEL		Liberty D3648LSG202-C *

* OR APPROVED EQUAL

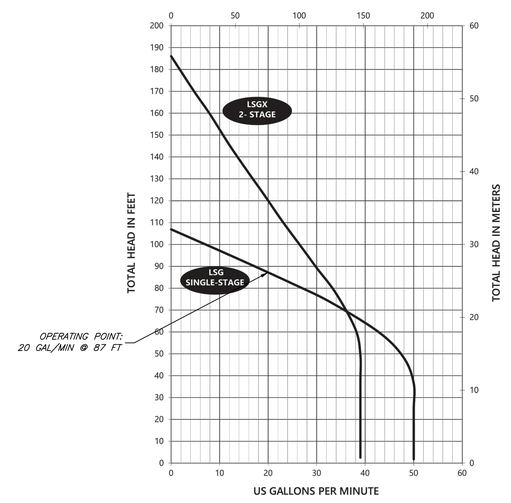


ELEVATION
SCALE: NONE

DUPLEX GRINDER PUMP
SCALE: N.T.S.



E-ONE LIFT STATION 1.5" STAINLESS STEEL LATERAL KIT
SCALE: NTS



LIBERTY PUMP CURVE
SCALE: N.T.S.

CONSTRUCTION DETAILS

NOT FOR CONSTRUCTION

George & Associates Consulting Engineers, Inc.
1967 Commonwealth Lane, Suite 200, Tallahassee, FL 32303
PH/FX: (850)531-0344 • FAX: (850)531-0345

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

SYMBOL	REVISION	DATE

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

DESIGNER: SMU
DRAWN BY: SMU
REVIEWED BY: JHP

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV LICENSE No 80465 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAMES H. PETERSON IV, P.E. # 80465
State of Florida

CAMP HELEN STATE PARK

SHEET TITLE: CONSTRUCTION DETAILS

PROJECT TITLE: PARK IMPROVEMENT

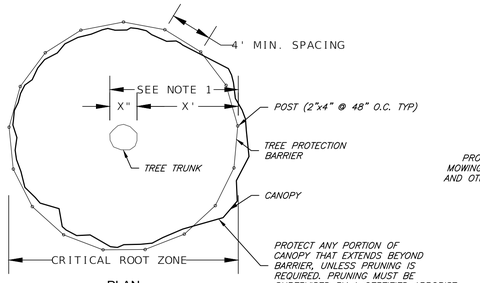
SHEET NO.
C903

Approved
Permit #591100036
Lisa Ward
1/16/2025

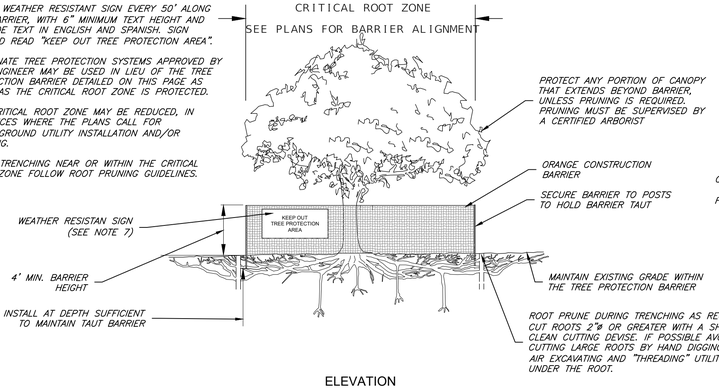
DROPO: November 6, 2024 P:\Projects\21-5436 BDC\ Camp Helen State Park\Drawings\Civil\10 Details\5901 Construction Details.dwg

NOTES:

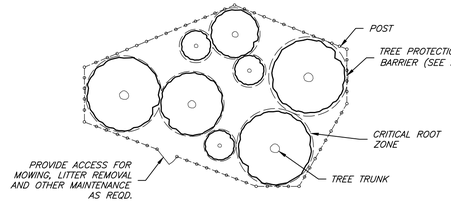
1. CRITICAL ROOT ZONE: EXTENDS IN ALL DIRECTIONS FROM TREE TRUNK TO A DISTANCE EQUAL TO ONE FOOT PER INCH OF TRUNK DIAMETER AT BREAST HEIGHT.
2. STAGING, STORAGE, DUMPING, WASHING AND OPERATION OF EQUIPMENT IS NOT PERMITTED WITHIN THE LIMITS OF THE TREE PROTECTION BARRIER, INCLUDING DURING BARRIER INSTALLATION.
3. INSTALL ALL TREE PROTECTION PRIOR TO COMMENCEMENT OF CONSTRUCTION AND REMOVE WHEN POTENTIALLY DAMAGING CONSTRUCTION ACTIVITIES ARE FINISHED IN THE VICINITY OF THE PROTECTED TREES.
4. FOR CLOSELY SPACED GROUPS OF TREES, PLACE THE TREE PROTECTION BARRIER AROUND THE ENTIRE GROUP.
5. INSPECT TRUNK PROTECTION AND TREE QUARTERLY TO PREVENT GIRDLING. ADJUST BANDS TO ALLOW TREE GROWTH AS NEEDED.
6. SEE PLANS FOR ANY ADDITIONAL REQUIREMENTS OR MODIFICATIONS WITHIN THE TREE PROTECTION AREA.
7. PLACE WEATHER RESISTANT SIGN EVERY 50' ALONG THE BARRIER, WITH 6" MINIMUM TEXT HEIGHT AND PROVIDE TEXT IN ENGLISH AND SPANISH. SIGN SHOULD READ "KEEP OUT TREE PROTECTION AREA".
8. ALTERNATE TREE PROTECTION SYSTEMS APPROVED BY THE ENGINEER MAY BE USED IN LIEU OF THE TREE PROTECTION BARRIER DETAILED ON THIS PAGE AS LONG AS THE CRITICAL ROOT ZONE IS PROTECTED.
9. THE CRITICAL ROOT ZONE MAY BE REDUCED, IN INSTANCES WHERE THE PLANS CALL FOR UNDERGROUND UTILITY INSTALLATION AND/OR GRADING.
10. WHILE TRENCHING NEAR OR WITHIN THE CRITICAL ROOT ZONE FOLLOW ROOT PRUNING GUIDELINES.



PLAN

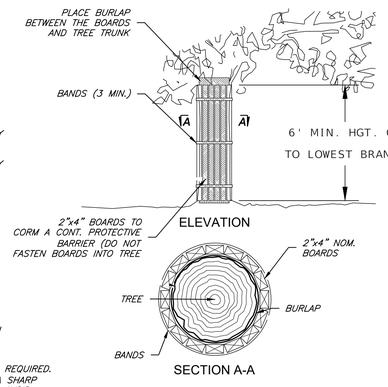


ELEVATION



PLAN

PROTECTION FOR TREE GROUPINGS

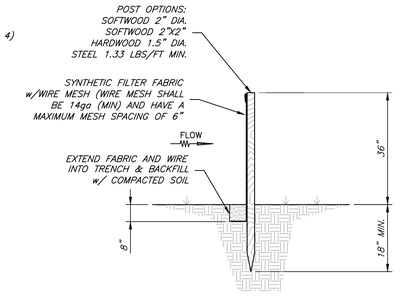


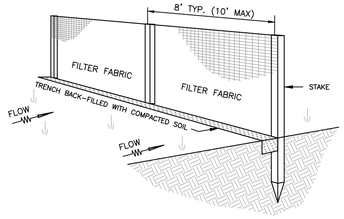
ELEVATION

SECTION A-A

NOTES:

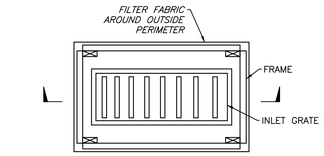
1. TRUNK PROTECTION MAY BE USED WHEN TREE PROTECTION BARRIER CAN NOT BE REASONABLY ERECTED.
2. ADJUST BANDS TO ALLOW TREE GROWTH (INSPECT QUARTERLY TO PREVENT GIRDLING).



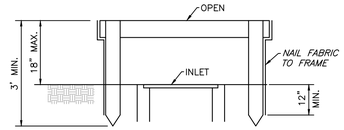


SEDIMENT BARRIER DETAILS

N.T.S. EC-006



PLAN



SECTION

INLET PROTECTION

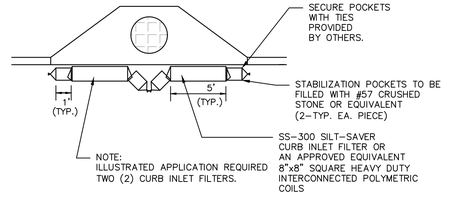
N.T.S. EC-013

DEFINITION

A FILTER DESIGN TO BE PLACED IN FRONT OF A CURB INLET OR OPENING TO PREVENT THE MIGRATION OF SILT INTO THE STORM DRAIN SYSTEM.

PURPOSE

TO REDUCE TURBIDITY OF DOWNSTREAM WATERS BY ELIMINATING SILT BUILD-UP IN STORM DRAIN SYSTEMS THROUGH THE CURB INLETS.



INSTALLATION

1. IDENTIFY OPENING DIMENSIONS TO DETERMINE HOW MANY FILTERS ARE REQUIRED.
2. COMPLETELY FILL THE ROCK CHAMBERS AT EACH END OF THE FILTER.
3. SECURE THE OPEN ENDS OF THE ROCK CHAMBERS WITH TIE WIRES. FOR LARGER OPENINGS, SIMPLY PLACE FILTERS END TO END.

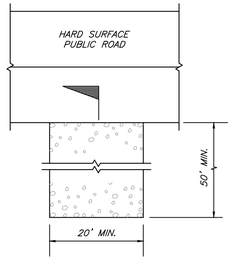
MAINTENANCE

ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES SHOULD BE INSPECTED DAILY. REMOVE SEDIMENT AND DISPOSE IN A PROPER MANNER. INSPECT FILTER FOR CUTS, ABRASIONS AND PROPER INSTALLATION, REPLACE OR REPOSITION AS NECESSARY. DISCONTINUE USE IF CURB INLET FILTRATION CREATES TRAFFIC HAZARD.

CURB INLET PROTECTION

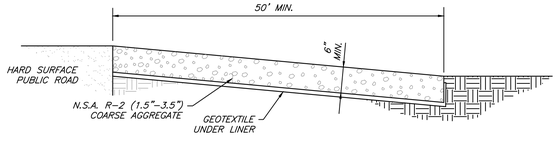
N.T.S.

TREE PROTECTION BARRIER



PLAN

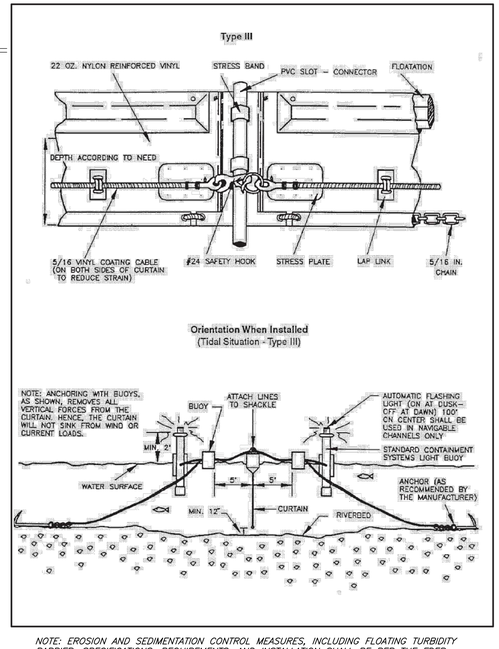
TRUNK PROTECTION



SECTION

CONSTRUCTION ENTRANCE/EXIT

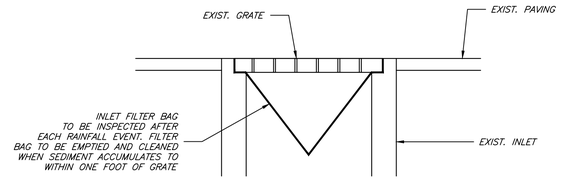
N.T.S. EC-016



NOTE: EROSION AND SEDIMENTATION CONTROL MEASURES, INCLUDING FLOATING TURBIDITY BARRIER, SPECIFICATIONS, REQUIREMENTS, AND INSTALLATION SHALL BE PER THE FDEP FLORIDA STORMWATER EROSION AND SEDIMENTATION CONTROL INSPECTORS MANUAL, LATEST EDITION.

TYPE III FLOATING TURBIDITY BARRIER

N.T.S.



INLET PROTECTION

N.T.S.

EROSION CONTROL DETAILS

NOT FOR CONSTRUCTION

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3900 Commonwealth Boulevard, Tallahassee, FL 32399 (850) 245-2157

George & Associates Consulting Engineers, Inc.
1067 Commonwealth Lane, Suite 200, Tallahassee, FL 32303
PHONE: 850/210-1544 FAX: 850/210-1545

DESIGNER:	SMU
DRAWN BY:	SMU
REVIEWED BY:	JHP
Consultant:	

ISSUE DATE: 11/11/2024 100% PLANS
COMP. FILE No.: 21-5436
STATE PROJECT No.: 61307C-N3803

DATE	SYMBOL	REVISION

PROFESSIONAL REGISTRATION
JAMES H. PETERSON IV
LICENSE No 80465 STATE OF FLORIDA PROFESSIONAL ENGINEER
James H. Peterson IV State of Florida P.E. # 80465

CAMP HELEN STATE PARK

SHEET TITLE: EROSION CONTROL DETAILS

PROJECT TITLE: PARK IMPROVEMENT

SHEET NO. C904

Approved
FDEP#0291100036
Lisa Wold
1/16/2025

DRDOO November 5, 2024 P:\Projects\21-5436 (EDC Camp Helen State Park\Drawings\Civil\101 Details\C901 Construction Details.dwg

** OFFICIAL RECORDS **
BOOK: 1640 PAGE: 1928

FILE# 96-027339
BAY COUNTY, FLORIDA

DEED DOC STAMPS 0.70
06/18/96 Deputy Clk

----------RESERVED FOR USE BY CLERK OF COURT----------
Property Appraiser's Parcel Identification Number: 35205.000.000

CORRECTIVE WARRANTY DEED

THIS INDENTURE, made this 17th day of JUNE , A.D. 1996, between DANA BEACH RESORTS, INC., a Florida corporation, whose address is 420 East Pine Avenue, Crestview, Florida 32536 ("Grantor"), and the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, whose post office address is c/o Florida Department of Environmental Protection, Division of State Lands, 3900 Commonwealth Boulevard, Mail Station, 115, Tallahassee, FL 32399-3000 ("Grantee"),

WITNESSETH: That the said Grantor, for and in consideration of the sum of Ten Dollars and other good and valuable considerations, to said Grantor in hand paid by said Grantee, the receipt whereof is hereby acknowledged, has granted, bargained and sold to the said Grantee, and Grantee's successors and assigns forever, the following described land situate, lying and being in Bay County, Florida, to wit:

Government Lots 2, 7, 8, 10 and 11, lying in and being a part of Section 31, Township 2 South, Range 17 West, Bay County, Florida, LESS AND EXCEPT right of way for U.S. Highway 98 as described in Official Records Book 696, page 869, Official Records Book 1349, page 1603, Deed Book 101, Page 119, and Deed Book 74, Page 25, all being recorded in the Public Records of Bay County, Florida.

THIS CORRECTIVE WARRANTY DEED IS GIVEN TO CORRECT A SCRIVENER'S ERROR IN THE LEGAL DESCRIPTION OF THAT CERTAIN WARRANTY DEED RECORDED AT BOOK 1639, PAGE 311, OFFICIAL RECORDS OF BAY COUNTY, FLORIDA, IN WHICH A REFERENCE WAS MADE TO "DEED BOOK 75" AND WHEREAS THE CORRECT REFERENCE IS "DEED BOOK 74".

This conveyance is subject to easements, restrictions, limitations and conditions of record if any now exist,

but any such interests that may have been terminated are not hereby reimposed.

AND the said Grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, the Grantor has hereunto set Grantor's hand and seal, the day and year first above written.

Signed, sealed and delivered in the presence of:

(SIGNATURE OF FIRST WITNESS)

(PRINTED, TYPED OR STAMPED NAME OF FIRST WITNESS

(SIGNATURE OF SECOND WITNESS)

(PRINTED, TYPED OR STAMPED NAME OF SECOND WITNESS)

DANA BEACH RESORTS, INC., a Florida corporation

By: _____
George Dana Doodle Harris
Its President

STATE OF FLORIDA
COUNTY OF BAY

The foregoing instrument was acknowledged before me this 17th day of JUNE, 1996, by GEORGE DANA DOODLE HARRIS, as President of DANA BEACH RESORTS, INC., a Florida corporation, on behalf of the corporation, who: (notary **must** check applicable box)

☒ is personally known to me.
☐ produced a current Florida driver's license as identification.
☐ produced _____ as identification.

(SEAL)

_____
J. ROBERT HUGHES
(Print Name)
Notary Public
Serial # _____
My Commission Expires: _____

J. ROBERT HUGHES
MY COMMISSION # CC 461704
EXPIRES: September 22, 1999
Bonded Thru Notary Public Underwriters

This Instrument Prepared By and
Please Return To:
J. Robert Hughes
Barron, Redding, Hughes, Fite,
Bassett & Fensom, P.A.
Post Office Box 2467
Panama City, Florida 32402

RCD Jun 18 1996 08:49am
HAROLD BAZZEL, CLERK

Part 4: Signatures and Authorization to Access Property

Instructions: For multiple applicants please provide a separate Part 4 for each applicant. For corporations, the application must be signed by a person authorized to bind the corporation. A person who has sufficient real property interest (see Section 4.2.3(d) of Applicant's Handbook Volume I) is required in (B) to authorize access to the property, except when the applicant has the power of eminent domain.

A. By signing this application form, I am applying for the permit and any proprietary authorizations identified above, according to the supporting data and other incidental information filed with this application. I am familiar with the information contained in this application and represent that such information is true, complete and accurate. I understand this is an application and not a permit, and that work prior to approval is a violation. I understand that this application and any permit issued or proprietary authorization issued pursuant thereto does not relieve me of any obligation for obtaining any other required federal, state, water management district, or local permit prior to commencement of construction. I agree to operate and maintain the permitted system unless the permitting agency authorizes transfer of the permit to a different responsible operation and maintenance entity. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

David Matson Digitally signed by David Matson Date: 2024.07.15 10:09:23 -04'00'

David Matson
Typed/Printed Name of Applicant or Applicant's Authorized Agent

Signature of Applicant or Applicant's Authorized Agent

Date

Assistant Bureau Chief, FDEP Bureau of Design and Construction
(Corporate Title if applicable)

B. Certification of Sufficient Real Property Interest And Authorization For Staff To Access The Property:

I certify that:

☒ **I possess sufficient real property interest in or control, as defined in Section 4.2.3 (d) of Applicant's Handbook Volume I,** over the land upon which the activities described in this application are proposed and I have legal authority to grant permission to access those lands. I hereby grant permission, evidenced by my signature below, for staff of the Agency to access, inspect, and sample the lands and waters of the property as necessary for the review of the proposed works and other activities specified in this application, upon advance notice. I authorize these agents or personnel to enter the property as many times as may be necessary to make such review, inspection, and/ or sampling. Further, if a permit is granted, upon advance notice, I agree to provide entry to the project site for such agents or personnel with proper identification to determine compliance with permit conditions and permitted plans and specifications.

OR

☐ I represent an entity having **the power of eminent domain and condemnation authority**, and I/we shall make appropriate arrangements to enable staff of the Agency to legally access, inspect, and sample the property as described above.

David Matson Digitally signed by David Matson Date: 2024.07.15 10:09:36 -04'00'

David Matson
Typed/Printed Name

Signature

Date

Assistant Bureau Chief, FDEP Bureau of Design and Construction
(Corporate Title if applicable)

C. Designation of Authorized Agent (If Applicable):

I hereby designate and authorize Signe Ulsamer (George & Associates Consulting Engineers) to act on my behalf, or on behalf of my corporation, as the agent in the processing of this application for the permit and/or proprietary authorization indicated above and to furnish, on request, supplemental information in support of the application. In addition, I authorize the above-listed agent to bind me, or my corporation, to perform any requirements which may be necessary to procure the permit or authorization indicated above. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S., and 18 U.S.C. Section 1001.

David Matson Digitally signed by David Matson Date: 2024.07.15 10:09:53 -04'00'

David Matson
Typed/Printed Name of Applicant

Signature of Applicant

Date

Assistant Bureau Chief, FDEP Bureau of Design and Construction
(Corporate Title if applicable)

CAMP HELEN

NOTICE OF LIABILITY:

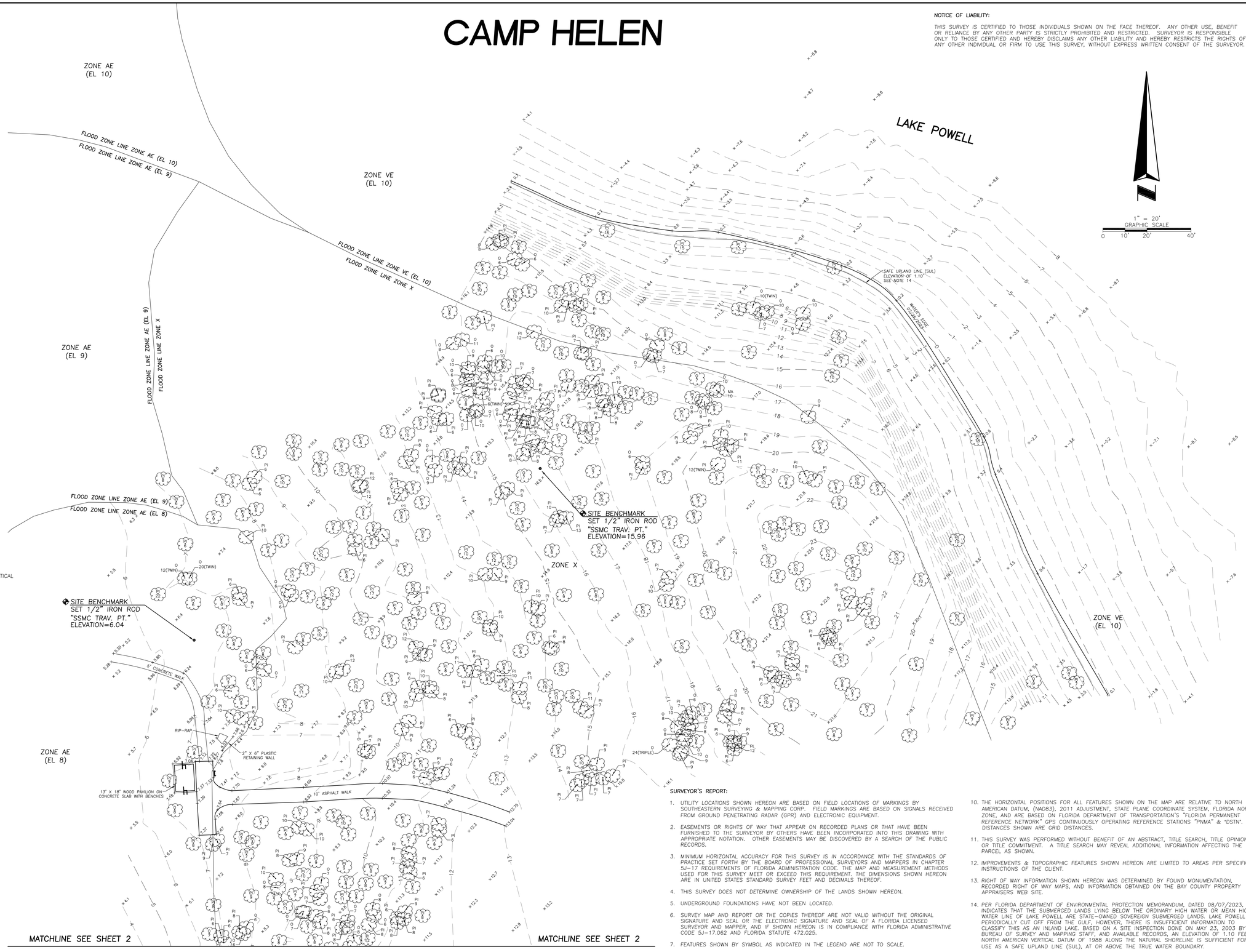
THIS SURVEY IS CERTIFIED TO THOSE INDIVIDUALS SHOWN ON THE FACE THEREOF. ANY OTHER USE, BENEFIT OR RELIANCE BY ANY OTHER PARTY IS STRICTLY PROHIBITED AND RESTRICTED. SURVEYOR IS RESPONSIBLE ONLY TO THOSE CERTIFIED AND HEREBY DISCLAIMS ANY OTHER LIABILITY AND HEREBY RESTRICTS THE RIGHTS OF ANY OTHER INDIVIDUAL OR FIRM TO USE THIS SURVEY, WITHOUT EXPRESS WRITTEN CONSENT OF THE SURVEYOR.

LEGEND & ABBREVIATIONS:

- BF = BACKFLOW PREVENTER
- h = BENCH
- = BUSH
- T = TELEPHONE PEDESTAL
- = DRAINAGE MANHOLE
- = ELECTRIC SERVICE METER
- = FIRE HYDRANT
- = GUY ANCHOR
- = WATER SPIGOT
- = IRON ROD
- = UTILITY POLE
- = POST/BOLLARD
- P = PUMP
- = NON-TRAFFIC SIGN
- = SPRINKLER
- TH = TEST HOLE
- = TRAFFIC CONTROLLER CABINET
- = TRAFFIC SIGN
- GM = UTILITY MARKER
- = WATER METER
- = WIRING PULL BOX
- WV = WATER VALVE
- = YARD DRAIN
- = VALVE COVER
- –FOC– = BURIED FIBER OPTIC LINE
- –BTE– = BURIED TELEPHONE LINE
- –GM– = GAS MAIN
- –OHL– = OVERHEAD UTILITY LINE
- –WL– = WATER LINE
- –RCW– = RECLAIM WATER LINE
- = HEDGE LINE
- = TREE LINE
- = GUARDRAIL
- CPP = CORRUGATED PLASTIC PIPE
- PVC = POLYVINYL CHLORIDE PIPE
- RCPE = REINFORCED CONCRETE PIPE ELLIPTICAL
- TRAV.PT. = TRAVERSE POINT
- SSMC = SOUTHEASTERN SURVEYING & MAPPING CORPORATION

SIZE SHOWN IS TRUNK DIAMETER IN INCHES MEASURED AT CHEST HEIGHT

- = PALM
- = TREE
  - MA = MAGNOLIA
  - O = OAK
  - PI = PINE
  - UK = UNKNOWN



1" = 20'
GRAPHIC SCALE
0 10' 20' 40'

SURVEYOR'S REPORT:

1. UTILITY LOCATIONS SHOWN HEREON ARE BASED ON FIELD LOCATIONS OF MARKINGS BY SOUTHEASTERN SURVEYING & MAPPING CORP. FIELD MARKINGS ARE BASED ON SIGNALS RECEIVED FROM GROUND PENETRATING RADAR (GPR) AND ELECTRONIC EQUIPMENT.
2. EASEMENTS OR RIGHTS OF WAY THAT APPEAR ON RECORDED PLANS OR THAT HAVE BEEN FURNISHED TO THE SURVEYOR BY OTHERS HAVE BEEN INCORPORATED INTO THIS DRAWING WITH APPROPRIATE NOTATION. OTHER EASEMENTS MAY BE DISCOVERED BY A SEARCH OF THE PUBLIC RECORDS.
3. MINIMUM HORIZONTAL ACCURACY FOR THIS SURVEY IS IN ACCORDANCE WITH THE STANDARDS OF PRACTICE SET FORTH BY THE BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17 REQUIREMENTS OF FLORIDA ADMINISTRATION CODE. THE MAP AND MEASUREMENT METHODS USED FOR THIS SURVEY MEET OR EXCEED THIS REQUIREMENT. THE DIMENSIONS SHOWN HEREON ARE IN UNITED STATES STANDARD SURVEY FEET AND DECIMALS THEREOF.
4. THIS SURVEY DOES NOT DETERMINE OWNERSHIP OF THE LANDS SHOWN HEREON.
5. UNDERGROUND FOUNDATIONS HAVE NOT BEEN LOCATED.
6. SURVEY MAP AND REPORT OR THE COPIES THEREOF ARE NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND SEAL OR THE ELECTRONIC SIGNATURE AND SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER, AND IF SHOWN HEREON IS IN COMPLIANCE WITH FLORIDA ADMINISTRATIVE CODE 5J-17.062 AND FLORIDA STATUTE 472.025.
7. FEATURES SHOWN BY SYMBOL AS INDICATED IN THE LEGEND ARE NOT TO SCALE.
8. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
9. VERTICAL INFORMATION SHOWN HEREON REFERS TO FLORIDA DEPARTMENT OF TRANSPORTATION VERTICAL CONTROL STATIONS: "46-02-C02V", BEING A 4"X4" CONCRETE MONUMENT WITH BRASS DISK, ELEVATION = 18.69' (NAVD88), AND "46-18-C02V", BEING A 4"X4" CONCRETE MONUMENT WITH BRASS DISK, ELEVATION = 23.53' (NAVD88). THE CONTOUR INTERVAL IS ONE FOOT.
10. THE HORIZONTAL POSITIONS FOR ALL FEATURES SHOWN ON THE MAP ARE RELATIVE TO NORTH AMERICAN DATUM, (NAD83), 2011 ADJUSTMENT, STATE PLANE COORDINATE SYSTEM, FLORIDA NORTH ZONE, AND ARE BASED ON FLORIDA DEPARTMENT OF TRANSPORTATION'S "FLORIDA PERMANENT REFERENCE NETWORK" GPS CONTINUOUSLY OPERATING REFERENCE STATIONS "PNMA" & "DSTN". DISTANCES SHOWN ARE GRID DISTANCES.
11. THIS SURVEY WAS PERFORMED WITHOUT BENEFIT OF AN ABSTRACT, TITLE SEARCH, TITLE OPINION OR TITLE COMMITMENT. A TITLE SEARCH MAY REVEAL ADDITIONAL INFORMATION AFFECTING THE PARCEL AS SHOWN.
12. IMPROVEMENTS & TOPOGRAPHIC FEATURES SHOWN HEREON ARE LIMITED TO AREAS PER SPECIFIC INSTRUCTIONS OF THE CLIENT.
13. RIGHT OF WAY INFORMATION SHOWN HEREON WAS DETERMINED BY FOUND MONUMENTATION, RECORDED RIGHT OF WAY MAPS, AND INFORMATION OBTAINED ON THE BAY COUNTY PROPERTY APPRAISERS WEB SITE.
14. PER FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION MEMORANDUM, DATED 08/07/2023, INDICATES THAT THE SUBMERGED LANDS LYING BELOW THE ORDINARY HIGH WATER OR MEAN HIGH WATER LINE OF LAKE POWELL ARE STATE-OWNED SOVEREIGN SUBMERGED LANDS. LAKE POWELL IS PERIODICALLY CUT OFF FROM THE GULF, HOWEVER, THERE IS INSUFFICIENT INFORMATION TO CLASSIFY THIS AS AN INLAND LAKE. BASED ON A SITE INSPECTION DONE ON MAY 23, 2003 BY BUREAU OF SURVEY AND MAPPING STAFF, AND AVAILABLE RECORDS, AN ELEVATION OF 1.10 FEET NORTH AMERICAN VERTICAL DATUM OF 1988 ALONG THE NATURAL SHORELINE IS SUFFICIENT FOR USE AS A SAFE UPLAND LINE (SUL), AT OR ABOVE THE TRUE WATER BOUNDARY.
15. THE FLOOD LINES AS SHOWN HEREON WERE REFERENCED INTO THIS SURVEY UTILIZING A SHAPE FILE DOWNLOADED FROM THE FEMA WEBSITE PRODUCT ID (NFHL_12005C) AND IS RELATIVE TO THE STATE PLANE COORDINATE SYSTEM NAD83 FLORIDA NORTH ZONE. BASED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 12005C0163H, MAP REVISED JUNE 2, 2009, THE ABOVE DESCRIBED PROPERTY IS WITHIN ZONES X, AE AND VE.

THOMAS K. MEEKS
STATE OF FLORIDA
No. 5958
STATE OF FLORIDA
Thomas K. Meeks
Registered Land Surveyor
Number 5958

SSMC
SUE • SURVEY • GIS

SOUTHEASTERN SURVEYING
AND MAPPING CORPORATION
1130 Highway 90
Chipley, Florida 32428
(850) 638-0700
e-mail: info@southeasternsurveying.com
Certification Number LB2108

REVISION DATE	REVISION	BY
10/26/2023	ADDED ADDITIONAL TOPO	AE

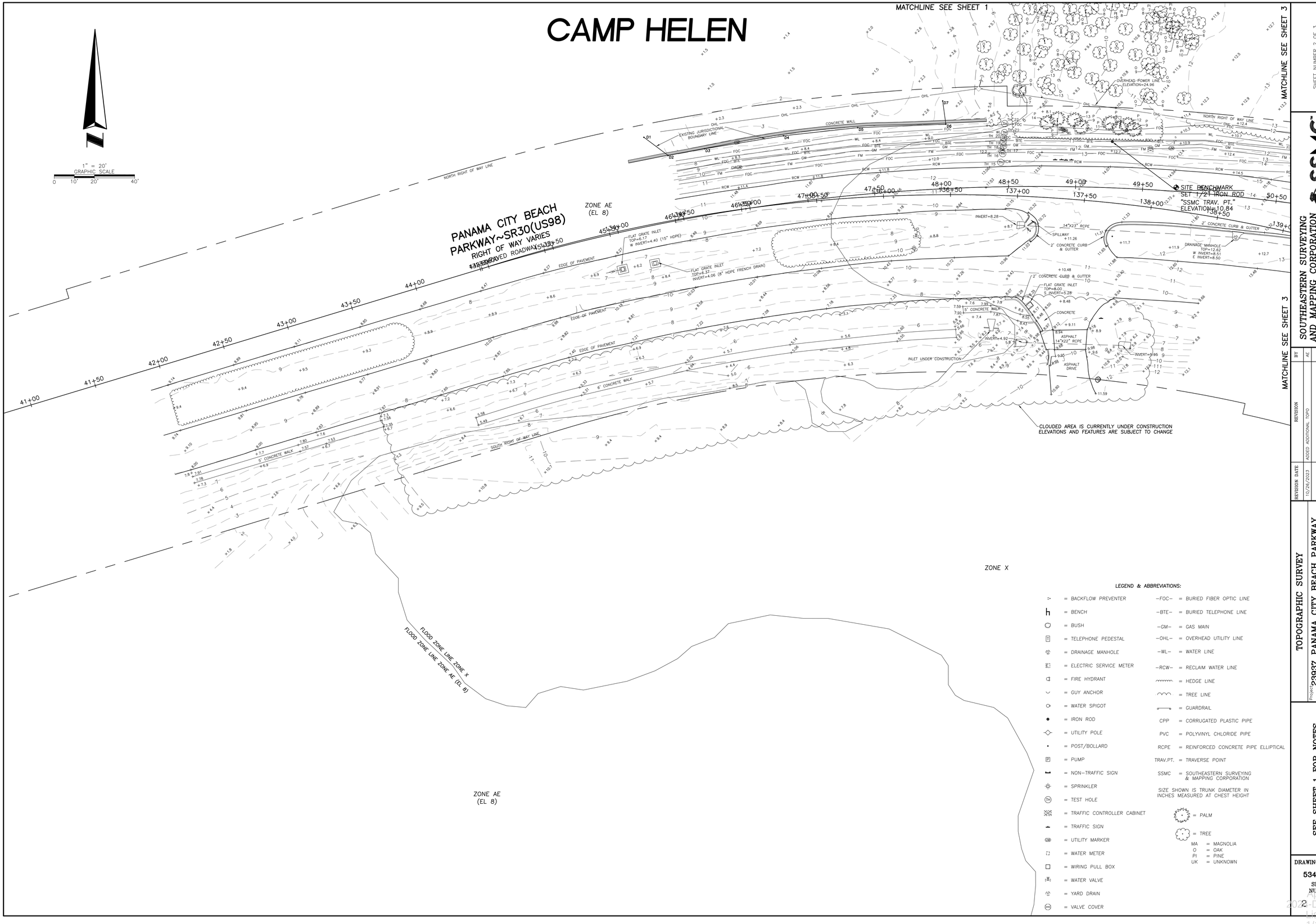
SHEET NUMBER 1 OF 3
NOT VALID WITHOUT SHEETS 1 THROUGH 3

TOPOGRAPHIC SURVEY
Project: 23937 PANAMA CITY BEACH PARKWAY
PANAMA CITY BEACH, FLORIDA
Field Date: 08/15/2023
Drawn By: A. EDKLES
Scale: 1" = 20'

Certified to:
GEORGE & ASSOCIATES
CONSULTING ENGINEERS

DRAWING NUMBER
53475002
SHEET NUMBER
1 OF 3

CAMP HELEN



LEGEND & ABBREVIATIONS:

= BACKFLOW PREVENTER	–FOC– = BURIED FIBER OPTIC LINE
= BENCH	–BTE– = BURIED TELEPHONE LINE
= BUSH	–GM– = GAS MAIN
= TELEPHONE PEDESTAL	–OHL– = OVERHEAD UTILITY LINE
= DRAINAGE MANHOLE	–WL– = WATER LINE
= ELECTRIC SERVICE METER	–RCW– = RECLAIM WATER LINE
= FIRE HYDRANT	= HEDGE LINE
= GUY ANCHOR	= TREE LINE
= WATER SPIGOT	= GUARDRAIL
= IRON ROD	CPP = CORRUGATED PLASTIC PIPE
= UTILITY POLE	PVC = POLYVINYL CHLORIDE PIPE
= POST/BOLLARD	RCPE = REINFORCED CONCRETE PIPE ELLIPTICAL
= PUMP	TRAV.PT. = TRAVERSE POINT
= NON–TRAFFIC SIGN	SSMC = SOUTHEASTERN SURVEYING & MAPPING CORPORATION
= SPRINKLER	SIZE SHOWN IS TRUNK DIAMETER IN INCHES MEASURED AT CHEST HEIGHT
= TEST HOLE	= PALM
= TRAFFIC CONTROLLER CABINET	= TREE
= TRAFFIC SIGN	MA = MAGNOLIA
= UTILITY MARKER	O = OAK
= WATER METER	PI = PINE
= WIRING PULL BOX	UK = UNKNOWN
= WATER VALVE	
= YARD DRAIN	
= VALVE COVER	

SHEET NUMBER 2 OF 3
NOT VALID WITHOUT SHEETS 1 THROUGH 3

SSMC
SUE • SURVEY • GIS
SOUTHEASTERN SURVEYING AND MAPPING CORPORATION
1130 Highway 90
Chipley, Florida 32428
(850) 638-0700
e-mail: info@southeasternsurveying.com
Certification Number LB2108

REVISION DATE	REVISION	BY
10/26/2023	ADDED ADDITIONAL TOPO	AE

TOPOGRAPHIC SURVEY

Project: 23937 PANAMA CITY BEACH PARKWAY
PANAMA CITY BEACH, FLORIDA

Field Date: 08/15/2023 | Drawn By: A. ECKLES | Scale: 1" = 20'

SEE SHEET 1 FOR NOTES, LEGEND AND DESCRIPTION.

DRAWING NUMBER
53475002
SHEET NUMBER
2 OF 3

CAMP HELEN

MATCHLINE SEE SHEET 2

MATCHLINE SEE SHEET 2

ZONE X

PANAMA CITY BEACH PARKWAY~SR30(US98)
RIGHT OF WAY VARIES
PAVED ROADWAY

2' CONCRETE CURB & GUTTER

DRAINAGE MANHOLE
TOP=13.90
W INVERT=9.75

EDGE OF PAVEMENT

SPILLWAY

FLAT GRATE INLET
TOP=14.40
INVERT=12.24 (8" HDPE FRENCH DRAIN)

ASPHALT

CONCRETE CURB AND GUTTER

NORTH RIGHT OF WAY LINE
& BACK OF WOOD POST & RAIL FENCE

SITE BENCHMARK
SET 1/2" IRON ROD
"SSMC TRAV. PT."
ELEVATION=21.97

SOUTH RIGHT OF WAY LINE

5' CONCRETE WALK

GRAVEL

ASPHALT DRIVE

WOOD POST & RAIL FENCE

10' CONCRETE WALK

DRAINAGE MANHOLE
(NO OUTFALL)
TOP=18.96
E INVERT=15.90
BOTTOM=11.98

INVERT=16.53

4" PVC INVERT=16.40

24" CPP

YARD DRAIN
(NO OUTFALL)
TOP=16.99
N INVERT=15.35
W INVERT=13.16
BOTTOM=12.01

DRAINAGE MANHOLE
TOP=12.76
SE INVERT=4.96
BOTTOM=3.75

SITE BENCHMARK
SET 1/2" IRON ROD
"SSMC TRAV. PT."
ELEVATION=15.70

INVERT=8.56
FILLED WITH SAND

4" PVC INVERT=8.26

YARD DRAIN
TOP=8.94
N INVERT=7.22
NW INVERT=5.14
BOTTOM=3.92

8' X 13' WOOD PAVILION ON CONCRETE SLAB WITH BENCHES

2" X 6" WOOD RETAINING WALL

PART WALL

MEYER'S DOCK
BUILT IN 2023

SAFE UPLAND LINE (SUL)
ELEVATION OF 1.10'
SEE NOTE 14

SITE BENCHMARK
SET 1/2" IRON ROD
"SSMC TRAV. PT."
ELEVATION=4.36

EXISTING JURISDICTIONAL BINARY LINE

FLOOD ZONE LINE ZONE X
FLOOD ZONE LINE ZONE AE (EL 9)

ZONE AE
(EL 9)

FLOOD ZONE LINE ZONE AE (EL 9)
FLOOD ZONE LINE ZONE VE (EL 10)

ZONE VE
(EL 10)

LAKE POWELL

FLOOD ZONE LINE ZONE VE (EL 10)
FLOOD ZONE LINE ZONE AE (EL 10)

ZONE AE
(EL 10)

PHILLIPS INLET

1" = 20'
GRAPHIC SCALE
0 10' 20' 40'

LEGEND & ABBREVIATIONS:

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- TRAV.PT. = TRAVERSE POINT
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SIZE SHOWN IS TRUNK DIAMETER IN INCHES MEASURED AT CHEST HEIGHT

- = PALM
- = TREE
  - MA = MAGNOLIA
  - O = OAK
  - PI = PINE
  - UK = UNKNOWN

SHEET NUMBER 3 OF 3
NOT VALID WITHOUT SHEETS 1 THROUGH 3

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SSMC™ SUE • SURVEY • GIS

REVISION DATE	REVISION	BY
10/26/2023	ADDED ADDITIONAL TOPO	AE

TOPOGRAPHIC SURVEY

Project: 23937 PANAMA CITY BEACH PARKWAY
PANAMA CITY BEACH, FLORIDA

Field Date: 08/15/2023 | Drawn By: A. ECKLES | Scale: 1" = 20'

SEE SHEET 1 FOR NOTES, LEGEND AND DESCRIPTION.

DRAWING NUMBER
53475002

SHEET NUMBER
3 OF 3

SOUTHERN EARTH SCIENCES
Geotechnical | Environmental | Materials Testing

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George & Associates Consulting Engineers, Inc.
1967 Commonwealth Lane, Ste 200
Tallahassee, FL 32303
Attn: Mr. Brian Miller, PE

September 12, 2023
File No.: P23-0329

Subject: Preliminary Geotechnical Services for the Camp Helen State Park Improvements Project in Bay County, Florida

Dear Mr. Miller:

Southern Earth Sciences, Inc., has completed the geotechnical services for the Improvements Project at Camp Helen State Park in Bay County, Florida. Our services were performed in general accordance with proposal number XP23-4.11.23-1, dated April 11, 2023. This report presents the results of our preliminary field and laboratory testing and includes preliminary recommendations with regard to the design and construction of the foundations for the new bathroom, beach access, and kayak/canoe launch as well as the access road, parking, and turn lanes.

Our testing for this project will be completed in two phases. The first of which we have performed in accessible areas, since no clearing can be performed at this time. Once the project is closer to construction, clearing will be performed. At this time, we will remobilize to perform the additional testing. This report should not be used for final foundation design and should be considered preliminary foundation recommendations.

FIELD INVESTIGATIVE PROCEDURES:

Prior to performing our field testing, we traveled to the project site and met with the Park Staff to layout and observe the proposed access and boring locations. We then contacted Sunshine State One Call of Florida to locate underground utilities within the area. On July 20 and 21, 2023, personnel with our firm traveled to the project site and completed the field testing for the above referenced project. For our geotechnical investigation, a total of two (2) cone penetrometer soundings were performed. One was performed at the canoe/kayak launch on the south side of the park and the second was performed along the beach access area at the north side of the park. The cone penetrometer is track mounted and rather than sampling and testing at five foot intervals, as normally done with a standard penetration borings, the cone penetrometer is an electronic device that provides continuous evaluation of the soils bearing capacity through point and frictional resistances. The cone penetrometer is hydraulically pushed into the soil with point and frictional resistances obtained continuously on a computer

printout. This testing equipment provides an accurate definition of the soil strength characteristics and the changes in stratification. The cone soundings were performed in general accordance with ASTM D5778.

To verify soil conditions encountered within the depth of our cone soundings, direct push borings were performed to depths ranging from approximately 5 to 10 feet below the existing ground surface. The direct push borings were performed with our Geoprobe 6622 and the DT22 soil sampling system. This is a closed-piston sampler, with an inner piston rod and outer drive casing, and is driven to the top of the sampling interval. The inner piston rod is removed and the sampler is driven to collect a soil sample. The soil samples are collected in a clear 5-foot PVC liner and are delivered back to our laboratory for soil classifications and laboratory testing.

Additionally, seven hand auger borings were performed along the proposed turn lane and access roadway, and seven hand auger borings were performed at accessible areas of the proposed beach access/restroom area. Most hand auger borings were performed to a depth of five feet, however, hand auger borings at the bathroom areas were performed to a depth of ten feet below existing grade. Test locations HA-7, 8, 9, and 11 were not accessible. Hand dial penetrometer readings were obtained at one-foot intervals throughout the depth of our hand auger borings. The hand dial penetrometer consists of a 5/8-inch diameter cone point attached to a ½-inch diameter rod. A proving ring with an Ames dial indicator is attached to the top of the rod. As the penetrometer is pushed into the soil, the proving ring deflects indicating resistance to penetration of the cone point and relative compactness of the soil; therefore, the higher the penetrometer reading, the denser the soil.

Test locations were established in the field by using a hand held GPS and measuring from existing landmarks, therefore, our test locations should be considered approximate. See the attached Figure for our approximate test locations.

LABORATORY TESTING PROCEDURES:

Laboratory investigative work consisted of physical examination of samples obtained during the soil test boring operation. Soil samples were visually classified in the laboratory in accordance with the Unified Soil Classification System. Evaluation of these samples, in conjunction with penetration resistances, have been used to estimate soil characteristics.

Natural Moisture: Five (5) samples were selected for determination of their natural moisture content. In the laboratory, each sample was weighed, dried, and its moisture content was calculated in accordance with ASTM D-2216

Percent Passing 200 Mesh Sieve: Five (5) samples were selected to determine their percent of materials, by dry weight, finer than the U.S. Number 200 Mesh Sieve. This test was performed in accordance with ASTM D-1140.

The laboratory test results are shown on the boring log at the depth of the tested sample. Abbreviations for laboratory data are shown below.

NM = Natural Moisture Content (%)
-200 = Percent finer than the U.S. No. 200 mesh sieve

CONE SOUNDINGS:

CPT Log graphically indicates the cone tip resistance, friction ratio, equivalent N-value and interpreted soil type at each sounding location. Soil classifications and data were interpreted from methods recommended by Robertson and Campanella and/or the Swedish Geotechnical Institute Information Publication No. 15E. Correlations between Cone Resistance values and Standard Penetration Testing "N" values were performed according to the methods developed by Robertson, Campanella and Wightman. The soil types and stratigraphy shown on the CPT Log sheets are based upon material parameters measured and evaluated as the cone is advanced. The CPT Log sheets were developed for general information only.

SITE AND SOIL CONDITIONS:

The Camp Helen Improvements include a new canoe/kayak launch on the south side of the Park, a new beach access and restroom on the north side, as well as new access roadway, parking, turn lanes, and stormwater management on the north side of the Park. The majority of the north side if currently wooded with trees and dense underbrush. We did not have access to the majority of the test locations on the north side with our equipment, and some hand auger borings were not accessible. Clearing cannot be performed at this time, therefore, additional testing, phase 2, will be performed prior to construction, once the site is accessible. Based upon the provided plan, elevations vary across the site, however, typically slope towards the Lake. The beach access and parking are located at the highest point on the property, typically ranging from +17 to +22 Feet. The elevations of our test locations have been interpolated from the provided topographic information, therefore, elevations of our boring locations should be considered approximate.

Based upon the results of our testing, the soils encountered throughout our soundings/borings are predominantly sands. The sands vary in color and texture ranging from

slightly silty to slightly clayey and clean sands. Based upon the results of our cone soundings, the sands within the top one to two feet are typically loose and then become medium dense to an average depth of 22 feet below existing ground surface. For the remaining depths of our soundings, the sands are dense with thin loose zones. The soils encountered throughout our hand auger borings are predominantly loose to medium dense clean sands. However, at the hand auger borings for the proposed turn lanes, we encountered thin, slightly clayey sand layers, some with varying amounts of shell. We typically encountered 6 to 12-inches of organic laden soils (topsoil) within the results of our borings.

On the dates of our field testing (indicated above), the groundwater levels were measured at the depths indicated on the attached logs which ranged from approximately 2.5 to 4.5 feet below existing ground surface, however, at some of our test locations at higher elevations we did not encounter groundwater within the depths of our borings. Fluctuations in the water table depths will occur due to seasonal precipitation/evapotranspiration differences, neighboring drainage/wetland influences and tidal influences, therefore, prior to foundation construction we recommend that groundwater levels be verified.

PRELIMINARY STRUCTURAL INFORMATION:

The proposed bathroom and beach access located on the north side of the Park will be supported on conventional shallow foundations. At this time, no civil or structural information is available. We understand there will be some grading performed to level the footprint, and finished floor elevation will likely be within one to two feet of existing elevation. This will be a single-story CMU structure of approximately 1000 square feet. We have assumed wall loads of 2.5 kips per lineal foot and the bottoms of footings will be approximately two feet below finished floor elevation. As noted above, once clearing has been performed and the building footprint is accessible to our testing equipment, we will re-mobilize to perform additional cone soundings.

The proposed kayak/canoe launch located on the south side of the Park will be a wooden structure extending into Lake Powell. At this time, design pile capacity is unknown. We understand timber piles will be utilized.

The new access roadway will extend north from US Hwy 98 into the Park. We understand the roadway will be a typical two-lane paved roadway with a fairly low volume of traffic. Parking will be located north of the access roadway, near the proposed restroom. There will be two turn lanes, one for eastbound and one for westbound traffic for the north access road. Additionally, there will be a dry retention stormwater management pond located on the north side of the Park. At this time, the size and depth of the pond is unknown.

If any of this information above is incorrect, we should be contacted to provide additional preliminary recommendations. As noted above, this information should be used for preliminary design. Additional field testing, laboratory testing, and engineering evaluation will be necessary to provide foundation and pavement recommendations.

PRELIMINARY SHALLOW FOUNDATION RECOMMENDATIONS – Bathrooms & Beach Access

Our preliminary evaluation of foundation conditions has been based on structural information presented in this report and subsurface data obtained during our investigation. In evaluating soundings and borings, we have used correlations that were previously made between penetration resistances and foundation stabilities observed in soil conditions similar to those encountered at your site.

The soils encountered within our borings are mostly consistent across the footprint of the building, however, some locations were not accessible. Additional field testing will be required. Typically, we encountered loose sands within the top two to three feet of our test locations. We recommend these soils are compacted prior to foundation construction. Since there are no adjacent structures, vibratory compaction may be performed. Dependent upon rainfall conditions at the time of construction, the clean dry sands will likely require the addition of water to achieve proper compaction.

Based upon the results of our field and laboratory testing, it is our opinion that with the compaction of the existing soils, the proposed structure may be supported on a conventionally designed shallow foundation system. We recommend footings be proportionally designed for an allowable soil contact pressure of 1500 psf, or less. Based upon the assumed structural loading indicated above, we have calculated settlements of approximately one inch, or less. We recommend column footings have a minimum width of 24 inches and continuous footings have a minimum width of 18 inches. We recommend the footings have a minimum embedment depth of 18 inches from the bottom of the footings to the outside finished grade. We also recommend the footings have top and bottom reinforcement. Prior to foundation construction we recommend the following site and soil preparations.

1. Clear and grub the surface soils within the building perimeter and extend at least five (5) feet beyond the building perimeter to remove all topsoil, organics laden sands, and other deleterious materials. Based upon the results of our borings, these soils typically were encountered within the top six to twelve inches of our borings.

2. Once the topsoil has been grubbed, prior to the addition of fill soils, compact the existing soils until a density of 95% of the Modified Proctor (ASTM D-1557) maximum dry density

is achieved to a depth of two (2) feet below compacted grade**.** Moisture conditioning of the soils including dewatering may be required to achieve optimum moisture conditions for compaction.

3. Fill soils shall be sands to slightly silty sands containing no more than twelve (12) percent, by dry weight, finer than U.S. No. 200 mesh sieve. Fill shall be placed in thin level lifts not to exceed twelve (12) inches, loose, and compacted to a density of 95% of the Modified Proctor maximum dry density throughout its full depth.

4. Once footings are excavated, compact the soils at the bottom of footings to achieve a minimum density of 95% of the Modified Proctor maximum dry density to a depth of twelve (12) inches.

5. Laboratory moisture-density relationships (Proctors) and in-place density tests should be performed to verify compliance with the foregoing compaction recommendations. We recommend one density test per column footing, one density test per 50 lineal feet of wall footing, and one density test per 2000 square feet of existing soils and for each foot of fill soils.

As indicated above, the above preliminary shallow foundation recommendations should not be used for final foundation design. Additional cone soundings, field testing, and engineering evaluation will be necessary to provide final foundation recommendations.

DEEP (PILE) RECOMMENDATIONS – Kayak Launch

Our evaluation of foundation conditions has been based on structural information presented in this report and subsurface data obtained during our investigation. In evaluating soundings, we have used correlations that were previously made between penetration resistances and foundation stabilities observed in soil conditions similar to those encountered at your site.

We have calculated compressive and tensile capacities for 8-inch and 10-inch tip timber piles. The embedment depths are below the existing ground surface, therefore, any cantilever above existing grade must be added to determine the total pile length. Allowable compressive capacities include a factor of safety of two (2) in compression, and three (3) in tension. Skin friction has also been reduced by ten (10) percent for pre-jetting or pre-drilling. The allowable capacities are based upon a soil/pile interaction and do not consider the structural aspects of the pile. If requested, lateral analysis can be performed. The tabulated pile capacities should be provided to the Structural Engineer to select the pile length that is consistent with the design

loads and based upon economic considerations for each pile length. Allowable stresses in the piles shall conform to the Florida Building Code.

Table I below provides the estimated allowable compressive and tensile capacities for 8-inch and 10-inch tip timber piles. At this time, water depth (depth to mudline) is unknown. We have assumed the mudline is approximately 5 feet below the surface of the water. The elevation of test location C-1 is unknown, however, based upon the provided topographic information, appears to be approximately +3 Ft. For the purpose of this preliminary design, we have not included the top eight (8) feet of the existing soil skin friction in our pile capacity calculations.

TABLE I: Kayak Launch Dock (Test Locations C-1)

Embedment Depth / ***Approximate*** Elevation:	8-inch Tip Timber Piles		10-inch Tip Timber Piles	
	Compressive (tons)	Tensile (tons)	Compressive (tons)	Tensile (tons)
15 ft. / (-12 Ft.)	3.0	1.0	4.5	1.0
20 ft. / (-17 Ft.)	4.5	1.5	6.5	1.5
25 ft. / (-22 Ft.)	5.5	2.0	7.5	2.5

The soil conditions in the Lake may be different than what was encountered in the upland soundings. The pile capacities and evaluation have been based upon the conditions found on land. We encountered similar soil conditions at the recently constructed dock to the south at Camp Helen.

Prior to the installation of production piling, it would be beneficial to perform a pile load test to verify the design capacity. A pile load test can also be performed in accordance with ASTM D-4945 using a Pile Dynamic Analyzer. Depending upon the results of the pile load test and/or CAPWAP analysis, adjustments in the pile lengths or capacities may be required. It is also recommended the installation of all production piling be monitored by Southern Earth Sciences, Inc., employed by the Owner, to verify production piles are installed in accordance with the pile load test program.

The evaluation of scour from hurricane force winds is beyond the scope of our services. It may be advisable to have a Coastal Engineer evaluate scour for this site. A lateral analysis can be performed on the piles once the design load, length of the piles and deflection criteria has been determined. The lateral load indicated for the piles is relatively low and should be acceptable with the foregoing pile lengths. However, confirmation would require a lateral analysis.

PAVEMENT RECOMMENDATIONS:

Based upon the existing conditions, we anticipate minor cutting and filling will be required to achieve final pavement grades. Pavement recommendations are based upon a 15-year life. It should be noted that pavement maintenance and rehabilitation, including an overlay, might be required within the life of the pavement. We have assumed automobiles and light trucks as the primary traffic for this pavement. If this assumption is incorrect, we should be notified to provide revisions to our pavement recommendations.

Fill soils, shall be sands to slightly silty sands (non-plastic) containing no more than 12%, by dry weight, finer than the U.S. No. 200 mesh sieve and shall be free of organics, organic laden sands, rubble, clay balls, and other deleterious materials. Fill soils shall be placed in thin level lifts and compacted to a density of 98% of the Modified Proctor (AASHTO T-180) maximum dry density throughout its full depth.

Subgrade Preparation: Clear and grub the surface soils within the pavement perimeter, extending at least three (3) feet beyond the curbline, to remove all topsoil, organic laden sands, and other deleterious materials. Based upon these materials were encountered within 6 to 12 inches. However, these soils may extend to greater depths than our borings indicate.

Prior to the addition of fill soils or once the soils have been excavated to the bottom of the base, compact the existing soils until a density of 98% of the Modified Proctor (AASHTO T-180) maximum dry density to a depth of twelve (12) inches. Fill soils described above should be placed to achieve final pavement grades. If there are no adjacent structures within 50 feet, a vibratory roller may be used. We also recommend that the top twelve (12) inches of subgrade soils be stabilized to achieve a Limerock Bearing Ratio of 40. Where shallow groundwater conditions are present, we do not recommend clay for stabilization.

Any existing utilities that are located within the pavement areas should be filled and compacted with suitable fill soils similar to those described above. The fill soils should be placed in lifts and compacted each lift to verify proper preparation of the soils.

Base: We recommend either a limerock or graded aggregate base with a minimum thickness of eight (8) inches in heavy traffic areas and six (6) inches in light traffic/parking areas. Crushed concrete may be used if it meets the FDOT specifications requirements for a graded aggregate base.

Wearing Surface: We recommend a SP-12.5 asphaltic concrete wearing surface having a

minimum thickness of two and a half (2.5) inches in heavy traffic areas and two (2.0) inches in light traffic/parking areas. Pavement should be placed and compacted in accordance with FDOT Standard Specifications.

All materials and methods of placement shall be in accordance with applicable sections of the Florida Department of Transportation's "Standard Specifications for Road and Bridge Construction", (Latest Edition).

FIELD TESTING FOR STORMWATER DESIGN:

While the borings performed for this project are representative of subsurface soil conditions at its respective locations/depths and for their respective vertical reaches, local variations of the subsurface materials and seasonal high groundwater levels are anticipated. Soil descriptions and seasonal high groundwater levels represent subsurface conditions at the designated locations.

It is our understanding there will be new stormwater management constructed to the north of the access roadway on the north side of the Park. At this time, the size and depth of the pond are in development. A double ring infiltrometer test was performed at test location SW-1 at a depth of one foot below existing ground surface.

At test location SW-1 seasonal high groundwater levels were estimated by characteristics such as natural vegetation, soil color, soil mottles, and depth to root zone. At our test locations, the seasonal high groundwater level is approximately 2.9 feet (±0.5 feet) below the existing ground surface. See the individual boring logs attached. It may be advisable to have a Professional Surveyor obtain the elevations of the test locations. During periods of above average rainfall, groundwater levels may rise above the seasonal high depths indicated above.

Vertical Infiltration Rates:

To estimate the vertical infiltration rates a double-ring infiltrometer test was performed at test location SW-1 at a depth of approximately one foot below existing ground surface. The double ring infiltrometer test was performed in general accordance with ASTM D-3385 "Infiltration Rate of Soils in Field Using Double-Ring Infiltrometers". The soils were presaturated prior to performing the test. The double ring infiltration test does not include the effect of long-term saturation and groundwater mounding.

The results for the double-ring infiltrometer test is graphically illustrated as accumulated

intake (inches) versus time (min) and infiltration rate (in/hr) versus time (min) for the test period on the attached Graph. Based upon the results of our double-ring infiltrometer test, the unsaturated vertical infiltration rate at test location SW-1 is approximately 46 inches per hour. We should note the infiltration rate is not factored and should be used with an appropriate factor of safety.

The vertical infiltration rate stated above should not be considered the drawdown rate of the pond or swales. The drawdown rate is a complex 3-dimensional phenomenon dependent upon numerous factors including pond/system geometry, vertical and horizontal infiltration rates, groundwater mounding, etc. The prediction of the drawdown rate is made more difficult by varying soil/groundwater conditions. The Northwest Florida Water Management District recommends a correlation factor between unsaturated vertical infiltration rates and horizontal hydraulic conductivity of 1.5.

ADDITIONAL COMMENTS:

As previously indicated, this report should be considered preliminary and should not be used for final foundation design. Once a final layout is determined and the site has been made accessible, we should be notified so that our additional test locations may be located and performed properly. Additional field and laboratory testing will be required to provide additional foundation recommendations.

CONSTRUCTION TESTING SERVICES:

The effectiveness of the foundation will depend significantly on the proper preparation of the soils, as indicated previously. Therefore, we recommend the owner employ Southern Earth Sciences, Inc., as the testing laboratory to perform construction testing services. If we are not employed to provide construction testing services, Southern Earth Sciences, Inc., can not accept any responsibility for any conditions, which deviate from those described in this geotechnical report. Southern Earth Sciences, Inc., should be invited to the pre-construction conference to discuss the project with all interested parties so that the project may be completed expeditiously and to the intent of our geotechnical report. We would be pleased to review the plans and specifications as they relate to the soil preparation and provide a fee proposal for construction testing.

GENERAL COMMENTS:

Professional judgments on design criteria are presented in this letter. These are based partly on our evaluations of technical information provided, partly on our understanding of the characteristics of the project being planned, and partly on our general experience with subsurface conditions in the area. We do not guarantee performance of the project in any respect, only that our judgments meet the standard of care of our profession.

This information is exclusively for the use and benefit of the addressee(s) identified on the first page of this report and is not for the use or benefit of, nor may it be relied upon by any other person or entity. The contents of this letter may not be quoted in whole or in part or distributed to any person or entity other than the addressee(s) hereof without, in each case, the advance written consent of the undersigned.

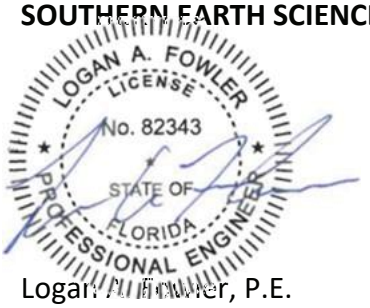
This report has been prepared in order to aid in the evaluation of this property and to assist the architects and engineers in the foundation, pavement, and stormwater management design. It is intended for use with regard to the specific project discussed herein, and any substantial changes in the buildings, loads, locations, or assumed (or reported) grades shall be brought to our attention immediately so that we may determine how such changes may effect our conclusions and recommendations. We would appreciate the opportunity to review the plans and specifications for the foundation and floor construction to verify that our conclusions and recommendations are interpreted correctly. Our report does not address environmental issues which may be associated with the subject property. ***This investigation has been performed for preliminary site evaluation. Additional field testing and engineering evaluation should be performed for final foundation recommendations.***

While the soundings and borings performed for this project are representative of subsurface soil conditions at their respective locations and for their respective vertical reaches, local variations of the subsurface materials are anticipated and may be encountered. The boring logs and related information are based on the driller's logs and visual examination of selected samples in the laboratory. Delineation between soil types shown on the boring logs is approximate, and soil descriptions represent our interpretation of subsurface conditions at the designated boring location on the particular date drilled.

We appreciate the opportunity to assist you. If you have any questions or if we may be of further assistance, please call at your convenience.

Yours Very Truly,

SOUTHERN EARTH SCIENCES, INC.



Logan Fowler
Sep 12 2023 4:26 PM

DocuSign

Logan A. Fowler, P.E.
Eng. Reg. No. 82343
State of Florida

SESI FILE NO: P23-0329	SOUTHERN EARTH SCIENCES	DRAWN BY:	LF
		CHECKED BY:	LF
Camp Helen State Park Improvements Project Bay County, FL		DATE:	9/8/23
		SCALE:	1:200

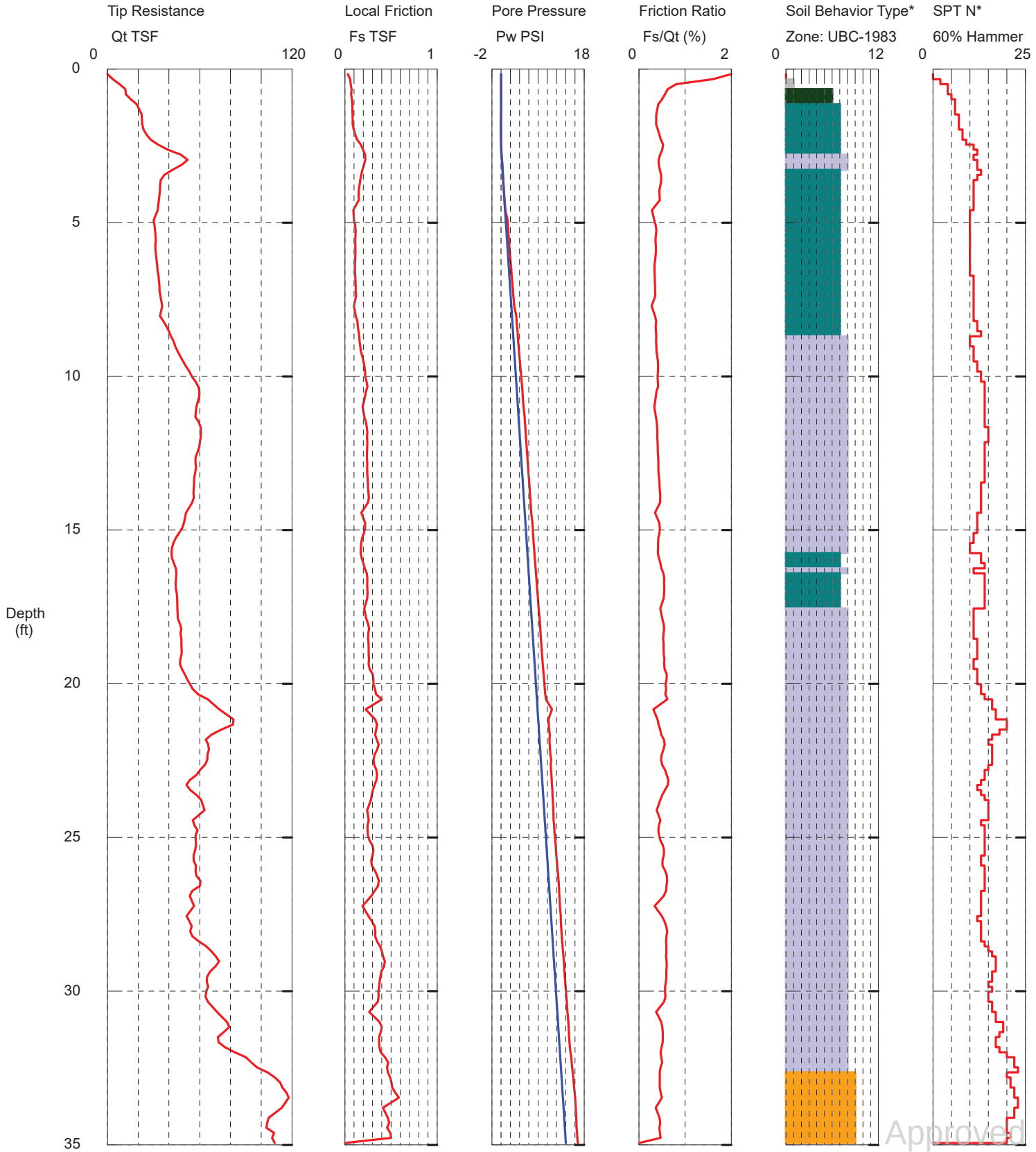
FIGURE I

APPROXIMATE TEST LOCATIONS

Southern Earth Sciences Inc.

Operator: Pat Conroy
Sounding: C-1
Cone Used: DDG1485
Groundwater: 2.5 feet

CPT Date/Time: 7/20/2023 10:10:17 AM
Location: Camp Helen State Park
Job Number: P23-0329
Elevation: +4 Feet (Approx.)



Maximum Depth = 35.10 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

Changenroy

N30 274891W 85 988377

*Soil behavior type and SPT based on data from UBC-1983

LOG OF BORING C-1

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Direct Push
DRILLER: PC
ENGR / GEOL: LF
SURFACE ELEVATION: +4 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
4 — 0		SP	Per Plan Light Tan Fine SAND with Trace Organics						
		SP	Tan Fine SAND						
3 — 1									
2 — 2	▼								
		SP	Light Gray Fine SAND						
1 — 3									
0 — 4									
-1 — 5									
-2 — 6									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Measured at 2.5 Feet Below Exisiting Ground Surface

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

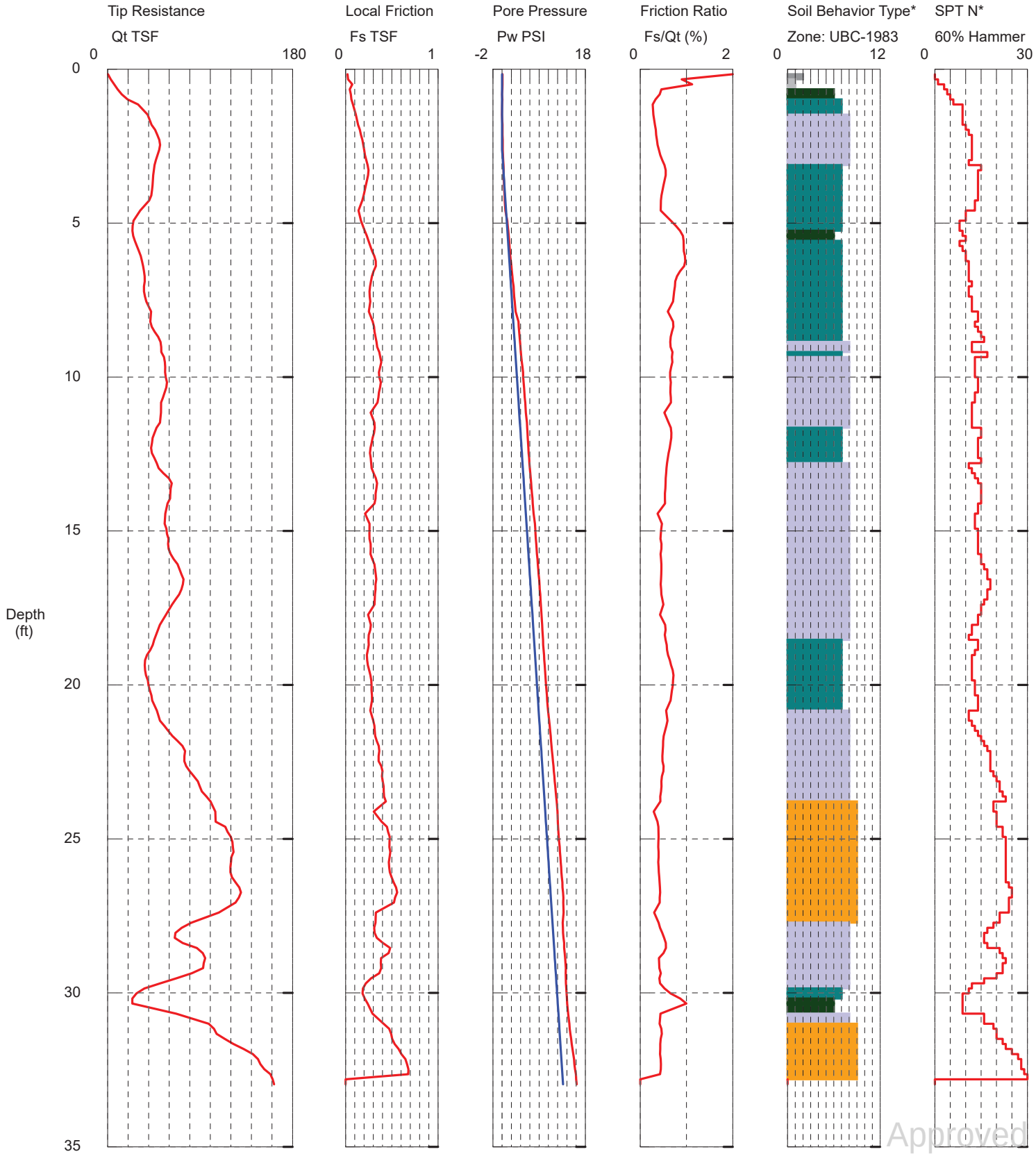
Approved
2024-D-391-00036
Lisa Ward
1/16/2025

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

Southern Earth Sciences Inc.

Operator: Pat Conroy
Sounding: C-2
Cone Used: DDG1485
Groundwater: 2.8 feet

CPT Date/Time: 7/21/2023 10:01:44 AM
Location: Camp Helen State Park
Job Number: P23-0329
Elevation: +5 Feet (Approx.)



Maximum Depth = 32.97 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

Changenroy

N30.276795W 85.988891

*Soil behavior type and SPT based on data from UBC-1983

LOG OF BORING C-2

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/21/23

METHOD: Direct Push
DRILLER: PC
ENGR / GEOL: LF
SURFACE ELEVATION: +5 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
5 — 0		SP	Per Plan Light Gray Fine SAND						
4 — 1									
3 — 2	▼								
2 — 3		SP	Gray Fine SAND						
1 — 4		SP	Tan Fine SAND						
0 — 5									
-1 — 6									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Measured at 2.8 Feet Below Exisiting Ground Surface

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

Approved
2024-D-391-00036
Lisa Ward
1/16/2025

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-1

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +14 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
14 — 0		SP	Per Plan Gray Fine SAND with Organics						
		SP	Light Gray Fine SAND						
13 — 1									
12 — 2									
11 — 3		SP	Tan and Orange Fine SAND						
				●	5				2
10 — 4									
		SP	Light Tan Fine SAND						
9 — 5									
8 — 6									
7 — 7									
6 — 8									
5 — 9									
4 — 10									
3 — 11									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-2

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +4 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
4.0 — 0.0		SP	Gray, Light Gray, and Tan Fine SAND with Trace Organics						
3.5 — 0.5									
3.0 — 1.0		SP	Light Gray Fine SAND						
2.5 — 1.5									
2.0 — 2.0									
1.5 — 2.5		SP	Gray Fine SAND						
1.0 — 3.0	▼								
0.5 — 3.5									
0.0 — 4.0									
-0.5 — 4.5									
-1.0 — 5.0									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Measured at 3.1 Feet Below Exisiting Ground Surface

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-3

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23
METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +17 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
17 — 0			Per Plan Organics						
		SP	Light Gray Fine SAND						
16 — 1									
15 — 2									
14 — 3		SP	Orange and Dark Orange Fine SAND						
13 — 4									
12 — 5									
		SP	Light Tan Fine SAND						
11 — 6									
10 — 7					5				1
9 — 8									
8 — 9									
7 — 10									
6 — 11									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼
Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-4

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +4 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
4.0 — 0.0		SP	Per Plan Light Gray Fine SAND with Trace Organics						
3.5 — 0.5		SP	Light Gray and Light Tan Fine SAND						
3.0 — 1.0									
2.5 — 1.5		SP	Tan Fine SAND						
2.0 — 2.0									
1.5 — 2.5									
1.0 — 3.0	▼								
0.5 — 3.5									
0.0 — 4.0									
-0.5 — 4.5									
-1.0 — 5.0									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Measured at 3.0 Feet Below Exisiting Ground Surface

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-5

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +17 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
17 — 0			Per Plan						
		SP	Organics Light Gray Fine SAND						
16 — 1									
15 — 2									
14 — 3									
13 — 4									
12 — 5		SP	Orange Fine SAND						
11 — 6									
10 — 7									
		SP	Light Tan Fine SAND						
9 — 8									
8 — 9									
7 — 10									
6 — 11									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

Approved
2024-D-391-00036
Lisa Ward
1/16/2025

LOG OF BORING HA-6

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +20 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
20 — 0		SP-SM	Per Plan Gray Slightly Silty Fine SAND with Organics						
		SP	Light Gray Fine SAND						
19 — 1									
18 — 2									
17 — 3									
16 — 4		SP	Orange Fine SAND						
15 — 5									
14 — 6									
		SP	Tan and Light Tan Fine SAND						
13 — 7									
12 — 8									
11 — 9									
10 — 10									
9 — 11									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-10

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +18 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
18 — 0			Per Plan						
		SP	Organics Light Gray Fine SAND						
17 — 1									
16 — 2									
15 — 3									
14 — 4									
13 — 5		SP	Orange Fine SAND						
12 — 6									
11 — 7									
		SP	Light Tan Fine SAND						
10 — 8									
9 — 9									
8 — 10									
7 — 11									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-12

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +16 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
16.0 — 0.0		SP	Gray Fine SAND with Organics						
15.5 — 0.5		SP	Light Gray and Tan Fine SAND						
15.0 — 1.0									
14.5 — 1.5									
14.0 — 2.0									
13.5 — 2.5									
13.0 — 3.0									
12.5 — 3.5									
12.0 — 4.0		SP	Light Orange Fine SAND						
11.5 — 4.5									
11.0 — 5.0									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-13

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: PC/KK
ENGR / GEOL: LF
SURFACE ELEVATION: +10 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
10 — 0		SP	Light Gray Fine SAND with Trace Organics						
		SP	Tan and Light Brown Fine SAND						
9 — 1									
8 — 2					4				5
7 — 3									
		SP	Tan Fine SAND						
6 — 4									
5 — 5									
4 — 6									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Measured at 4.5 Feet Below Exisiting Ground Surface

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

Approved
2024-D-391-00036
Lisa Ward
1/16/2025

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-14

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: PC/KK
ENGR / GEOL: LF
SURFACE ELEVATION: +10 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
10 — 0		SP	Per Plan Light Gray Fine SAND with Trace Organics						
9 — 1		SP	Tan and Light Brown Fine SAND						
8 — 2									
7 — 3									
6 — 4									
5 — 5									
4 — 6									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼
Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
Sample Key: ◪ SPT ■ Shelby Tube

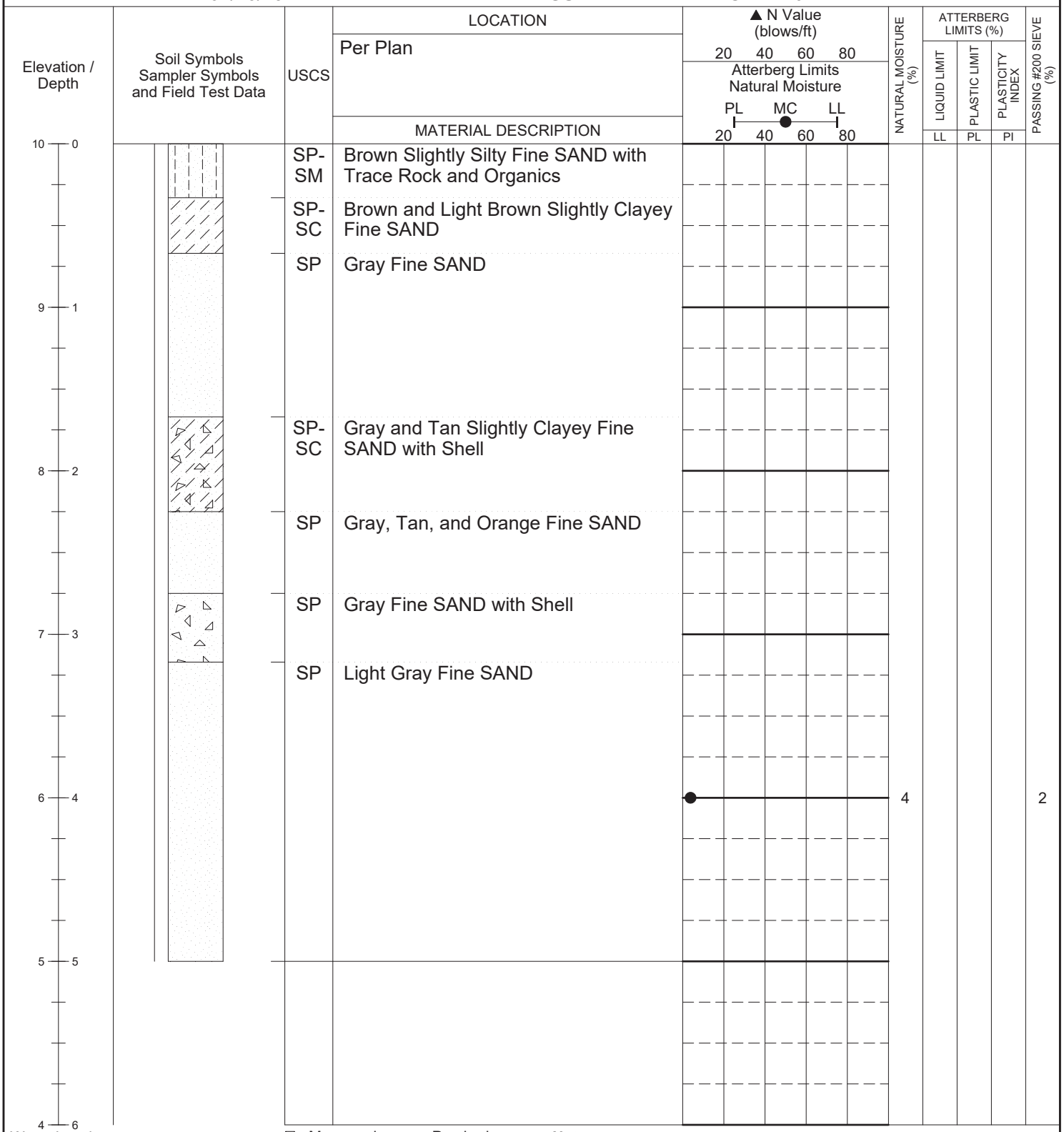
SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-15

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +10 ft



Elevation / Depth	USCS	LOCATION: Per Plan MATERIAL DESCRIPTION	N Value (blows/ft) 20 40 60 80 Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
10 — 0	SP-SM	Brown Slightly Silty Fine SAND with Trace Rock and Organics						
	SP-SC	Brown and Light Brown Slightly Clayey Fine SAND						
	SP	Gray Fine SAND						
9 — 1								
	SP-SC	Gray and Tan Slightly Clayey Fine SAND with Shell						
8 — 2								
	SP	Gray, Tan, and Orange Fine SAND						
	SP	Gray Fine SAND with Shell						
7 — 3								
	SP	Light Gray Fine SAND						
6 — 4				4				2
5 — 5								
4 — 6								

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼
Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-16

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +10 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
10 — 0		SP-SC	Brown Slightly Clayey Fine SAND with Trace Organics						
		SP	Tan and Light Brown Fine SAND						
9 — 1									
8 — 2									
		SP	Light Tan Fine SAND						
7 — 3									
6 — 4									
5 — 5									
4 — 6									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼
Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-17

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +14 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
14 — 0		SP-SM	Brown Slightly Silty Fine SAND with Trace Organics						
		SP	Light Brown and Tan Fine SAND						
13 — 1		SP	Light Tan Fine SAND						
12 — 2									
11 — 3									
10 — 4		SP	Gray and Light Gray Fine SAND						
9 — 5									
8 — 6									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼
Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

Approved
2024-D-391-00036
Lisa Ward
1/16/2025

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING HA-18

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/20/23

METHOD: Hand Auger
DRILLER: HL
ENGR / GEOL: LF
SURFACE ELEVATION: +10 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
10 — 0		SP-SC	Per Plan Brown Slightly Clayey Fine SAND with Trace Organics						
9 — 1									
8 — 2		SP	Tan and Light Brown Fine SAND						
7 — 3									
6 — 4		SP	Tan Fine SAND						
5 — 5		SP-SC	Dark Gray Slightly Clayey Fine SAND	●	13				8
4 — 6									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼
Water Observations: Groundwater Not Encountered

Notes:
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

LOG OF BORING SW-1

PROJECT: Camp Helen State Park Improvements
LOCATION: Bay County, Florida
PROJECT NO.: P23-0329
DATE: 07/21/23

METHOD: Hand Auger
DRILLER: PC
ENGR / GEOL: LF
SURFACE ELEVATION: +7 ft

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION / MATERIAL DESCRIPTION	▲ N Value (blows/ft) 20 40 60 80 / Atterberg Limits Natural Moisture PL MC LL 20 40 60 80	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	PASSING #200 SIEVE (%)
7 — 0		SP	Tan Fine SAND with Trace Organics						
		SP	Tan and Orange Fine SAND with Trace Organics						
6 — 1									
5 — 2									
4 — 3	▽	SP	Tan Fine SAND						
3 — 4	▼								
2 — 5									
1 — 6									

Water Level Est. Seasonal High GWL: ▽ Measured: ▼ Perched: ▼

Water Observations: Groundwater Measured at 4.3 Feet Below Exisiting Ground Surface

Notes:
-Estimated Seasonal High Groundwater 2.9 Feet (+/-0.5 Feet) Below Existing Ground Surface
-Elevations Should Be Considered Approximate

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

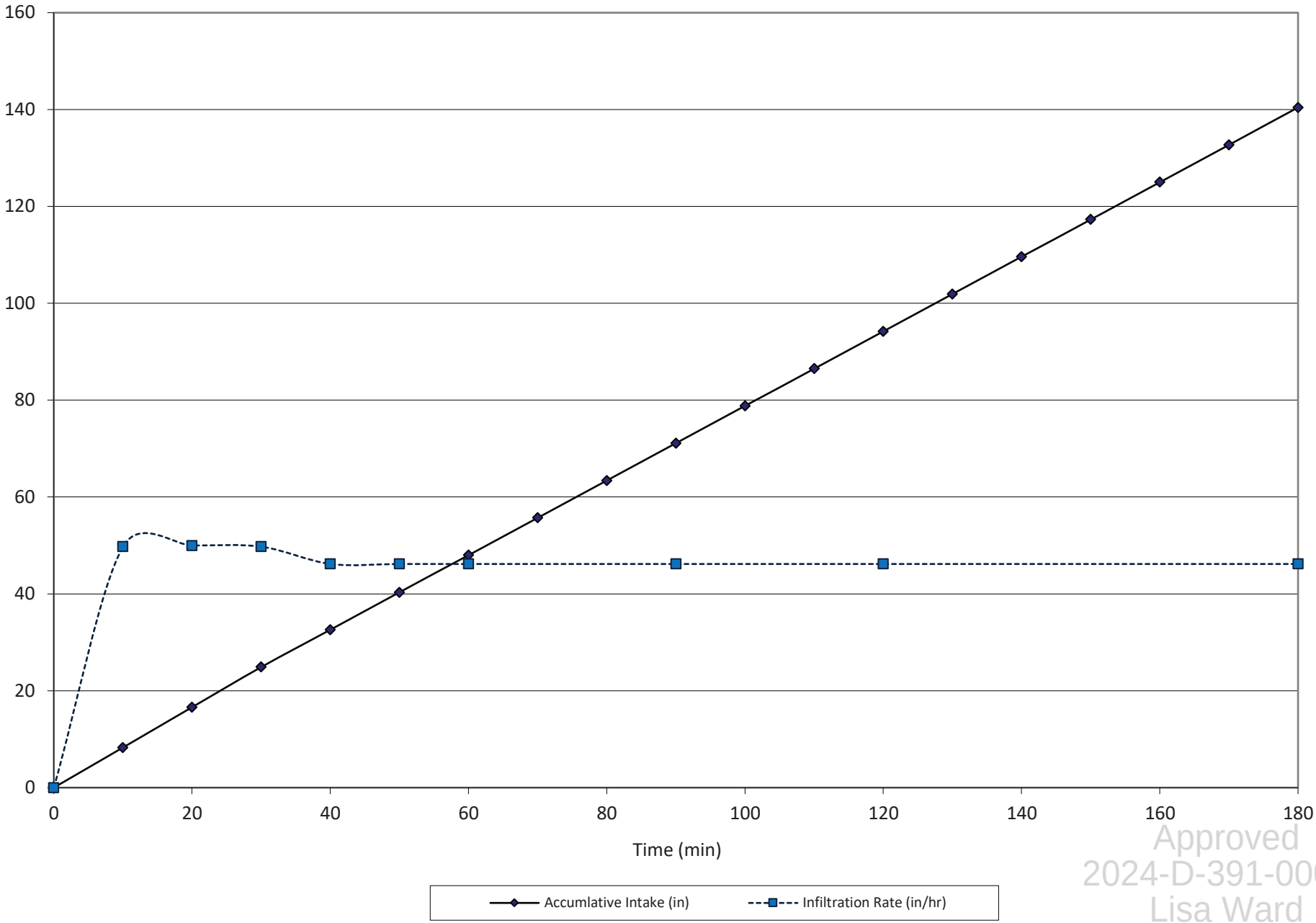
Sample Key: ◪ SPT ■ Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P23-0329.GPJ SES PC FL.GDT 9/6/23

Table 1

Double Ring Infiltrometer Test at SW-1



Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

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Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

CAMP HELEN STATE PARK

Park Improvements

FDOT Design Manual

JANUARY 3rd 2025

Prepared By:

GEORGE & ASSOCIATES CONSULTING ENGINEERS
1967 COMMONWEALTH LANE, SUITE 200
TALLAHASSEE, FLORIDA 32303

James H. Peterson IV, P.E. FL License # 80485
G&A License # 7879

JAMES H. PETERSON, IV
LICENSE
No. 80485
STATE OF FLORIDA
PROFESSIONAL ENGINEER

GEORGE & ASSOCIATES CONSULTING ENGINEERS, INC.
1967 COMMON WEALTH LANE, SUITE 200
TALLAHASSEE, FL 32303
CERTIFICATE OF AUTHROIZATION: 7879
JAMES H. PETERSON, I.V., P.E. NO. 80485

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY JAMES H. PETERSON, IV, P.E. ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

Digitally signed by JAMES H PETERSON
DN: c=US, o=Unaffiliated, dnQualifier=A01410C0000019104FE2A2700077AFF, cn=JAMES H PETERSON
Date: 2025.01.06 12:22:31 -05'00'

Table of Contents

GEORGE & ASSOCIATES
CONSULTING ENGINEERS
1967 COMMONWEALTH LANE, SUITE 200
TALLAHASSEE, FLORIDA 32303

CAMP HELEN STATE PARK IMPROVEMENT PROJECT - NARRATIVE

INTRODUCTION

Camp Helen State Park is located at 23937 Panama City Beach Parkway, Panama City Beach, Florida, 32413, situated in Bay County parcel #35205-000-000 within Section 31, Township 2 South, Range 17 West. Camp Helen State Park (CHSP) encompasses approximately 199 acres. The Gulf of Mexico and Walton County are adjacent to the south and west park boundary, respectively. The waterbody of Powell Lake is situated on the east and north park boundaries.

The improvements proposed at CHSP are expected to increase the recreational opportunities. The entire project area encompasses approximately 3.20 acres, this includes three separate site locations. The project area is comprised of an area located on the north side of State Road 30A (SR30A), an area on the south side of SR30A, and discrete areas within the Florida Department of Transportation (FDOT) Rights-of-Way (ROW). The cumulative limits of construction within FDOT ROW are approximately one acre. Please find the project location map on ***Sheet C004*** of the ***Drawings***.

On the north side of SR30A, the construction of a day-use facility is proposed. The ***Drawings*** illustrate the construction of the new right and left turn lanes on SR30A to enter the proposed driveway. The new driveway will provide access to a proposed day-use picnic area which will include a 20-stall parking area, 14-fixture restroom, 2 picnic pavilions (approx. 20'x20'), with ADA-compliant routes for beach access including hardscaped pathways also equipped with stairs. Stormwater runoff from the north side improvements within CHSP boundaries, including a portion of the new driveway apron, will be captured and treated on-site.

In the ROW of SR30A, the ***Drawings*** illustrate the new construction of right and left turn lanes on SR30A to enter the proposed driveway. The runoff generated by the proposed turn lanes will be captured by roadside ditches and conveyed within FDOT ROW for terminal discharge downstream and offsite.

On the south side of SR30A, the construction of an ADA compliant floating kayak/canoe launch is proposed. The double boat launch will primarily use the existing path from the parking area. Stormwater runoff generated from this development will not be discharged into the FDOT ROW.

The entirety of this project is within the Powell Lake closed basin watershed. Powell Lake is also classified as an Outstanding Florida Water (OFW). Please find the pre- and post-construction catchment basin maps included with this submission. The stormwater model references the catchment basins identified on these maps.

TURN LANE DESIGN

Below is a summary of the turn lane design and design criteria:

RURAL CONDITIONS

Design Speed: 65 mph
Posted Speed: 45 mph

TURN LANE DESIGN

Queue Length (Left only):	100ft (FDM 212.14.2) (4 car minimum)
Brake to Stop Distance:	290 ft
Clearance Distance:	170 ft
Total Deceleration Distance:	460 ft (Clearance Distance + Brake To stop Distance)
Taper:	50 ft min (this is included in clearance distance)
Total turn lane length:	Total deceleration distance + Queue Length = 560 ft

Right turn lane is not required to have a queue; right turn lane total required length is 460 linear feet.

The proposed widening to west bound SR30A consists of a right turn lane at 11’ wide with a cross slope of 5% and includes a proposed 5’ wide keyhole bike lane as indicated in typical sections in the ***Drawings***. The existing roadway is super elevated with a cross slope ranging from 9% to 10.5%. There is a proposed 6’ wide proposed shoulder comprised of 2’ paved and 4’ as grassed shoulder. The grass (sod) shoulder slope must not exceed 3%. Beyond the shoulder, the proposed grades will return to match existing land surface at a 1:4 (V:H) slope (25%).

The proposed east bound left turn lane is 12’ wide and has a cross slope of 5%. The existing roadway, adjacent to the proposed turn lane, is super elevated with a cross slope that transitions from 6% to 10.8%. The proposed shoulder is comprised of a 2’ paved and 4’ sod, in which the slope of the grassed shoulder must not exceed 3%. Beyond the 6’ wide shoulder, the proposed grades will return to match existing land surface at a 1:4 (V:H) slope (25%).

PAVEMENT DESIGN

In accordance with FDOT Flexible Pavement Design Manual, January 2023 edition, the pavement design specifications are as follows:

- For the Eastbound and Westbound Lane widening:
  - Optional base group 9
  - Type SP structural course (Traffic C) (PG 76-22) (3’’)
  - Friction Course FC-5 (3/4") (PG 76-22)

- For the Shoulder Pavement:
  - Optional base group 1
  - Type SP structural course (Traffic C) (PG 76-22) (1.5’’)
  - Friction Course FC-5 (3/4") (PG 76-22)

Please find ***Sheet C005*** of the ***Drawings*** for typical sections.

MEDIAN IMPACTS AND DRAINAGE CALCULATIONS

The proposed east bound left turn lane will be impacting the existing median. The proposed turn lane will be superelevated to flow toward the south. Please find **Catchment Basin Maps**, basin ***PR-7***. The proposed impacts to the existing median will involve:

- The removal of one and a half landscape islands (***Drawings, Sheet C201***).
- A reduction in median ditch freeboard (***Attachment 1, Ditch Hydraulic Worksheet***).
- Existing french drain inlets, Storm structures ***S-1*** and ***S-2*** (**Catchment Basin Maps**) will need to be raised up to meet the proposed grade (***Drawings, Sheet C601***).

To alleviate the amount of stormwater draining to the impacted median ditch, the existing culvert pipe that conveys stormwater from structure ***S-4*** across the median opening to the mitered end section in the westerly median, will be abandoned and filled with flowable fill. The stormwater that is collected via curb inlets ***S-4*** and ***S-5*** (Catchment Basin Map) will be piped to the south side ROW via a cross drain and will enter the south side ROW drainage system. See the median ditch hydraulic calculation sheet that models the reduced basin areas for the altered median ditch (***Attachment 1***). The existing French drain inlets in the median are proposed to be raised up to meet the proposed grade (approx. elevation 7').

The hydraulics of the median ditch were analyzed using the Rational Method, the results of a 10-year (10YR) storm with a time of concentration (TOC) of 10 minutes yielded a freeboard of 0.46 feet within the median ditch. At almost one-half a foot, this does not satisfy the one-foot minimum freeboard requirement per FDOT design standards. The depth of the existing median ditch depth ranges from 1 to 1.5 feet, with side slopes not exceeding 1:4 (25%). Although, considering the types of soils present (i.e. sands) and safety concerns, steeper slopes are not recommended. See ***Attachment 1*** for median ditch calculations.

The soils in this area have high percolation rates. According to the United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS), the predominant soil types are Lakeland and Kureb Sands. The soils are categorized by USDA as hydrological group 'A,' see ***Attachment 2*** (USDA NRCS soils map). A field study was conducted to determine percolation rates of site soils by using a Double Ring Infiltrometer (DRI). The results of the DRI indicated an unsaturated vertical infiltration rate of 46 inches per hour with a 1.5 correlation factor with respect to horizontal hydraulic conductivity. Please find the Geotechnical Report, dated September 12, 2023, included with this submission. Due to these high infiltration rates, it is likely that the median ditch will perform better than the calculations indicate as they do not consider infiltration.

Every effort was made to meet FDOT median ditch criteria, but vehicular safety was chosen as the priority. The left turn lane has a 6' wide shoulder and 4(h):1(v) maximum slopes to meet the existing grade. Sholder width and maximum slopes are vehicular safety standards and therefore the decision was made to maintain these design standards, with the unfortunate consequence of not being able to meet all of the FDOT criteria for minimum freeboard and a 5' wide ditch bottom.

SOUTH SIDE ROW STORMWATER SYSTEM

The south side of SR30A is currently being modified by FDOT project #437759-1-52-01. The design drainage manual (post-conditions) and plans for FDOT project #437759-1-52-01 define the existing conditions for south side ROW drainage system. Currently, stormwater runoff from the eastbound lanes sheet flow into drainage ditches at the south side ROW, except for the newly added right turn lane which was constructed with a curb and gutter (FDOT Project #437759-1-52-01). The stormwater flows west in the drainage ditches until it reaches an approximately 15-acre wetland that extends into Camp Helen State Park property. A 3' by 3.5' box culvert crosses SR30A allowing the stormwater to drain north and enters another wetland (part

of Camp Helen State Park) which flows into a drainage ditch, within Camp Helen State Park, that ultimately flows into Powell Lake.

ALTERNATIVES CONSIDERED

Two alternatives considered for the proposed improvements were: either directing the stormwater runoff to the north side ROW or installing additional exfiltration trenches in the median. Both alternatives were avoided due to the following reasons:

1. All the utilities are running along the north side of 30A. In this area there are approximately 6 underground utilities in the north side ROW. Threading a gravity pipe through these utilities or relocating the utilities would present additional construction challenges.

2. The roadway is super elevated, and the north side ROW ditch elevation is approximately 11' and the invert in the existing stormwater structures ***S-4*** (Catchment Basin Map) is 8.5'. This area generally slopes down from north to south, therefore routing stormwater to the north would present additional grading challenges.

3. Exfiltration trenches were discouraged by the FDOT, due to maintenance issues, during a pre-application meeting on 8/13/2024 (See uploaded meeting minutes).

COMPUTER MODELING AND DESIGN CALCULATIONS

The engineering software used to model the south side ROW drainage system was *Bentley's Flow Master* and *Streamline Technologies StormWise* (formerly known as *ICPR*). The *StormWise software* was used to perform analyses of forty-two (42) different storm criteria to assist with determining the critical event, pre vs post stormwater discharge rate conditions and stage elevations in the wetland on the south side of SR 30A*. Bentley's Flow Master* software was used to verify the capacity of the *proposed cross drain, existing driveway culvert* and *existing box cross drain (**CD-1**).* Alternate computations were performed on the existing box cross drain (***CD-1***) using the rational method and hydraulic equations. These calculations were made to better replicate the type of analysis that was used in the FPID #437759-1-52-01 Drainage Report, which serves as our pre-conditions. (***Attachment 4***).

The rational method was used to evaluate ditch capacity. The rational method was used to yield a flow rate (Q), as shown on the FDOT Hydraulic Worksheets (***Attachment 1***). The *Bentley's Flow Master* yielded depth and velocity values (worksheet not provided) that were used as input values to complete the FDOT Hydraulic Worksheets.

A time of concentration of 10 minutes applied to each catchment basin, except for the undeveloped basin. A time of concentration of 26 minutes was used for the undeveloped basin (Please see ***Attachment 4***, Analysis of CD-1, including pages from Project #437759-1-52-01 Drainage Report). The undeveloped basin delineation and time of concentration calculations from FDOT Project #437759-1-52-01 (currently under construction) were verified and used in the Camp Helen stormwater modeling and calculations.

The rainfall data used in the design was obtained from the National Oceanic Atmospheric Administration (NOAA) Precipitation Frequency Server. Please also find ***Attachment 7*** for a CN calculations table, *StormWise* model node map and input report, and NOAA rainfall data. Drainage calculations for the proposed plans were conducted to verify:

- The *proposed cross drain* will handle the 50-year (50YR) critical storm event.
- The *existing box culvert* (cross drain) will handle the 50YR critical storm event with the addition of new turn lane (impervious) and updated drainage basin delineation.

- The *driveway culvert* under the existing Camp Helen State Park driveway will handle the 25-year (25YR) critical storm criteria.
- The drainage ditches will handle the 10YR design criteria with the added stormwater.
- Existing curb inlets ***S-4*** and ***S-5*** will satisfy the allowable spread with the addition of new turn lane (impervious) and updated drainage basin delineation.
- Pre-construction versus post-construction discharge rates and volume into Powell Lake.
- The post-construction (proposed) conditions do not increase the maximum stage in the wetlands on the south side of SR30A.

EXISTING CURB INLET: SPREAD CALCULATIONS

The two (2) inlets ***S-4*** and ***S-5***, and flume ***S-3*** can accommodate the additional water as the largest calculated spread was 4.11 feet. This spread is less than 6 feet thus satisfies the requirement. See ***Attachment 3*** for the spread tabulations.

SOUTH SIDE ROW DRAINAGE SYSTEM: DITCH CALCULATIONS

Redirecting the stormwater that flows into the existing curb inlets will add flow to the existing south side ROW drainage ditches. The drainage ditches were evaluated based on the 10 YR storm design criteria. The ditches will continue to work as designed with additional stormwater per the proposed improvements as depicted in the ***Drawings***. Please see ***Attachment 1*** for the pre and post ditch calculation worksheet. The pre-condition ditch hydraulics is taken from the drainage manual for FDOT Project #437759-1-52-01 as this project is currently under construction.

CROSS DRAINS AND CULVERTS

Please find ***Attachment 4*** for modeling results for the proposed and existing cross drains and culvert, summarized as follows:

- Box Culvert CD-1 (Existing)
  Two types of analysis were conducted on CD-1. The rational method was used as well as model outputs from *StormWise* to verify that the existing box culvert cross drain has the capacity to handle the 50YR critical storm event. This culvert is sized appropriately to handle to 50YR storm event with a tailwater (36" depth) that reaches the top of the culvert.
- Driveway Culvert (Existing)
  Model outputs from *StormWise* were used to verify that the existing culvert has the capacity to handle the 25YR critical storm event. This culvert is sized appropriately to handle the 25YR critical storm event with a tailwater (18" depth) that reaches over top of the culvert.
- Cross Drain (Proposed)
  The stormwater that is captured by the two (2) existing curb inlets then will be redirected to the south side ROW drainage system via a new 14" x 23" elliptical reinforced concrete pipe (RCP). The proposed elliptical pipe is an equivalent to an 18" circular pipe and will accommodate the flow generated from a 50YR critical storm. The critical duration for the 50YR storm event was 1 hour. The calculated maximum velocity of the proposed cross drain as 3.74 ft/sec which is below the threshold velocity of 4 ft/sec, which would require outlet armoring. Therefore, no armoring is proposed. A coverage of 12 inches or more is achieved for the length of the pipe, except for where it crosses under the sidewalk (currently under construction, FDOT project #437759-1-52-01). The cover over the proposed elliptical RCP is approximately 6 inches while crossing under the new sidewalk at south side ROW.

SOUTH SIDE ROW STORMWATER SYSTEM: PRE VS. POST ANALYSIS

Redirecting the stormwater that flows into the existing curb inlets from the median ditch to the south side

drainage system will expand the catchment area that is currently captured by the south side ROW drainage system. Based on the results of the software analysis, the pre- versus post- development rate control is not achieved. The largest difference in rate control between the pre- versus post- development conditions is 0.63 cubic feet per second (ft^3/s). The 0.63 ft^3/s increase occurs during the 100YR 1HR storm event. Given the inability to satisfy the rate control requirement, a variance (or waiver) is requested. It is reasonable to justify an exception to the requirement of rate control since the construction of turn lanes for the north side driveway access must be installed as a safety measure. Since the construction of turn lanes is necessary to accommodate the safety of motorists on SR30A, it is recommended that a variance be provided for the stormwater rate control requirement.

The south side ditch system can accommodate the additional discharge due to the proposed improvements. The pathway the stormwater navigates is through a series of ditches then wetlands until terminal discharge into Powell Lake. Although Powell Lake is a closed basin, the FDEP has a permit to open the lake once it reaches elevation 2.4' which effectively creates a pop-off elevation for the closed basin. Stage elevations in the wetland on the south side of the box culvert were reviewed. Elevation contours from the Bay County GIS data were used to approximate the wetland size. The maximum stage experienced per the *StormWise* model is shown in ***Attachment 6***. The largest difference between the pre- and post-development stage elevation in the wetland was 0.03' (0.36 inches) for [both] the 100YR 24HR and 100YR 8HR storm events. That said, the flooding risk to downstream properties should be considered negligible. See ***Attachments 5*** for *StormWise* pre vs. post discharge rate report.

FLORIDA DEPARTMENT OF TRANSPORTATION
HYDRAULIC WORKSHEET FOR ROADSIDE DITCHES ATTACHMENT 1
POST DRAINAGE BASINS - MEDIAN DITCH

Road: **SR 30A**
Project Name: **CAMP HELEN STATE PARK - PARK IMPROVEMENT**

Prepared by: SMU **Date:** 11/8/2024
Checked by: JP **Date:** 11/8/2024

STATION TO STATION	SIDE	% Slope	Drain Area (Ac)	"C"	t_c (min)	i_{10} (in/hr)	Q (cfs)	Q from up-stream (cfs)	Total Q (cfs)	Ditch Section			"n"	"d" (ft)	"$d_{allowable}$" (ft)	Calculated Freeboard	Velocity (fps)	Ditch Lining	Remarks
										S.S. (H:1V)	Bottom Width (ft)	N.S. (H:1V)							
SR 30 - Median Ditch																			
STA.143+00 to STA. 145+60	CT	0.7000	0.3351	0.63	10.00	7.7	1.618	0.000	1.618	4	1	6	0.03	0.3750	1.000	0.625	1.52	Sod	BASIN PR-1
STA 145+60 to STA 148+61	CT	0.7000	0.3678	0.63	10.00	7.7	1.788	1.983	3.771	4	1	6	0.03	0.5400	1.000	0.460	1.88	Sod	BASIN PR-2
STA. 148+61 to STA. 150+07	CT	-	0.3103	0.83	10.00	7.7	1.983	0.000	1.983	N/A	N/A	N/A	0.012	-	N/A	-	-	Conc. Flume	BASIN PR-3

FLORIDA DEPARTMENT OF TRANSPORTATION
HYDRAULIC WORKSHEET FOR ROADSIDE DITCHES
PRE VS POST DRAINAGE BASINS -SOUTH SIDE ROW DRAINGE DITCHES

Road: SR 30 **Prepared by:** SMU **Date:** 12/23/2024

Project Name: CAMP HELEN STATE PARK - PARK IMPROVEMENT **Checked by:** JP **Date:** 12/23/2024

PRE CONSTRUCTION (FROM FDOT DRAINAGE MANUAL FOR PROJECT # 437759-1-52-01 CURRENTLY UNDER CONSTRUCTION)

STATION TO STATION	SIDE	% Slope	Length (ft)	Contributing Area (ac)	"C"	t_c (min)	i_{10} (in/hr)	Q (cfs)	Q from up-stream (cfs)	Total Q (cfs)	Ditch Section			"n"	"d" (ft)	"$d_{allowable}$" (ft)	Calculated Freeboard	Velocity (fps)	Ditch Lining	Side Drain Pipe (dia.)	Remarks (From FDOT Project 437759-1-52-01
											S.S. (H:1V)	Bottom Width (ft)	N.S. (H:1V)								
SR 30A - South Side ROW Ditch																					
143+43.93 to 145+86.41	RT	0.1500	242.0000	0.3800	0.79	10.00	7.7	2.312	0.000	2.312	6	5	2	0.06	0.5600	0.600	0.040	0.55	Sod	18	Ditch Over Pipe
143+93.85 to 148+33.14	RT	0.5700	439.0000	0.6300	0.83	10.00	7.7	4.026	5.856	9.882	4	5	3	0.042	0.7300	3.300	2.570	1.77	Sod		Min. Pipe size added to convey base flow; additional flow will stage up and flow over without roadway impact
148+33.14 to 155+0.00	RT	1.3900	667.0000	1.6900	0.45	10.00	7.7	5.856	0.000	5.856	4	5	4	0.06	0.5300	1.5	0.970	1.58	Sod	18	

POST CONSTRUCTION

STATION TO STATION	SIDE	% Slope	Length (ft)	Contributing Area (ac)	"C"	t_c (min)	i_{10} (in/hr)	Q (cfs)	Q from up-stream (cfs)	Total Q (cfs)	Ditch Section			"n"	"d" (ft)	"$d_{allowable}$" (ft)	Calculated Freeboard	Velocity (fps)	Ditch Lining	Side Drain Pipe (dia.)	Remarks
											S.S. (H:1V)	Bottom Width (ft)	N.S. (H:1V)								
SR 30 - South Side ROW Ditch																					
143+43.93 to 145+86.41	RT	0.1500	242.0000	0.3800	0.79	10.00	7.7	2.318	0.000	2.318	6	5	2	0.06	0.5600	0.600	0.040	0.55	Sod	18	Ditch Over Pipe
143+93.85 to 148+33.14	RT	0.5700	439.0000	0.76	0.85	10.00	7.7	4.974	9.095	14.070	4	5	3	0.042	0.8917	3.300	2.408	1.96	Sod		Contains additional area from the proposed left turn lane (Basin PR-7)
148+33.14 to 155+0.00	RT	1.3900	667.0000	2.2388	0.53	10.00	7.7	9.095	0.000	9.095	4	5	4	0.06	0.6583	1.5	0.842	1.8	Sod	18	Includes additional Stormwater from West Bound Lanes (Basins PR-4 & PR-5)

Attachment 2

Hydrologic Soil Group—Bay County, Florida
(Camp Helen State Park - Park Improvement)

Map Scale: 1:4,730 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Approved
2024-D-391-00036
Lisa Ward
1/16/2025

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bay County, Florida
Survey Area Data: Version 23, Aug 24, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Dec 10, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
11	Lakeland sand, 8 to 12 percent slopes	A	24.3	22.7%
41	Dirego muck	A/D	10.3	9.7%
42	Resota fine sand, 0 to 5 percent slopes	A	13.2	12.4%
45	Kureb sand, 0 to 5 percent slopes	A	13.2	12.4%
99	Water		45.8	42.9%
Totals for Area of Interest			**106.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ATTACHMENT 3

FLORIDA DEPARTMENT OF TRANSPORTATION
SPREAD TABULATION FORM

Project: Camp Helen Park Improvements **County: Bay** **Rainfall Zone: Zone 1** **Prepared By: ISMU** **Date: 11/18/2024**
Description: Proposed Spread Calculations for Two Curb Inlets on SR 30 left turn lane and a Median Flume **Organization: G&A** **Post Development** **Checked By:** JHP **Date:**

	Structure No.	Station	Side	Type of Structure	Drainage Area (acre)	Composite Runoff Coefficient	Rainfall Intensity (in/hr)	Overland Runoff (cfs)	Previous Inlet Bypass (cfs)	Total Runoff (cfs)	Cross Slope (ft/ft)	Longitudinal Slope (ft/ft)	Manning's n	Calculated Spread (ft)	Allowable Spread (ft)	Sumped Spread (ft)	Intercepted Flow (cfs)	Bypass Flow to Next Inlet (cfs)	Bypass to Structure No.
PR-3	S-3	148+54	LT	Flume	0.3103	0.83	4.00	1.030	0.000	1.030	0.0500	0.0100	0.016	4.11	5.00	n/a	1.030	0.000	n/a
PR-4	S-4	150+10	LT	P3	0.2388	0.75	4.00	0.712	0.000	0.712	0.0690	0.0070	0.016	3.13	5.00	n/a	0.712	0.000	n/a
PR-5	S-5	151+35	LT	P3	0.3987	0.77	4.00	1.223	0.000	1.223	0.0680	0.0080	0.016	3.77	5.00	n/a	1.223	0.000	n/a

Remarks:
Spread and bypass computations performed using the 2023 FDOT Drainage Design Guide and FDOT Greenbook.

Proposed Cross Drain

Sim	Link Name	Maximum Flow Rate [cfs]	Maximum US Velocity [fps]
050Y001H	Cross Drain	2.98	3.74
050Y002H	Cross Drain	2.66	3.61
050Y004H	Cross Drain	1.69	3.14
050Y008H	Cross Drain	1.99	3.30
050Y024H	Cross Drain	0.70	2.43
050Y072H	Cross Drain	0.48	2.18
050Y168H	Cross Drain	0.33	1.96
050Y240H	Cross Drain	0.41	2.08

Proposed Cross Drain

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.024	
Channel Slope	0.022	ft/ft
Rise	1.2	ft
Span	1.9	ft
Discharge	2.98	cfs

50 year critical storm discharge rate - from on StormWise model results

Results		
Normal Depth	5.9	in
Flow Area	0.7	ft²
Wetted Perimeter	2.3	ft
Hydraulic Radius	3.7	in
Top Width	1.90	ft
Critical Depth	6.6	in
Percent Full	42.7	%
Critical Slope	0.015	ft/ft
Velocity	4.19	ft/s
Velocity Head	0.27	ft
Specific Energy	0.77	ft
Froude Number	1.208	
Maximum Discharge	8.62	cfs
Discharge Full	8.05	cfs
Slope Full	0.161	ft/ft
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	18.0	in
Length	72.5	ft
Number Of Steps	20	

Tailwater Conditions

GVF Output Data		
Upstream Depth	6.6	in
Profile Description	N/A	
Profile Headloss	0.64	ft
Average End Depth Over Rise	88.2	%
Normal Depth Over Rise	42.7	%
Downstream Velocity	1.71	ft/s
Upstream Velocity	3.69	ft/s
Normal Depth	5.9	in
Critical Depth	6.6	in
Channel Slope	0.022	ft/ft
Critical Slope	0.015	ft/ft

Upstream depth with tailwater conditions

Existing Box Culvert (CD-1)

Sim	Link Name	Maximum Flow Rate [cfs]	Maximum US Velocity [fps]
050Y001H	Box Culvert	2.67	0.86
050Y001H	Box Culvert PRE	2.06	0.67
050Y002H	Box Culvert	2.88	0.92
050Y002H	Box Culvert PRE	2.24	0.73
050Y004H	Box Culvert	4.04	1.24
050Y004H	Box Culvert PRE	3.50	1.09
050Y008H	Box Culvert	5.27	1.52
050Y008H	Box Culvert PRE	4.80	1.42
050Y024H	Box Culvert	6.93	1.83
050Y024H	Box Culvert PRE	6.60	1.78
050Y072H	Box Culvert	9.07	2.13
050Y072H	Box Culvert PRE	8.78	2.10
050Y168H	Box Culvert	9.59	2.19
050Y168H	Box Culvert PRE	9.34	2.16
050Y240H	Box Culvert	10.42	2.28
050Y240H	Box Culvert PRE	10.11	2.25

Cross Drain - Box Culvert -CD-1

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.001	ft/ft
Height	3.0	ft
Bottom Width	3.50	ft
Discharge	10.47	cfs

50 year critical storm discharge rate from StormWise model result

Results		
Normal Depth	15.9	in
Flow Area	4.6	ft²
Wetted Perimeter	6.1	ft
Hydraulic Radius	9.0	in
Top Width	3.50	ft
Critical Depth	7.8	in
Percent Full	44.1	%
Critical Slope	0.004	ft/ft
Velocity	2.26	ft/s
Velocity Head	0.08	ft
Specific Energy	1.40	ft
Froude Number	0.346	
Discharge Full	24.85	cfs
Slope Full	0.001	ft/ft
Flow Type	Subcritical	

GVF Input Data		
Downstream Depth	36.0	in
Length	193.0	ft
Number Of Steps	20	

Tailwater Conditions

GVF Output Data		
Upstream Depth	34.9	in
Profile Description	N/A	
Profile Headloss	0.02	ft
Average End Depth Over Rise	98.4	%
Normal Depth Over Rise	44.1	%
Downstream Velocity	1.00	ft/s
Upstream Velocity	1.03	ft/s
Normal Depth	15.9	in
Critical Depth	7.8	in
Channel Slope	0.001	ft/ft
Critical Slope	0.004	ft/ft

Upstream depth with tailwater conditions

CHSP Existing Driveway Culvert

Sim	Link Name	Maximum Flow Rate [cfs]	Maximum US Velocity [fps]
025Y001H	Camp Helen Entrance Culvert	3.83	4.08
025Y001H	CH Driveway Culvert PRE	1.40	2.97
025Y002H	Camp Helen Entrance Culvert	3.68	4.02
025Y002H	CH Driveway Culvert PRE	1.37	2.95
025Y004H	Camp Helen Entrance Culvert	2.91	3.72
025Y004H	CH Driveway Culvert PRE	1.57	3.07
025Y008H	Camp Helen Entrance Culvert	3.86	4.09
025Y008H	CH Driveway Culvert PRE	2.13	3.37
025Y024H	Camp Helen Entrance Culvert	1.45	3.00
025Y024H	CH Driveway Culvert PRE	0.86	2.58
025Y072H	Camp Helen Entrance Culvert	1.22	2.85
025Y072H	CH Driveway Culvert PRE	0.82	2.54
025Y168H	Camp Helen Entrance Culvert	0.89	2.61
025Y168H	CH Driveway Culvert PRE	0.62	2.35
025Y240H	Camp Helen Entrance Culvert	1.11	2.77
025Y240H	CH Driveway Culvert PRE	0.76	2.49

Worksheet for Camp Helen Entrance Driveway Culvert

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.024	
Channel Slope	0.014	ft/ft
Rise	1.2	ft
Span	1.9	ft
Discharge	3.86	cfs

Discharge from 25 year critical storm from stormwise model result

Results		
Normal Depth	7.8	in
Flow Area	1.0	ft²
Wetted Perimeter	2.6	ft
Hydraulic Radius	4.7	in
Top Width	1.90	ft
Critical Depth	7.5	in
Percent Full	55.3	%
Critical Slope	0.015	ft/ft
Velocity	3.87	ft/s
Velocity Head	0.23	ft
Specific Energy	0.88	ft
Froude Number	0.943	
Maximum Discharge	6.89	cfs
Discharge Full	6.43	cfs
Slope Full	0.038	ft/ft
Flow Type	Subcritical	

GVF Input Data		
Downstream Depth	18.0	in
Length	74.5	ft
Number Of Steps	20	

Tailwater condition

GVF Output Data		
Upstream Depth	9.2	in
Profile Description	N/A	
Profile Headloss	0.29	ft
Average End Depth Over Rise	96.8	%
Normal Depth Over Rise	55.3	%
Downstream Velocity	2.20	ft/s
Upstream Velocity	3.17	ft/s
Normal Depth	7.8	in
Critical Depth	7.5	in
Channel Slope	0.014	ft/ft
Critical Slope	0.015	ft/ft

Upstream depth with tailwater condition

Analysis of CD-1 Based on the Rational Method

CD-1 Runoff Calculation: Rational Method											
Design Event		Retern Freq.	Storm Freq Factor, XT	Pre Runoff Coeff.	Post Runofff Coeff.	Time of Concentration	Pre Area	Post Area	Intensity	Pre $Q=C_{xf}IA$	Post $Q=C_{xf}IA$
		(Years)		C	C	(Minutes)	(Acres)	(Acres)	(Inch/Hr)	(cfs)	(cfs)
Min. Flow	25 Year	25	1.1	0.21	0.22	26	41.12	41.89	5.66	53.8	57.4
Design Flow	50 Year	50	1.2	0.21	0.22	26	41.12	41.89	6.25	64.8	69.1
Max. Flow	100 Year	100	1.25	0.21	0.22	26	41.12	41.89	6.8	73.4	78.3

C-Value		CD-1 Area (Ac.)	
		Pre	Post
0.15	Sandy Soils	35.47	35.47
0.2	Open	2.78	2.95
0.95	Impervious	2.87	3.46
Cumulative C Value		0.21	0.22

Note: Pre-conditions are from FDOT Project ID #437759-1-52-01, See following pages for cross drain analysis from Drainage Report from aforementioned FDOT project.

Upstream Water Surface Elevation For Q=69.1		
Based on the equation: $h_1 = ((\frac{Q}{C_d A})^2 / 2g) + h_2$		
Inlet Stage Elevation	h_1 (ft)	5.633
Outlet Stage Elevation	h_2 (ft)	4.04
Acceleration due to gravity	g (ft/s^2)	32.174
Culvert Discharge Coefficient	C_d	0.65
Culvert X-Section Area	A (ft^2)	10.5
Discharge	Q (ft^3/s)	69.1

Will not over top the road
Road surface elevation = 8'

Attachment 4

Cross Drain Analysis

Pre-conditions for proposed Camp Helen Project.

Pre conditions for Camp Helen Project
(FDEP Project # 61307C-N3803).

CD-1
AREA (PRE): 41.12 AC
AREA (POST): 41.12 AC

CD-1
3.0' x 3.5' BOX CULVERT
INV. 1.15 (S)
INV. 1.04 (N)

CAMP HELEN STATE PARK

PHILLIPS INLET
BRIDGE NO. 460072 (WB)

PHILLIPS INLET
BRIDGE NO. 460078 (EB)

CD-2
6.0' x 5.0' BOX CULVERT
INV. -0.76 (SW)
INV. -0.69 (NE)

CD-3
DUAL 36" RCP CROSS DRAIN
INV. 0.78 (SW)
INV. 0.34 (NE)

CD-2 & CD-3
AREA (PRE): 31.20 AC
AREA (POST): 31.20 AC

TC PATH

TC PATH

MATCHLINE STA. 200+00.00

N

0 100 500
Feet

Approved
2024-D-391-00036
Lisa Ward
1/16/2025

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

TRAVIS SHANNON, P.E.
P.E. LICENSE NUMBER 73883
HANSON PROFESSIONAL SERVICES INC.
910 N. WAUKESHA STREET
BONIFAY, FL 32425
CERTIFICATE OF AUTHORIZATION 00007961

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 30A	BAY	437759-1-52-01

CROSS DRAIN DRAINAGE MAP

SHEET NO. C-1

autre02073 4/1/2020 3:43:09 PM I:\18jobs\18H0048\43775915201\drainage\DRMPRD1.dgn

Pre conditions for Camp Helen project (FDEP Project # 61307C-N3803

CD-1										
Runoff Calculation: Rational Method										
Design Event		Return Freq.	Storm Freq. Factor, XT	Pre Runoff Coeff.	Post Runoff Coeff.	Time of Conc.	Area	Intensity	Pre $Q=C_{xf}IA$	Post $Q=C_{xf}IA$
		(Years)		C	C	(Minutes)	(Acres)	(Inch/Hr)	(cfs)	(cfs)
Min. Flow	25 Year	25	1.10	0.20	0.21	26	41.12	5.66	52.3	53.5
Design Flow	50 Year	50	1.20	0.20	0.21	26	41.12	6.25	63.1	64.5
Max. Flow	100 Year	100	1.25	0.20	0.21	26	41.12	6.80	71.4	73.1

CD-2 & CD-3										
Runoff Calculation: Rational Method										
Design Event		Return Freq.	Storm Freq. Factor, XT	Pre Runoff Coeff.	Post Runoff Coeff.	Time of Conc.	Area	Intensity	Pre $Q=C_{xf}IA$	Post $Q=C_{xf}IA$
		(Years)		C	C	(Minutes)	(Acres)	(Inch/Hr)	(cfs)	(cfs)
Min. Flow	25 Year	25	1.10	0.20	0.21	26	31.20	5.66	38.4	40.0
Design Flow	50 Year	50	1.20	0.20	0.21	26	31.20	6.25	46.3	48.3
Max. Flow	100 Year	100	1.25	0.20	0.21	26	31.20	6.80	52.4	54.7

CD-5										
Runoff Calculation: Rational Method										
Design Event		Return Freq.	Storm Freq. Factor, XT	Pre Runoff Coeff.	Post Runoff Coeff.	Time of Conc.	Area	Intensity	Pre $Q=C_{xf}IA$	Post $Q=C_{xf}IA$
		(Years)		C	C	(Minutes)	(Acres)	(Inch/Hr)	(cfs)	(cfs)
Min. Flow	25 Year	25	1.10	0.30	0.33	50	33.13	4.13	44.8	49.0
Design Flow	50 Year	50	1.20	0.30	0.33	50	33.13	4.65	55.1	60.3
Max. Flow	100 Year	100	1.25	0.30	0.33	50	33.13	5.00	61.6	67.5

Pre conditions for Camp Helen project
(FDEP Project # 61307C-N3803)

Cross Drain C-Value Computations																					
C-Value		CD-1		CD-2 &CD-3		CD-5		CD-6		CD-7		CD-8		CD-9		CD-10		CD-11		CD-12	
		Area (Ac.)		Area (Ac.)		Area (Ac.)		Area (Ac.)		Area (Ac.)		Area (Ac.)		Area (Ac.)		Area (Ac.)		Area (Ac.)		Area (Ac.)	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
0.15	(Sandy Soils)	35.47	35.47	26.14	26.14	8.37	8.37	-	-	-	-	23.05	23.05	-	-	-	-	20.70	20.70	18.43	18.43
0.20	(Open)	3.04	2.78	1.99	1.63	3.46	2.46	4.68	4.20	5.51	4.80	10.33	9.87	8.80	8.66	8.75	8.60	17.51	17.16	1.89	1.71
0.30	(Residential)	-	-	1.66	1.66	17.99	17.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.50	(Residential)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.88	1.88
0.70	(Commercial)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.39	3.39	-	-	-	-
0.95	(Impervious)	2.61	2.87	1.42	1.78	3.31	4.31	2.13	2.61	3.06	3.77	2.82	3.28	2.35	2.49	2.46	2.61	6.75	7.09	2.41	2.59
Cumulative C-Value		0.20	0.21	0.20	0.21	0.32	0.34	0.43	0.49	0.47	0.53	0.23	0.24	0.36	0.37	0.44	0.45	0.29	0.30	0.26	0.26

Cross Drain Time of Concentration Computations										
	CD-1	**CD-2 &CD-3**	**CD-5**	**CD-6**	**CD-7**	**CD-8**	**CD-9**	**CD-10**	**CD-11**	**CD-12**
Sheet Flow										
Length (ft)	100	100	100	100	100	100	50	100	100	100
n	0.2	0.15	0.3	0.2	0.2	0.2	0.2	0.4	0.15	0.15
US elevation	20.5	13.0	31.0	38.0	33.0	37.0	40.0	38.0	40.0	38.0
DS elevation	19.8	10.5	29.8	37.5	32.6	36.5	38.5	37.0	38.5	37.0
Slope (ft/ft)	0.007	0.025	0.012	0.005	0.005	0.005	0.030	0.010	0.015	0.010
Intensity (2yr-24hr)	5.42	5.42	5.42	5.42	5.42	5.42	5.42	5.42	5.42	5.42
Time of Conc. (hr)	0.240	0.115	0.268	0.275	0.287	0.275	0.077	0.363	0.141	0.166
Concentrated Flow										
Length (ft)	1230	1445	260	290	60	170	0	0	700	800
US elevation	19.8	10.5	29.8	37.5	32.6	36.5	0.0	0.0	38.5	37.0
DS elevation	4.0	2.0	24.0	32.0	27.0	35.0	0.0	0.0	33.0	36.0
Slope (ft/ft)	0.013	0.006	0.022	0.019	0.093	0.009	#DIV/0!	#DIV/0!	0.008	0.001
Paved or Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved
Velocity (ft/s)	1.83	1.24	2.41	2.22	4.91	1.52	#DIV/0!	#DIV/0!	1.43	0.57
Time of Conc. (hr)	0.187	0.324	0.030	0.036	0.003	0.031	0.000	0.000	0.136	0.390
Ditch Flow										
Length (ft)	0	0	1900	930	1100	2060	1630	1850	1150	650
Velocity (ft/s)	1	1	1	1	1	1	1	0.5	1.5	1.5
Time of Conc. (hr)	0.000	0.000	0.528	0.258	0.306	0.572	0.453	1.028	0.213	0.120
Composite Time of Concentration										
Tc (min)	26	26	50	34	36	53	32	83	29	41

Time of Concentration calculation used for both pre and post condition modeling.

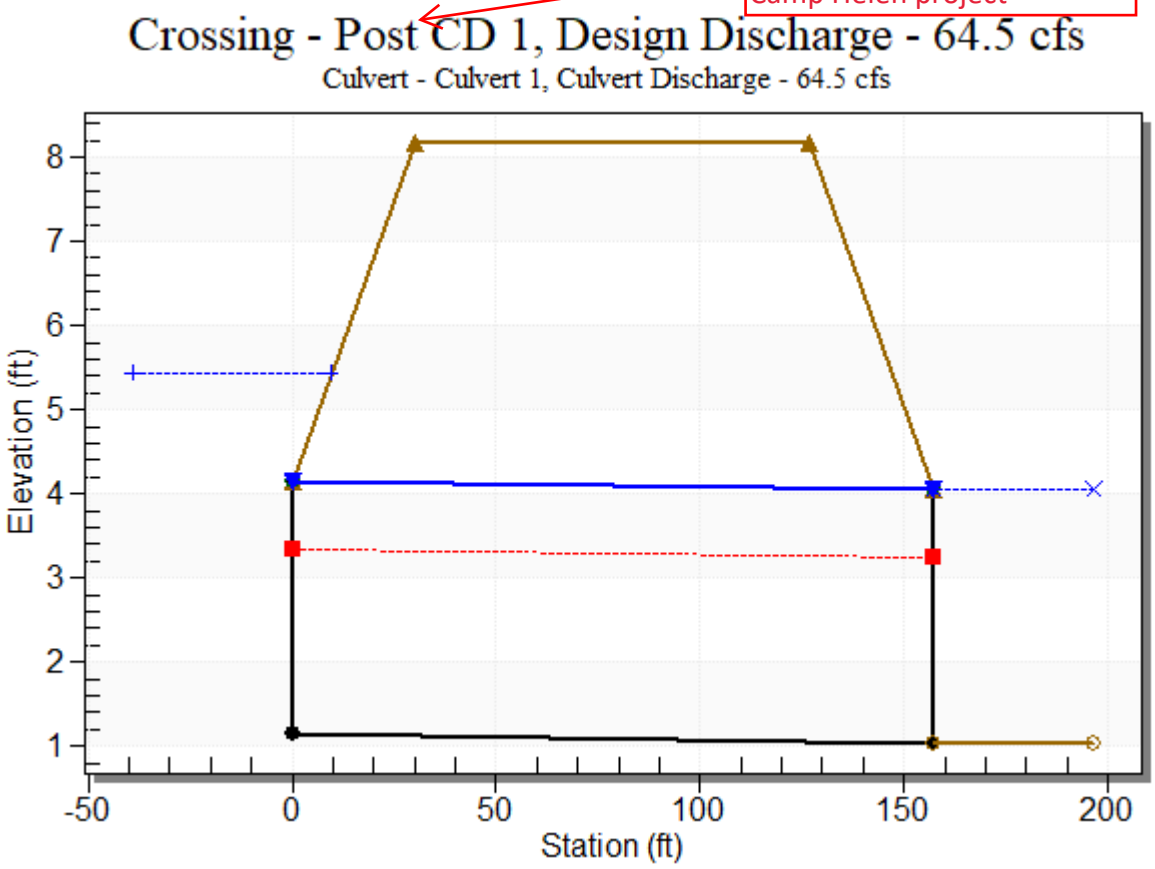
Pre conditions for Camp Helen project (FDEP Project # 61307C-N3803)

Table 2 - Summary of Culvert Flows at Crossing: Post CD 1

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
5.00	53.50	53.50	0.00	1
5.07	55.46	55.46	0.00	1
5.14	57.42	57.42	0.00	1
5.22	59.38	59.38	0.00	1
5.30	61.34	61.34	0.00	1
5.38	63.30	63.30	0.00	1
5.43	64.50	64.50	0.00	1
5.55	67.22	67.22	0.00	1
5.64	69.18	69.18	0.00	1
5.73	71.14	71.14	0.00	1
5.82	73.10	73.10	0.00	1
8.18	111.33	111.33	0.00	Overtopping

Water Surface Profile Plot for Culvert: Culvert 1

Pre conditions for proposed Camp Helen project



Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 1.15 ft

Outlet Station: 157.00 ft

Outlet Elevation: 1.04 ft

Number of Barrels: 1

Culvert Data Summary - Culvert 1

Barrel Shape: Concrete Box

Barrel Span: 3.50 ft

Barrel Rise: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90º) Headwall

Inlet Depression: None

ATTACHMENT 5: Pre and Post StormWise Discharge Rate Report

Sim	Node Name	Maximum Total Inflow Rate [cfs]
002Y001H	Outfall	1.36
002Y001H	Outfall PRE w routing	1.02
002Y002H	Outfall	1.46
002Y002H	Outfall PRE w routing	1.08
002Y004H	Outfall	1.69
002Y004H	Outfall PRE w routing	1.24
002Y008H	Outfall	1.66
002Y008H	Outfall PRE w routing	1.23
002Y024H	Outfall	0.88
002Y024H	Outfall PRE w routing	0.60
002Y072H	Outfall	0.12
002Y072H	Outfall PRE w routing	0.07
002Y168H	Outfall	0.00
002Y168H	Outfall PRE w routing	0.00
002Y240H	Outfall	0.00
002Y240H	Outfall PRE w routing	0.00
005Y001H	Outfall	1.70
005Y001H	Outfall PRE w routing	1.28
005Y002H	Outfall	1.81
005Y002H	Outfall PRE w routing	1.35
005Y004H	Outfall	2.01
005Y004H	Outfall PRE w routing	1.50
005Y008H	Outfall	2.03
005Y008H	Outfall PRE w routing	1.55
005Y024H	Outfall	1.63
005Y024H	Outfall PRE w routing	1.47
005Y072H	Outfall	0.22
005Y072H	Outfall PRE w routing	0.12
005Y168H	Outfall	0.02
005Y168H	Outfall PRE w routing	0.01
005Y240H	Outfall	0.00
005Y240H	Outfall PRE w routing	0.00
010Y001H	Outfall	1.98
010Y001H	Outfall PRE w routing	1.51
010Y002H	Outfall	2.11
010Y002H	Outfall PRE w routing	1.60
010Y004H	Outfall	3.05
010Y004H	Outfall PRE w routing	2.46
010Y008H	Outfall	2.42
010Y008H	Outfall PRE w routing	1.85
010Y024H	Outfall	2.85
010Y024H	Outfall PRE w routing	2

Sim	Node Name	Maximum Total Inflow Rate [cfs]
010Y072H	Outfall	0.32
010Y072H	Outfall PRE w routing	0.19
010Y168H	Outfall	0.03
010Y168H	Outfall PRE w routing	0.02
010Y240H	Outfall	0.00
010Y240H	Outfall PRE w routing	0.00
025Y001H	Outfall	2.35
025Y001H	Outfall PRE w routing	1.82
025Y002H	Outfall	2.53
025Y002H	Outfall PRE w routing	1.95
025Y004H	Outfall	3.05
025Y004H	Outfall PRE w routing	2.46
025Y008H	Outfall	3.76
025Y008H	Outfall PRE w routing	3.27
025Y024H	Outfall	5.00
025Y024H	Outfall PRE w routing	4.72
025Y072H	Outfall	0.45
025Y072H	Outfall PRE w routing	0.28
025Y168H	Outfall	0.05
025Y168H	Outfall PRE w routing	0.03
025Y240H	Outfall	0.00
025Y240H	Outfall PRE w routing	0.00
050Y001H	Outfall	2.64
050Y001H	Outfall PRE w routing	2.06
050Y002H	Outfall	2.87
050Y002H	Outfall PRE w routing	2.23
050Y004H	Outfall	4.06
050Y004H	Outfall PRE w routing	3.51
050Y008H	Outfall	5.29
050Y008H	Outfall PRE w routing	4.81
050Y024H	Outfall	6.93
050Y024H	Outfall PRE w routing	6.60
050Y072H	Outfall	0.62
050Y072H	Outfall PRE w routing	0.38
050Y168H	Outfall	0.06
050Y168H	Outfall PRE w routing	0.04
050Y240H	Outfall	0.01
050Y240H	Outfall PRE w routing	0.01
100Y001H	Outfall	2.93
100Y001H	Outfall PRE w routing	2.30
100Y002H	Outfall	3.48
100Y002H	Outfall PRE w routing	2.85

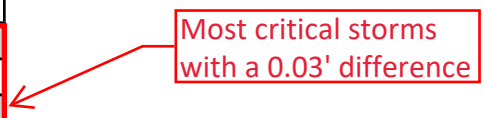
Largest difference is 0.63 cfs

Sim	Node Name	Maximum Total Inflow Rate [cfs]
100Y004H	Outfall	5.31
100Y004H	Outfall PRE w routing	4.77
100Y008H	Outfall	7.08
100Y008H	Outfall PRE w routing	6.58
100Y024H	Outfall	9.23
100Y024H	Outfall PRE w routing	8.84
100Y072H	Outfall	0.79
100Y072H	Outfall PRE w routing	0.55
100Y168H	Outfall	0.08
100Y168H	Outfall PRE w routing	0.05
100Y240H	Outfall	0.02
100Y240H	Outfall PRE w routing	0.01

Sim	Node Name	Maximum Stage [ft]
002Y001H	South Wetland	2.01
002Y001H	Wetland PRE	2.01
002Y002H	South Wetland	2.01
002Y002H	Wetland PRE	2.01
002Y004H	South Wetland	2.02
002Y004H	Wetland PRE	2.01
002Y008H	South Wetland	2.02
002Y008H	Wetland PRE	2.01
002Y024H	South Wetland	2.00
002Y024H	Wetland PRE	2.00
002Y072H	South Wetland	2.00
002Y072H	Wetland PRE	2.00
002Y168H	South Wetland	2.00
002Y168H	Wetland PRE	2.00
002Y240H	South Wetland	2.00
002Y240H	Wetland PRE	2.00
005Y001H	South Wetland	2.02
005Y001H	Wetland PRE	2.01
005Y002H	South Wetland	2.02
005Y002H	Wetland PRE	2.01
005Y004H	South Wetland	2.02
005Y004H	Wetland PRE	2.01
005Y008H	South Wetland	2.02
005Y008H	Wetland PRE	2.01
005Y024H	South Wetland	2.01
005Y024H	Wetland PRE	2.01
005Y072H	South Wetland	2.00
005Y072H	Wetland PRE	2.00
005Y168H	South Wetland	2.00
005Y168H	Wetland PRE	2.00
005Y240H	South Wetland	2.00
005Y240H	Wetland PRE	2.00
010Y001H	South Wetland	2.02
010Y001H	Wetland PRE	2.01
010Y002H	South Wetland	2.02
010Y002H	Wetland PRE	2.01
010Y004H	South Wetland	2.05
010Y004H	Wetland PRE	2.03
010Y008H	South Wetland	2.03
010Y008H	Wetland PRE	2.02
010Y024H	South Wetland	2.04
010Y024H	Wetland PRE	2.04

Sim	Node Name	Maximum Stage [ft]
010Y072H	South Wetland	2.00
010Y072H	Wetland PRE	2.00
010Y168H	South Wetland	2.00
010Y168H	Wetland PRE	2.00
010Y240H	South Wetland	2.00
010Y240H	Wetland PRE	2.00
025Y001H	South Wetland	2.03
025Y001H	Wetland PRE	2.02
025Y002H	South Wetland	2.03
025Y002H	Wetland PRE	2.02
025Y004H	South Wetland	2.05
025Y004H	Wetland PRE	2.03
025Y008H	South Wetland	2.07
025Y008H	Wetland PRE	2.06
025Y024H	South Wetland	2.13
025Y024H	Wetland PRE	2.11
025Y072H	South Wetland	2.00
025Y072H	Wetland PRE	2.00
025Y168H	South Wetland	2.00
025Y168H	Wetland PRE	2.00
025Y240H	South Wetland	2.00
025Y240H	Wetland PRE	2.00
050Y001H	South Wetland	2.04
050Y001H	Wetland PRE	2.02
050Y002H	South Wetland	2.04
050Y002H	Wetland PRE	2.03
050Y004H	South Wetland	2.09
050Y004H	Wetland PRE	2.06
050Y008H	South Wetland	2.14
050Y008H	Wetland PRE	2.12
050Y024H	South Wetland	2.23
050Y024H	Wetland PRE	2.21
050Y072H	South Wetland	2.00
050Y072H	Wetland PRE	2.00
050Y168H	South Wetland	2.00
050Y168H	Wetland PRE	2.00
050Y240H	South Wetland	2.00
050Y240H	Wetland PRE	2.00
100Y001H	South Wetland	2.05
100Y001H	Wetland PRE	2.03
100Y002H	South Wetland	2.06
100Y002H	Wetland PRE	2.04

Sim	Node Name	Maximum Stage [ft]
100Y004H	South Wetland	2.14
100Y004H	Wetland PRE	2.12
100Y008H	South Wetland	2.24
100Y008H	Wetland PRE	2.21
100Y024H	South Wetland	2.38
100Y024H	Wetland PRE	2.35
100Y072H	South Wetland	2.00
100Y072H	Wetland PRE	2.00
100Y168H	South Wetland	2.00
100Y168H	Wetland PRE	2.00
100Y240H	South Wetland	2.00
100Y240H	Wetland PRE	2.00



Discharge Volume Report

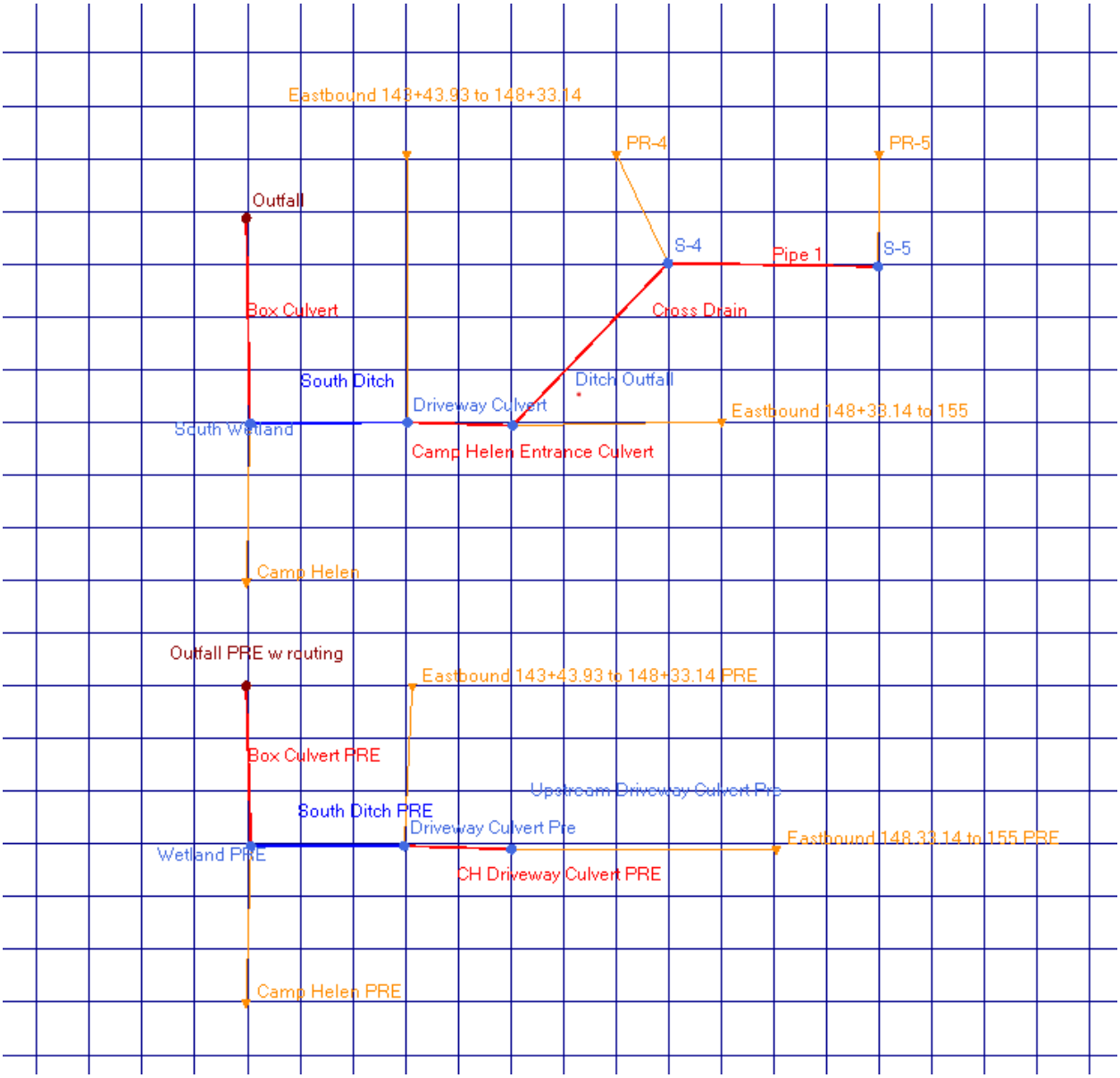
Sim	Node Name	Total Inflow Volume [ft3]
002Y001H	Outfall	6414
002Y001H	Outfall PRE w routing	3985
002Y002H	Outfall	10227
002Y002H	Outfall PRE w routing	6511
002Y004H	Outfall	15590
002Y004H	Outfall PRE w routing	10191
002Y008H	Outfall	20393
002Y008H	Outfall PRE w routing	13552
002Y024H	Outfall	33578
002Y024H	Outfall PRE w routing	23918
002Y072H	Outfall	69014
002Y072H	Outfall PRE w routing	55766
002Y168H	Outfall	118148
002Y168H	Outfall PRE w routing	101549
002Y240H	Outfall	160483
002Y240H	Outfall PRE w routing	141524
005Y001H	Outfall	9269
005Y001H	Outfall PRE w routing	5859
005Y002H	Outfall	14272
005Y002H	Outfall PRE w routing	9270
005Y004H	Outfall	19977
005Y004H	Outfall PRE w routing	13261
005Y008H	Outfall	28894
005Y008H	Outfall PRE w routing	19964
005Y024H	Outfall	70648
005Y024H	Outfall PRE w routing	57273
005Y072H	Outfall	141646
005Y072H	Outfall PRE w routing	123693
005Y168H	Outfall	221564
005Y168H	Outfall PRE w routing	199630
005Y240H	Outfall	283596
005Y240H	Outfall PRE w routing	258963
010Y001H	Outfall	11927
010Y001H	Outfall PRE w routing	7654
010Y002H	Outfall	18078
010Y002H	Outfall PRE w routing	11918
010Y004H	Outfall	41456
010Y004H	Outfall PRE w routing	30806
010Y008H	Outfall	44952
010Y008H	Outfall PRE w routing	33904
010Y024H	Outfall	123481
010Y024H	Outfall PRE w routing	106569

Sim	Node Name	Total Inflow Volume [ft3]
010Y072H	Outfall	233454
010Y072H	Outfall PRE w routing	210981
010Y168H	Outfall	344593
010Y168H	Outfall PRE w routing	317524
010Y240H	Outfall	417588
010Y240H	Outfall PRE w routing	387797
025Y001H	Outfall	15998
025Y001H	Outfall PRE w routing	10457
025Y002H	Outfall	23908
025Y002H	Outfall PRE w routing	16045
025Y004H	Outfall	41456
025Y004H	Outfall PRE w routing	30806
025Y008H	Outfall	84487
025Y008H	Outfall PRE w routing	70087
025Y024H	Outfall	233429
025Y024H	Outfall PRE w routing	210960
025Y072H	Outfall	417569
025Y072H	Outfall PRE w routing	387779
025Y168H	Outfall	569501
025Y168H	Outfall PRE w routing	534512
025Y240H	Outfall	673356
025Y240H	Outfall PRE w routing	635076
050Y001H	Outfall	19434
050Y001H	Outfall PRE w routing	12863
050Y002H	Outfall	31218
050Y002H	Outfall PRE w routing	21917
050Y004H	Outfall	62563
050Y004H	Outfall PRE w routing	49867
050Y008H	Outfall	130609
050Y008H	Outfall PRE w routing	113296
050Y024H	Outfall	344571
050Y024H	Outfall PRE w routing	317505
050Y072H	Outfall	611769
050Y072H	Outfall PRE w routing	575543
050Y168H	Outfall	801002
050Y168H	Outfall PRE w routing	758906
050Y240H	Outfall	915831
050Y240H	Outfall PRE w routing	870433
100Y001H	Outfall	23135
100Y001H	Outfall PRE w routing	15482
100Y002H	Outfall	42930
100Y002H	Outfall PRE w routing	32121

Sim	Node Name	Total Inflow Volume [ft3]
100Y004H	Outfall	92311
100Y004H	Outfall PRE w routing	77379
100Y008H	Outfall	192105
100Y008H	Outfall PRE w routing	171589
100Y024H	Outfall	487171
100Y024H	Outfall PRE w routing	455009
100Y072H	Outfall	838546
100Y072H	Outfall PRE w routing	795402
100Y168H	Outfall	1075540
100Y168H	Outfall PRE w routing	1025720
100Y240H	Outfall	1199816
100Y240H	Outfall PRE w routing	1146683

ATTACHMENT 7 - CN Calculations, Input Report & Rainfall Data

StormWise Model Graphic



POST DRAINAGE BASINS

STA.143+00 to STA. 145+60	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'	Remarks
Impervious	7,933	0.18	98	777,434.0	53.25	PR-1
Pervious	6,666	0.15	30	199,980.0	13.70	
Total	14,599	0.34		977,414.0	66.95	

STA 145+60 to STA 148+61	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'	
Impervious	8,803	0.20	98	862,694.0	53.84	PR-2
Pervious	7,219	0.17	30	216,570.0	13.52	
Total	16,022	0.37		1,079,264.0	67.36	

STA. 148+61 to STA. 150+07	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'	
Impervious	11,280	0.26	98	1,105,440.0	81.77	PR-3
Pervious	2,238	0.05	30	67,143.0	4.97	
Total	13,518	0.31		1,172,583.0	86.74	

STA. 150+07 to STA. 151+31	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'	
Impervious	7363	0.17	98	721,574.0	69.37	PR-4
Pervious	3039	0.07	30	91,170.0	8.76	
Total	10,402	0.24		812,744.0	78.13	

STA. 151+31 to STA. 153+28	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'	
Impervious	12823	0.30	98	1,256,654.0	72.35	PR-5
Pervious	4546	0.10	30	136,380.0	7.85	
Total	17,369	0.40		1,393,034.0	80.20	

STA. 153+28 to STA. 155+74	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'	
Impervious	9139	0.30	98	895,622.0	60.25	
Pervious	5725	0.13	30	171,750.0	11.55	PR-6
Total	14,864	0.43		1,067,372.0	71.81	

STA. 142+99 to STA. 148+55	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'
Impervious	5712	0.30	98	559,776.0	98.00
Pervious	0	0.00	30	0.0	0.00
Total	5,712	0.30		559,776.0	98.00

PR-7
Left Turn Lane

STA. 148+52 to STA. 149+27	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'
Impervious	1026	0.30	98	100,548.0	98.00
Pervious	0	0.00	30	0.0	0.00
Total	1,026	0.30		100,548.0	98.00

PR-8

STA. 143+43.93 to STA. 148+33.14	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'
Impervious	41561.08	0.95	98	4,072,985.8	81.95
Pervious	8139.622	0.19	30	244,188.6	4.91
Total	49,701	1.14		4,317,174.5	86.86

ADDITIONAL SUB-BASIN PR-7 PLUS FDOT Basin 143+43.93 to 148+33.14 FROM PROJECT ID 437759-1-52-01

STA. 148+33.14 to 155+0.00	Area (sf)	Area (ac)	CN	CN * A	Weighted 'CN'
Impervious	24829.2	0.57	98	2,433,261.6	33.05
Pervious	48787.2	1.12	30	1,463,616.0	19.88
Total	73,616	1.69		3,896,877.6	52.93

FROM FDOT DRAINAGE DESIGN MANUAL PROJECT ID 437759-1-52-01

Simple Basin: Camp Helen

Scenario:	Scenario1
Node:	South Wetland
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	26.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	38.6100 ac
Curve Number:	30.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment: sandy soils" from FDOT project drainage report area

Simple Basin: Camp Helen PRE

Scenario:	Scenario1
Node:	Wetland PRE
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	26.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	38.6100 ac
Curve Number:	30.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Eastbound 143+43.93 to 148+33.14

Scenario:	Scenario1
Node:	Driveway Culvert
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number

Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	1.1400 ac
Curve Number:	86.9
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Eastbound 143+43.93 to 148+33.14 PRE

Scenario:	Scenario1
Node:	Driveway Culvert Pre
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	1.0100 ac
Curve Number:	85.9
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Eastbound 148+33.14 to 155

Scenario:	Scenario1
Node:	Ditch Outfall
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0

Area:	1.6900 ac
Curve Number:	52.8
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Eastbound 148.33.14 to 155 PRE

Scenario:	Scenario1
Node:	Upstream Driveway Culvert Pre
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	1.6900 ac
Curve Number:	52.9
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PR-4

Scenario:	Scenario1
Node:	S-4
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	8.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	0.2400 ac
Curve Number:	78.1
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00

% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PR-5

Scenario:	Scenario1
Node:	S-5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	8.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	0.4000 ac
Curve Number:	80.2
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Node: Ditch Outfall

Scenario:	Scenario1
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	5.95 ft
Warning Stage:	9.00 ft
Alert Stage:	0.00 ft

Comment:

Node: Driveway Culvert

Scenario:	Scenario1
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	4.92 ft
Warning Stage:	8.00 ft

Alert Stage: 0.00 ft

Comment:

Node: Driveway Culvert Pre

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.92 ft
Warning Stage: 8.00 ft
Alert Stage: 0.00 ft

Comment:

Node: Outfall

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 2.00 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: Outfall PRE w routing

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 2.00 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: S-4

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.50 ft
Warning Stage: 12.62 ft
Alert Stage: 0.00 ft

Comment:

Node: S-5

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 9.75 ft
Warning Stage: 13.90 ft
Alert Stage: 0.00 ft

Comment:

Node: South Wetland

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 2.00 ft
Warning Stage: 6.00 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
2.00	8.0526	350770
3.00	9.0148	392684
4.00	10.6869	465522
5.00	13.4741	586930
6.00	15.5203	676064

Comment:

Node: Upstream Driveway Culvert Pre

Scenario: Scenario1
Type: Stage/Area

Base Flow:	0.00 cfs
Initial Stage:	5.95 ft
Warning Stage:	9.00 ft
Alert Stage:	0.00 ft

Comment:

Node: Wetland PRE

Scenario:	Scenario1
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	2.00 ft
Warning Stage:	0.00 ft
Alert Stage:	0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
2.00	8.0526	350770
3.00	9.0148	392684
4.00	10.6869	465522
5.00	13.4741	586930
6.00	15.5203	676064

Comment:

Pipe Link: Box Culvert

		Upstream		Downstream	
Scenario:	Scenario1	Invert:	1.15 ft	Invert:	1.04 ft
From Node:	South Wetland	Manning's N:	0.0160	Manning's N:	0.0160
To Node:	Outfall	Geometry: Rectangular		Geometry: Rectangular	
Link Count:	1	Max Depth:	3.00 ft	Max Depth:	3.00 ft
Flow Direction:	Both	Max Width:	3.50 ft	Max Width:	3.50 ft
Damping:	0.0000 ft	Fillet:	0.00 ft	Fillet:	0.00 ft
Length:	193.00 ft	Bottom Clip			
FHWA Code:	11	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.00	Op Table:		Op Table:	
Exit Loss Coef:	1.00	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec	Top Clip			
Energy Switch:	Energy	Default:	0.00 ft	Default:	0.00 ft
		Op Table:		Op Table:	
		Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: Box Culvert PRE		Upstream		Downstream	
Scenario:	Scenario1	Invert:	1.15 ft	Invert:	1.04 ft
From Node:	Wetland PRE	Manning's N:	0.0160	Manning's N:	0.0160
To Node:	Outfall PRE w routing	Geometry: Rectangular		Geometry: Rectangular	
		Max Depth:	3.00 ft	Max Depth:	3.00 ft
Link Count:	1	Max Width:	3.50 ft	Max Width:	3.50 ft
Flow Direction:	Both	Fillet:	0.00 ft	Fillet:	0.00 ft
Damping:	0.0000 ft	Bottom Clip			
Length:	193.00 ft	Default:	0.00 ft	Default:	0.00 ft
FHWA Code:	11	Op Table:		Op Table:	
Entr Loss Coef:	0.00	Ref Node:		Ref Node:	
Exit Loss Coef:	1.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Loss Coef:	0.00	Top Clip			
Bend Location:	0.00 dec	Default:	0.00 ft	Default:	0.00 ft
Energy Switch:	Energy	Op Table:		Op Table:	
		Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: Camp Helen Entrance Culvert		Upstream		Downstream	
Scenario:	Scenario1	Invert:	5.95 ft	Invert:	4.92 ft
From Node:	Ditch Outfall	Manning's N:	0.0130	Manning's N:	0.0130
To Node:	Driveway Culvert	Geometry: Horizontal Ellipse		Geometry: Horizontal Ellipse	
Link Count:	1	Max Depth:	1.17 ft	Max Depth:	1.17 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	74.50 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.03	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.70	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: CH Driveway Culvert PRE		Upstream		Downstream	
Scenario:	Scenario1	Invert:	5.95 ft	Invert:	4.92 ft
From Node:	Upstream Driveway Culvert Pre	Manning's N:	0.0130	Manning's N:	0.0130
		Geometry: Horizontal Ellipse		Geometry: Horizontal Ellipse	
To Node:	Driveway Culvert Pre	Max Depth:	1.17 ft	Max Depth:	1.17 ft
		Bottom Clip			
Link Count:	1	Default:	0.00 ft	Default:	0.00 ft
Flow Direction:	Both	Op Table:		Op Table:	
Damping:	0.0000 ft	Ref Node:		Ref Node:	

Length:	74.50 ft	Manning's N:	0.0000	Manning's N:	0.0000
FHWA Code:	0	Top Clip			
Entr Loss Coef:	0.03	Default:	0.00 ft	Default:	0.00 ft
Exit Loss Coef:	0.70	Op Table:		Op Table:	
Bend Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Location:	0.00 dec	Manning's N:	0.0000	Manning's N:	0.0000
Energy Switch:	Energy				

Comment:

Pipe Link: Cross Drain		Upstream		Downstream	
Scenario:	Scenario1	Invert:	8.50 ft	Invert:	6.92 ft
From Node:	S-4	Manning's N:	0.0130	Manning's N:	0.0130
To Node:	Ditch Outfall	Geometry: Horizontal Ellipse		Geometry: Horizontal Ellipse	
Link Count:	1	Max Depth:	1.17 ft	Max Depth:	1.17 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	72.50 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.50	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: Pipe 1		Upstream		Downstream	
Scenario:	Scenario1	Invert:	9.75 ft	Invert:	8.51 ft
From Node:	S-5	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	S-4	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	1.50 ft	Max Depth:	1.50 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	120.00 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.20	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Channel Link: South Ditch		Upstream		Downstream	
Scenario:	Scenario1	Invert:	4.92 ft	Invert:	2.32 ft
From Node:	Driveway Culvert	Manning's N:	0.0350	Manning's N:	0.0350
To Node:	South Wetland	Geometry: Trapezoidal		Geometry: Trapezoidal	
Link Count:	1	Max Depth:	3.30 ft	Max Depth:	3.30 ft
Flow Direction:	Both	Extrapolation:	Normal	Extrapolation:	Normal
Damping:	0.0000 ft	Bottom Width:	5.00 ft	Bottom Width:	5.00 ft
Length:	439.00 ft	Left Slope:	4.000 (h:v)	Left Slope:	4.000 (h:v)
Contraction Coef:	0.00	Right Slope:	3.000 (h:v)	Right Slope:	3.000 (h:v)
Expansion Coef:	0.00	Bottom Clip			
Entr Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Exit Loss Coef:	1.00	Op Table:		Op Table:	
Bend Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Location:	0.00 dec	Manning's N:	0.0000	Manning's N:	0.0000
Energy Switch:	Energy	Top Clip			
		Default:	0.00 ft	Default:	0.00 ft
		Op Table:		Op Table:	
		Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Channel Link: South Ditch PRE		Upstream		Downstream	
Scenario:	Scenario1	Invert:	4.92 ft	Invert:	2.32 ft
From Node:	Driveway Culvert Pre	Manning's N:	0.0350	Manning's N:	0.0350
		Geometry: Trapezoidal		Geometry: Trapezoidal	
To Node:	Wetland PRE	Max Depth:	3.30 ft	Max Depth:	3.30 ft
Link Count:	1	Extrapolation:	Normal	Extrapolation:	Normal
Flow Direction:	Both	Bottom Width:	5.00 ft	Bottom Width:	5.00 ft
Damping:	0.0000 ft	Left Slope:	4.000 (h:v)	Left Slope:	4.000 (h:v)
Length:	439.00 ft	Right Slope:	3.000 (h:v)	Right Slope:	3.000 (h:v)
Contraction Coef:	0.00	Bottom Clip			
Expansion Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.00	Op Table:		Op Table:	
Exit Loss Coef:	1.00	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec	Top Clip			
Energy Switch:	Energy	Default:	0.00 ft	Default:	0.00 ft
		Op Table:		Op Table:	
		Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Simulation: 002Y001H	
Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:30:06 PM

Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	6.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global

Rainfall Name:	~FDOT-1
Rainfall Amount:	2.30 in
Storm Duration:	1.0000 hr
Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment: 100 yr / 001 hr

Simulation: 002Y002H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:30:07 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	8.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-2
		Rainfall Amount:	2.92 in
		Storm Duration:	2.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 002 hr

Simulation: 002Y004H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:30:09 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	12.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-4
Rainfall Amount: 3.67 in
Storm Duration: 4.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 004 hr

Simulation: 002Y008H

Scenario: Scenario1

Run Date/Time: 11/18/2024 4:30:11 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	16.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global

Link Optimizer Tol: 0.0001 ft

Rainfall Name:	~FDOT-8
Rainfall Amount:	4.28 in
Storm Duration:	8.0000 hr
Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment: 100 yr / 008 hr

Simulation: 002Y024H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:30:14 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	36.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Lookup Tables

Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-24
		Rainfall Amount:	5.42 in
		Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 024 hr

Simulation: 002Y072H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:30:21 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	84.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-72
Rainfall Amount: 6.82 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 072 hr

Simulation: 002Y168H

Scenario: Scenario1

Run Date/Time: 11/18/2024 4:30:44 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	180.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global

Link Optimizer Tol: 0.0001 ft

Rainfall Name:	~FDOT-168
Rainfall Amount:	8.10 in
Storm Duration:	168.0000 hr
Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment: 100 yr / 168 hr

Simulation: 002Y240H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:31:40 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	252.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-240
		Rainfall Amount:	8.99 in
		Storm Duration:	240.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 240 hr

Simulation: 005Y001H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:32:55 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	6.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-1
Rainfall Amount: 2.78 in
Storm Duration: 1.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 001 hr

Simulation: 005Y002H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:32:56 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	8.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain: Global

		Opt:	
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-2
		Rainfall Amount:	3.50 in
		Storm Duration:	2.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 002 hr

Simulation: 005Y004H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:32:58 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	12.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-4
		Rainfall Amount:	4.23 in
		Storm Duration:	4.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 004 hr

Simulation: 005Y008H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:33:02 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	16.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-8
Rainfall Amount: 5.13 in
Storm Duration: 8.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 008 hr

Simulation: 005Y024H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:33:09 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	36.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-24
		Rainfall Amount:	6.87 in
		Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 024 hr

Simulation: 005Y072H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:33:19 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	84.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-72
		Rainfall Amount:	8.61 in
		Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 072 hr

Simulation: 005Y168H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:33:51 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	180.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-168
Rainfall Amount: 10.10 in
Storm Duration: 168.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 168 hr

Simulation: 005Y240H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:35:07 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	252.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-240
		Rainfall Amount:	11.10 in
		Storm Duration:	240.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 240 hr

Simulation: 010Y001H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:36:28 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	6.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-1
		Rainfall Amount:	3.18 in
		Storm Duration:	1.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 001 hr

Simulation: 010Y002H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:36:29 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	8.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-2
Rainfall Amount: 4.00 in
Storm Duration: 2.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 002 hr

Simulation: 010Y004H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:36:31 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	12.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-4
		Rainfall Amount:	5.82 in
		Storm Duration:	4.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 004 hr

Simulation: 010Y008H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:36:35 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	16.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:	
Unit Hydrograph Folder:	

Lookup Tables

Boundary Stage Set:	
Extern Hydrograph Set:	
Curve Number Set:	1
Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR
Max Iterations:	6
Over-Relax Weight Fact:	0.5 dec
dZ Tolerance:	0.0001 ft
Max dZ:	1.0000 ft
Link Optimizer Tol:	0.0001 ft

IA Recovery Time:	24.0000 hr
Ia/S:	0.20 dec
Smp/Man Basin Rain Opt:	Global
Rainfall Name:	~FDOT-8
Rainfall Amount:	5.97 in
Storm Duration:	8.0000 hr
Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment: 100 yr / 008 hr

Simulation: 010Y024H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:36:43 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	36.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000

Max Calculation Time: 60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-24
Rainfall Amount: 8.22 in
Storm Duration: 24.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 024 hr

Simulation: 010Y072H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:36:54 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	84.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-72
		Rainfall Amount:	10.30 in
		Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 072 hr

Simulation: 010Y168H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:37:14 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	180.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-168
		Rainfall Amount:	12.00 in
		Storm Duration:	168.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 168 hr

Simulation: 010Y240H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:37:59 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	252.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000

Max Calculation Time: 60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-240
Rainfall Amount: 13.00 in
Storm Duration: 240.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 240 hr

Simulation: 025Y001H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:39:06 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	6.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-1
		Rainfall Amount:	3.74 in
		Storm Duration:	1.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 001 hr

Simulation: 025Y002H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:39:07 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	8.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-2
		Rainfall Amount:	4.71 in
		Storm Duration:	2.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 002 hr

Simulation: 025Y004H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:39:09 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	12.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-4
Rainfall Amount: 5.82 in
Storm Duration: 4.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 004 hr

Simulation: 025Y008H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:39:12 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	16.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-8
		Rainfall Amount:	7.27 in
		Storm Duration:	8.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 008 hr

Simulation: 025Y024H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:39:16 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	36.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-24
		Rainfall Amount:	10.30 in
		Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 024 hr

Simulation: 025Y072H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:39:27 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	84.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-72
Rainfall Amount: 13.00 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 072 hr

Simulation: 025Y168H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:41:14 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	180.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-168
		Rainfall Amount:	14.90 in
		Storm Duration:	168.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 168 hr

Simulation: 025Y240H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:42:06 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	252.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:	
Unit Hydrograph Folder:	

Lookup Tables

Boundary Stage Set:	
Extern Hydrograph Set:	
Curve Number Set:	1
Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR
Max Iterations:	6
Over-Relax Weight Fact:	0.5 dec
dZ Tolerance:	0.0010 ft
Max dZ:	1.0000 ft
Link Optimizer Tol:	0.0001 ft

IA Recovery Time:	24.0000 hr
Ia/S:	0.20 dec
Smp/Man Basin Rain Opt:	Global
Rainfall Name:	~FDOT-240
Rainfall Amount:	16.10 in
Storm Duration:	240.0000 hr
Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment: 100 yr / 240 hr

Simulation: 050Y001H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:43:23 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	6.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000

Max Calculation Time: 60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-1
Rainfall Amount: 4.18 in
Storm Duration: 1.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 001 hr

Simulation: 050Y002H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:43:25 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	8.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-2
		Rainfall Amount:	5.29 in
		Storm Duration:	2.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 002 hr

Simulation: 050Y004H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:43:27 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	12.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-4
		Rainfall Amount:	6.62 in
		Storm Duration:	4.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 004 hr

Simulation: 050Y008H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:43:32 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	16.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000

Max Calculation Time: 60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-8
Rainfall Amount: 8.38 in
Storm Duration: 8.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 008 hr

Simulation: 050Y024H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:43:38 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	36.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-24
		Rainfall Amount:	12.00 in
		Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 024 hr

Simulation: 050Y072H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:43:50 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	84.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-72
		Rainfall Amount:	15.40 in
		Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 072 hr

Simulation: 050Y168H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:44:19 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	180.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-168
Rainfall Amount: 17.50 in
Storm Duration: 168.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 168 hr

Simulation: 050Y240H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:45:17 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	252.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-240
		Rainfall Amount:	18.70 in
		Storm Duration:	240.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 240 hr

Simulation: 100Y001H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:46:10 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	6.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-1
		Rainfall Amount:	4.63 in
		Storm Duration:	1.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 001 hr

Simulation: 100Y002H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:46:12 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	8.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-2
Rainfall Amount: 5.89 in
Storm Duration: 2.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 002 hr

Simulation: 100Y004H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:46:15 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	12.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-4
		Rainfall Amount:	7.48 in
		Storm Duration:	4.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 004 hr

Simulation: 100Y008H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:46:19 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	16.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:	
Unit Hydrograph Folder:	

Lookup Tables

Boundary Stage Set:	
Extern Hydrograph Set:	
Curve Number Set:	1
Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	1

Tolerances & Options

Time Marching:	SAOR
Max Iterations:	6
Over-Relax Weight Fact:	0.5 dec
dZ Tolerance:	0.0010 ft
Max dZ:	1.0000 ft
Link Optimizer Tol:	0.0001 ft

IA Recovery Time:	24.0000 hr
Ia/S:	0.20 dec
Smp/Man Basin Rain Opt:	Global
Rainfall Name:	~FDOT-8
Rainfall Amount:	9.59 in
Storm Duration:	8.0000 hr
Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment: 100 yr / 008 hr

Simulation: 100Y024H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:46:23 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	36.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000

Max Calculation Time: 60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-24
Rainfall Amount: 13.90 in
Storm Duration: 24.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 024 hr

Simulation: 100Y072H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:46:38 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	84.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec

Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-72
		Rainfall Amount:	17.90 in
		Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 072 hr

Simulation: 100Y168H

Scenario: Scenario1
Run Date/Time: 11/18/2024 4:47:03 PM
Program Version: StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	180.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	1
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	1

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FDOT-168
		Rainfall Amount:	20.30 in
		Storm Duration:	168.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment: 100 yr / 168 hr

Simulation: 100Y240H

Scenario:	Scenario1
Run Date/Time:	11/18/2024 4:48:11 PM
Program Version:	StormWise 4.08.01

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	252.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000

Max Calculation Time: 60.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: 1
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: 1

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FDOT-240
Rainfall Amount: 21.50 in
Storm Duration: 240.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment: 100 yr / 240 hr

NOAA Atlas 14, Volume 9, Version 2
Location name: Panama City Beach, Florida, USA*
Latitude: 30.2769°, Longitude: -85.9929°
Elevation: 8 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

Used in Ditch Hydraulic Worksheet

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	6.42 (5.33-7.76)	7.46 (6.19-9.05)	9.13 (7.55-11.1)	10.5 (8.59-12.8)	12.2 (9.62-15.3)	13.5 (10.4-17.2)	14.8 (10.9-19.3)	16.0 (11.3-21.6)	17.6 (11.9-24.3)	18.7 (12.3-26.5)
10-min	4.70 (3.90-5.69)	5.47 (4.54-6.62)	6.68 (5.53-8.12)	7.66 (6.29-9.35)	8.95 (7.04-11.2)	9.91 (7.61-12.6)	10.8 (8.02-14.2)	11.7 (8.29-15.8)	12.9 (8.71-17.8)	13.7 (9.03-19.4)
15-min	3.82 (3.17-4.62)	4.44 (3.69-5.38)	5.43 (4.49-6.60)	6.23 (5.12-7.60)	7.28 (5.73-9.11)	8.06 (6.19-10.3)	8.80 (6.52-11.5)	9.53 (6.74-12.8)	10.5 (7.08-14.5)	11.1 (7.34-15.8)
30-min	2.87 (2.38-3.47)	3.35 (2.78-4.06)	4.12 (3.41-5.01)	4.74 (3.89-5.79)	5.55 (4.37-6.95)	6.15 (4.73-7.83)	6.73 (4.98-8.80)	7.29 (5.15-9.81)	7.99 (5.42-11.1)	8.50 (5.62-12.0)
60-min	2.01 (1.67-2.43)	2.30 (1.91-2.78)	2.78 (2.30-3.38)	3.18 (2.61-3.89)	3.74 (2.96-4.73)	4.18 (3.23-5.36)	4.63 (3.44-6.09)	5.08 (3.61-6.88)	5.70 (3.87-7.94)	6.16 (4.07-8.74)
2-hr	1.29 (1.08-1.55)	1.46 (1.22-1.76)	1.75 (1.45-2.11)	2.00 (1.65-2.42)	2.36 (1.88-2.97)	2.65 (2.06-3.38)	2.95 (2.21-3.86)	3.26 (2.33-4.40)	3.70 (2.54-5.14)	4.04 (2.69-5.69)
3-hr	0.990 (0.830-1.19)	1.11 (0.927-1.33)	1.32 (1.10-1.58)	1.50 (1.25-1.82)	1.79 (1.44-2.26)	2.02 (1.58-2.59)	2.28 (1.72-2.98)	2.55 (1.83-3.44)	2.93 (2.02-4.07)	3.24 (2.16-4.55)
6-hr	0.598 (0.504-0.711)	0.670 (0.564-0.797)	0.802 (0.673-0.958)	0.927 (0.773-1.11)	1.12 (0.911-1.41)	1.28 (1.02-1.64)	1.47 (1.11-1.92)	1.66 (1.21-2.24)	1.95 (1.35-2.70)	2.18 (1.46-3.04)
12-hr	0.338 (0.286-0.399)	0.388 (0.329-0.459)	0.480 (0.405-0.569)	0.565 (0.474-0.673)	0.696 (0.570-0.874)	0.808 (0.642-1.02)	0.930 (0.711-1.21)	1.06 (0.776-1.42)	1.25 (0.877-1.72)	1.41 (0.953-1.95)
24-hr	0.193 (0.164-0.226)	0.226 (0.192-0.265)	0.286 (0.243-0.337)	0.342 (0.288-0.404)	0.428 (0.352-0.534)	0.501 (0.400-0.631)	0.580 (0.446-0.750)	0.666 (0.489-0.886)	0.790 (0.556-1.08)	0.891 (0.606-1.23)
2-day	0.112 (0.096-0.130)	0.131 (0.112-0.153)	0.166 (0.142-0.194)	0.200 (0.169-0.235)	0.252 (0.209-0.313)	0.296 (0.239-0.372)	0.345 (0.267-0.444)	0.399 (0.295-0.528)	0.477 (0.338-0.648)	0.540 (0.370-0.739)
3-day	0.081 (0.070-0.094)	0.094 (0.081-0.109)	0.119 (0.102-0.139)	0.143 (0.122-0.167)	0.180 (0.150-0.224)	0.213 (0.172-0.267)	0.249 (0.194-0.319)	0.288 (0.214-0.380)	0.346 (0.246-0.469)	0.393 (0.270-0.536)
4-day	0.064 (0.056-0.074)	0.074 (0.064-0.086)	0.094 (0.080-0.109)	0.112 (0.096-0.131)	0.141 (0.118-0.175)	0.167 (0.135-0.209)	0.195 (0.152-0.250)	0.226 (0.169-0.298)	0.272 (0.194-0.368)	0.309 (0.213-0.420)
7-day	0.041 (0.036-0.048)	0.048 (0.041-0.055)	0.059 (0.051-0.069)	0.071 (0.061-0.082)	0.088 (0.074-0.109)	0.104 (0.084-0.129)	0.120 (0.094-0.153)	0.139 (0.104-0.182)	0.166 (0.119-0.223)	0.188 (0.130-0.254)
10-day	0.032 (0.028-0.037)	0.037 (0.032-0.042)	0.046 (0.039-0.053)	0.054 (0.046-0.062)	0.066 (0.056-0.081)	0.077 (0.063-0.095)	0.089 (0.070-0.113)	0.102 (0.077-0.133)	0.121 (0.087-0.162)	0.136 (0.095-0.184)
20-day	0.021 (0.019-0.024)	0.024 (0.021-0.028)	0.029 (0.026-0.034)	0.034 (0.029-0.039)	0.040 (0.034-0.049)	0.046 (0.038-0.056)	0.052 (0.041-0.065)	0.058 (0.044-0.075)	0.067 (0.048-0.089)	0.074 (0.052-0.099)
30-day	0.017 (0.015-0.020)	0.020 (0.017-0.022)	0.023 (0.020-0.027)	0.027 (0.023-0.031)	0.031 (0.026-0.037)	0.035 (0.029-0.042)	0.039 (0.031-0.048)	0.043 (0.032-0.055)	0.048 (0.035-0.064)	0.053 (0.037-0.070)
45-day	0.014 (0.012-0.016)	0.016 (0.014-0.018)	0.019 (0.017-0.022)	0.021 (0.019-0.024)	0.025 (0.021-0.029)	0.027 (0.022-0.033)	0.030 (0.023-0.036)	0.032 (0.024-0.041)	0.036 (0.026-0.046)	0.038 (0.027-0.050)
60-day	0.012 (0.011-0.014)	0.014 (0.012-0.016)	0.016 (0.014-0.019)	0.018 (0.016-0.021)	0.021 (0.018-0.025)	0.023 (0.019-0.027)	0.025 (0.020-0.030)	0.027 (0.020-0.033)	0.029 (0.021-0.037)	0.030 (0.021-0.040)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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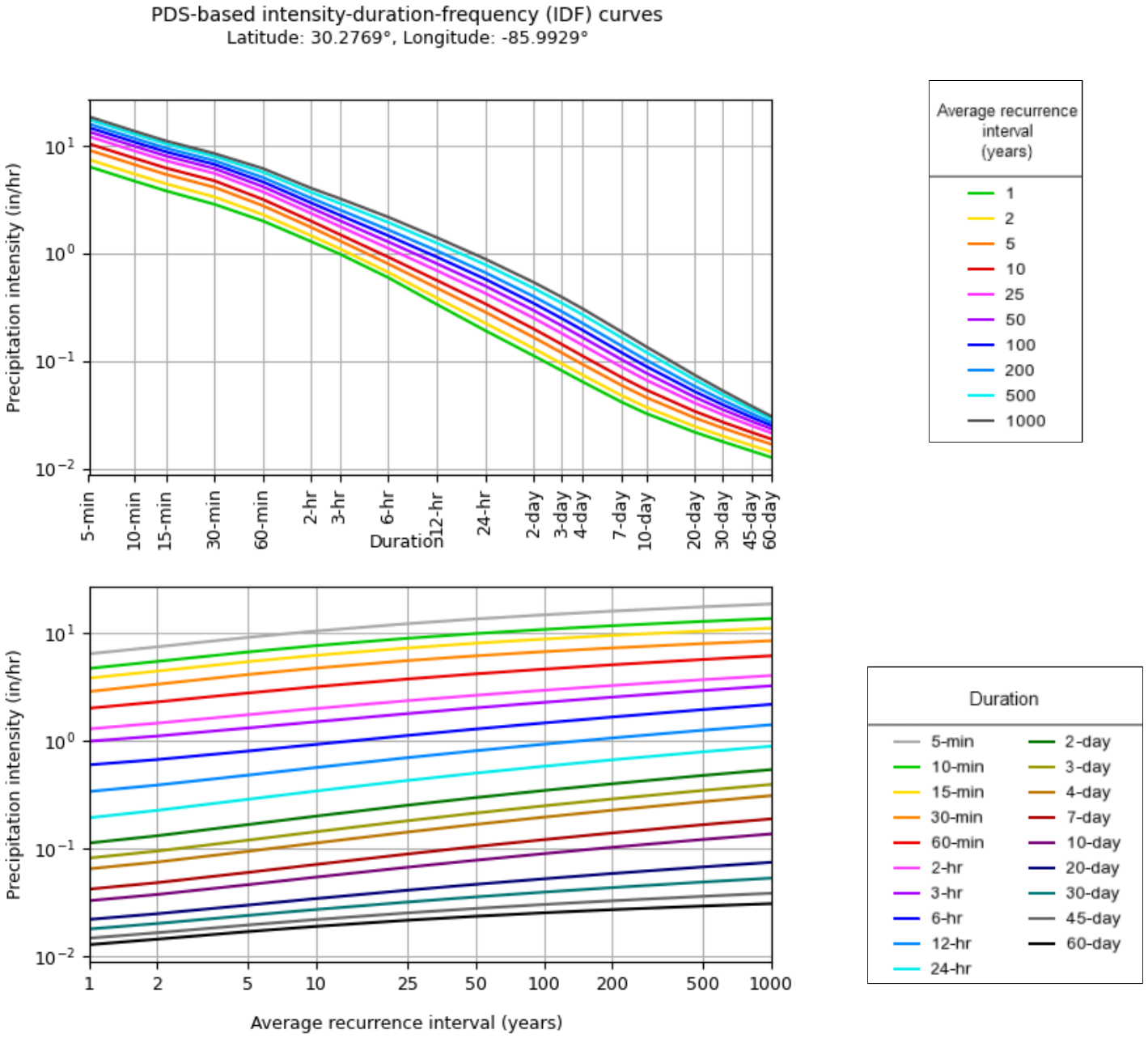
PF graphical

Approved
2024-D-391-00036
Lisa Ward
1/16/2025



NOAA Atlas 14, Volume 9, Version 2

Created (GMT): Tue Aug 6 14:44:19 2024

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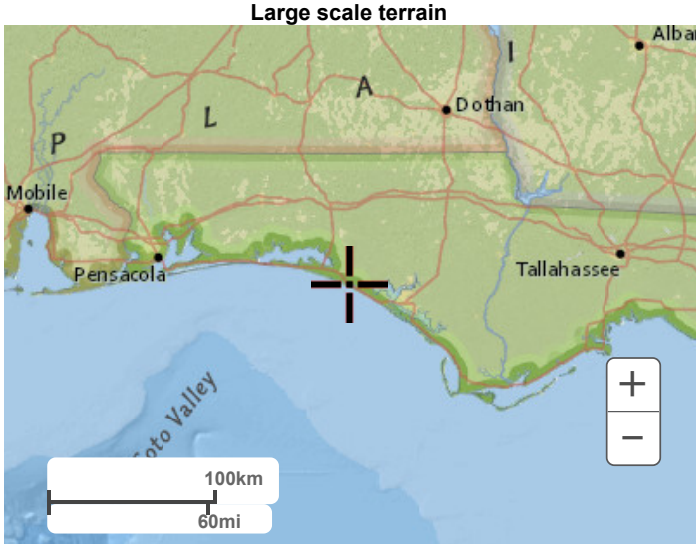
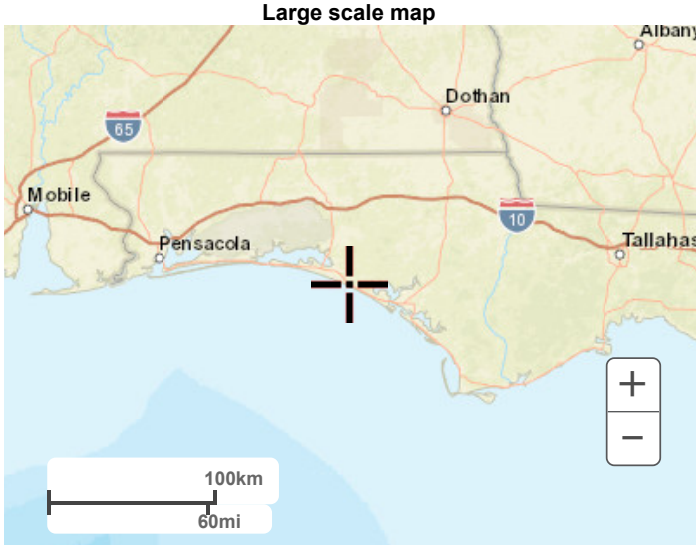
Maps & aerials

Small scale terrain

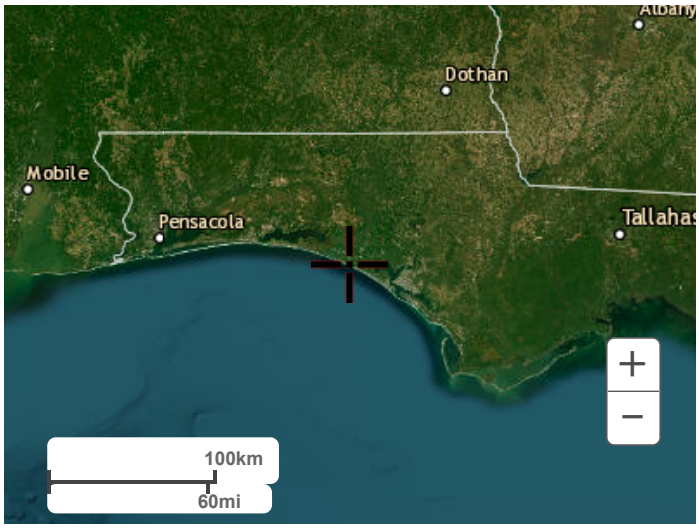
Large scale terrain



Large scale map



Large scale aerial



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National Weather Service
National Water Center
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Silver Spring, MD 20910
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NOAA Atlas 14, Volume 9, Version 2
Location name: Panama City Beach, Florida, USA*
Latitude: 30.2753°, Longitude: -85.9905°
Elevation: 12 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

For StormWise Inputs

PF_tabular | PF_graphical | Maps_&_aerials

3.67'

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.535** (0.444-0.647)	**0.622** (0.516-0.754)	**0.761** (0.629-0.925)	**0.872** (0.716-1.06)	**1.02** (0.802-1.28)	**1.13** (0.867-1.44)	**1.23** (0.912-1.61)	**1.33** (0.944-1.80)	**1.46** (0.992-2.03)	**1.56** (1.03-2.21)
10-min	**0.783** (0.650-0.948)	**0.911** (0.756-1.10)	**1.11** (0.921-1.35)	**1.28** (1.05-1.56)	**1.49** (1.17-1.87)	**1.65** (1.27-2.10)	**1.80** (1.34-2.36)	**1.95** (1.38-2.63)	**2.14** (1.45-2.97)	**2.28** (1.50-3.23)
15-min	**0.955** (0.793-1.16)	**1.11** (0.922-1.35)	**1.36** (1.12-1.65)	**1.56** (1.28-1.90)	**1.82** (1.43-2.28)	**2.01** (1.55-2.56)	**2.20** (1.63-2.88)	**2.38** (1.68-3.21)	**2.61** (1.77-3.62)	**2.78** (1.84-3.94)
30-min	**1.43** (1.19-1.74)	**1.68** (1.39-2.03)	**2.06** (1.70-2.51)	**2.37** (1.95-2.89)	**2.78** (2.18-3.48)	**3.08** (2.36-3.92)	**3.36** (2.49-4.40)	**3.64** (2.58-4.90)	**4.00** (2.71-5.54)	**4.25**
60-min	**2.01** (1.67-2.43)	**2.30** (1.91-2.78)	**2.78** (2.30-3.38)	**3.18** (2.61-3.89)	**3.74** (2.96-4.73)	**4.18** (3.23-5.36)	**4.63** (3.44-6.09)	**5.08** (3.61-6.88)	**5.70** (3.87-7.94)	(4.07-8.74)
2-hr	**2.58** (2.16-3.10)	**2.92** (2.44-3.51)	**3.50** (2.91-4.22)	**4.00** (3.30-4.84)	**4.71** (3.77-5.94)	**5.29** (4.12-6.76)	**5.89** (4.42-7.73)	**6.52** (4.67-8.80)	**7.39** (5.07-10.3)	**8.08** (5.37-11.4)
3-hr	**2.98** (2.49-3.56)	**3.33** (2.79-3.99)	**3.95** (3.30-4.75)	**4.52** (3.75-5.46)	**5.37** (4.32-6.77)	**6.08** (4.76-7.77)	**6.83** (5.15-8.96)	**7.65** (5.51-10.3)	**8.81** (6.07-12.2)	**9.74** (6.50-13.7)
6-hr	**3.58** (3.02-4.26)	**4.01** (3.38-4.78)	**4.81** (4.04-5.74)	**5.55** (4.63-6.66)	**6.71** (5.46-8.46)	**7.70** (6.08-9.82)	**8.78** (6.67-11.5)	**9.96** (7.23-13.4)	**11.7** (8.11-16.1)	(8.7
12-hr	**4.08** (3.46-4.81)	**4.68** (3.96-5.53)	**5.78** (4.88-6.86)	**6.81** (5.72-8.11)	**8.40** (6.87-10.5)	**9.74** (7.74-12.4)	**11.2** (8.57-14.6)	**12.8** (9.36-17.1)	**15.1** (10.6-20.8)	**17.0** (11.5-23.5)
24-hr	**4.63** (3.95-5.43)	**5.42** (4.62-6.37)	**6.87** (5.84-8.09)	**8.22** (6.93-9.72)	**10.3** (8.46-12.8)	**12.0** (9.61-15.2)	**13.9** (10.7-18.0)	**16.0** (11.8-21.3)	**19.0** (13.4-25.9)	**21.4** (14.6-29.4)
2-day	**5.40** (4.64-6.29)	**6.31** (5.41-7.35)	**8.00** (6.84-9.36)	**9.61** (8.16-11.3)	**12.1** (10.0-15.0)	**14.2** (11.5-17.9)	**16.6** (12.9-21.4)	**19.2** (14.2-25.4)	**22.9** (16.2-31.1)	**26.0** (17.8-35.5)
3-day	**5.87** (5.06-6.81)	**6.82** (5.87-7.92)	**8.61** (7.38-10.0)	**10.3** (8.80-12.1)	**13.0** (10.9-16.1)	**15.4** (12.4-19.2)	**17.9** (14.0-23.0)	**20.8** (15.5-27.4)	**24.9** (17.8-33.8)	**28.3** (19.5-38.6)
4-day	**6.22** (5.38-7.20)	**7.19** (6.21-8.32)	**9.04** (7.77-10.5)	**10.8** (9.24-12.6)	**13.6** (11.4-16.9)	**16.1** (13.0-20.1)	**18.8** (14.7-24.0)	**21.8** (16.2-28.7)	**26.1** (18.7-35.3)	**29.7** (20.5-40.4)
7-day	**7.05** (6.12-8.10)	**8.10** (7.02-9.32)	**10.1** (8.70-11.6)	**12.0** (10.3-13.9)	**14.9** (12.5-18.3)	**17.5** (14.3-21.7)	**20.3** (15.9-25.8)	**23.4** (17.6-30.6)	**28.0** (20.1-37.6)	**31.7** (22.0-42.8)
10-day	**7.86** (6.85-9.00)	**8.99** (7.82-10.3)	**11.1** (9.60-12.7)	**13.0** (11.2-15.0)	**16.1** (13.5-19.6)	**18.7** (15.3-23.0)	**21.5** (16.9-27.2)	**24.6** (18.5-32.0)	**29.1** (21.0-38.9)	**32.8** (22.8-44.2)
20-day	**10.5** (9.24-12.0)	**11.9** (10.4-13.6)	**14.3** (12.5-16.3)	**16.5** (14.3-18.9)	**19.7** (16.6-23.6)	**22.3** (18.3-27.1)	**25.1** (19.8-31.3)	**28.1** (21.2-36.1)	**32.4** (23.4-42.8)	**35.8** (25.1-47.9)
30-day	**12.9** (11.3-14.6)	**14.5** (12.7-16.4)	**17.2** (15.1-19.6)	**19.6** (17.0-22.4)	**22.9** (19.3-27.2)	**25.6** (21.0-30.8)	**28.4** (22.4-35.0)	**31.3** (23.6-39.8)	**35.2** (25.5-46.2)	**38.3** (26.9-51.0)
45-day	**15.9** (14.0-17.9)	**17.9** (15.7-20.1)	**21.0** (18.5-23.8)	**23.7** (20.7-26.9)	**27.2** (22.9-31.9)	**30.0** (24.6-35.7)	**32.7** (25.8-39.9)	**35.4** (26.8-44.6)	**38.9** (28.2-50.6)	**41.5** (29.3-55.1)
60-day	**18.4** (16.3-20.7)	**20.7** (18.3-23.3)	**24.4** (21.5-27.5)	**27.3** (23.9-30.9)	**31.1** (26.1-36.1)	**33.8** (27.8-40.0)	**36.4** (28.9-44.3)	**39.0** (29.5-48.8)	**42.1** (30.6-54.4)	**44.3** (31.4-58.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

4-hr =5.82

8-hr =7.27

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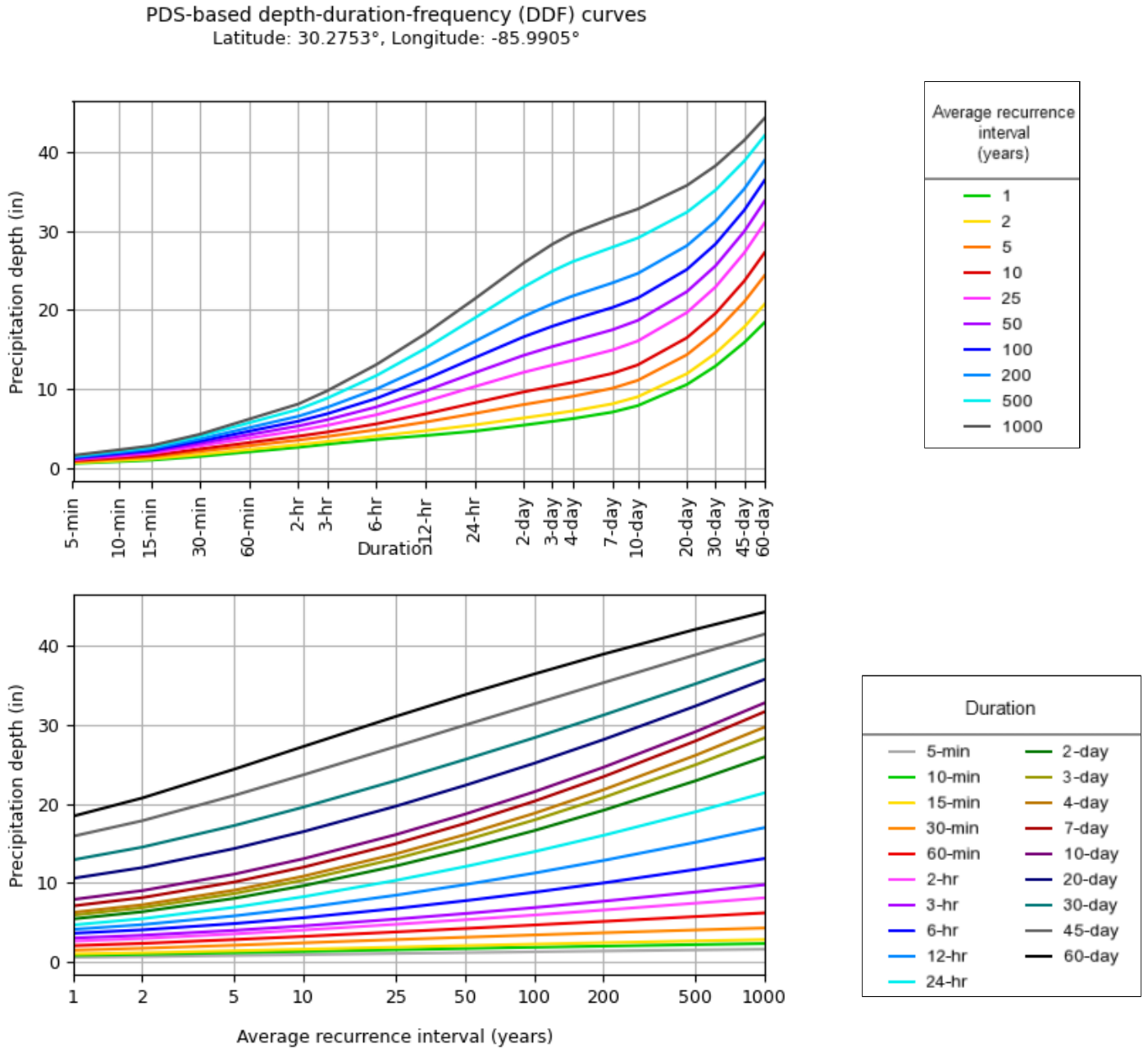
PF graphical

Approved
2024-D-391-00036
Lisa Ward
1/16/2025



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Created (GMT): Sun Feb 18 14:03:27 2024

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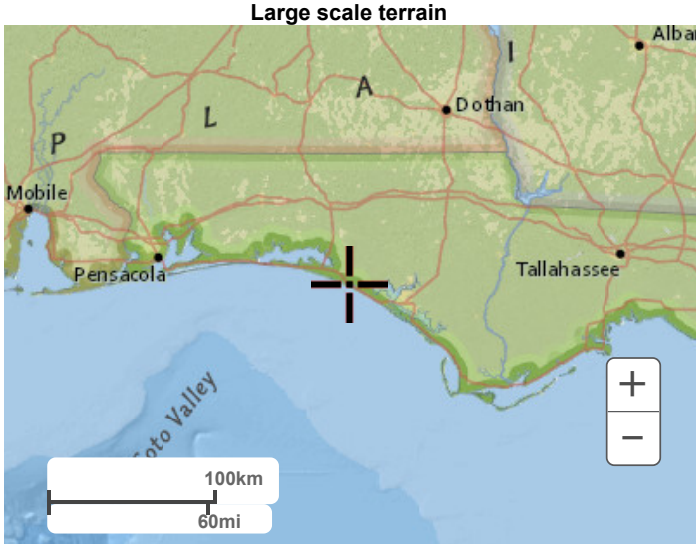
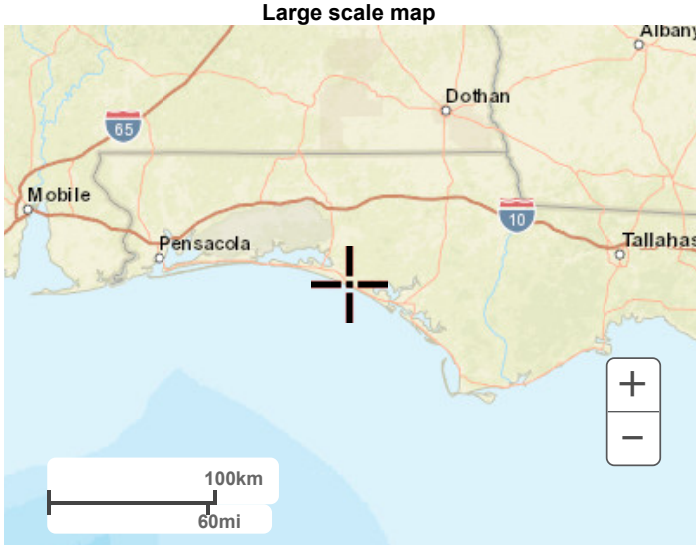
Maps & aerials

Small scale terrain

Large scale terrain



Large scale map



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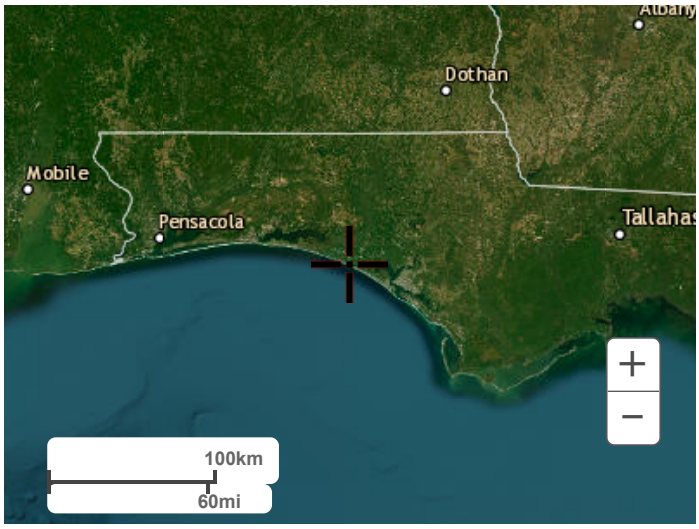

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