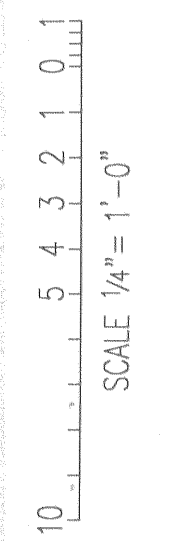
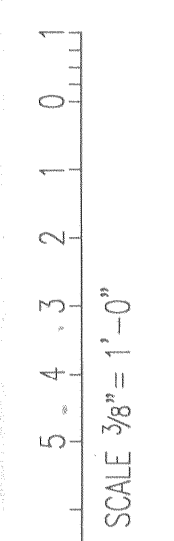
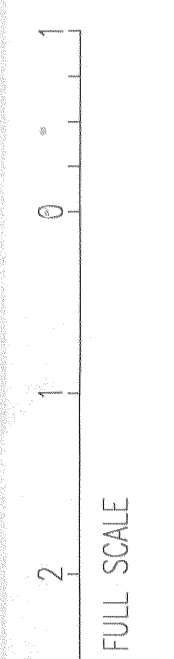


TECHNICAL ACCEPTANCE	
ORG	DATE
ENGINEERING ORGANIZATION	
BY	
DATE	
WALKDOWN INFORMATION	
ORG	DATE
AS-BUILT INFORMATION	
BY	
DATE	



GENERAL:

The work consists of performing all operations; providing material equipment and labor to construct a concrete and steel sheetpile seawall as shown on the drawings. The contractor shall complete all work associated with the construction of the seawall to the satisfaction of the owner and engineer. All work shall proceed continuously from initiation of construction to completion with no intervening gaps in construction. All construction activities shall be in compliance with applicable federal, state and local laws, ordinances and permit conditions. The contractor shall ensure that standard and special conditions of the issued permits are accounted for. Nothing contained in the construction drawings shall alleviate the contractor from using due care in the execution of the work, nor shall the contractor deviate from acceptable construction techniques in the performance of the work.

SPECIFICATIONS

EARTHWORK

General: Excavations shall be true to line and grade indicated on drawings and shall conform to following: Excavation shall include removal of all materials of every description is required to accomplish the Work. CONTRACTOR shall control grading around excavations so that ground is pitched to prevent water from running into excavated area.

Filling and Backfilling: All filling and backfilling shall conform to following, except as specified otherwise. Remove all debris from area prior to filling or backfilling. Fill and backfill shall be deposited in layers.

Compaction shall be performed in a manner such that new and existing walls, footings, and other structures are undisturbed and undamaged. Compaction specified hereinafter shall be minimum percentage of the maximum dry density as indicated by the modified Proctor Compaction Test (ASTM 1557), or ASSHO T-180.

Grading shall be performed as required to obtain grades indicated on Drawings as follows: Surfaces shall be true to lines and grades indicated on Drawings.

Grades not otherwise indicated shall be uniform slopes between points and/or existing grades. Tolerance for any specific grade shown on Drawings shall be plus or minus, one-tenth of one foot, but the average elevation for the area shall be as specified.

Finish surfaces shall be uniformly graded with rounded transitions and be free of holes, ridges and other irregularities.

Asphalt removed during excavation shall be replaced with a fresh layer to the grade and elevation of the surrounding parking lot. The finish shall be smooth and uniform and free from imperfections. The asphalt shall be of a consistent finish with that of the surrounding area.

SHORING AND SHEETING

General: Accomplish the work in a safe, efficient manner and/or to protect existing construction. Construction of shoring shall be in accordance with all applicable federal, state, and local regulatory agency requirements. CONTRACTOR shall be responsible for all damage to persons or property resulting from the omission of necessary shoring, sheeting and bracing.

Sheeting and bracing shall be removed as the excavation is refilled in such a manner as to avoid caving in the bank or disturbance to adjacent areas or structures. The voids left by removal of the sheeting shall be carefully filled by ramming or as otherwise approved by ENGINEER.

If condition requires, CONTRACTOR shall leave in place any or all sheeting for the purpose of preventing injury to structures, property or persons.

REMOVAL AND DISPOSAL OF DERELICT SECTION OF SEAWALL

General: The CONTRACTOR shall be responsible for removal and disposal of the section of existing seawall as shown on the drawings. The disposal of said material shall be in accordance with all local, county, state and federal requirements, codes and limitations. The Contractor shall be responsible for all charges, fees and costs associated with the removal, hauling and disposal of said material.

Execution: The removal and disposal of the derelict section shall be in accordance with the following criteria:

The CONTRACTOR shall cut the steel sheetpile at the limit as shown on the drawings. The CONTRACTOR shall not dispose of any material on beach or in the ocean.

The CONTRACTOR shall transfer all derelict material to a suitable disposal site using approved trucks and transportation equipment.

CONCRETE WORK

General: The work consists of furnishing materials, labor and equipment to construct the wall and cap, including reinforcement, and embed items.

Related Documents: Drawings, general notes, and Florida Dept. of Transportation Specifications for Road and Bridge Construction, current edition.

Quality Assurance: The CONTRACTOR shall comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:

ACI 301 "Specifications for Structural Concrete for Buildings".
ACI 318 "Building Code Requirements for Reinforced Concrete".
Concrete Reinforcing Steel Institute, (CRSI) "Manual of Standard Practice".
FDOT Specifications for Road and Bridge Construction.

Where there are differences in codes, the more stringent will apply.

PILE DRIVING

The CONTRACTOR shall maintain driving log for all panels, vertical and batter piles. CONTRACTOR shall submit driving log template to ENGINEER for written approval prior to start of pile driving operations.

The CONTRACTOR shall provide daily logs to ENGINEER for written approval. If CONTRACTOR experiences refusal during driving operations of panel or piles above minimum specified CONTRACTOR shall notify ENGINEER in writing of such. CONTRACTOR shall obtain written instructions from ENGINEER before proceeding. Under no circumstances shall CONTRACTOR cut or break panels or piles without written approval from ENGINEER.

Materials

Form Materials: Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.

Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form: Class I".
Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

Reinforcing Materials: Reinforcing Bars: ASTM A 615, Grade 60, deformed.
Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars in place. Use wire bar type supports complying with CRSI specifications.

Concrete Materials: All concrete to be FDOT Class IV, f'c 5,000 psi with water content less than or equal to 0.40. Use one brand of cement throughout project, unless otherwise acceptable to the ENGINEER. Corrosion Inhibitor: Rheocrete 222 or as approved by ENGINEER.

Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.

For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.

Local aggregates not complying with ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to the ENGINEER.

Water: Drinkable.
Related Materials: Expansion Joint Material: 1/2" nominal thickness, asphalt impregnated.

Expansion/Constriction Joint Sealant: Low modulus silicone.
Liquid Membrane-Forming Curing/Sealing Compound: Liquid type membrane-forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. ft./gal.

Blasting aggregate. Silica-quartz sand free from oil, grease or other contaminants
Proportioning and Design of Mixes: Design mixes shall be in strict compliance with the FDOT specifications for the product. No deviations are allowed.

Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows: Not less than 4" and not more than 6".

Ready-Mix Concrete from commercial supplier approved by FDOT. Comply with requirements of FDOT Specifications, and as herein specified.

Concrete Admixture: The CONTRACTOR shall add and mix according to the manufactures recommendations, the correct quantity and ratio of RHEOCRETE 222 as manufactured by Master Builders Inc., Cleveland Ohio, or as approved by ENGINEER.

Execution: Clean and etch existing steel sheetpile, wale and tiered by sandblasting. The treated steel shall be free from scale rust and other surface contaminants. The surface shall be suitable for proper bonding and development strength. The CONTRACTOR shall notify the ENGINEER of completion of surface treatment prior to pouring of concrete. The CONTRACTOR shall not pour concrete until surface preparation of steel is approved by ENGINEER.

Design, erect, support, brace and maintain formwork to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances complying with ACI 347.

Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.

Place chamfer strips for exposed corners and edges as indicated.

Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chops, wood sawdust, dirt or other debris just before concrete is placed. Retightening forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.

Clean reinforcement of loose rust and mill scale, earth, and other materials which reduce or destroy bond with concrete.

Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.

Place reinforcement to obtain at least 3" minimum coverage for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

Joints in seawall caps shall be as shown on drawings.
General: Set and build into work anchorage devices and other embedded items.

Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to

acceptable surface condition.

Coat contact surfaces of forms with a form-coating compound before reinforcement is placed. Thin form-coating compounds only with thinning agent of type, amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in.

General: Comply with FDOT Specifications for Road and Bridge Construction, current edition, and CRSI "Manual of Standard Practice".

Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified.

Deposit concrete as nearly as practicable to its final location to avoid segregation.

Placing Concrete in Forms: Deposit concrete in forms in horizontal layer not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete without causing segregation of mix.

Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

Maintain reinforcing in proper position during concrete placement operations. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

Apply specified curing and sealing compound to concrete as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C94.

Slump: ASTM C 143; one test at point of discharge for each set of cylinders made for each type of concrete; additional test when concrete consistency seems to have changed. When using super plasticizer admixture, slump each load before induction of admixture.

Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

Compression Test Specimen: ASTM C 31; one set of 5 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.

Compressive Strength Tests: ASTM C39; one set for each day's pour for each 50 cu. yds. or fraction thereof each concrete class placed in any one day; two specimens tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.

When total quantity of a given class of concrete is less than 50 cu. yds., strength test may be waived by ENGINEER if, in his judgment, adequate evidence of satisfactory strength is provided.

When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and not individual strength test result fall below specified compressive strength by more than 500 psi.

Test results will be reported in writing to ENGINEER and CONTRACTOR within 24 hours after tests.

Reports of compressive strength test shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength of 5000 psi at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-days tests and 28-day tests.

Painting: The replacement section of the seawall shall be painted in its entirety with an approved concrete paint suitable for exterior application in an oceanfront environment. The paint type, mixture and color shall subject to written approval by the CITY OF SUNNY ISLES prior to application.

The painting shall be in accordance with ACI 95 guidelines and shall not be performed until the concrete has cured a sufficient time.

P.E. SEAL

TITLE

SPECIFICATIONS

PROJECT NAME

**CITY OF SUNNY ISLES BEACH
SEAWALL REPLACEMENT AND RESTORATION**

Calvin, Giordano & Associates, Inc.
Engineers • Surveyors • Planners
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Phone: 954 921 7781 Fax: 954 921 8807

CUTCHER & ASSOCIATES INC., COASTAL ENGINEERS
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CAD FILE NAME	CAD ARCHIVE NAME
-	-
SCALE	DRAWING SIZE
N/A	D (36 X 24)
REVISION	SHEET
1	7 OF 7
DRAWING NUMBER	
03-034,035,036	

1	01-29-03	SUNNY ISLES BUILDING DEPT. & CALVIN, GIORDANO COMMENTS	JW	RJC	RJC
REV	DATE	REVISION DESCRIPTION	BY	CH	COR

NOTE: NOT TO BE USED FOR CONSTRUCTION UNLESS APPROVED.
APPROVED: _____ DATE: _____