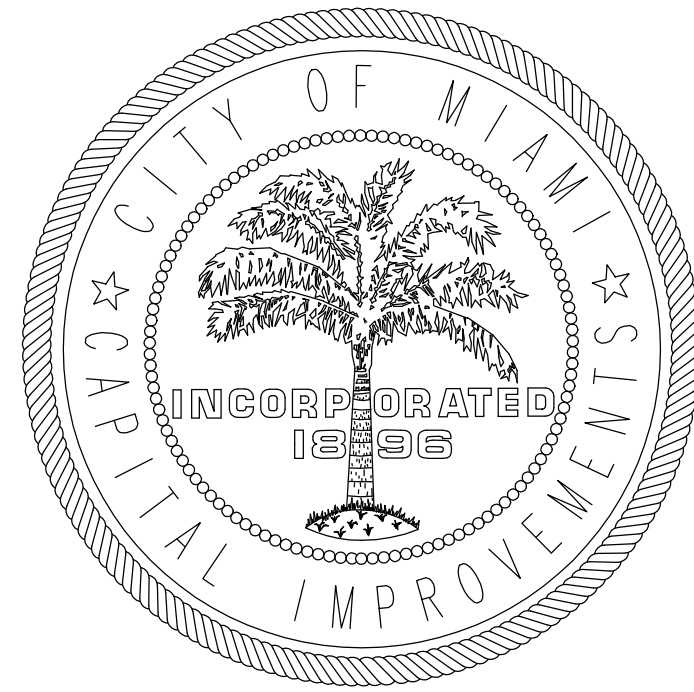


MANATEE BEND PARK SHORELINE IMPROVEMENTS

FOR CITY OF MIAMI

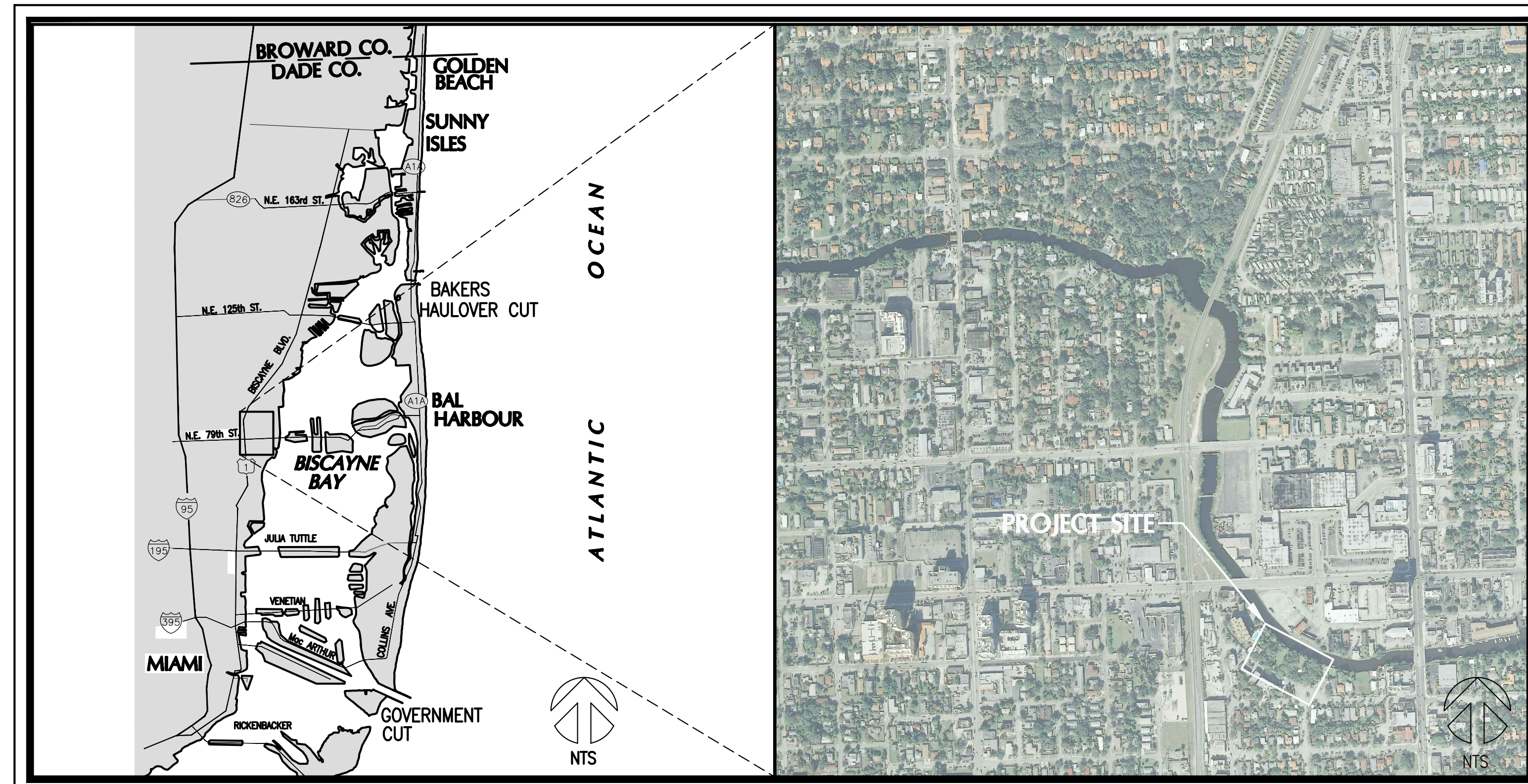
444 SW 2nd AVENUE
MIAMI, FL 33130

PROJECT ADDRESS:
457 N.E. 77TH STREET RD.
MIAMI, FLORIDA 33138



COMMISSION

Mayor Tomas P. Regalado
 Commissioner Dist. 1 Wilfredo Gort
 Commissioner Dist. 2 Marc D. Samoff
 Commissioner Dist. 3 Frank Carollo
 Commissioner Dist. 4 Francis Suarez
 Commissioner Dist. 5 Keon Hardemon
 City Manager Johnny Martinez
 Capital Improvements
 Program Director Mark Spanoli



LOCATION MAP

VICINITY MAP

DESIGN TEAM



**BID SET
03/11/15**

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MANATEE BEND
PARK SHORELINE
IMPROVEMENTS
CITY OF MIAMI



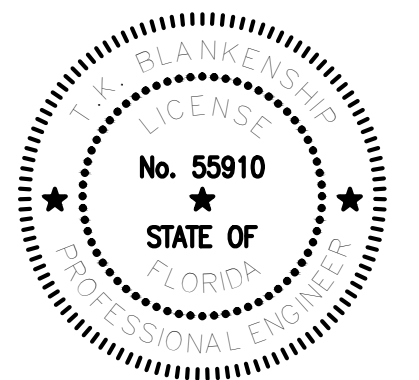
COASTAL SYSTEMS INTERNATIONAL, INC.
 464 South Dixie Highway
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 Tel: 305-661-3655
 Fax: 305-661-1914
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 State of Florida EB #7087
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| 2 | 03/05/15 | CITY COMMENTS |
| 1 | 04/29/14 | DERM RAI 1 |
| . | 03/13/14 | 100% SUBMITTAL |

PROJECT NO: 220250.03
 DATUM: NAVD
 DRAWN BY: VC
 CHECKED BY: JPC

ENGINEER OF RECORD



COVER

G-1
1 OF 14 SHEETS

GENERAL NOTES:

1. THE WORK CONSISTS OF FURNISHING ALL CONSTRUCTION, LABOR, EQUIPMENT, AND MATERIALS AND PERFORMING ALL OPERATIONS IN CONNECTION WITH THE BULKHEAD REPLACEMENT, REVETMENT, AND KAYAK LAUNCH RAMP AS SHOWN ON THESE DRAWINGS.
2. THE CONTRACTOR SHALL ABIDE BY ALL NOTES AND CONDITIONS INDICATED ON THE CONSTRUCTION PLANS AND PERMITS. IF THE CONTRACTOR VIOLATES ANY CONDITION OF THE PERMIT AND WORK IS STOPPED BY THE STATE OR OTHER PUBLIC ENTITY, THEN ANY ADDITIONAL COSTS INCURRED BY THE CONTRACTOR SHALL BE PAID BY THE CONTRACTOR AND NOT CHARGED TO THE CITY.
3. UNDERGROUND AND SUBAQUEOUS IMPROVEMENTS AND/OR UTILITIES WERE NOT LOCATED AS PART OF THIS SURVEY AND SHOULD BE FIELD VERIFIED PRIOR TO ANY MARINE CONSTRUCTION.
4. ENGINEER IS RESPONSIBLE FOR OBTAINING ENVIRONMENTAL PERMITS FOR THE PROJECT. COPIES ARE INCORPORATED IN THE CONTRACT DOCUMENTS, AND THE CONTRACTOR SHALL ABIDE BY ALL REGULATIONS AND PERMIT CONDITIONS.
5. ANY DISCREPANCIES IN THE PLANS WITH FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. CONSTRUCTION SHALL NOT CONTINUE UNTIL THE ENGINEER HAS ADDRESSED THE DISCREPANCIES.
6. FOR LEGEND SYMBOLS REFER TO INDIVIDUAL PLAN SHEETS.

SURVEY NOTES:

1. HYDROGRAPHIC DATA COLLECTED BY COASTAL SYSTEMS INTERNATIONAL, INC. ON APRIL 3, 2013.
2. TOPOGRAPHIC DATA COLLECTED BY MARTINEZ AND MARTINEZ ENTERPRISES, INC. ON APRIL 3, 2013.
3. WATER DEPTHS COLLECTED USING STANDARD SURVEY LEVELING.
4. HORIZONTAL COORDINATES ARE IN FEET AND BASED ON FLORIDA STATE PLANE EAST, NAD 83.
5. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). REFER TO VERTICAL DATUM DIAGRAM THIS SHEET.
6. THE INFORMATION DEPICTED ON THE SURVEY REPRESENTS THE RESULTS OF THE SURVEY ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS AN INDICATION OF THE GENERAL CONDITIONS EXISTING AT THAT TIME.

LAYOUT AND TESTING:

1. ALL CONSTRUCTION STAKEOUT SHALL BE PERFORMED BY, AND PAID FOR BY, THE CONTRACTOR UNDER THE SUPERVISION OF A FLORIDA REGISTERED SURVEYOR.
2. ALL TESTING AND INSPECTION FOR CONCRETE MATERIALS SHALL BE IN ACCORDANCE WITH FDOT SPECIFICATIONS AND SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY PROVIDED BY THE CONTRACTOR.
3. CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A SET OF AS-BUILT DRAWINGS IN SUFFICIENT DETAIL TO ILLUSTRATE THE HORIZONTAL AND VERTICAL COMPONENTS OF ABOVE AND BELOW GROUND STRUCTURES AND WALLS RELATIVE TO THE CONSTRUCTION BASELINE.

DESIGN LIVE LOADS

1. UPLAND SURCHARGE = 100 PSF.

DEMOLITION NOTES:

1. CONTRACTOR SHALL VERIFY THE EXTENTS, LOCATION, AND QUANTITIES OF EXISTING ELEMENTS TO BE REMOVED.
2. ALL DEBRIS WITHIN THE LIMITS OF THE CONSTRUCTION PROJECT SHALL BE TRUCKED AND HAULED OFFSITE BY THE CONTRACTOR AND DISPOSED OF AT AN APPROVED SITE.
3. CONTRACTOR SHALL NOT DAMAGE ANY STRUCTURAL COMPONENTS BEYOND THE DEMOLITION REQUIREMENTS OF THESE DRAWINGS. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

REINFORCING STEEL:

1. ALL CONCRETE BEAMS, SLABS, PILE CAPS, AND CLOSURE POURS TO USE ASTM A615 GRADE 60 STEEL REBAR, UNLESS OTHERWISE NOTED. WELDED REINFORCEMENT SHALL CONFORM TO ASTM A706.
2. ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCING ARE TO CENTER LINE OF BARS EXCEPT WHERE THE CLEAR DIMENSION IS SHOWN TO FACE OF CONCRETE.
3. NO METAL CHAIRS OR OTHER METAL OBJECTS SHALL BE USED TO SUPPORT REINFORCING CAGES. PLASTIC CHAIRS OR MASONRY BLOCKS ARE ACCEPTABLE, PROVIDED SHOP DRAWINGS ARE SUBMITTED TO THE ENGINEER FOR REVIEW.
4. MINIMUM CONCRETE COVER SHALL BE 3" TO THE OUTSIDE OF REINFORCING BARS.
5. PLASTIC ZIP-TIES MAY BE SUBSTITUTED FOR WIRE TIES, PROVIDED SHOP DRAWINGS ARE SUBMITTED TO THE ENGINEER FOR REVIEW.
6. EPOXY FOR ANCHORING REINFORCEMENT DOWELS SHALL BE HILTI HIT-HY 150 OR APPROVED EQUAL.

GEOTECHNICAL NOTES:

1. GEOTECHNICAL INVESTIGATION COMPLETED BY ARDAMAN AND ASSOCIATES, AND A SUBSURFACE INVESTIGATION REPORT WAS PREPARED DATED APRIL 11, 2013.
2. BORING LOCATIONS ARE APPROXIMATE. REFER TO GEOTECHNICAL REPORT.

STEEL SHEET PILING NOTES:

1. STEEL SHEET PILING SHALL BE OF THE SECTIONS INDICATED ON SHEET S-3, AND SHALL BE ASTM A572, GRADE 50.
2. SHEET PILING SHALL BE COATED WITH TNE ME TAR (46H-413) COAL TAR EPOXY OR EQUIVALENT; TOP 10', BOTH SIDES EXCEPT AS NOTED.
3. COATING SHALL BE 16 MILS DRY FILM THICKNESS, AND APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. TWO COATS SHALL BE APPLIED TO ACHIEVE THE DRY FILM THICKNESS.
4. DRIVE SHEET PILING IN ACCORDANCE WITH FDOT SPECIFICATION 455-9.
5. CONTRACTOR SHALL FILL-IN VOID BETWEEN EXISTING BULKHEAD AND NEW STEEL SHEET PILE WITH #57 STONE, FDOT SPECIFICATION 901-1. RECYCLED CONCRETE AT THE APPROPRIATE GRADATION IS AN ACCEPTABLE ALTERNATIVE.
6. CONTRACTOR SHALL BE PREPARED TO DRIVE SHEET PILING THROUGH LIMESTONE LAYERS; REFER TO GEOTECHNICAL REPORT.
7. CONTRACTOR'S ENGINEER SHALL SUBMIT SHEET PILE INSTALLATION REPORT, SIGNED/SEALED.
8. WELDS SHALL UTILIZE E70 ELECTRODES.

CONCRETE NOTES:

1. CONCRETE SHALL HAVE 28-DAY COMPRESSIVE STRENGTH $F_c' = 5000$ PSI MIN.
2. ALL CONCRETE MATERIALS, REINFORCEMENT, AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH FDOT SPECIFICATION 346, 400, AND 415 EXCEPT AS NOTED.
3. PROVIDE 3/4" CHAMFERS ON ALL EXPOSED EDGES AND CORNERS EXCEPT AS OTHERWISE NOTED.
4. CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT THE LOCATIONS INDICATED ON THE PLANS. ADDITIONAL CONSTRUCTION JOINTS OR ALTERATIONS TO THOSE SHOWN WILL REQUIRE APPROVAL BY THE ENGINEER.
5. PROVIDE MIX DESIGN FOR EXTREMELY AGGRESSIVE (MARINE) ENVIRONMENT AND PROVIDE SUFFICIENT FLY ASH, MICROSILICA, OR SLAG TO THE CEMENT CONTENT TO INCREASE IMPERMEABILITY OF CONCRETE. MAX. W/C RATIO IS 0.40.
6. CURE CONCRETE IN ACCORDANCE WITH FDOT SPECIFICATION 400 - 16.1.
7. COAT CONCRETE CAPS WITH THOROCCOAT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PROVIDE COARSE FINISH, OWNER TO SPECIFY COLOR.
8. UNDERWATER CONCRETE SHALL BE PLACED IN ACCORDANCE WITH FDOT 400-8. DE-WATERING IS NOT REQUIRED.
9. CONCRETE SHALL HAVE SUFFICIENT ANTI-WASHOUT ADMIXTURE FOR PLACEMENT UNDERWATER WITH TREMIE METHODS.

ARMOR STONE:

1. PLACE EACH TYPE OF RIPRAP IN THE LOCATIONS AND TO THE ELEVATIONS, THICKNESS, AND DETAILS INDICATED ON THE DRAWINGS AND AS DIRECTED BY THE OWNER. USE METHODS TO ENSURE THAT THE FINER ONE-THIRD OF THE GRADATION IS EVENLY DISTRIBUTED THROUGHOUT THE LAYER AND OVER THE SURFACE BEING COVERED.
2. BEGIN PLACEMENT OF RIPRAP AT THE TOE OF THE SLOPE AND CONTINUE PLACEMENT WORKING UP THE SLOPE. PLACE THE ROCK IN SUCH A MANNER AS TO CREATE FIRM BEDDING AND INTERLOCKING OF INDIVIDUAL PIECES TO OBTAIN A TIGHTLY PACKED STRUCTURE. THE FINISHED SURFACE SHALL BE DENSELY PLACED, WELL-KEYED, AND UNIFORM. FILL VOIDS, REWORK ROCKS NOT PROPERLY EMBEDDED, AND REMOVE PROTUBERANCES TO THE SATISFACTION OF THE OWNER. REMOVE AND REPLACE THE PORTION OF ANY LAYER IN WHICH MATERIAL BECOMES SEGREGATED DURING SPREADING.
3. DO NOT DROP THE ROCK WHEN PLACING OVER GEOTEXTILE.
4. UNLESS NOTED OTHERWISE, ALL ROCK MATERIALS SHALL BE ROUGH ANGULAR QUARRIED STONE OF A DENSE, HARD, DURABLE CHARACTER, FREE OF ORGANIC MATERIAL, INFILLED JOINTS, SEAMS, OR OTHER DEFECTS, RESISTANT TO BREAKDOWN BY HANDLING, FROST ACTION, OR WEATHERING, AND NOT SUBJECT TO DETERIORATION IN SEA WATER. PROVIDE LIMESTONE MATERIAL IN ACCORDANCE WITH FDOT SPECIFICATION 530.
5. EACH TYPE OF ARMOR STONE SHALL BE GRADED BETWEEN THE LIMITS SPECIFIED, WITH THE LONGEST DIMENSION OF ANY PIECE NOT GREATER THAN 2.5 TIMES ITS LEAST DIMENSION.
6. FOR ARMOR ROCK, MASS GOVERNS THE GRADATION AND THE NOMINAL SIZE IS DEFINED AS $D=(W/155)$ - WHERE D IS THE NOMINAL SIZE IN FEET, W IS THE MASS IN POUNDS.
7. ARMOR ROCK SHALL BE GRADED BETWEEN THE LIMITS SPECIFIED, WITH THE LONGEST DIMENSION OF ANY PIECE NOT GREATER THAN 2.5 TIMES ITS LEAST DIMENSION.

| PERCENT LESS THAN BY WEIGHT | MASS [LB] | NOMINAL SIZE [FT] |
|-----------------------------|-----------|-------------------|
| 100 | 900 | 1.8 |
| 50 | 525 | 1.5 |
| 0 | 270 | 1.2 |

MANATEE SIGN

1. PROVIDE MANATEE SIGN IN ACCORDANCE WITH ENVIRONMENTAL PERMIT REQUIREMENTS SEE DETAIL 4, SHEET S-4.
2. INSTALL MANATEE SIGN IN ACCORDANCE WITH FDOT SPECIFICATION 700.

GEOTEXTILE:

1. GEOTEXTILE SHALL BE U.S. FABRICS U.S. 670 (OR APPROVED EQUAL).
2. PROVIDE GEOTEXTILE IN ACCORDANCE WITH FDOT SPECIFICATION 514. INSTALL GEOTEXTILE AS INDICATED ON THE DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. PLACE GEOTEXTILE ON A SMOOTH SURFACE APPROVED BY THE OWNER. PLACE GEOTEXTILE IN IMMEDIATE CONTACT WITH THE PREPARED SLOPE SUCH THAT THERE ARE NO VOIDS AND IN SUCH A MANNER THAT IT WILL NOT BE EXCESSIVELY STRETCHED OR TORN FROM PLACEMENT OF OVERLYING MATERIALS.

TURBIDITY CONTROL NOTES:

1. CONTRACTOR SHALL SUBMIT TURBIDITY CONTROL PLAN FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION IN ACCORDANCE WITH THE REGULATORY PERMITS.
2. REFER TO SHEET CM-1 FOR RECOMMENDED TURBIDITY CURTAIN LAYOUT.

ARMORFLEX MAT:

1. PROVIDE ARMORFLEX MAT SYSTEM (OR EQUIVALENT).
2. REFER TO MANUFACTURER'S SPECIFICATIONS FOR ARMORFLEX SYSTEM AT WWW.CONTECH-CPI.COM

SUBMITTALS:

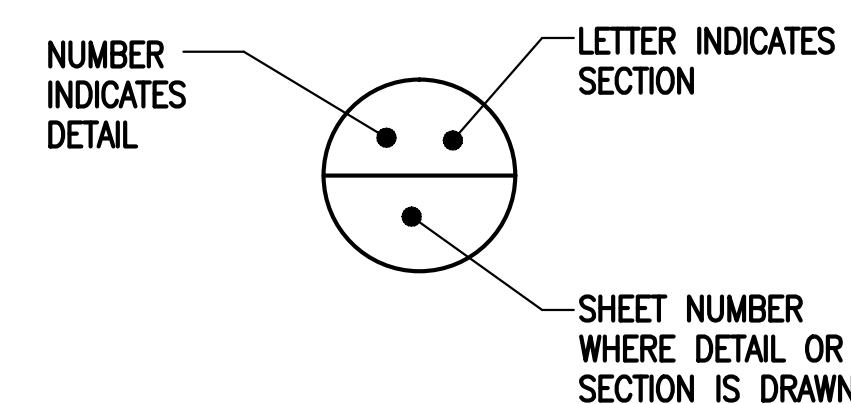
THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND/OR SPECIFICATIONS FOR THE FOLLOWING ITEMS FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION:

- A. DEMOLITION METHODS AND DISPOSAL PLAN
- B. CONCRETE MIX DESIGN FOR CAST-IN-PLACE CONCRETE
- C. CURING COMPOUND
- D. REINFORCING STEEL & ACCESSORIES
- E. SCHEDULE FOR COMPLETION OF WORK WITH TASKS AND DURATIONS DEFINED
- F. SELECT FILL
- G. FORMS - DEFINE MATERIAL, DIMENSIONS, TYPE, CONNECTIONS, AND STAKING
- H. PROCEDURE FOR THE PROTECTION OF FRESH CONCRETE FROM INCLEMENT WEATHER
- I. STEEL SHEET PILING
- J. SHEET PILING HAMMER
- K. #57 STONE
- L. ARMOR STONE
- M. ARMORFLEX MAT
- N. GEOTEXTILE FABRIC
- O. BOLLARD
- P. THOROCCOAT

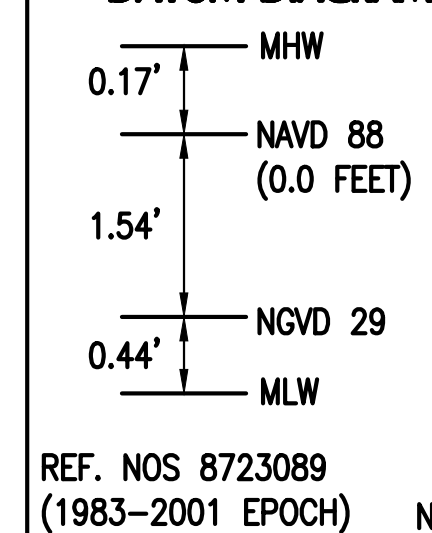
ABBREVIATIONS

| | |
|----------------------------------|-----------------------------------|
| APPROX. _____ APPROXIMATE | MAX. _____ MAXIMUM |
| ACP _____ AUGER-CAST PILE | MIN. _____ MINIMUM |
| B _____ BOTTOM | MHW _____ MEAN HIGH WATER |
| C.Y. _____ CUBIC YARD | MHHW _____ MEAN HIGHER HIGH WATER |
| CL _____ CENTER LINE | MLW _____ MEAN LOW WATER |
| C.O. _____ CLEAN OUT | O.C. _____ ON CENTER |
| CONC. _____ CONCRETE | PL _____ PROPERTY LINE |
| CONT. _____ CONTINUOUS | P.E. _____ PROFESSIONAL ENGINEER |
| DIA./Ø _____ DIAMETER | PSF _____ POUNDS PER SQUARE FOOT |
| EA. _____ EACH | PSI _____ POUNDS PER SQUARE INCH |
| EOR _____ ENGINEER OF RECORD | REINF _____ REINFORCING |
| EW _____ EACH WAY | THRU _____ THROUGH |
| ELEV. _____ ELEVATION | V _____ VERTICAL |
| EXIST. _____ EXISTING | SS _____ STAINLESS STEEL |
| GALV. _____ GALVANIZED | STL _____ STEEL |
| UNO _____ UNLESS NOTED OTHERWISE | STA. _____ STATION |
| TYP. _____ TYPICAL | T _____ TOP |
| | T&B _____ TOP & BOTTOM |

SECTION DETAIL LABEL

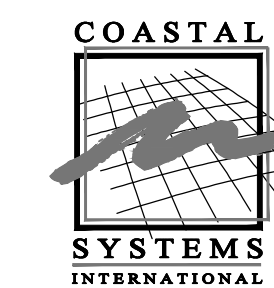
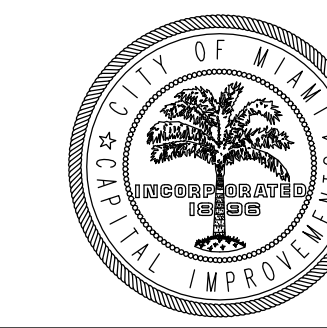


DATUM DIAGRAM



MANATEE BEND PARK SHORELINE IMPROVEMENTS

CITY OF MIAMI



COASTAL SYSTEMS INTERNATIONAL, INC.

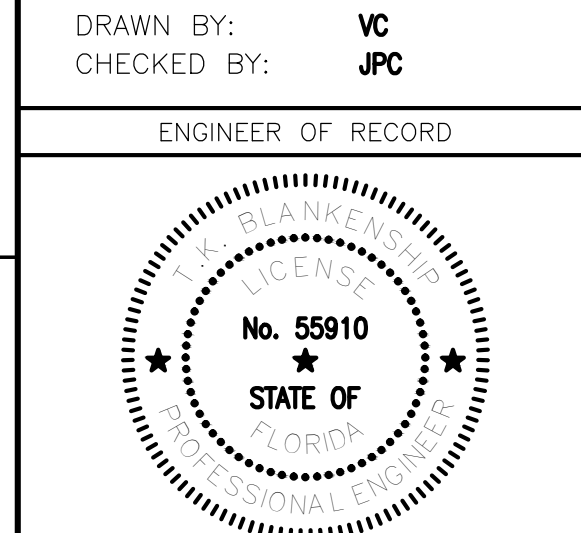
464 South Dixie Highway
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CONSULTANTS

| ISSUE | DATE | DESCRIPTION |
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| 3 | 03/11/15 | BID SET |
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| 1 | 04/29/14 | DERM RA 1 |
| . | 03/13/14 | 100% SUBMITTAL |

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| PROJECT NO: | 220250.03 | |
| DATUM: | NAVD | |
| DRAWN BY: | VC | |
| CHECKED BY: | JPC | |

ENGINEER OF RECORD



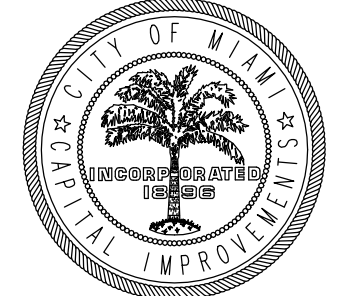
GENERAL NOTES

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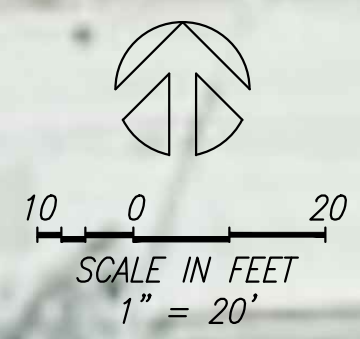
MANATEE BEND PARK SHORELINE IMPROVEMENTS

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SYMBOL LEGEND

- 2.3 SPOT ELEVATION (FEET, NAVD 88)
- 10.61 SOUNDING ELEVATION (FEET, NAVD 88)
- B-1 SOIL BORING (APPROX. LOCATION)

REFER TO SHEET G-2 FOR SURVEY NOTES

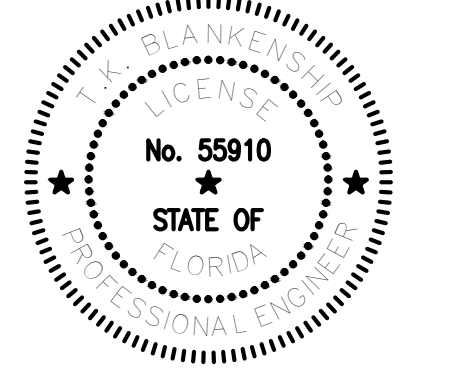
NOTE:
ALL SCALES INDICATED PERTAIN TO
FULL SIZE DRAWINGS (22"x34")

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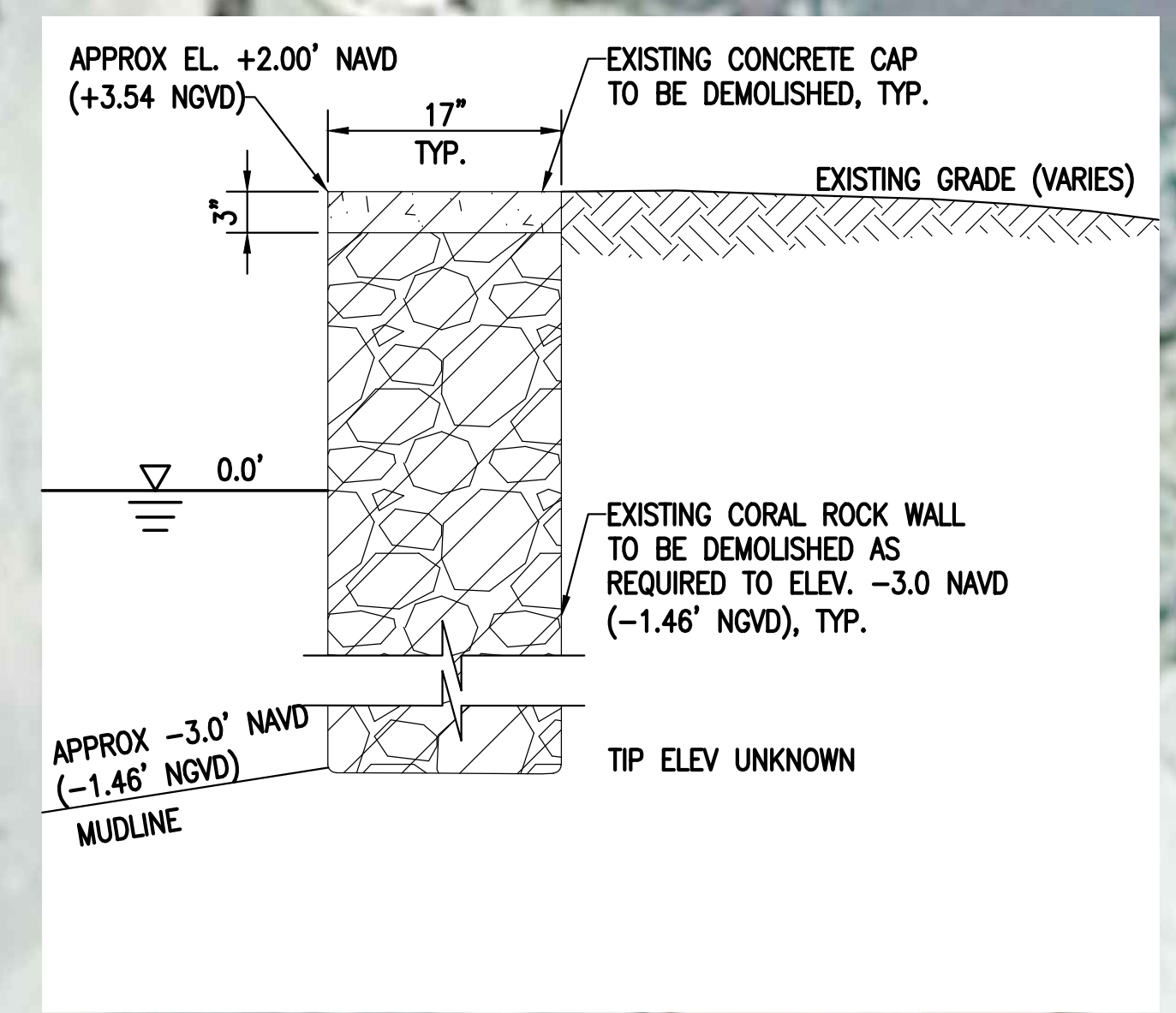
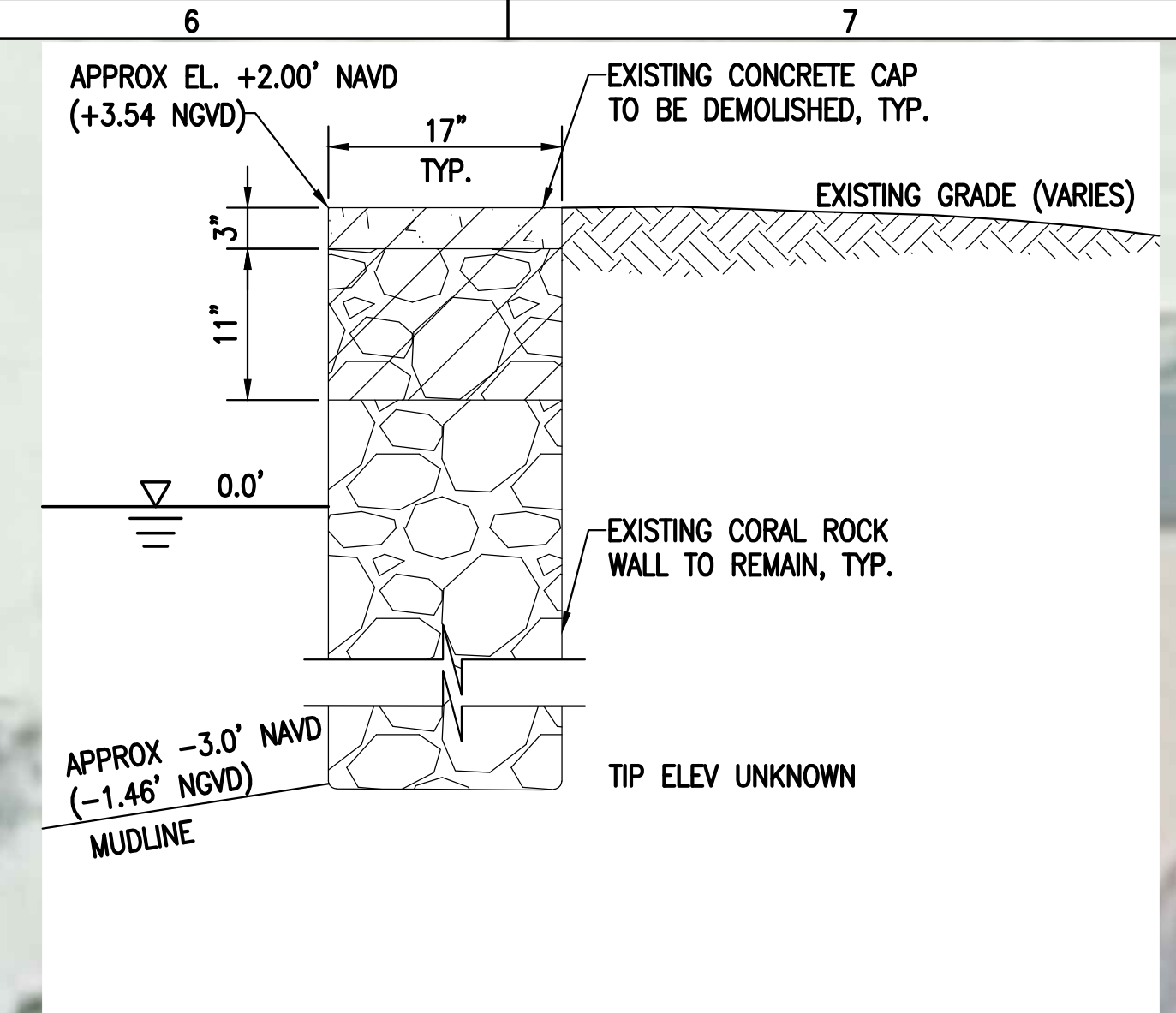
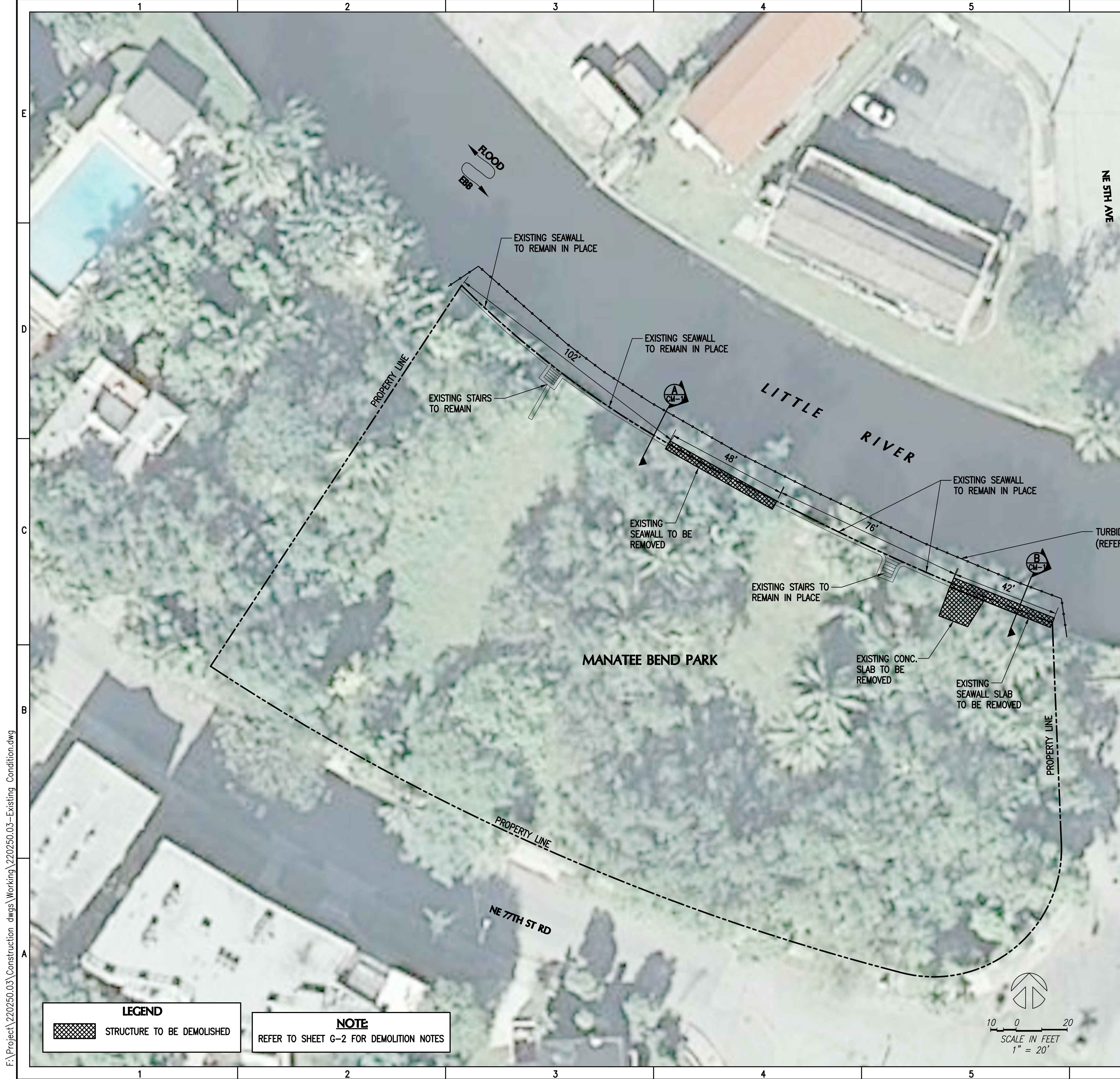
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ENGINEER OF RECORD



EXISTING CONDITIONS

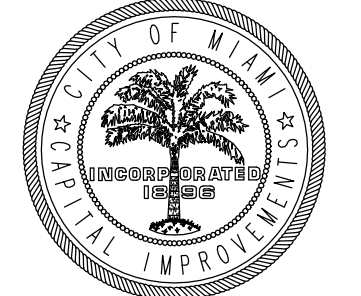
G-3
3 OF 14 SHEETS



NOTE
REFER TO SHEET G-2 FOR DEMOLITION NOTES

**MANATEE BEND
PARK SHORELINE
IMPROVEMENTS**

CITY OF MIAMI



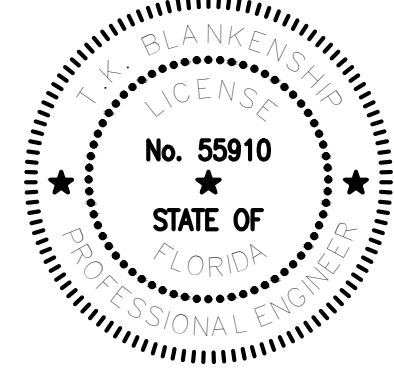
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DEMOLITION PLAN

MANATEE BEND
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CITY OF MIAMI



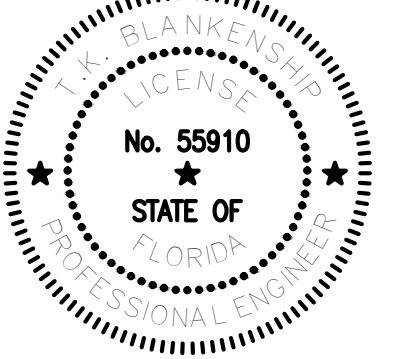
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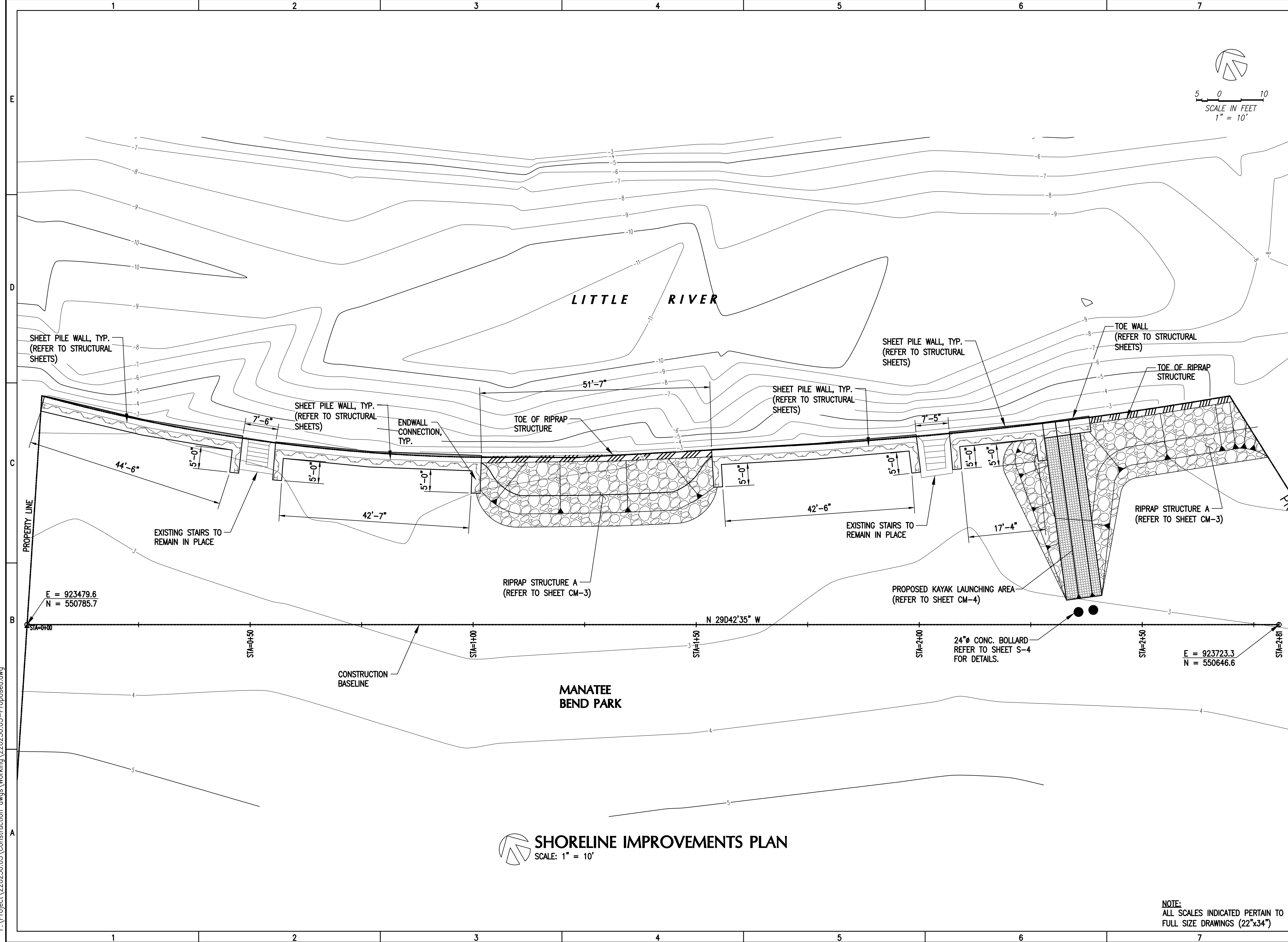
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DATUM: NAVD
DRAWN BY: VC
CHECKED BY: JPC

ENGINEER OF RECORD



PROPOSED
IMPROVEMENTS

CM-2
5 OF 14 SHEETS

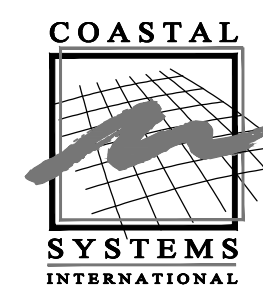
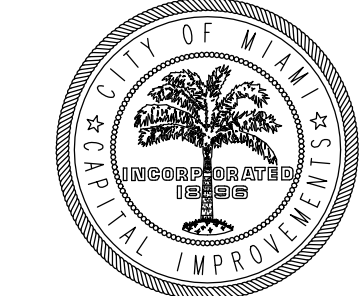


NOTE:
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MANATEE BEND PARK SHORELINE IMPROVEMENTS

CITY OF MIAMI



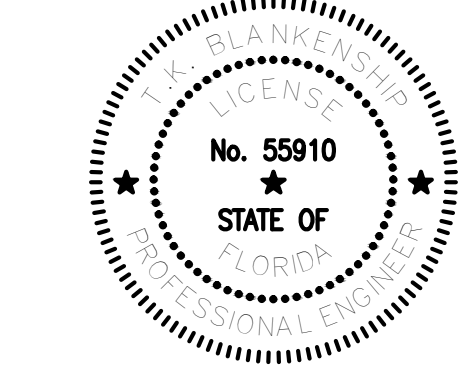
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| . | 03/13/14 | 100% SUBMITTAL |

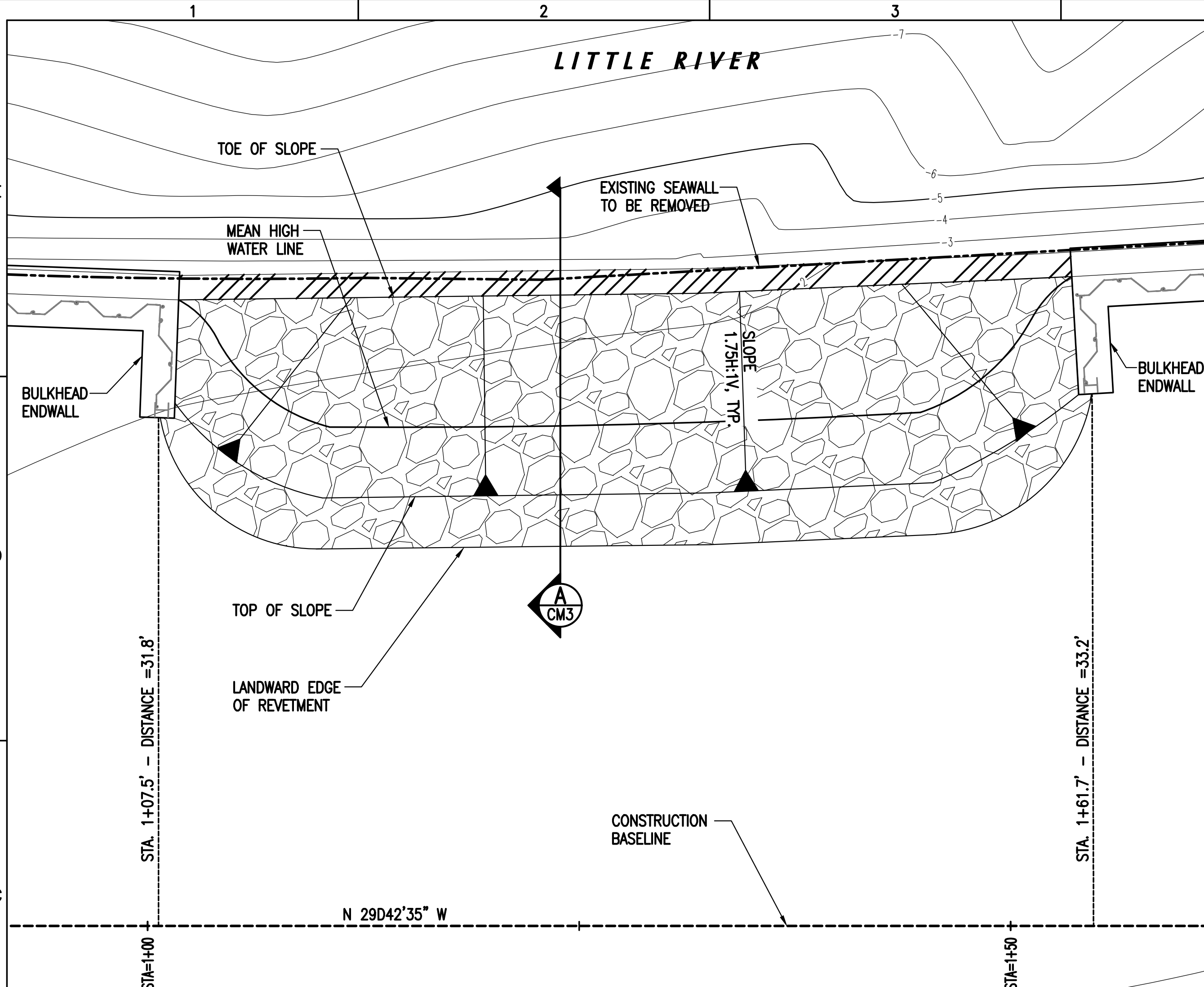
| ISSUE | DATE | DESCRIPTION |
|-------------|-----------|-------------|
| PROJECT NO: | 220250.03 | |
| DATUM: | NAVD | |
| DRAWN BY: | VC | |
| CHECKED BY: | JPC | |

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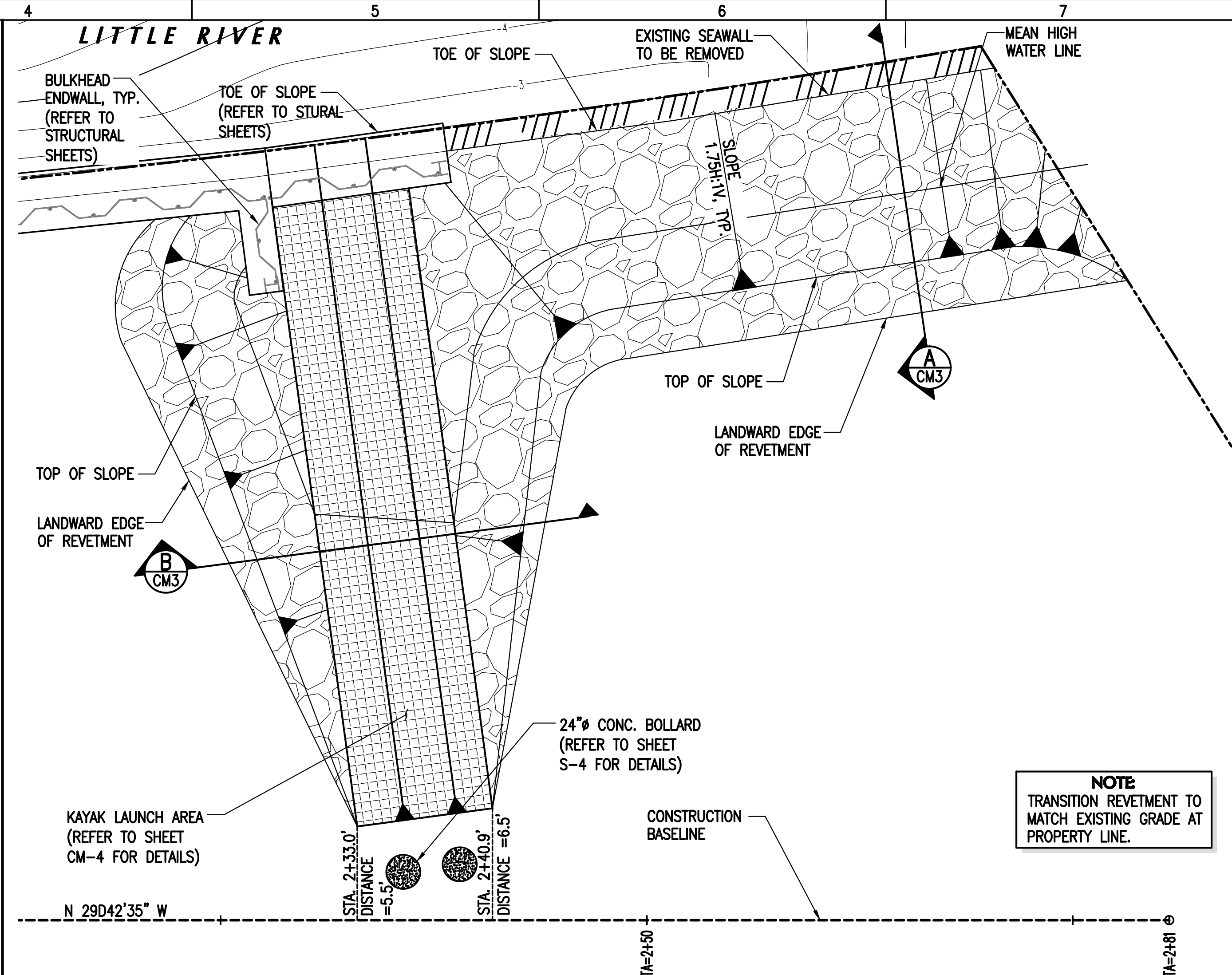


REVETMENT PLAN & SECTIONS

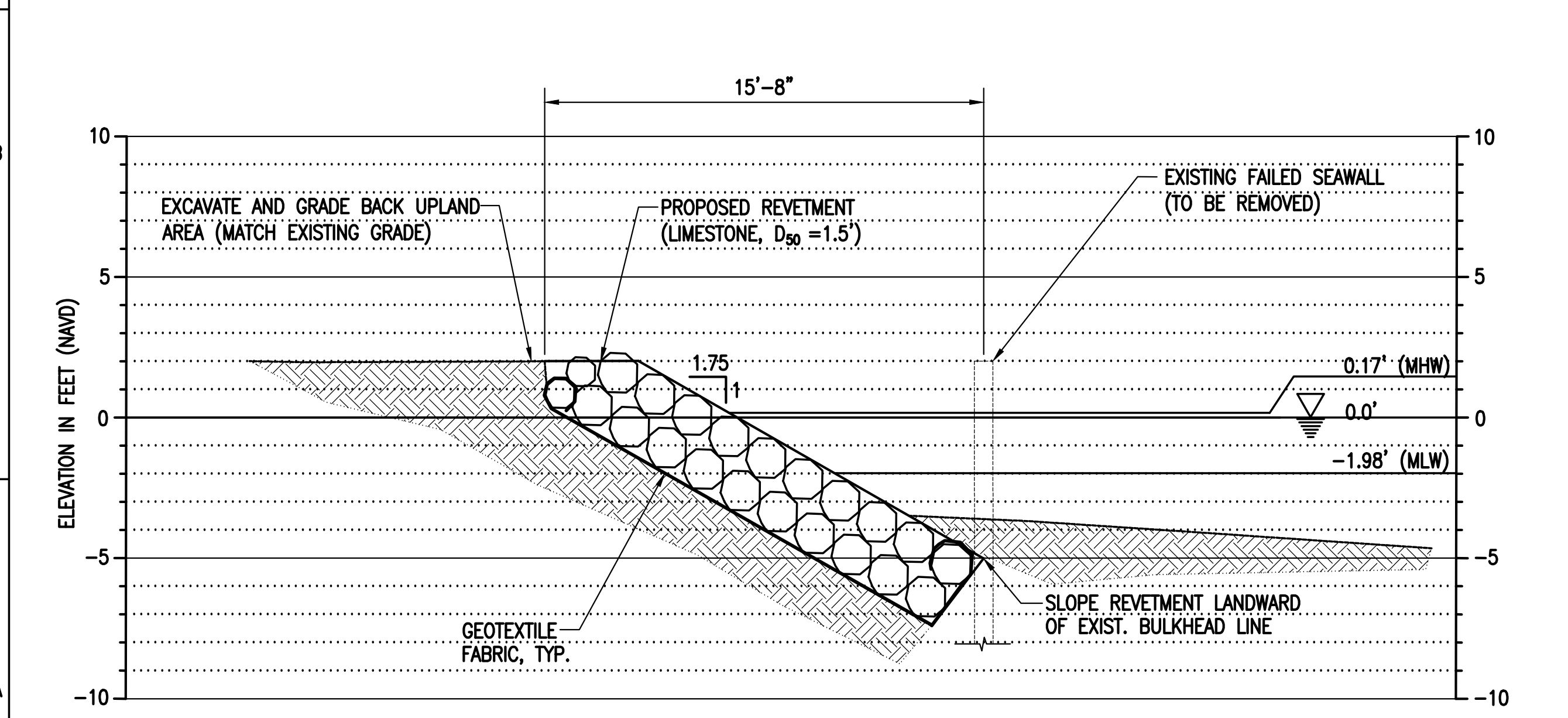
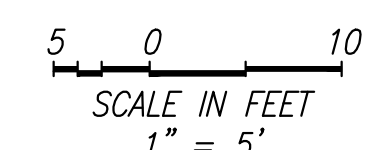
CM-3
6 OF 14 SHEETS



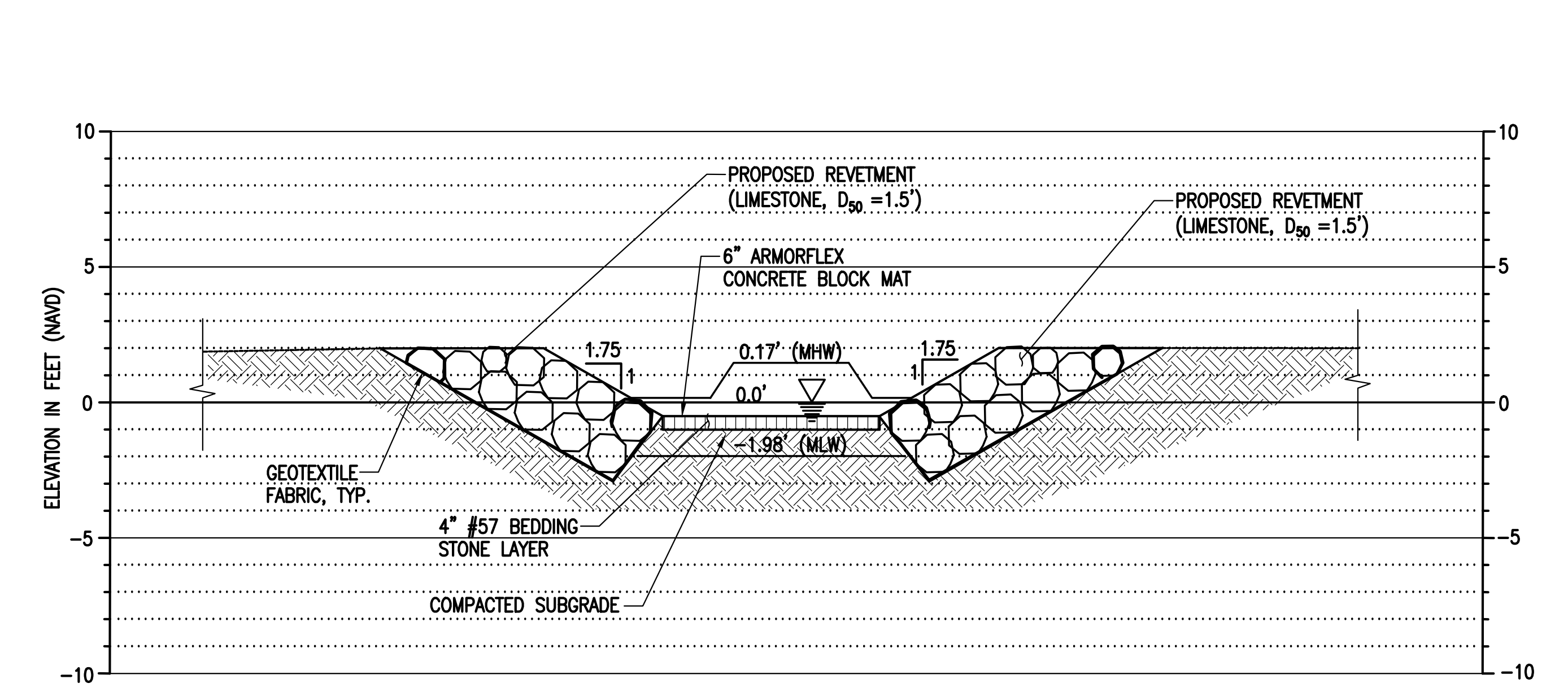
REVETMENT PLAN
SCALE: 1" = 5'



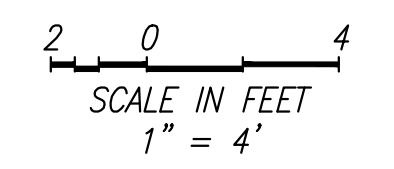
REVETMENT PLAN
SCALE: 1" = 5'



A REVETMENT SECTION
SCALE: 1" = 4'



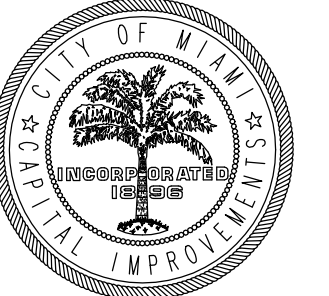
B REVETMENT SECTION
SCALE: 1" = 4'



NOTE:
ALL SCALES INDICATED PERTAIN TO
FULL SIZE DRAWINGS (22"x34")

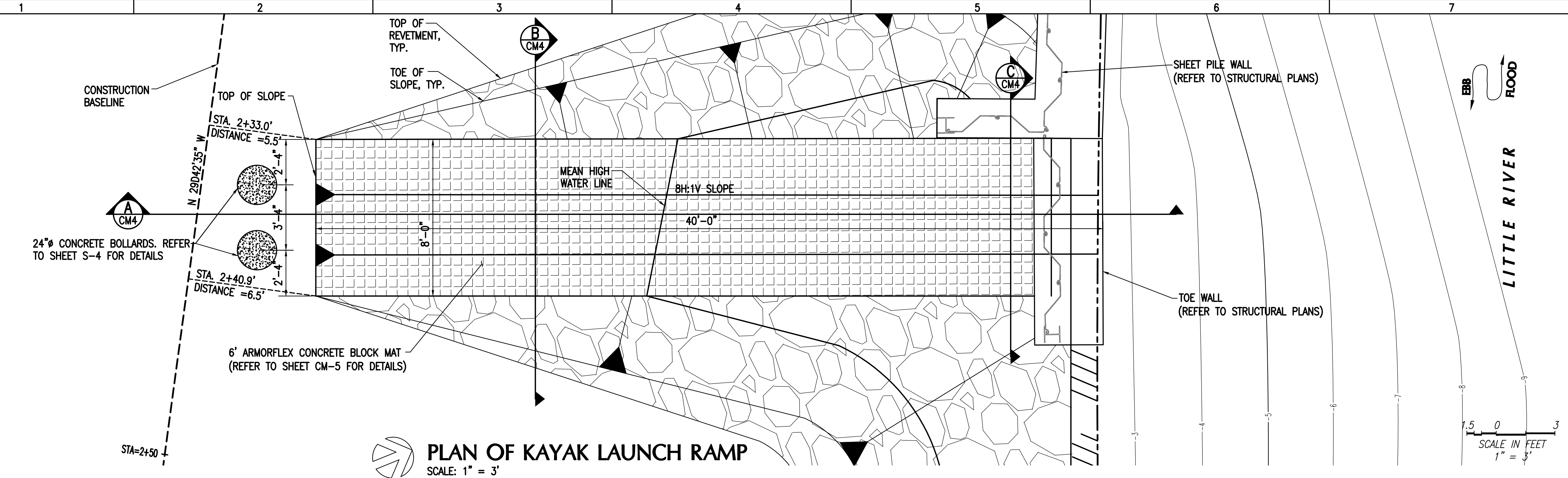
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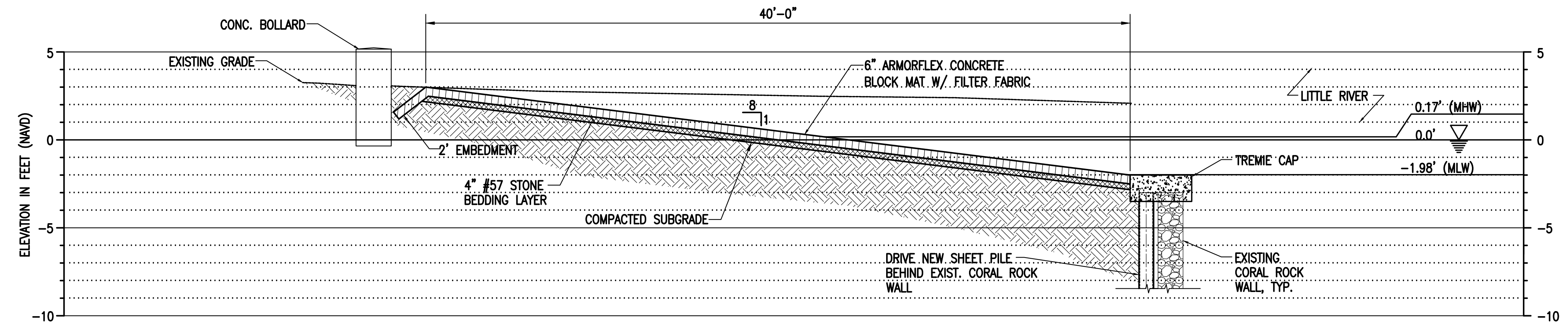


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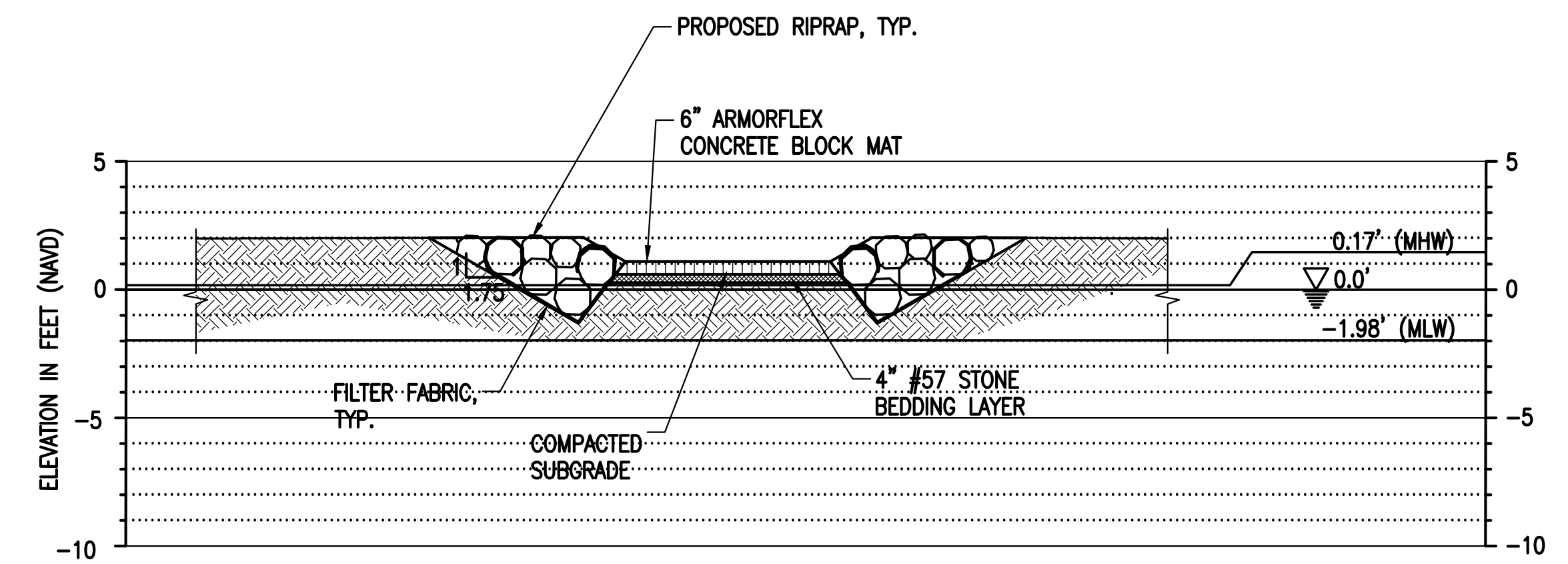
CONSULTANTS



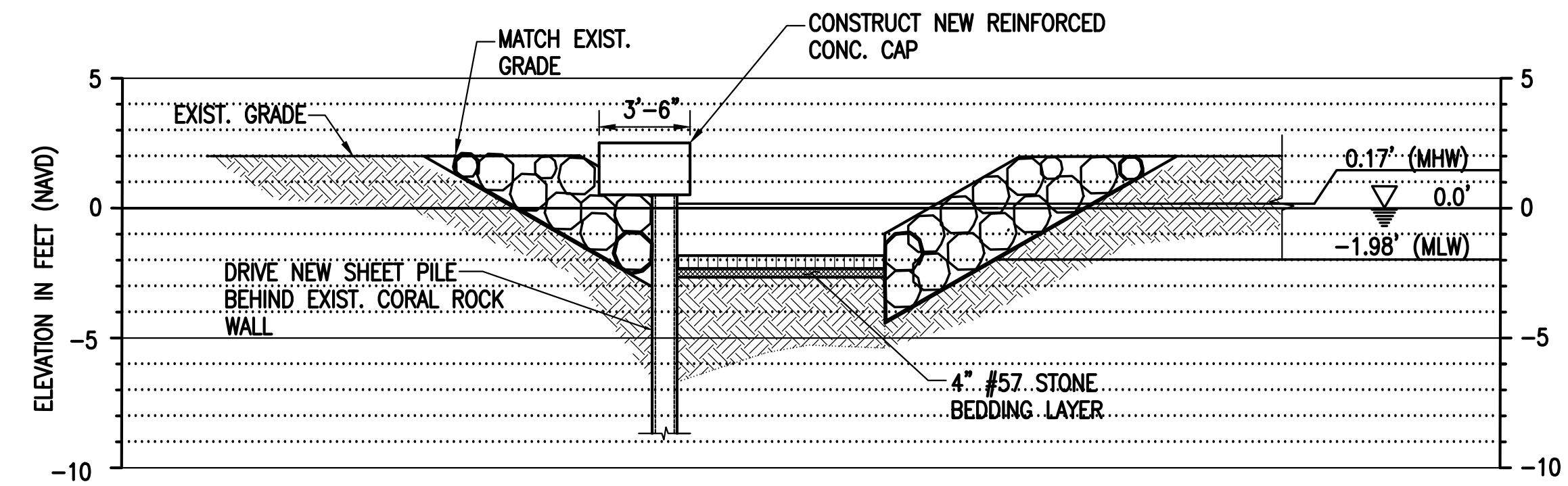
PLAN OF KAYAK LAUNCH RAMP
SCALE: 1" = 3'



A RAMP LONGITUDINAL SECTION
SCALE: 1" = 4'



B RAMP CROSS-SECTION
SCALE: 1" = 5'



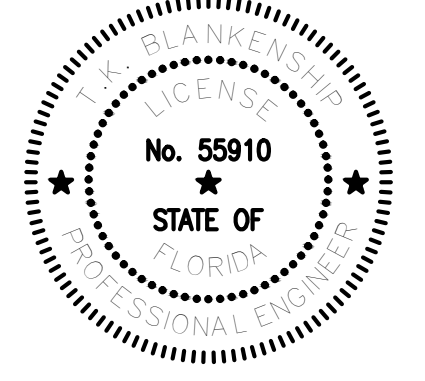
C RAMP CROSS-SECTION
SCALE: 1" = 5'

NOTE:
ALL SCALES INDICATED PERTAIN TO
FULL SIZE DRAWINGS (22"x34")

| ISSUE | DATE | DESCRIPTION |
|-------|----------|----------------|
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| 2 | 03/05/15 | CITY COMMENTS |
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| . | 03/13/14 | 100% SUBMITTAL |

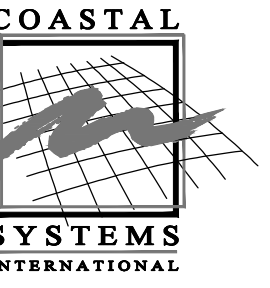
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| PROJECT NO: | 220250.03 |
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| CHECKED BY: | JPC |

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**KAYAK LAUNCH RAMP
PLAN & SECTIONS**

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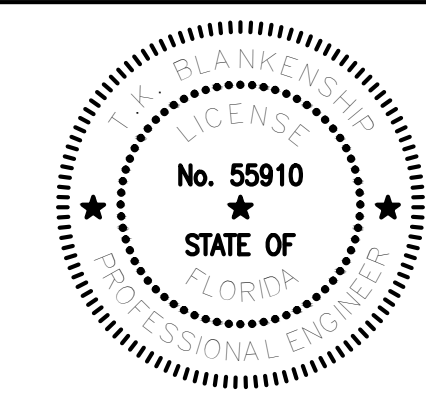
CONSULTANTS

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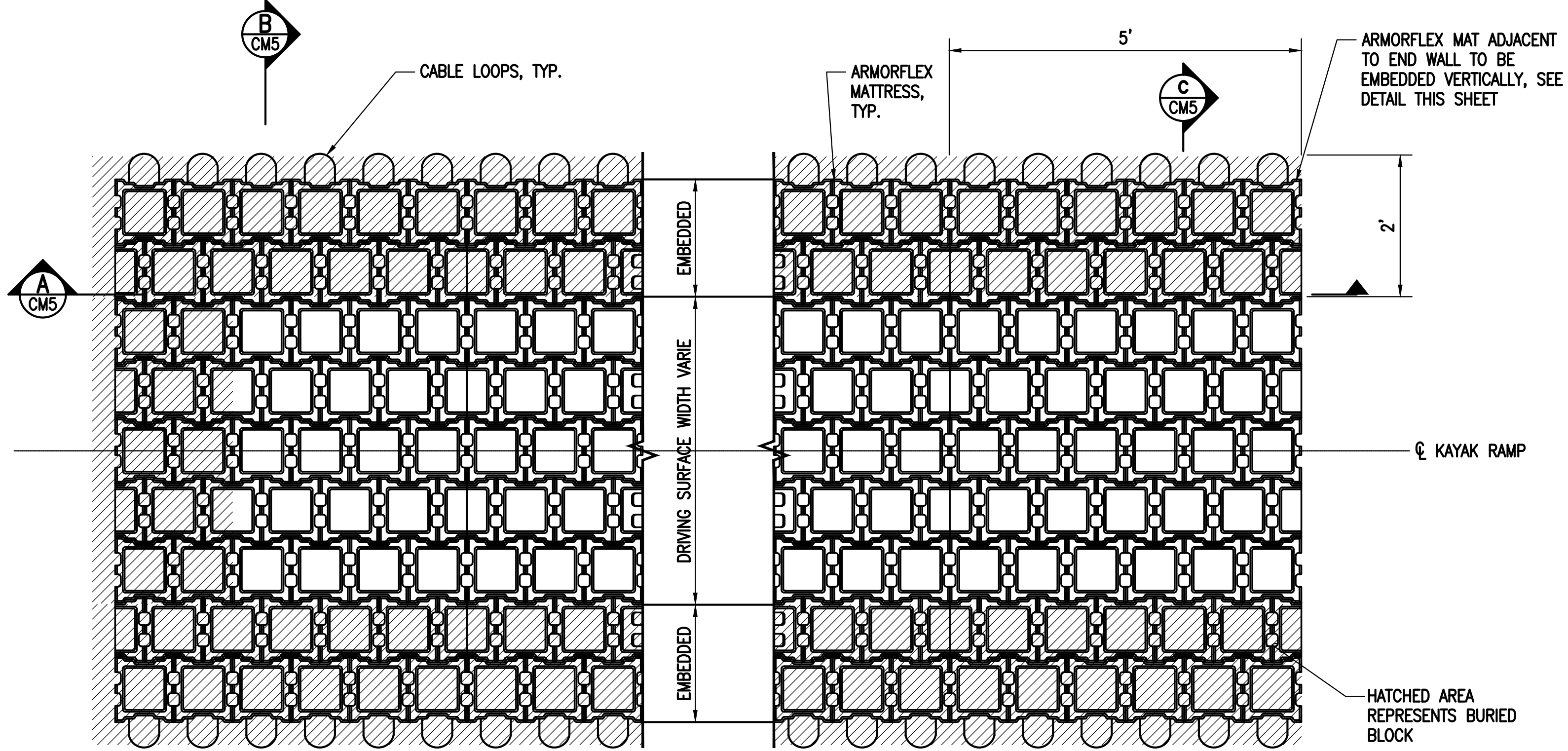
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| . | 03/13/14 | 100% SUBMITTAL |

| ISSUE | DATE | DESCRIPTION |
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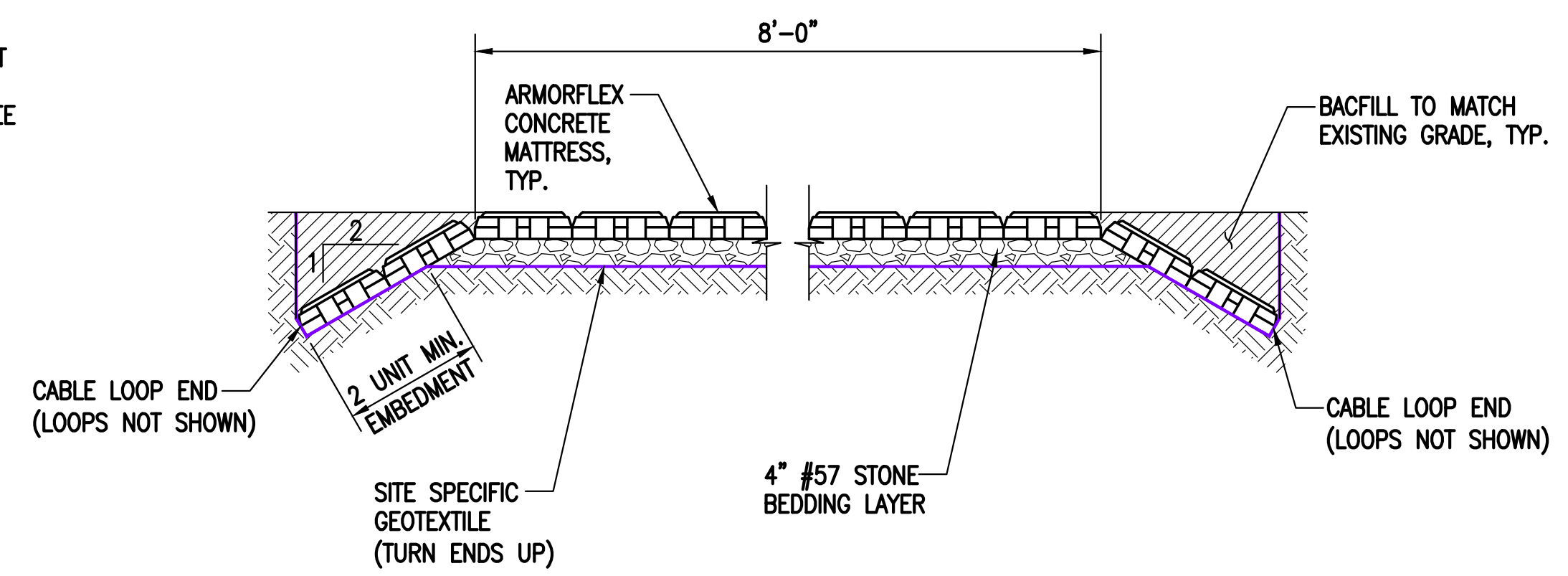
ENGINEER OF RECORD



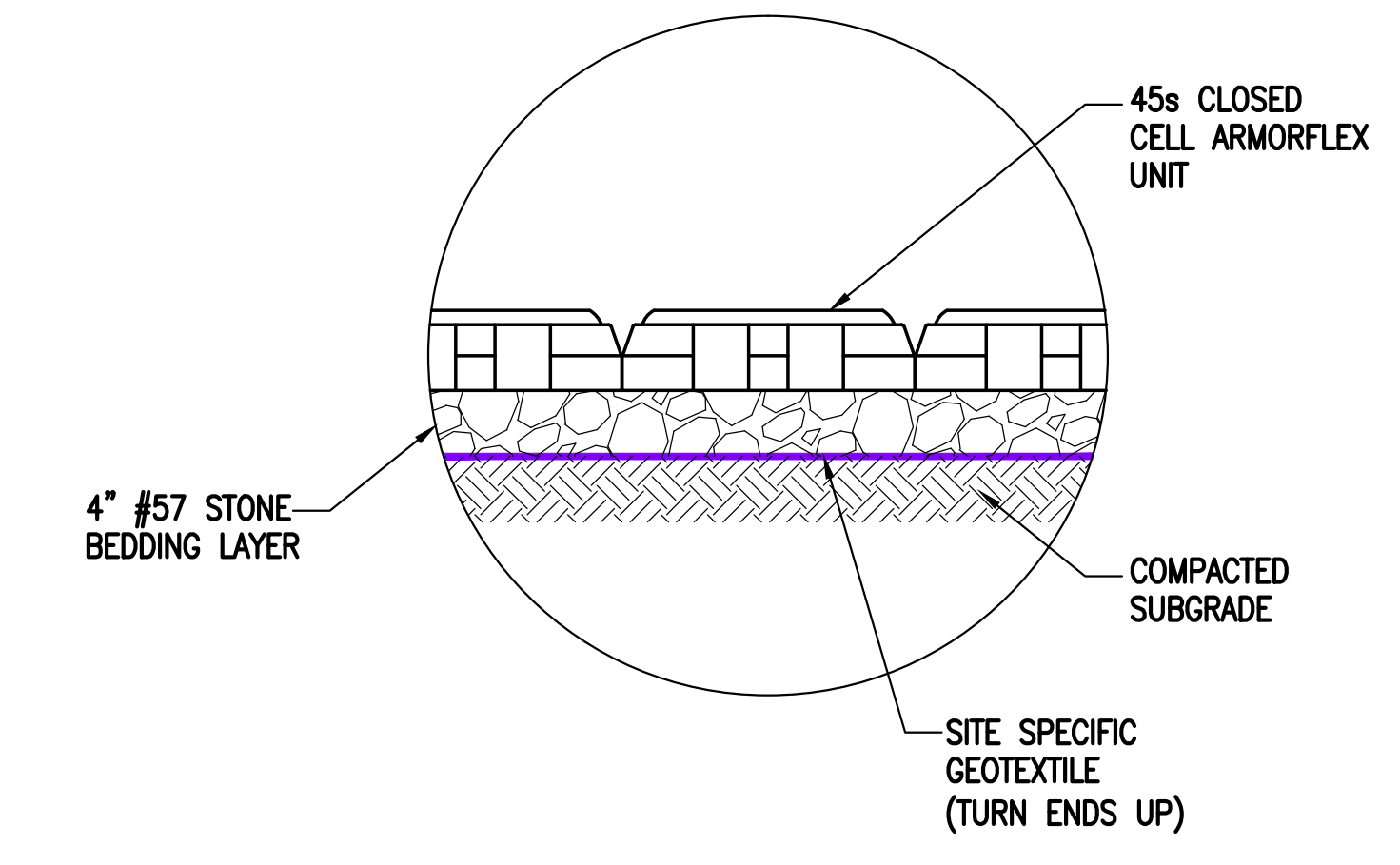
ARMORFLEX MAT DETAILS



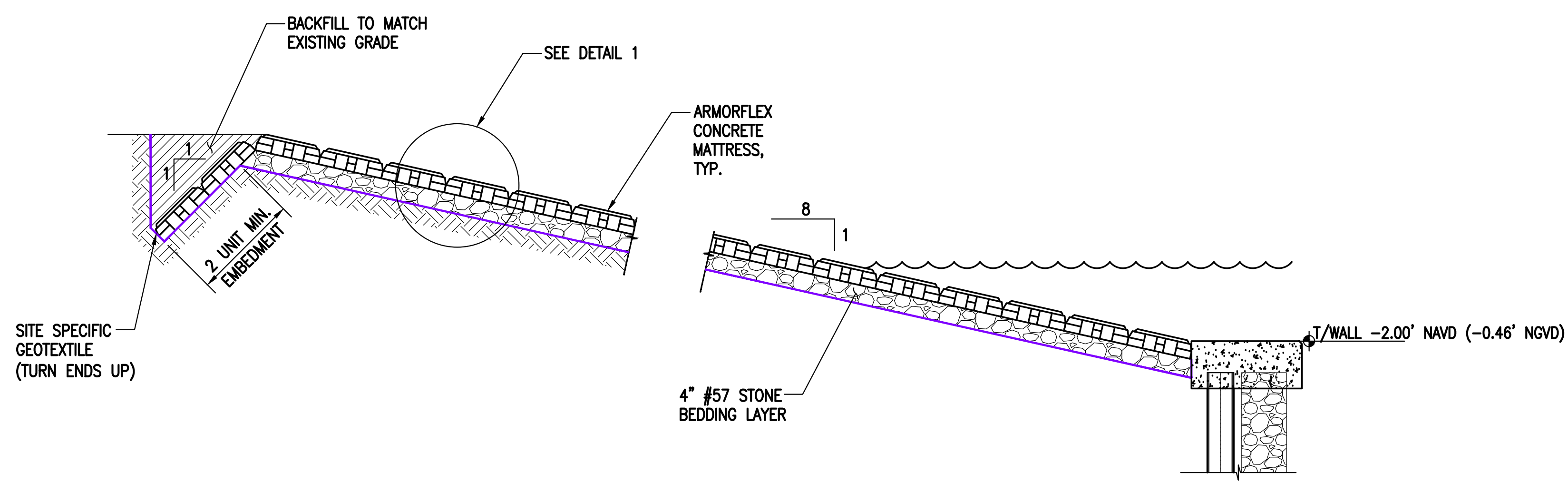
KAYAK LAUNCH RAMP PLAN
NTS



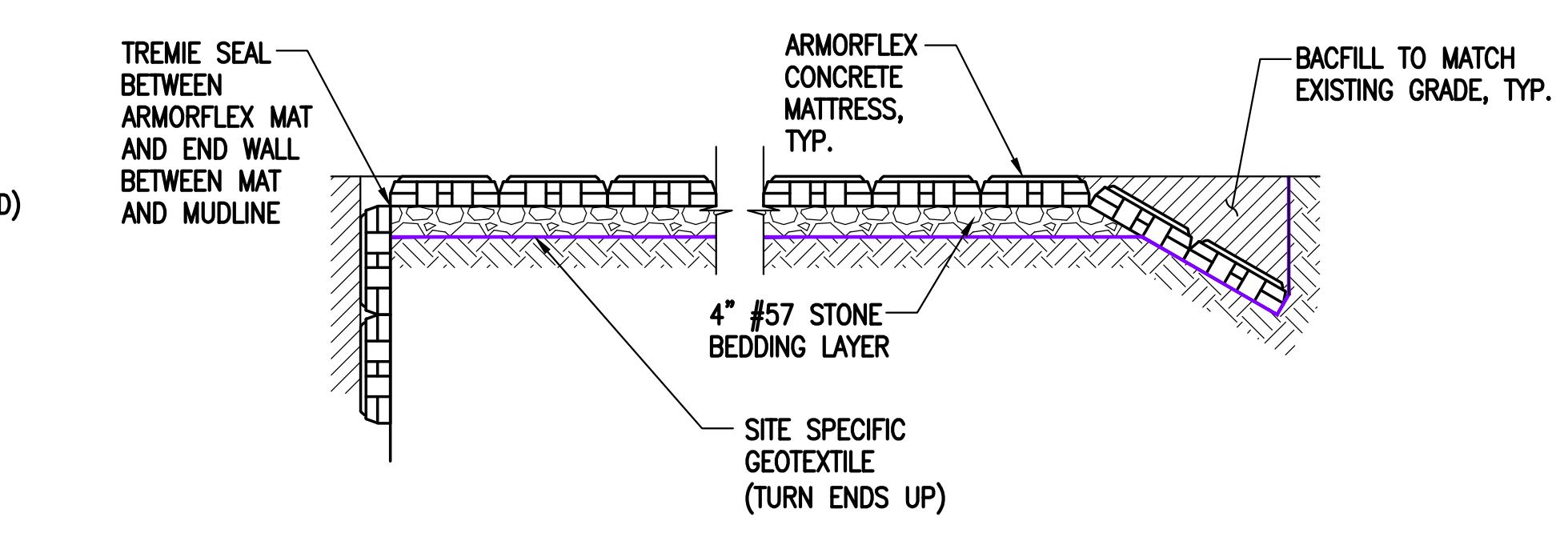
B KAYAK LAUNCH RAMP SECTION
NTS



1 KAYAK LAUNCH RAMP DETAIL
NTS



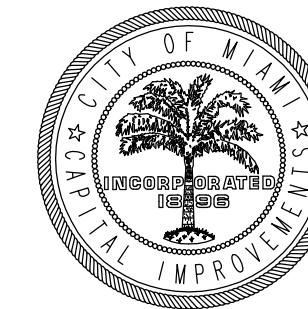
A KAYAK LAUNCH RAMP SECTION
NTS



C ARMORFLEX MAT ADJACENT TO END WALL SECTION
NTS

NOTE:
ALL SCALES INDICATED PERTAIN TO
FULL SIZE DRAWINGS (22"x34")

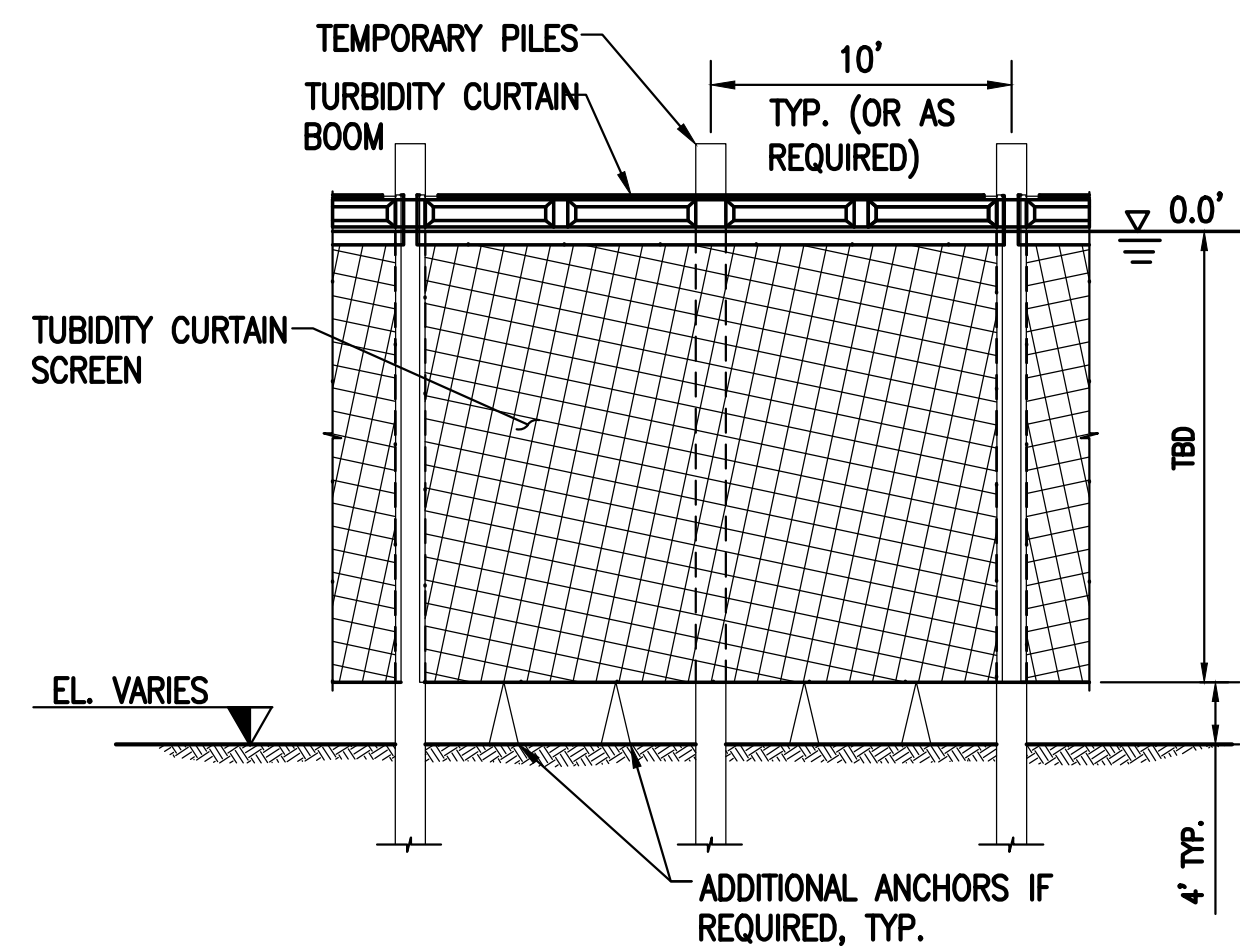
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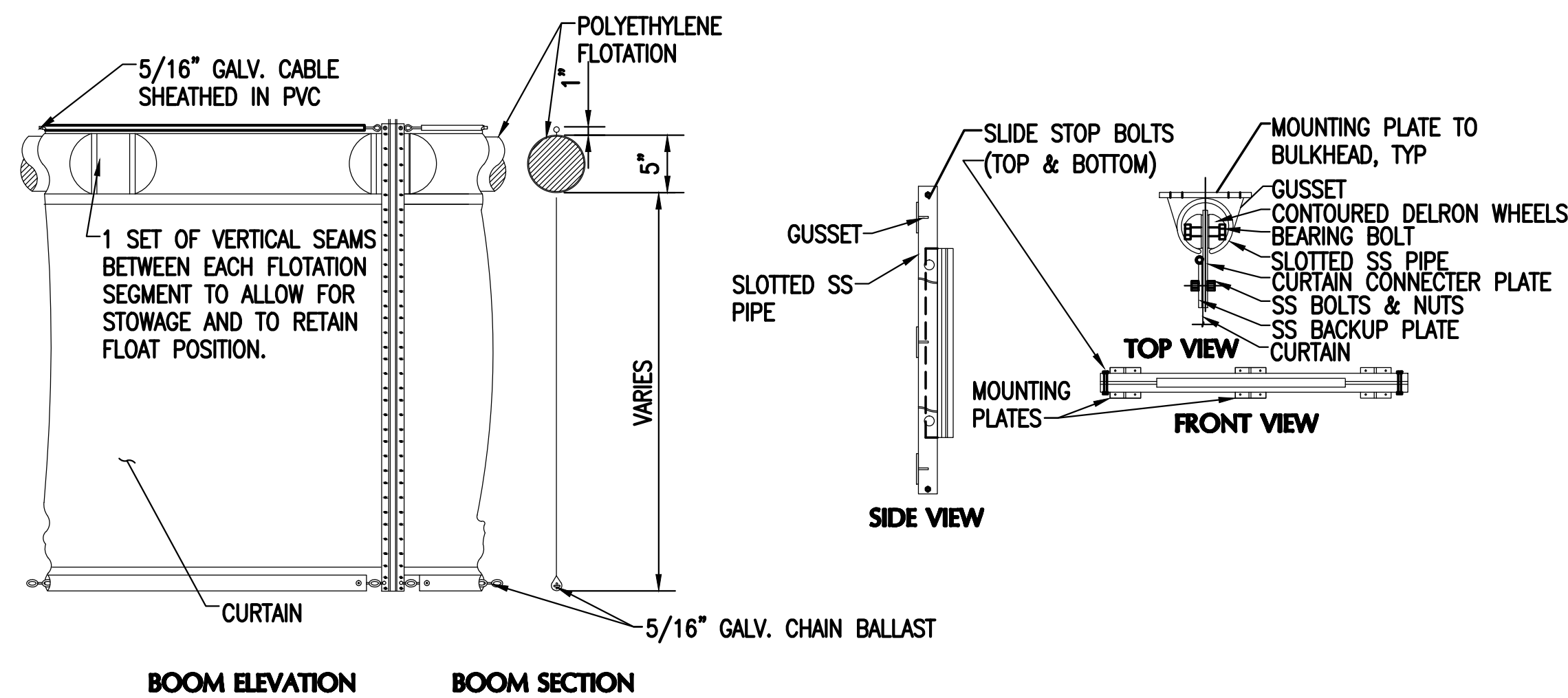
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- TURBIDITY CONTROL NOTES:**
1. CONTRACTOR SHALL SUBMIT TURBIDITY CONTROL PLAN TO EOR FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION IN ACCORDANCE WITH REGULATORY PERMITS.
 2. TURBIDITY SHALL BE MONITORED AS OUTLINED IN THE REGULATORY PERMITS AND CONSTRUCTION DRAWINGS.
 3. TURBIDITY CURTAINS SHALL BE DEPLOYED AS SHOWN ON SHEET CM-1.
 4. CONTRACTOR SHALL DEPLOY TURBIDITY CURTAINS AS SHOWN WITHIN THE PROJECT TURBIDITY CONTROL LIMITS. TURBIDITY CURTAINS SHALL BE DEPLOYED IN A MANNER NOT TO ENTANGLE OR HARM MANATEES.
 5. TURBIDITY CURTAINS SHALL NOT BE RELOCATED/REMOVED FROM WORK AREA UNTIL TURBIDITY LEVELS WITHIN THE ENCLOSED AREA RETURN TO BACKGROUND LEVELS OUTSIDE THE CURTAINS.
 6. TURBIDITY CURTAINS SHALL BE SECURED WITH TEMPORARY STEEL OR TIMBER PILINGS AT SUFFICIENT SPACING TO MAINTAIN CONTROL/FUNCTION. A WEIGHT SYSTEM OR ANCHORS CAN ALSO BE UTILIZED IF PRACTICAL.
 7. REFER TO DETAILS THIS SHEET FOR BULKHEAD TYPICAL CONNECTION DETAILS.
 8. CONTRACTOR CAN DEPLOY TURBIDITY CURTAIN IN PHASES BASED ON ESTIMATED PRODUCTION SCHEDULES.



1 TURBIDITY CURTAIN PROFILE
NTS

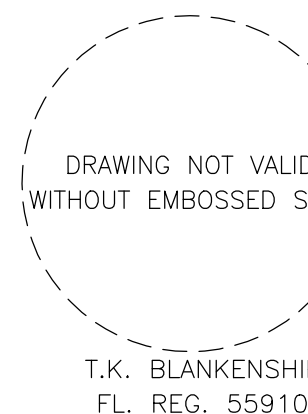


2 TURBIDITY CURTAIN DETAIL
NTS

DETAILS
N.T.S.

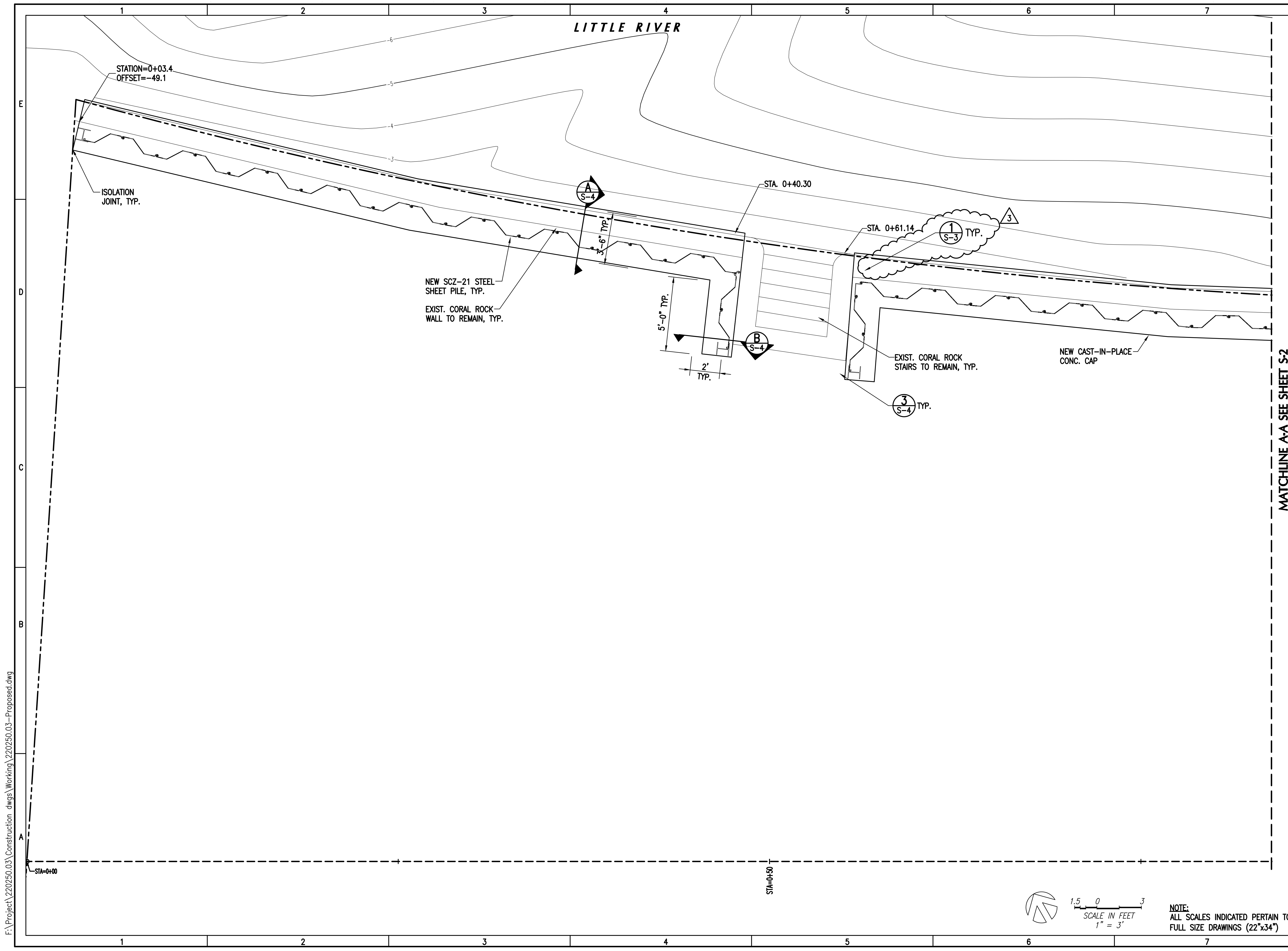
NOTE:
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FULL SIZE DRAWINGS (22"x34")

**TURBIDITY CURTAIN
DETAILS**



CM-6

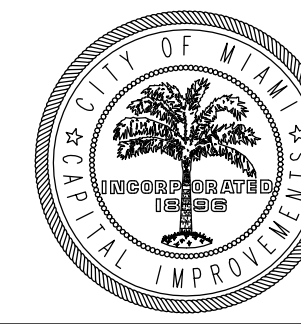
9 OF 14 SHEETS



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MANATEE BEND PARK SHORELINE IMPROVEMENTS

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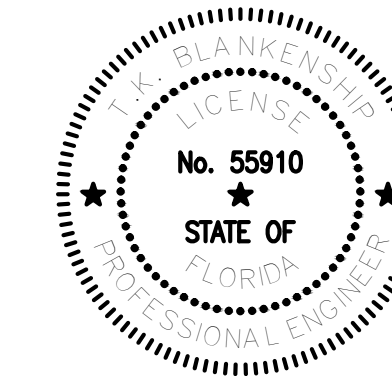
MATCHLINE A-A SEE SHEET S-2

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| 3 | 03/11/15 | BID SET |
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| . | 03/13/14 | 100% SUBMITTAL |

| ISSUE | DATE | DESCRIPTION |
|-------------|-----------|-------------|
| PROJECT NO: | 220250.03 | |
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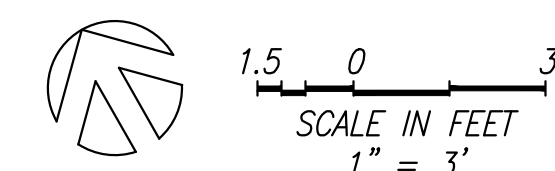
ENGINEER OF RECORD



PARTIAL BULKHEAD PLAN
1

S-1

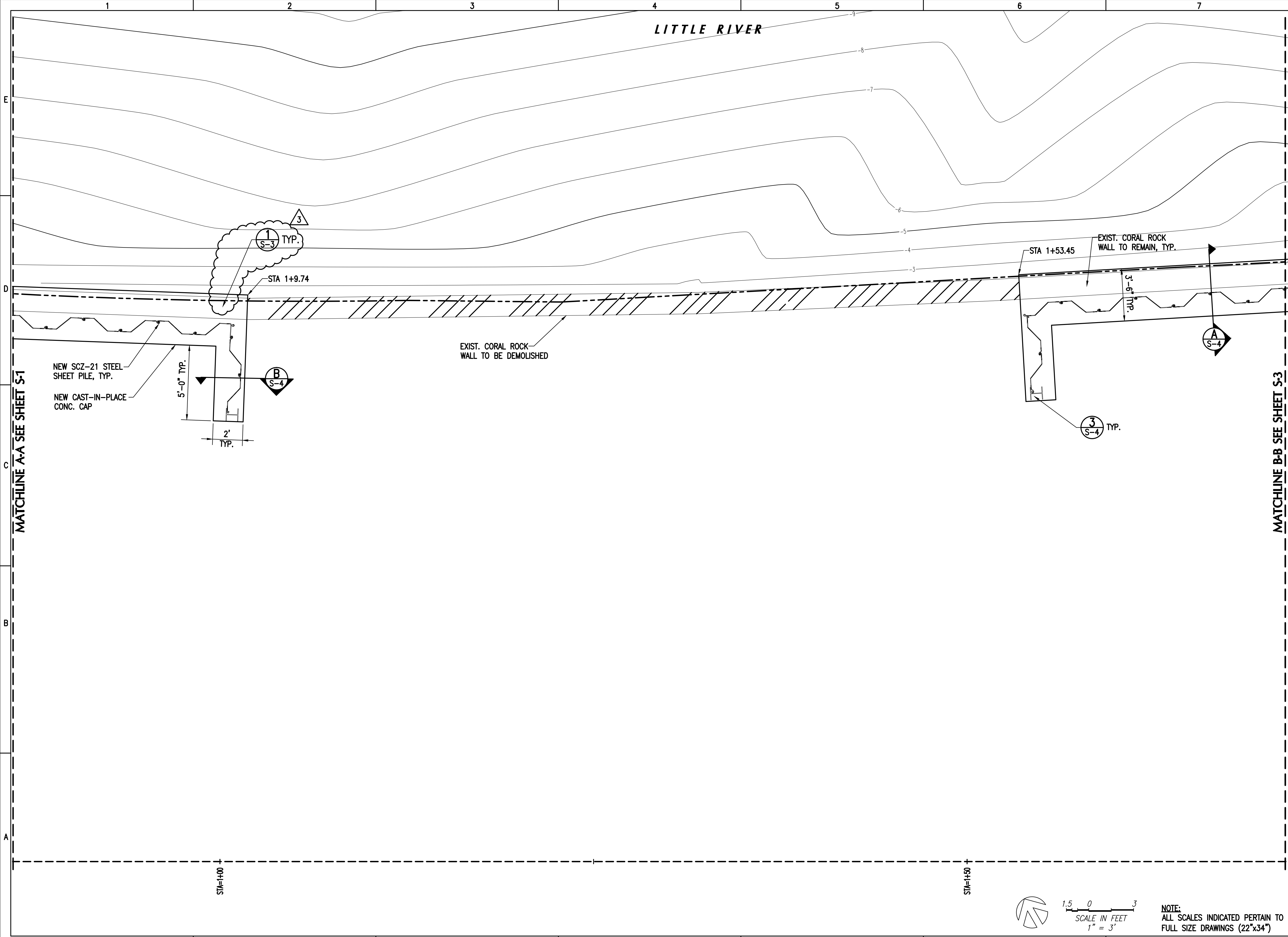
10 OF 14 SHEETS



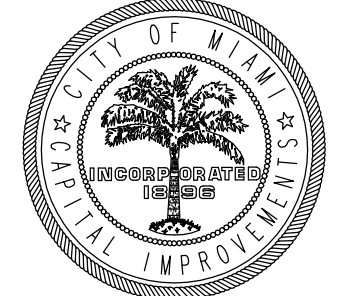
NOTE:
ALL SCALES INDICATED PERTAIN TO
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LITTLE RIVER



**MANATEE BEND
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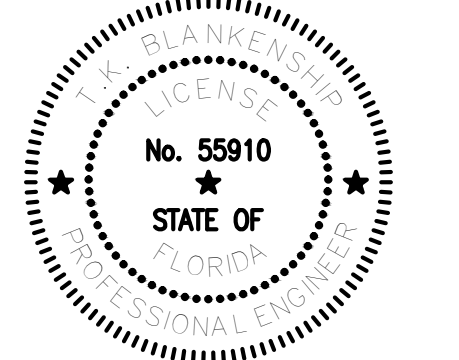
CONSULTANTS

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| PROJECT NO: | 220250.03 | |
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| CHECKED BY: | JPC | |

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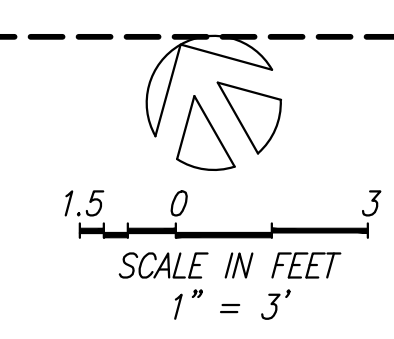
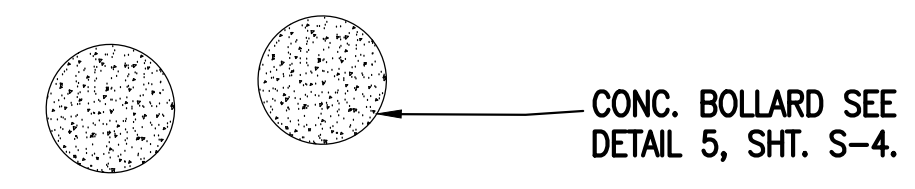
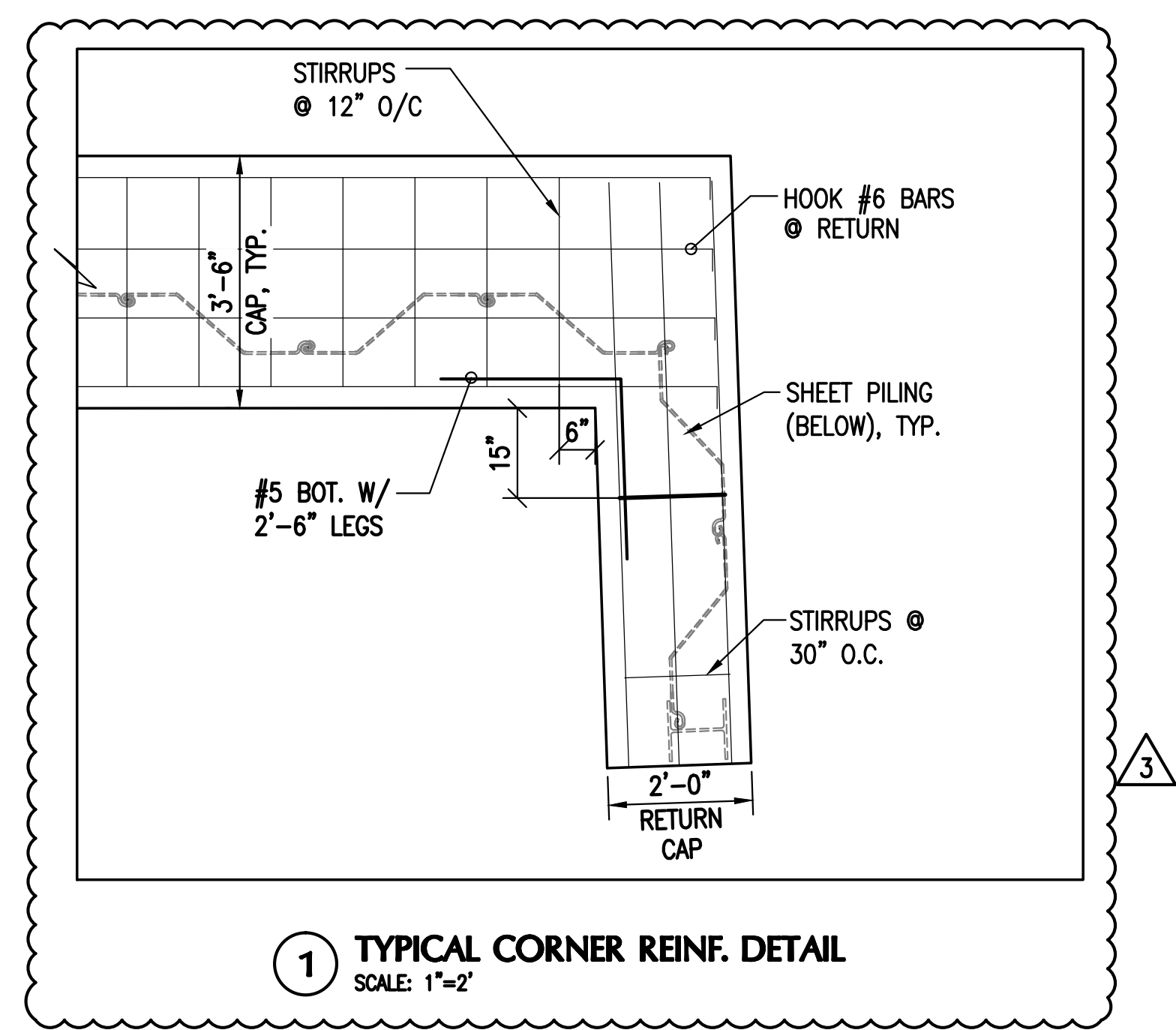
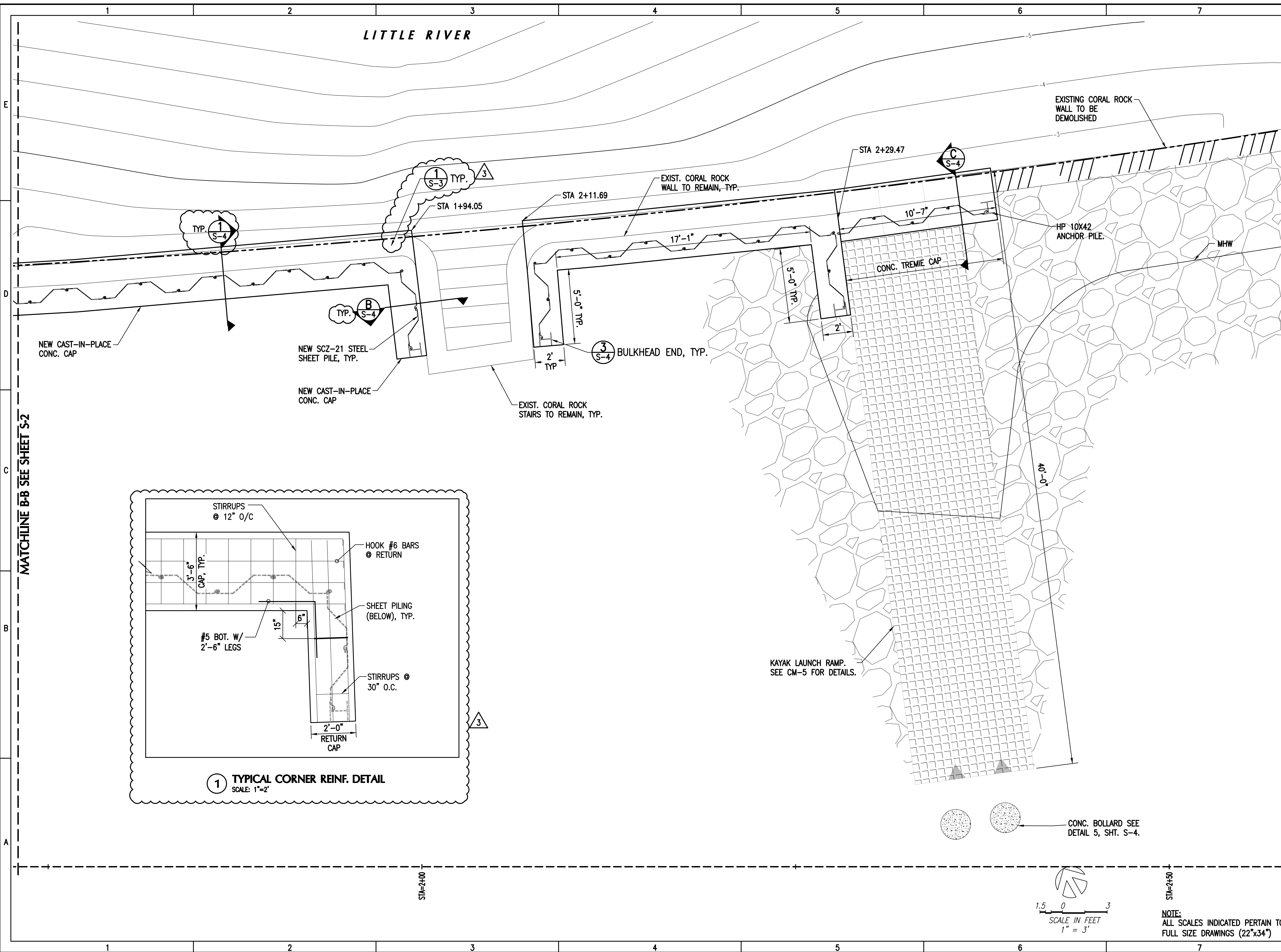
PARTIAL BULKHEAD PLAN
2

S-2

11 OF 14 SHEETS

NOTE:
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FULL SIZE DRAWINGS (22"x34")

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NOTE:
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**MANATEE BEND
PARK SHORELINE
IMPROVEMENTS**

CITY OF MIAMI



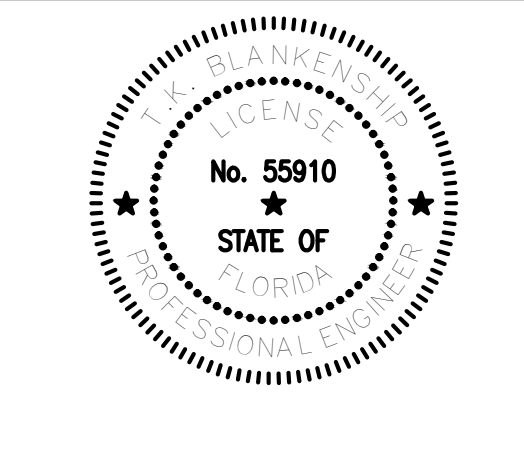
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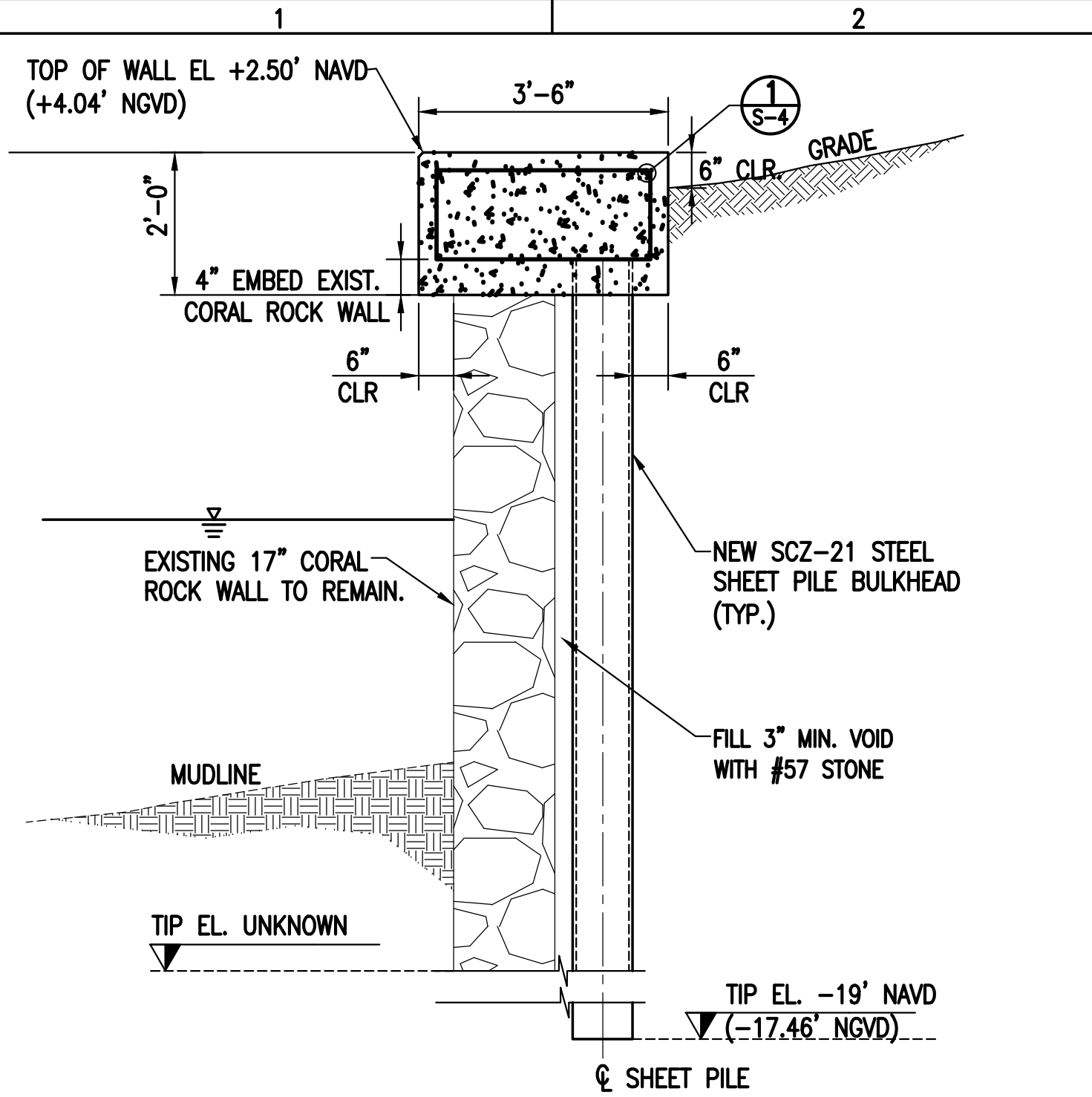
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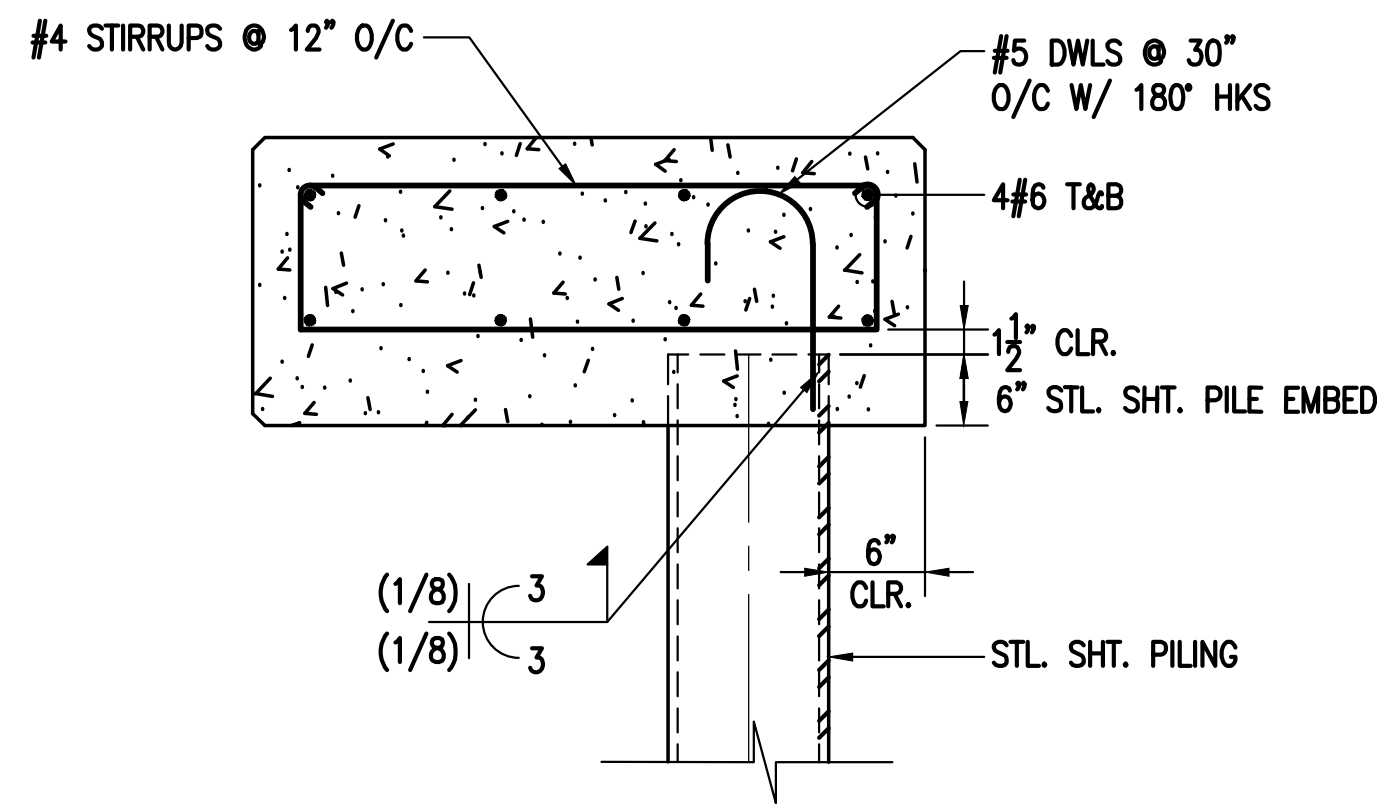


PARTIAL BULKHEAD PLAN
3

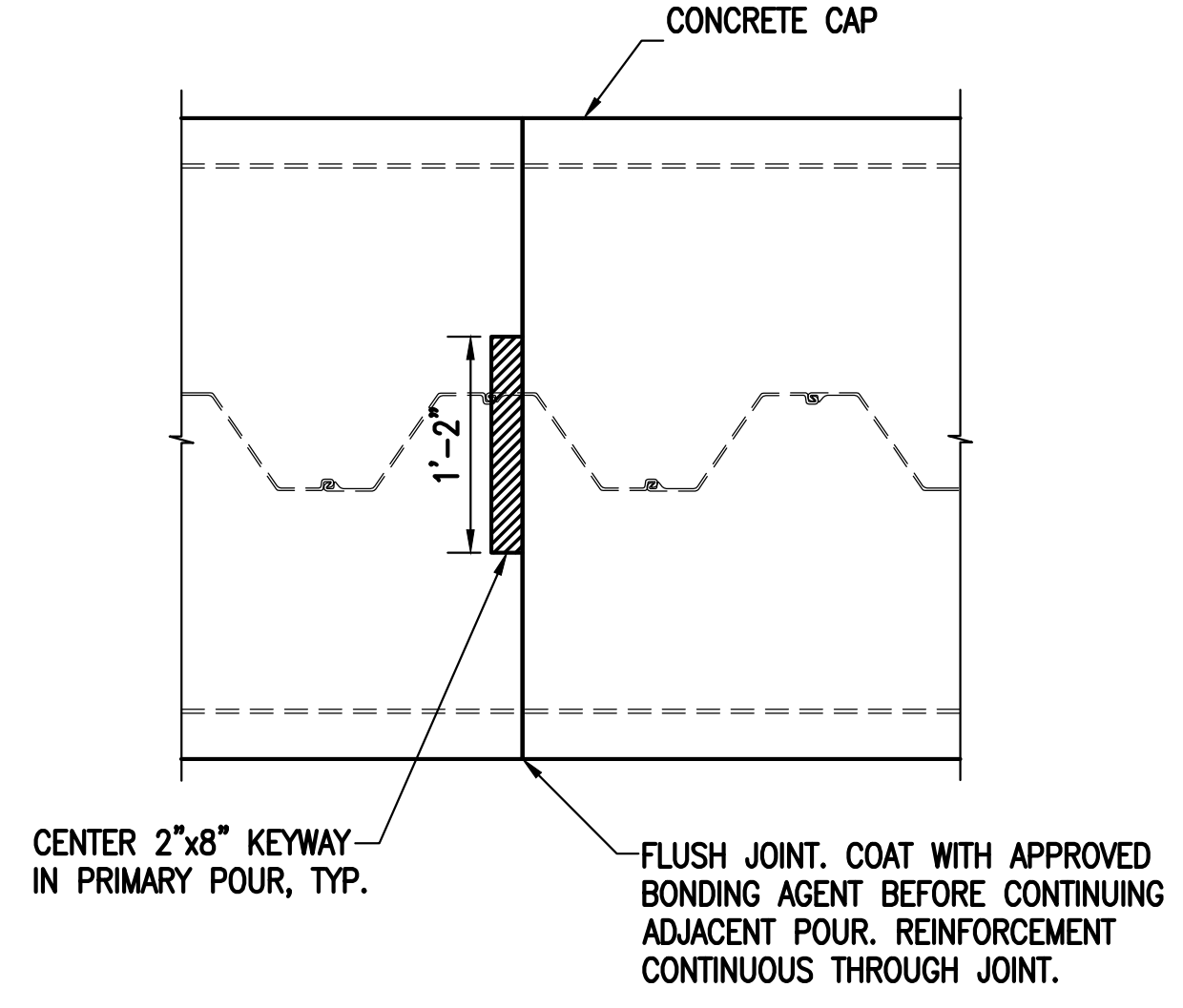
S-3
12 OF 14 SHEETS



(A) TYPICAL SEAWALL SECTION
N.T.S.

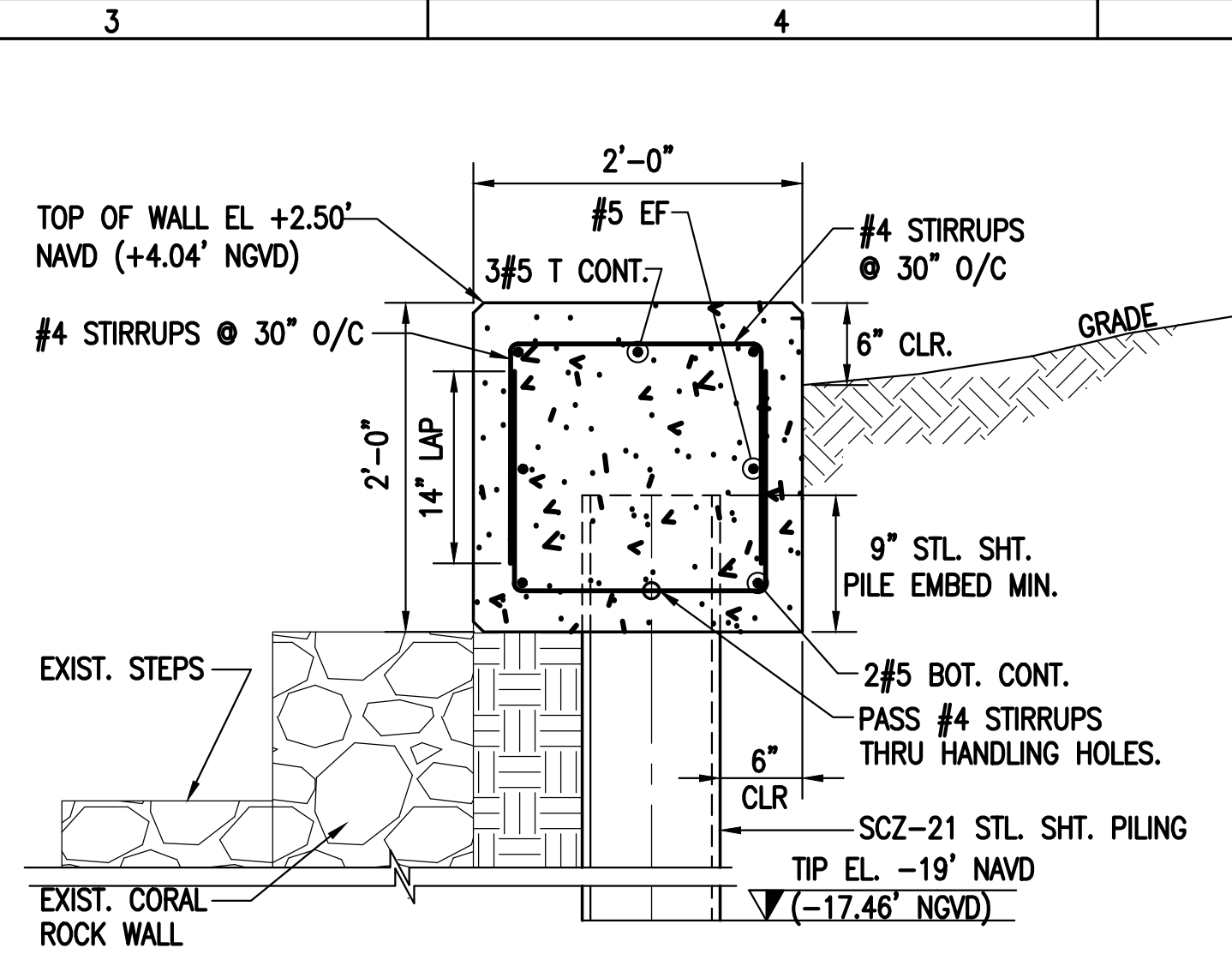


(1) CAP REINFORCEMENT DETAIL
N.T.S.

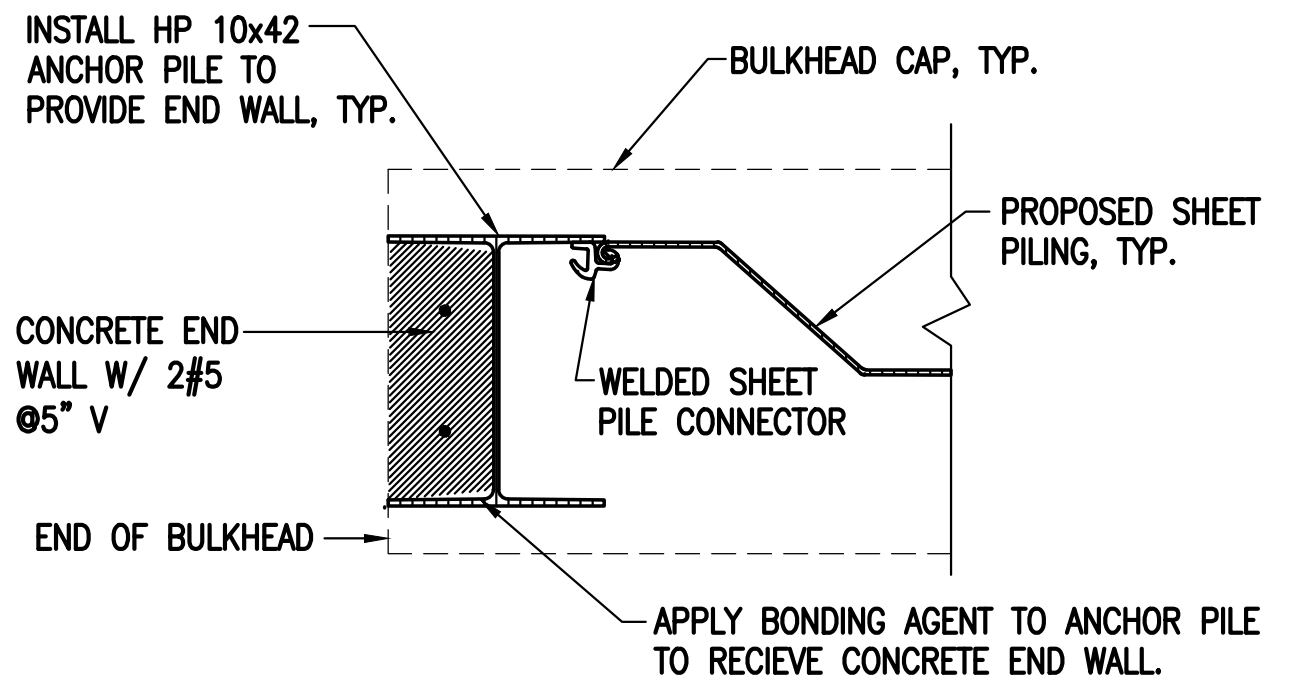


(2) SEAWALL CONSTRUCTION JOINT DTL
N.T.S.

(IN CASE OF EMERGENCY, WHEN POUR IS INTERRUPTED FOR MORE THAN 30 MINS.)



(B) TYPICAL RETURN WALL SECTION
N.T.S.

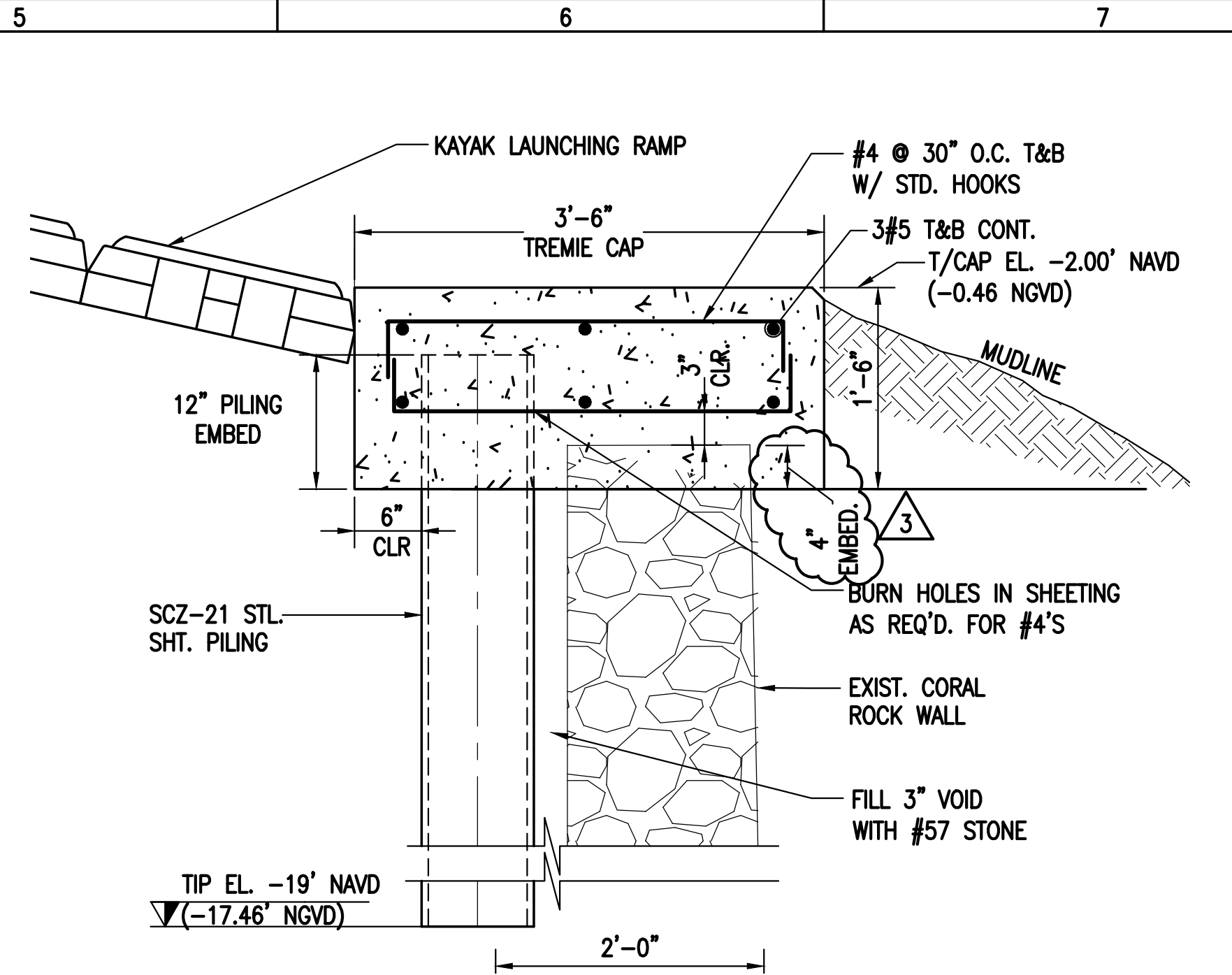


(3) TYPICAL BULKHEAD END DETAIL
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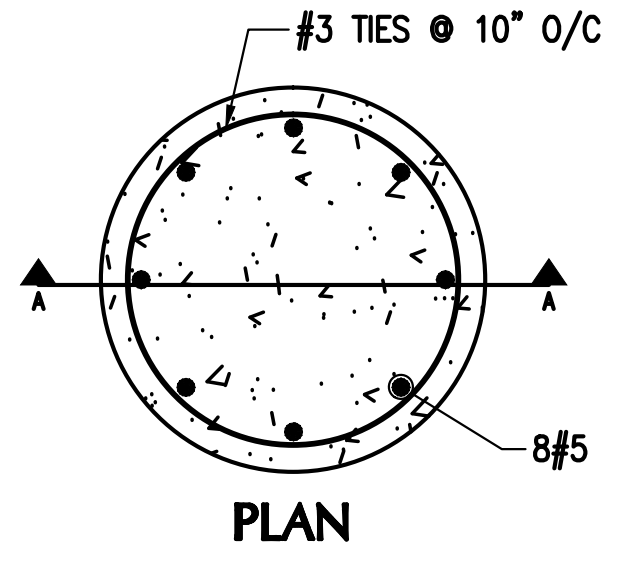
NOTE: END WALL SHALL EXTEND FROM CAP TO GRADE.



(4) MANATEE SIGN
N.T.S.



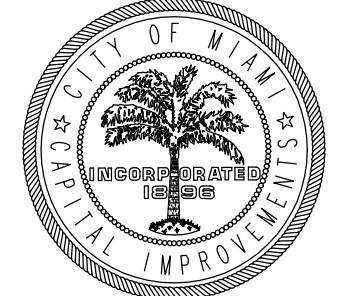
(C) TREMIE CAP SECTION
N.T.S.



(5) CONCRETE BOLLARD DETAIL
N.T.S.

NOTE: ALL SCALES INDICATED PERTAIN TO FULL SIZE DRAWINGS (22"x34")

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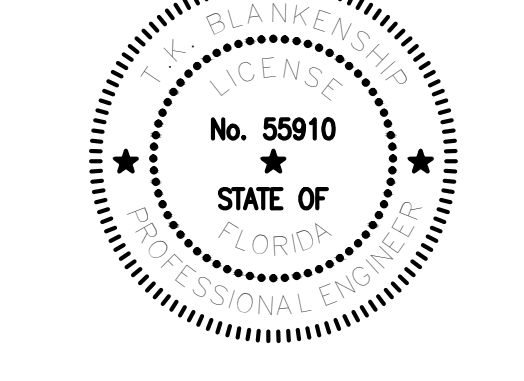
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STRUCTURAL DETAILS

S-4

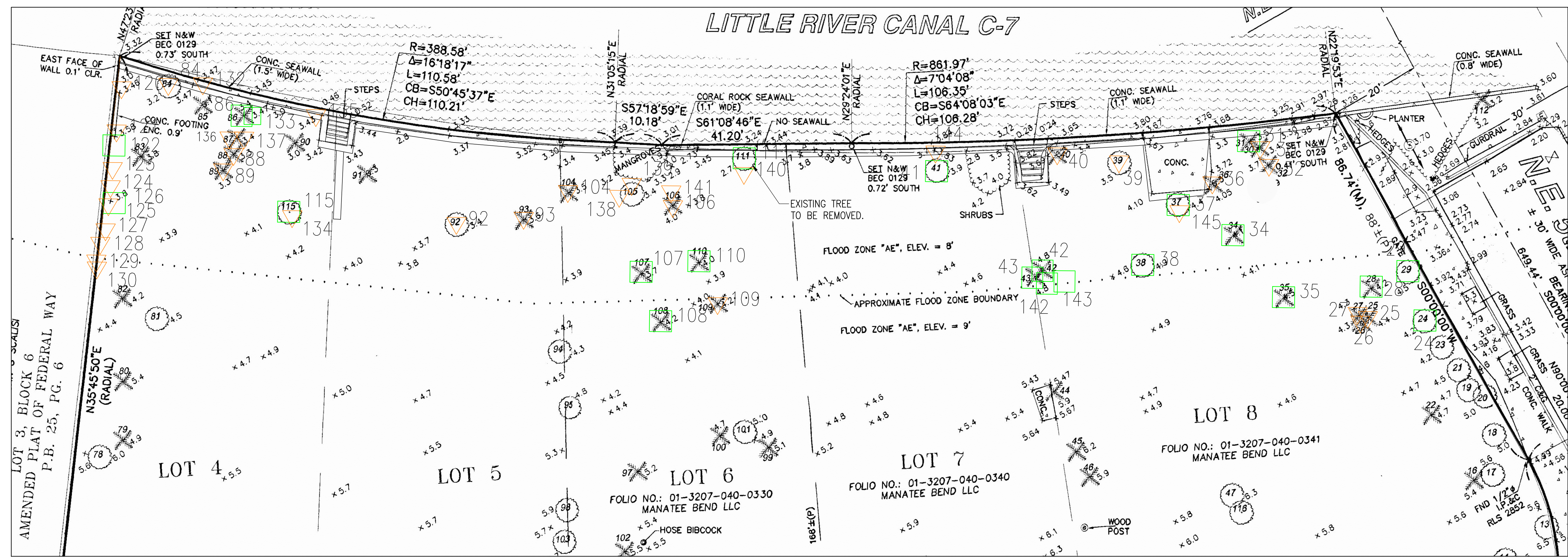
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LITTLE RIVER CANAL C-7

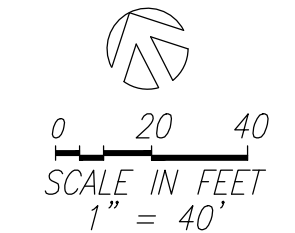
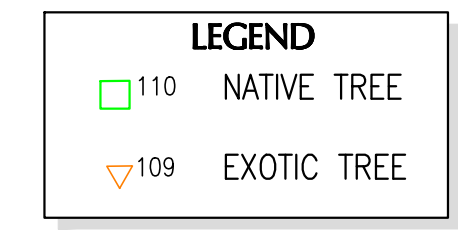


TREE/SHRUB TABLE

| Point # | Common Name | Scientific Name | Diameter (") | Height (') | Spread (') | Point # | Common Name | Scientific Name | Diameter (") | Height (') | Spread (') |
|---------|--------------------|----------------------------------|--------------|------------|------------|---------|----------------------|--|--------------|------------|------------|
| 24 | Gumbo Limbo | <i>Bursera simaruba</i> | 10 | 30 | 20 | 118 | Spider Lily | <i>Hymenocallis sp.</i> | \ | \ | \ |
| 25 | Solitaire Palms | <i>Ptychosperma elegans</i> | 4 | 40 | 7 | 119 | Seaside Mahoe | <i>Thespesia populnea</i> | \ | \ | \ |
| 26 | Solitaire Palms | <i>Ptychosperma elegans</i> | 5 | 30 | 7 | 120 | Dracaena | <i>Dracaena marginata</i> | 0.5 | 2 | \ |
| 27 | Solitaire Palms | <i>Ptychosperma elegans</i> | 5 | 30 | 7 | 121 | Dracaena | <i>Dracaena marginata</i> | 0.5 | 2 | \ |
| 28 | Coconut Palm | <i>Cocos nucifera</i> | 14 | 40 | 30 | 122 | Dinnerplate Aralia | <i>Polyscias scutellaria</i> | 4 | \ | 3 |
| 29 | Live Oak | <i>Quercus virginiana</i> | 14 | 40 | 25 | 123 | Ornamental Plant | \ | \ | \ | |
| 30 (7) | Areca Palm | <i>Dypsis lutescens</i> | 2 | 8 | 15 | 124 | Ornamental Plant | \ | \ | \ | |
| 31 | Coconut Palm | <i>Cocos nucifera</i> | 8 | 45 | 20 | 125 | Ornamental Plant | \ | \ | \ | |
| 32 (5) | Travelers Tree | <i>Ravenala madagascariensis</i> | 6 | 12 | 7 | 126 | Dinnerplate Aralia | <i>Polyscias scutellaria</i> | 5 | \ | 7 |
| 34 | Coconut Palm | <i>Cocos nucifera</i> | 12 | 35 | 15 | 127 | Ornamental Plant | \ | \ | 4 | |
| 35 | Coconut Palm | <i>Cocos nucifera</i> | 12 | 40 | 18 | 128 | Pothos | <i>Epipremnum aureum</i> | \ | \ | 4 |
| 36 (7) | Travelers Tree | <i>Ravenala madagascariensis</i> | 4 | 27 | 25 | 129 | Pothos | <i>Epipremnum aureum</i> | \ | \ | 2 |
| 37 (2) | Live Oak | <i>Quercus virginiana</i> | 30 | 50 | 55 | 130 | Pothos | <i>Epipremnum aureum</i> | \ | \ | 2 |
| 38 | Gumbo Limbo | <i>Bursera simaruba</i> | 48 | 45 | 50 | 131 | Live Oak | <i>Quercus virginiana</i> | 40 | 35 | 60 |
| 39 | Brazil Beauty Leaf | <i>Calophyllum brasiliense</i> | 10 | 35 | 25 | 132 | Spider Lily | <i>Hymenocallis sp.</i> | \ | \ | 2 |
| 40 (9) | Areca Palm | <i>Dypsis lutescens</i> | 2 | 15 | 12 | 133 | Manila Palm | <i>Veitchia merrillii</i> | \ | 8 | 3 |
| 41 | Seagrape | <i>Coccoloba uvifera</i> | 96 | 30 | 35 | | | <i>Coccoloba uvifera & Epipremnum aureum</i> | \ | \ | \ |
| 42 | Manila Palm | <i>Veitchia merrillii</i> | 4 | 35 | 10 | 134 | Seagrape & Pothos | <i>Coccoloba uvifera & Epipremnum aureum</i> | \ | \ | \ |
| 43 | Manila Palm | <i>Veitchia merrillii</i> | 6 | 25 | 12 | 135 | Spider Lily | <i>Hymenocallis sp.</i> | \ | \ | 2.5 |
| 84 | Orchid Tree | <i>Bauhinia variegata</i> | 28 | 25 | 35 | 136 | Travelers Tree | <i>Ravenala madagascariensis</i> | 2 | 2 | \ |
| 92 | Common Screw Pine | <i>Pandanus utilis</i> | 10 | 20 | 10 | 137 | Travelers Tree | <i>Ravenala madagascariensis</i> | 3 | 4 | \ |
| 93 (17) | Areca Palm | <i>Dypsis lutescens</i> | 3 | 25 | 20 | 138 | Mother Inlaw Tongues | <i>Sansevieria trifasciata</i> | \ | \ | 3 |
| 104 | Solitaire Palms | <i>Ptychosperma elegans</i> | 3 | 20 | 10 | 139 | Scaveola sp. | <i>Scaveola sp.</i> | \ | \ | 11 |
| 105 | Live Oak | <i>Quercus virginiana</i> | 30 | 45 | 45 | 140 | Mother Inlaw Tongues | <i>Sansevieria trifasciata</i> | \ | \ | \ |
| 106 | Washingtonia Palm | <i>Washingtonia robusta</i> | 12 | 30 | 15 | 141 | Scaveola sp. | <i>Scaveola sp.</i> | \ | \ | \ |
| 107 | Coconut Palm | <i>Cocos nucifera</i> | 8 | 35 | \ | 142 | Manila Palm | <i>Veitchia merrillii</i> | 5 | 20 | 12 |
| 108 | Coconut Palm | <i>Cocos nucifera</i> | 12 | 40 | 20 | 143 | Manila Palm | <i>Veitchia merrillii</i> | 6 | 20 | 12 |
| 109 | Washingtonia Palm | <i>Washingtonia robusta</i> | 15 | 35 | 15 | 144 | Commonn Screw Pine | <i>Pandanus utilis</i> | 5 | 20 | 11 |
| 110 | Coconut Palm | <i>Cocos nucifera</i> | 12 | 40 | 20 | 145 | Commonn Screw Pine | <i>Pandanus utilis</i> | 1 | 5 | 2.5 |
| 111 | Strangler Fig | <i>Ficus aurea</i> | 180 | 40 | 25 | | | | | | |
| 117 | Spider Lily | <i>Hymenocallis sp.</i> | \ | \ | \ | | | | | | |

EXOTIC VEGETATION REMOVAL NOTES:

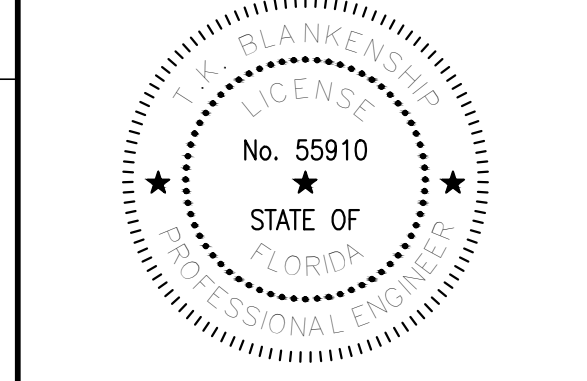
- ALL EXOTIC VEGETATION SHALL BE REMOVED ABOVE THE SUBSTRATE AND THE REMAINING STUMPS MUST BE TREATED WITH AN APPROPRIATE HERBICIDE. STUMP REMOVAL MAY BE REQUIRED AND DISTURBANCE TO THE SUBSTRATE SHALL BE MINIMIZED.
- ALL DEBRIS ASSOCIATED WITH EXOTIC REMOVAL MUST BE COMPLETELY REMOVED FROM SITE.
- THERE SHALL BE NO DAMAGE TO ANY PROTECTED VEGETATION IN THE PROJECT AREA. TRIMMING OR REMOVAL OF PROTECTED VEGETATION, OTHER THAN EXOTIC VEGETATION, IS PROHIBITED.
- PRIOR TO COMMENCEMENT OF WORK ON THE PROJECT, PROTECTIVE BARRIERS (i.e. WIRE FENCES, WOODEN BARRICADES HELD IN PLACE WITH STEEL REBAR, PLASTIC MESH FENCING, ETC.) SHALL BE ERRECTED AROUND PROTECTED VEGETATION AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION.
- EXOTIC VEGETATION REMOVAL SHALL BE IN ACCORDANCE WITH THE PUBLICATION "INTERGRATED MANAGEMENT OF NONNATIVE PLANTS IN NATURAL AREAS OF FLORIDA".



NOTE:
ALL SCALES INDICATED PERTAIN TO
FULL SIZE DRAWINGS (22"x34")

| ISSUE | DATE | DESCRIPTION |
|-------|----------|----------------|
| 3 | 03/11/15 | BID SET |
| 1 | 04/29/14 | DERM RA 1 |
| | 03/13/14 | 100% SUBMITTAL |

ENGINEER OF RECORD



EXOTIC VEGETATION
PLAN

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