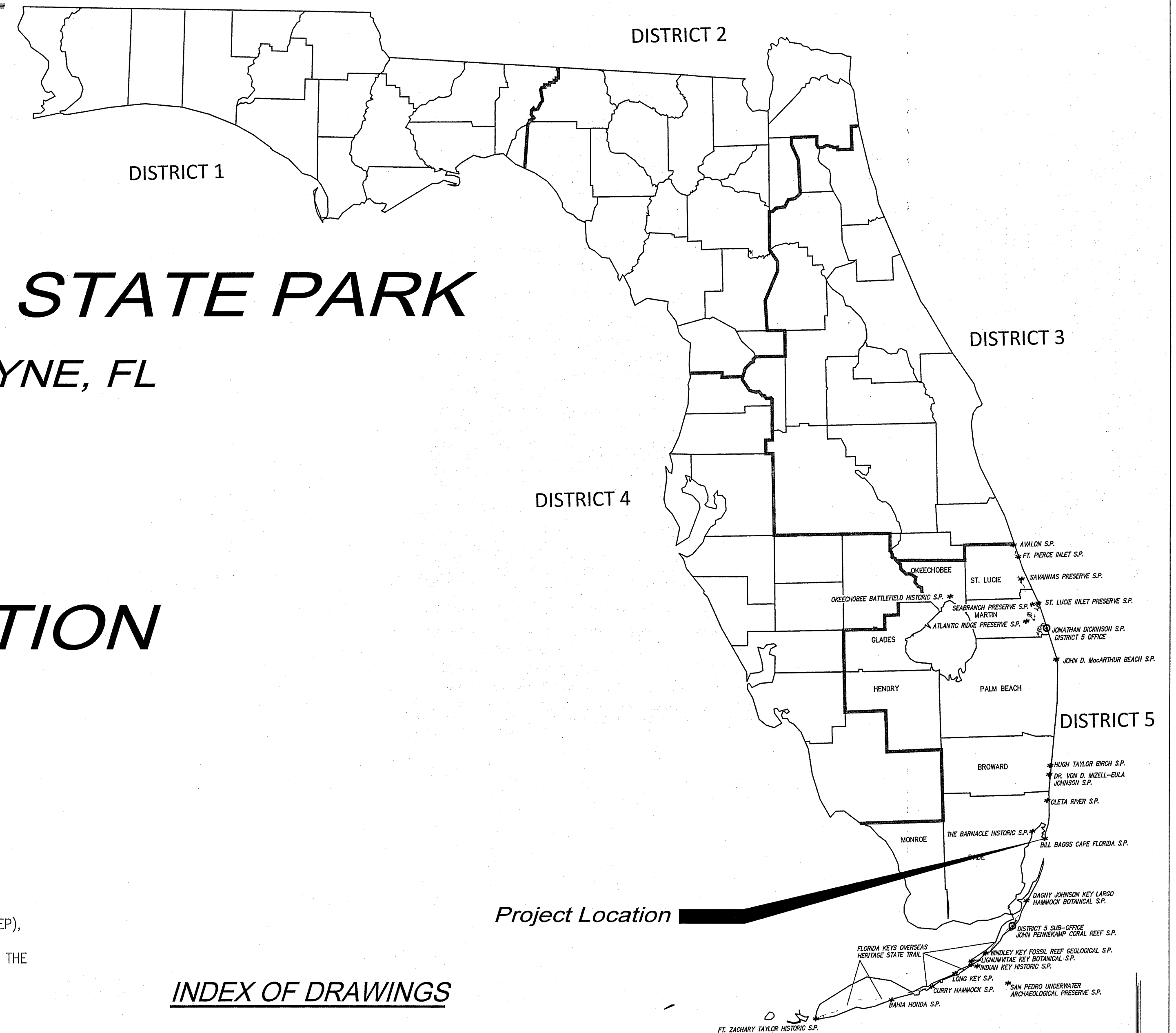


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*PROJECT # 61346C*

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| NO | DATE | REVISION | BY | NO | DATE | REVISION | BY |  |  |



**100% DESIGN - BID PACKAGE**

## *Division of Recreation and Parks*

*Bureau of Design and Construction*

STRUCTURAL DESIGN BASED ON A SITE VISIT ON 10.21.22 AND THE FOLLOWING PRIOR REPORTS AND PLANS PROVIDED TO US:  
1. LIGHTHOUSE RENOVATION AND REPAIR PHASE 3 DRAWINGS DATED 03.08.15.  
2. BILL BAGGS CAPE FLORIDA STATE PARK LIGHTHOUSE RENOVATION AND REPAIR PHASE ONE DRAWINGS DATED 12.14.15  
3. BILL BAGGS CAPE FLORIDA STATE PARK LIGHTHOUSE STRUCTURAL INSPECTION REPORT DATED 03.10.16.

ENGINEER OF RECORD ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL INTEGRITY OF THE EXISTING STRUCTURE.  
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SIZE, LOCATION AND LOAD BEARING CAPACITY OF THE EXISTING STRUCTURAL COMPONENTS PRIOR TO PLACING NEW LOADS AND NOTIFY EOR OF VARYING CONDITIONS, WE HAVE ASSUMED IN THIS PLAN.  
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ADEQUATE SUPPORT FOR AND PROTECTION OF THE EXISTING STRUCTURE DURING ALL PHASES OF CONSTRUCTION.

DESIGN SPECIFICATIONS:

BASIC WIND SPEED:  $V_{ult} = 175$  MPH  $V_{obs} = V_{ult} * (0.6)^{1/2}$

RISK CATEGORY: II

WIND EXPOSURE: D

INTERNAL PRESSURE COEFFICIENT:  $\pm 0.18$  ENCLOSED BUILDING

THIS BUILDING IS NOT LOCATED IN THE WIND-BORNE DEBRIS REGION. IMPACT RESISTANT GLAZING IS NOT REQUIRED

ASSUMED DESIGN LIVE LOADS:

STAIRS/LANDING:..... 100 PSF

ASSUMED DESIGN DEAD LOADS:

STAIRS/LANDING:..... 30 PSF  
CENTER COLUMN:..... 500 PCF

GENERAL NOTES:

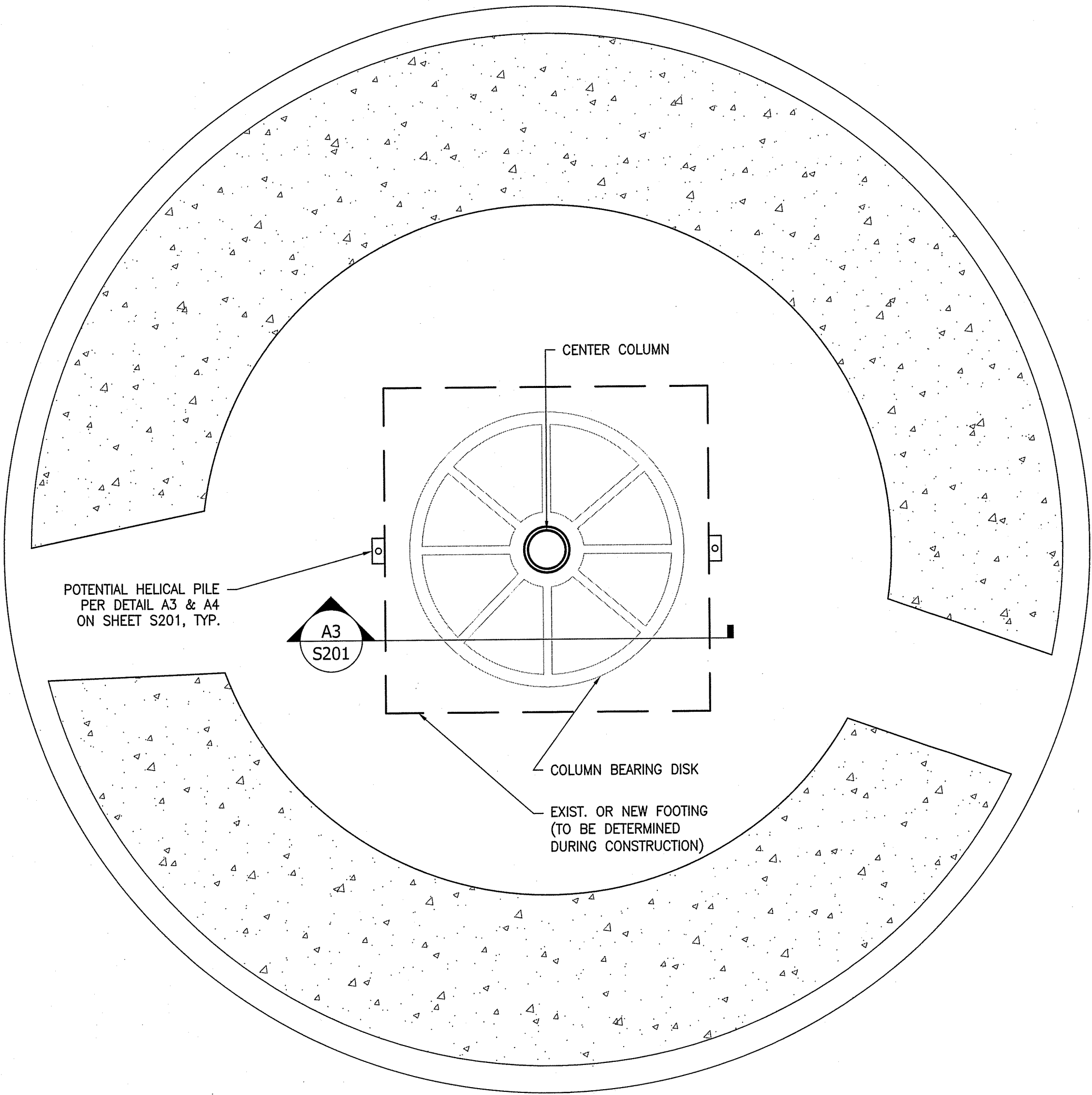
- CODES USED: 2020 FLORIDA BUILDING CODE, ACI, NDS, APA AND ASCE-7-16. ALL LATEST EDITIONS USED.
- ALL DESIGN, CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION OVER THE WORK.
- CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS AT THE JOB SITE PRIOR TO COMMENCING CONSTRUCTION.
- DETAILS FOUND WITHIN THESE DRAWINGS SHALL BE ASSUMED TO BE TYPICAL DETAILS FOR THIS JOB UNLESS OTHERWISE NOTED ON THE PLANS.

CONCRETE:

- CONCRETE SHALL BE IN ACCORDANCE WITH FBC & ACI.
- CAST-IN-PLACE CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF:  
FOOTINGS.....5,000 PSI
- NO WATER SHALL BE ADDED TO THE CONCRETE, AFTER THE TRUCK HAS LEFT THE BATCH PLANT WITHOUT AUTHORIZATION FROM THE ENGINEER-OF-RECORD (EOR), UNLESS THE DELIVERY TICKET INDICATES AN AMOUNT OF WATER THAT IS ALLOWED TO BE ADDED AT THE JOB SITE, AFTER AUTHORIZATION BY THE TESTING LAB REPRESENTATIVE.
- CONCRETE MIX DESIGN SHALL BE SUBMITTED TO THE STRUCTURAL EOR FOR REVIEW & APPROVAL. SUBMITTALS SHALL INCLUDE CERTIFICATES FROM AGGREGATES, ADDITIVES AND CEMENTITIOUS MATERIALS.
- CONCRETE ADMIXTURES SHALL NOT CONTAIN ANY CALCIUM-CHLORIDE.
- CONCRETE SHALL BE NORMAL WEIGHT ( $\pm 145$ ) CONCRETE WITH A MINIMUM OF 2% AIR ENTRAINMENT.
- FLY ASH (ASTM C618) OR SLAG CEMENT (ASTM C989) MAY BE SUBSTITUTED FOR UP TO 40% OF THE PORTLAND CEMENT (ASTM C150; TYPE I/II). FLY ASH SHALL NOT EXCEED 25% OF CEMENTITIOUS MATERIALS.
- MAXIMUM WATER TO CEMENT (W/C) RATIO SHALL BE 0.40 ( $\pm 0.03$ ).
- CONTRACTOR SHALL ENGAGE A QUALIFIED TESTING & INSPECTING AGENCY, ACCEPTABLE TO THE OWNER, TO PERFORM FIELD TEST, INSPECTIONS AND PREPARE TEST/INSPECTION REPORTS.
- TESTING AGENCY SHALL OBTAIN THE FOLLOWING PER ASTM C172:
  - SLUMP, PER ASTM C143, FOR EACH TRUCK LOAD.
  - AIR CONTENT, PER ASTM C213, FOR THE FIRST AND EACH FIFTH TRUCK AFTER THAT.
  - TEMPERATURE, PER ASTM C1064, FOR EACH TRUCK.
  - STRENGTH, PER ASTM C31, FOR EACH MIX DESIGN THAT DAY & FOR EVERY 50 CYD OF CONCRETE PLACED EACH DAY.

STEEL REINFORCEMENT:

- STEEL REINFORCEMENT SHALL BE IN ACCORDANCE WITH FBC, ACI 318 AND AS NOTED IN THESE PLANS.
- STEEL REINFORCEMENT SHALL BE ASTM A615, GRADE 60
- CONCRETE COVER SHALL BE IN ACCORDANCE WITH FBC AND AS FOLLOWS:
  - 3" FOR CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH
  - 2" FOR CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
  - 1-1/2" FOR CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
- VERTICAL AND HORIZONTAL REINFORCEMENT WILL BE LAPPED FOR 36 BAR DIAMETERS OR 24", WHICHEVER IS GREATER. CORNER REINFORCEMENT SHALL BE LAPPED 30".
- ALL REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE TYPICAL BENDING DIAGRAMS AND PLACING DETAILS OF ACI STANDARDS.
- ALL REINFORCING STEEL SHALL BE HELD SECURELY IN POSITION WITH STANDARD ACCESSORIES DURING PLACING OF CONCRETE.
- CONTRACTOR SHALL INSTALL PRODUCT THAT PREVENTS CATHODIC REACTION ONLY.



1 FOUNDATION PLAN  
SCALE: 1/2"=1'-0"



NOTE: THE ABOVE REFERENCED SCHEMATIC IS WHAT WAS PROVIDED AS AN EXISTING FOUNDATION PLAN.

FOUNDATION NOTES:

- ALLOWABLE SOIL BEARING CAPACITY = 3,000 PSF PER GEOTECHNICAL REPORT PREPARED BY NUTTING ENGINEERS OF FLORIDA, INC. DATED OCTOBER 5, 2022
- SOIL COMPACTION AND FILL SHALL BE IN ACCORDANCE WITH FBC 1804.6
- DOCUMENTS PROVIDED DO NOT INDICATE AN EXISTING FOUNDATION SUPPORTING CENTER COLUMN EXISTS.
- AT THIS TIME IT IS UNKNOWN IF THERE IS AN EXISTING SHALLOW FOUNDATION PRESENT AT CENTER SUPPORT COLUMN.
- CONTRACTOR TO INVESTIGATE SUBSURFACE CONDITIONS BELOW CENTER COLUMN WITHOUT UNDERMINING EXISTING FOUNDATION IF PRESENT.
- CONTRACTOR SHALL DOCUMENT EXISTING BRICK LAYOUT ON GROUND FLOOR BEFORE REMOVING AND EXPOSING SUBSURFACE CONDITIONS FOR PROPER REPLACEMENT.
- IF NO FOUNDATION IS PRESENT (SEE DETAIL A2/S201), CONTRACTOR SHALL INSTALL SHALLOW FOOTING SUPPORT PER DETAIL A1/S201 OR HELICAL PIERS PER DETAILS A3 & A4 ON SHEET S201. IF FOUNDATION IS PRESENT SEE REPAIR DETAIL A1/S201.
- SEE CONCEPTUAL SHORING PLAN PRIOR TO INSTALLING FOUNDATION ON SHEET S102.

PROJECT INFORMATION:

IN 2016, A STRUCTURAL REPORT WAS WRITTEN BY JENNA JAKES, PE OF BAKER KLEIN ENGINEERING. THIS REPORT STATES THE FOLLOWING OBSERVATIONS:

- MINIMAL STRUCTURAL DETERIORATION OR DAMAGE WAS OBSERVED.
- CONNECTIONS FOR THE HANDRAILS ON THE STAIR CASE DO NOT APPEAR TO HAVE BEEN ERECTED IN A SNUG TIGHT CONDITION. THIS HAS CAUSED DISCONTINUITIES ALONG THE HAND RAIL, AS WELL AS WARPING OF THE RAILING MEMBERS. THIS CAN CAUSE SLIGHT MOVEMENT OF THE HAND RAILS WHEN SUBJECTED TO LOADING.
- THERE WAS NOTICEABLE MOVEMENT OF THE STAIR CASE STRUCTURE WHILE WALKING UP AND DOWN.
- MINOR CORROSION WAS OBSERVED IN VARIOUS LOCATIONS OF THE STAIR CASE, OBSERVATION ROOM, AND OBSERVATION DECK.

THE REPORT STATES THE FOLLOWING RECOMMENDATIONS:

- STABILIZE THE UNSTEADY BEARING OF THE STAIRCASE BY FILLING THE AREA SURROUNDING THE BEARING WITH NON-SHRINK GROUT.
- ADDRESS MINOR CORROSION WITHIN 2 YEARS INCLUDING REMOVING ALL DEBRIS AND PAINT AND APPLYING A POLYURETHANE COATING SYSTEM TO ALL EXPOSED SURFACES OF THE STRUCTURAL MEMBERS.
- ENFORCE THE FOLLOWING CAPACITY LIMITATIONS:
  - NO MORE THAN ONE (1) PERSON ON EACH STAIR AT ANY GIVEN TIME.
  - NO MORE THAN TEN (10) PEOPLE IN THE OBSERVATION ROOM AT ANY GIVEN TIME.
  - NO MORE THAN EIGHT (8) PEOPLE ON THE OBSERVATION DECK AT ANY GIVEN TIME.
  - NO MORE THAN TWENTY (20) PEOPLE TOTAL IN THE LIGHT HOUSE STRUCTURE AT ANY GIVEN TIME.

PROJECT RECOMMENDATIONS:

BASED ON THIS DATA AND OUR RECENT SITE VISIT ON 10.21.22, WE UNDERSTAND THE CENTER SUPPORT OF THE STAIRS STILL DEFLECTS/MOVES. ADDITIONALLY, WE UNDERSTAND A COLUMN BEARING DISK (SEE DETAILS) MAY SIT ON A SHALLOW FOUNDATION. THIS BEARING PAD NEEDS TO BE STABILIZED. ALSO, IT IS NOT VERIFIED IF A SHALLOW FOUNDATION EXISTS. NO STRUCTURAL FOUNDATION PLANS WITH REINFORCEMENT WERE AVAILABLE.

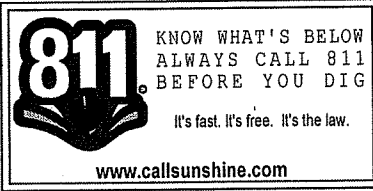
WE RECOMMEND THE CONTRACTOR PERFORM THE FOLLOWING TASKS:

- DOCUMENT EXISTING BRICK LAYOUT ON GROUND FLOOR BEFORE REMOVING AND EXPOSING SUBSURFACE CONDITIONS.
- INVESTIGATE SUBSURFACE CONDITIONS BELOW CENTER COLUMN WITHOUT UNDERMINING EXISTING FOUNDATION IF PRESENT, OR BEARING PAD.

WE HAVE PROVIDED (3) OPTIONS FOR REPAIR BASED ON EXISTING CONDITIONS THAT MAY BE PRESENT. SEE SHEET S201 FOR DETAILS. COORDINATE W/ EOR FOR SELECTION OF BEARING PAD STABILIZATION IMPROVEMENTS.

| DATE                                                                        | REVISION                  | SYMBOL                     | DATE          | REVISION      | SYMBOL           |
|-----------------------------------------------------------------------------|---------------------------|----------------------------|---------------|---------------|------------------|
|                                                                             |                           |                            |               |               |                  |
| ISSUE DATE: 12/05/2022                                                      | COMP. FILE No.: N/A       | STATE PROJECT No.: 61,346C | DESIGNER: TGB | DRAWN BY: CAC | REVIEWED BY: JDM |
| CONSULTANT:                                                                 |                           |                            |               |               |                  |
| PROFESSIONAL REGISTRATION<br>TAMARA G. BAKER, P.E.<br>LICENSE NUMBER: 60000 |                           |                            |               |               |                  |
| SHEET TITLE<br>FDEP BILL BAGGS CAPE FLORIDA STATE PARK                      | FOUNDATION PLAN AND NOTES |                            |               |               |                  |
| PROJECT TITLE<br>LIGHTHOUSE REJUVENATION                                    | S101                      |                            |               |               |                  |

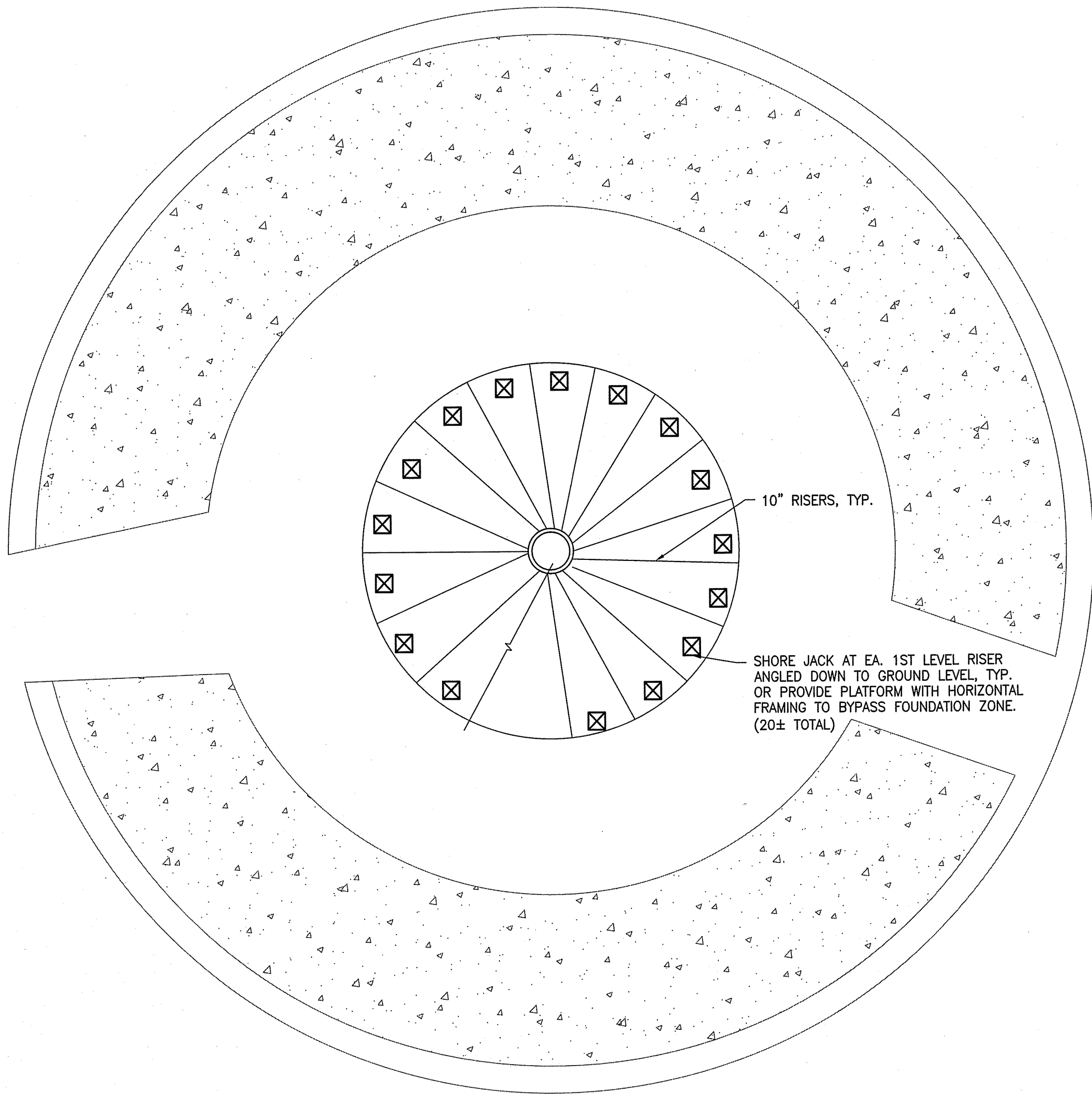
Department of Environmental Protection  
Office of Operations  
Bureau of Design and Construction  
3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 425-2300



FOR CONSTRUCTION  
ELEVATIONS ARE IN NAVD 1988

STRUCTURAL DESIGN BASED ON A SITE VISIT ON 10.21.22 AND THE FOLLOWING PRIOR REPORTS AND PLANS PROVIDED TO US:  
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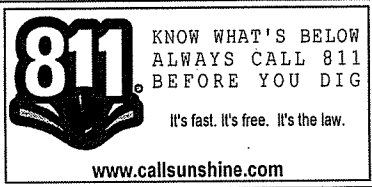
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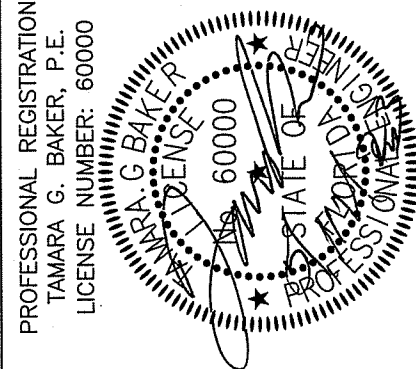
1 CONCEPTUAL SHORING  
PLAN 1'-0"

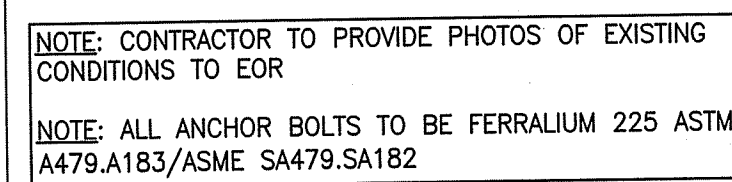
SHORING NOTES:  
1. CONTRACTOR TO PROVIDE SIGNED AND SEALED SHORING DESIGN BY LICENSED STRUCTURAL ENGINEER IN FLORIDA. CONTACT KOOGLE ENGINEERING, INC. AT 407-236-9767 OR APPROVED EQUAL.

FOR CONSTRUCTION  
ELEVATIONS ARE IN NAVD 1988

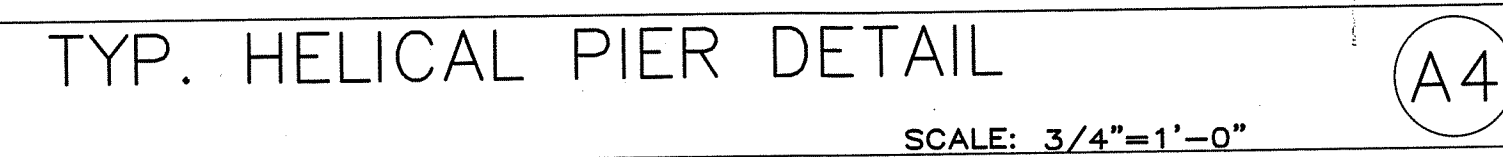
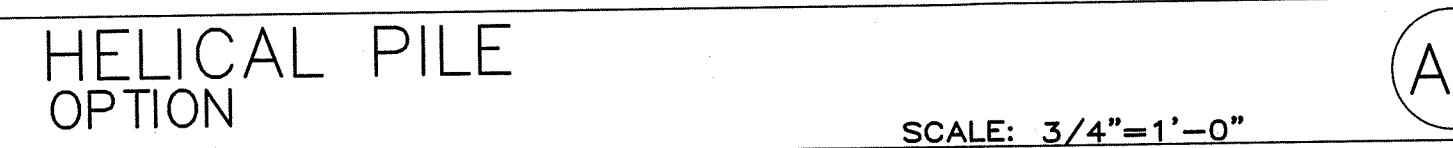
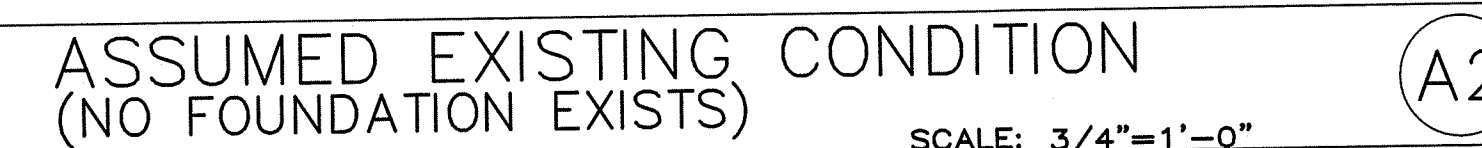


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|-----------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------|-----|
| FDEP BILL BAGGS CAPE FLORIDA STATE PARK |     | SHEET NO.                                                                                                                                                            |            | S102                    |     |
| CONCEPTUAL SHORING PLAN                 |     | PROJECT TITLE                                                                                                                                                        |            | LIGHTHOUSE REJUVENATION |     |
| DESIGNER :                              | TGB | ISSUE DATE:                                                                                                                                                          | 12/05/2022 | SYMBOL                  | (A) |
| DRAWN BY:                               | CAC | COMP. FILE No.:                                                                                                                                                      | N/A        | SYMBOL                  | (C) |
| REVIEWED BY:                            | JDM | STATE PROJECT No.:                                                                                                                                                   | 61346C     | SYMBOL                  | (D) |
| Consultant :                            |     | Department of Environmental Protection<br>Office of Operations<br>Bureau of Design and Construction<br>3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 425-2300 |            |                         |     |





GROUT OVER BEARING PLATE OPTION  
WITH ASSUMED EXISTING FOUNDATION



|   |                                                |                |                                                                                       |                                                                                                                              |                                                                                                                                                                                                  |                                                                            |                   |                     |      |          |      |
|---|------------------------------------------------|----------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------|---------------------|------|----------|------|
| 4 | <b>FDEP BILL BAGGS CAPE FLORIDA STATE PARK</b> | <b>DETAILS</b> |  | <b>PROFESSIONAL REGISTRATION</b><br>TAMARA G. BAKER, P.E.<br>LICENSE NO. 60000<br>STATE OF FLORIDA<br>MECHANICAL ENGINEERING | DESIGNER : TGB<br>DRAWN BY: CAC<br>REVIEWED BY: JDM                                                                                                                                              | ISSUE DATE: 12/05/2022<br>COMP. FILE No.: N/A<br>STATE PROJECT No.: 61346C | SYMBOL<br>(A) (B) | REVISION<br>(C) (D) | DATE | REVISION | DATE |
|   | <b>SHEET TITLE</b>                             |                | <b>PROJECT TITLE</b>                                                                  |                                                                                                                              | <b>Department of Environmental Protection</b><br><b>Office of Operations</b><br><b>Bureau of Design and Construction</b><br><b>3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 425-2300</b> |                                                                            |                   |                     |      |          |      |

