

(a) The city code enforcement board shall have jurisdiction to enforce the provisions of this article; however, the jurisdiction of the code enforcement board shall not be exclusive.

(b) The city may take any other lawful action in any court of competent jurisdiction as is necessary to prevent or remedy any failure or refusal to comply with any of the provisions of this article. Such other lawful action shall include but shall not be limited to an equitable action for injunctive relief or action at law for damages or foreclosures of liens. Nothing contained in this article shall be construed to limit or otherwise adversely affect an adjoining property owner's right to seek redress for damages resulting from a failed seawall or revetment.

(Comp. Dev. Code 1990, § 5-10-3; Code 1994, § 94-233)

Sec. 16-254. Technical specifications.

(a) *Adopted; applicability.* There is attached to Ordinance No. 87-5221 and incorporated by reference in this section a document entitled "City of Naples Seawall and Revetment Regulations--Technical Specification," consisting of pages 1 through 15, inclusive of design figures. All seawalls and revetments constructed, reconstructed, repaired, altered, projected or prolonged in the city after the effective date of Ordinance No. 87-5221 must meet or exceed these technical specifications as follows:

(1) Minor repairs to the seawall or revetment which do not necessitate physical alteration to the existing structural support system are exempt from the technical specifications.

(2) Major repairs to the seawall or revetment which necessitate physical replacement of any portion of the structural support system shall require compliance with all applicable provisions of the technical specifications for that portion of the seawall or revetment. Any portion of a seawall which still has useful life may be utilized, regardless of its compliance with these technical specifications, upon certification by the licensed contractor carrying out the repair, and submission of the certification.

(3) Reconstruction of any seawall or revetment requiring the complete reinstallation of the sheet pile portion of the structural support system, or any new seawall or revetment section installed adjacent to or independently from any existing seawall or revetment, shall require complete conformance with all sections of the technical specifications for that portion of the seawall or revetment.

(b) *Compliance.* Failure to comply with these technical specifications shall constitute a violation of this article.

(c) *Alternative technologies.* Alternate technologies, such as sand- or sediment-filled cylindrical bags, may be appropriate for some applications. Proposing such devices or technologies is not prohibited, but the engineering documentation accompanying such proposals must substantiate their equivalency to the standard seawall and revetment designs specified in this section.

(Comp. Dev. Code 1990, § 5-10-4; Code 1994, § 94-234; Ord. No. 95-7594, § 22, 12-20-1995)

Secs. 16-255--16-280. Reserved.

ORDINANCE NO. 87-5221

*19 pages
to Renee
From: Carmen
8/26/08*

AN ORDINANCE RELATING TO THE CONSTRUCTION, RECONSTRUCTION, REPAIR, ALTERATION, PROJECTION AND PROLONGATION OF SEAWALLS AND REVETMENTS IN THE CITY OF NAPLES; PROVIDING DEFINITIONS; PROVIDING THAT A FAILED SEAWALL OR REVETMENT IS UNLAWFUL AND A PUBLIC NUISANCE; PROVIDING FOR ENFORCEMENT JURISDICTION BY AMENDING SECTION FOUR, SUBSECTION (A) OF ORDINANCE NO. 86-4986, TO PROVIDE THAT THE CODE ENFORCEMENT BOARD OF THE CITY OF NAPLES SHALL HAVE JURISDICTION TO HEAR AND DECIDE ALLEGED VIOLATIONS OF THIS ORDINANCE; PROVIDING FOR OTHER ENFORCEMENT REMEDIES AND PENALTIES; PROVIDING TECHNICAL SPECIFICATIONS FOR SEAWALLS AND REVETMENTS; PROVIDING FOR CONFLICT AND SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, there are many areas in the City of Naples which are adjacent to natural or man-made bodies of water; and

WHEREAS, many of these areas adjacent to bodies of water are bordered by seawalls and revetments; and

WHEREAS, properly designed and constructed seawalls and revetments serve to protect waterfront upland property and improvements located thereon against wave attack and serve to stabilize the position of the shoreline; and

WHEREAS, seawalls and revetments have a tendency to fail and fall into bodies of water because of the passage of time, strong winds, heavy rains, erosion, corrosion, and high and low tides among other reasons; and

WHEREAS, seawalls and revetments which have failed or collapsed are a hazard to navigation in navigable bodies of water and a hazard to drainage and flood control in non-navigable bodies of water; and

WHEREAS, a failed seawall or revetment with accompanying loss of fill, unless promptly replaced or repaired, may cause continuing loss of soil on adjoining properties which can seriously and adversely affect the stability of seawalls and revetments on those adjoining properties as well as the value of adjoining properties; and

WHEREAS, a failed seawall or revetment deprives adjoining property owners of the additional strength that derives from the common benefit of a contiguous seawall or revetment; and

WHEREAS, individual property owners are presently responsible for maintenance, repair, and replacement of seawalls and revetments along their property; and

WHEREAS, there presently exists a threat to public health, safety, and welfare because of the failure of some individual property owners to maintain, repair, or replace their failed seawalls or revetments;

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF NAPLES, FLORIDA:

SECTION 1. Definitions: As used in this Ordinance, the following words shall have the following meanings:

"City" means the incorporated area of Naples, Florida.

"Seawall" means any solid upright structure which serves to separate real property and/or any improvements thereon from any natural or man-made body of water.

"Failed seawall or revetment" means a seawall or revetment that has failed structurally or that has moved from its original position or that does not serve to stabilize the position of the shoreline.

"Revetment" means a sloping structure which serves to separate real property and/or any improvements thereon from any natural or man-made body of water.

SECTION 2. Failed Seawall or Revetment Declared to be Unlawful and a Public Nuisance; Debris and Rubble of Failed Seawall or Revetment Declared to be Unlawful and a Public Nuisance Where Property Owner Fails to Remove Same.

(a) It is hereby declared unlawful and a public nuisance for any property owner in the City to permit, or to fail to repair or reconstruct, any failed seawall or revetment upon his property. It is further declared unlawful and a public nuisance for any property owner to fail to remove from his property or an adjacent body of water the debris and rubble of any failed seawall or revetment.

(b) In no case will a failed revetment be replaced with a vertical seawall. Revetments being more environmentally sound and desirable than vertical seawalls, the City of Naples encourages individual property owners to replace failed seawalls with revetments, if such a replacement can be effected without disturbing the structural integrity of neighboring/adjacent shorelines.

(c) Seawalls and revetments located seaward of the Coastal Construction Setback Line or the City's most restrictive setback line, as defined in Section 7-41, City Code, are controlled by the aforementioned code section and by the Division of Beaches and Shores, Florida Department of Natural Resources (Chapter 16B-33, FAC). Replacement of a failed seawall or revetment that is located seaward of the Coastal Construction Setback Line necessitates submission of a permit application to the Florida Department of Natural Resources and a variance petition to the City of Naples.

SECTION 3. Enforcement Jurisdiction.

(a) The City of Naples Code Enforcement Board shall have jurisdiction to enforce the provisions of this Ordinance, however, the jurisdiction of the Code Enforcement Board shall not be exclusive

(b) The City of Naples may take any other lawful action in any court of competent jurisdiction as is necessary to prevent or remedy any failure or refusal to comply with any of the provisions of this Ordinance. Such other lawful action shall include, but shall not be limited to, an equitable action for injunctive relief or action at law for damages or foreclosures of liens. Nothing contained in this Ordinance shall be construed to limit or otherwise adversely affect an adjoining property owner's right to seek redress for damages resulting from a failed seawall or revetment.

SECTION 4. Technical Specifications for Seawalls and Revetments.

There is attached hereto and incorporated by reference herein a document entitled City of Naples Seawall and Revetment Regulations - Technical Specifications," consisting of pages one through fifteen, inclusive of design figures. All seawalls and revetments constructed, reconstructed, repaired, altered, projected or prolonged in the City after the effective date of this Ordinance must meet or exceed these technical specifications as follows:

(a) Minor repairs to the seawall or revetment which do not necessitate physical alteration to the existing structural support system are exempt from the technical specifications.

(b) Major repairs to the seawall or revetment which necessitate physical replacement of any portion of the structural support system shall require compliance with all applicable provisions of the technical specifications for that portion of the seawall or revetment. Any portion of a seawall which still has useful life may be utilized, regardless of its compliance with these technical specifications, upon certification by a licensed Engineer and submission of said certification.

(c) Reconstruction of any seawall or revetment requiring the complete reinstallation of the sheet pile portion of the structural support system, or any new seawall or revetment section installed adjacent to or independently from any existing seawall or revetment shall require complete conformance with all sections of the technical specifications for that portion of seawall or revetment.

Failure to comply with these technical specifications shall constitute a violation of this Ordinance.

Alternative technologies, such as sand/sediment-filled cylindrical bags, may be appropriate for some applications. Proposing such devices/technologies is not prohibited, but the engineering documentation accompanying such proposals must substantiate their equivalency to the standard seawall and/or revetment designs specified in this section.

SECTION 5. Conflict and Severability.

In the event this Ordinance conflicts with any other ordinance of the City of Naples or other applicable

law, the more restrictive shall apply. If any phrase or portion of this Ordinance is held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining portion.

SECTION 3. This ordinance shall take effect immediately upon adoption at second reading.

APPROVED AT FIRST READING THIS 18TH DAY OF FEBRUARY, 1987.

PASSED AND ADOPTED AT SECOND READING AND PUBLIC HEARING IN OPEN AND REGULAR SESSION OF THE CITY COUNCIL OF THE CITY OF NAPLES, FLORIDA, THIS 4TH DAY OF MARCH, 1987.

Edwin J. Putzell, Jr.
Mayor
Edwin J. Putzell, Jr.

ATTEST:

Janet Cason

Janet Cason
City Clerk

APPROVED AS TO FORM AND LEGALITY BY

David W. Rynders
David W. Rynders,
City Attorney

FIRST READING COUNCIL MEMBERS	M O T I O N	S E C O N D	V O T E S	Y E S	N O	A B S E N T	SECOND READING COUNCIL MEMBERS	M O T I O N	S E C O N D	VOTE		A B S E N T
										Y E S	N O	
Anderson-McDonald		X	X	X			Anderson-McDonald		X	X		
Barnett			X	X			Barnett	X		X		
Bledsoe			X	X			Bledsoe			X		
Crawford			X	X			Crawford			X		
Graver	X		X	X			Graver			X		
Richardson			X	X			Richardson			X		
Putzell (7-0)			X	X			Putzell (7-0)			X		

CITY OF NAPLES SEAWALL AND REVETMENT REGULATIONS

TECHNICAL SPECIFICATION

SECTION 1: DESCRIPTION

The work described in this Specification consists of the design and construction of waterfront upland property and building protection structures such as seawalls and revetments which serve to protect against wave attack and to stabilize the position of the shoreline.

The Design and Construction standards herein described shall provide minimum requirements for all seawalls and revetments constructed, reconstructed, repaired, altered, projected or prolonged.

SECTION 2: DESIGN CONSIDERATIONS

A. General

1. All plans and specifications for seawalls and revetments shall be prepared by a Professional Engineer registered in the State of Florida.
2. The design of the structures shall adequately address all possible soil, live, dead and hydrostatic loadings existing during the life of the structure.

B. Criteria

1. Soil and site parameters essential to the structural design are summarized on Figure 1.
2. The active failure soil wedge on the upland side of the structure shall assume saturated soil to the top cap of the seawall/revetment.
3. The low water depth on the waterward side of the structure shall be assumed to be a "low, low" tide.

SECTION 3: GENERAL REQUIREMENTS

A. Location

Seawalls shall be placed so that the waterward face of the wall is coincidental with the platted

property or bulkhead line, if one exists, or at the intersection of the mean high water line with the existing shoreline.

Revetments shall be placed so the exposed rock face intersects the platted property or bulkhead line at the mean high water line.

B. Elevation

The cap elevation for all seawalls and revetments fronting on protected tidal waters shall be equal to, or greater than, elevation 4.5 feet N.G.V.D. (National Geodetic Vertical Datum) and equal to or greater than, 5.5 feet N.G.V.D. on open bays and channels. The elevation for all seawalls and revetments fronting on freshwater canals and lakes shall be equal to, or greater than, the local high water elevation as determined for a 25 year return frequency design storm event.

C. Filling

The only filling authorized herein shall be for backfill behind the seawalls or revetments and shall not extend any further waterward than existing seawalls or revetments. The backfill shall be from upland sources and consist of suitable granular material free from toxic pollutants in other than trace quantities. At no time shall this Specification be construed to allow the filling of any County, State or Federal wetland.

D. Code Enforcement

1. The City Manager, or his designated representative, shall review the plans and specifications to determine if all appropriate Engineering Certifications are provided. Upon determination that all certifications are provided, the City Manager, or his designated representative, shall issue a Permit to perform such work.

2. At the conclusion of all permitted work relating to an individual seawall or revetment improvement, a certification by a Professional Engineer registered in the State of Florida shall be provided to the City Manager, or his designated representative, verifying compliance with the design and construction requirements of this Specification.

E. Special Conditions

The City Manager, or his designated representative, may waive/abate only those requirements detailed herein that are in direct conflict with existing conditions at or adjacent to the property location for the proposed seawall or revetment improvements. Substitutions may be authorized by the City Manager, or his designated representative, for seawalls or revetments constructed of material and/or by methods other than as detailed in this Ordinance only if the design considerations of Section 2 herein are complied with. This authorization does not allow substitution of any requirement detailed in Section 4 herein.

SECTION 4: RESTRICTIVE SPECIFICATIONS

A. General

1. The Standard Specifications of the Florida Department of Transportation for Road and Bridge Construction, Latest Edition, shall govern all construction. Concrete and reinforcing steel shall be governed by the American Concrete Institute Standard 318, "Building Code Requirements for Reinforced Concrete," Latest Edition.
2. The references to tie-back rods and anchors in the following subsections shall not be construed as a requirement by the City

for that particular means of sheet piling support system but are included for Specification information purposes only. When utilized, the tie-back rods shall be straight between wall cap or waler and anchor plate.

3. Sheet piling shall be installed plumb in both the horizontal and vertical directions.
4. Sheet piling shall penetrate into firm ground a minimum of 40% of the total length of the sheet pile but never less than 4 feet. This penetration requirement may be abated in the event the toe of the sheet pile can be embedded a minimum of 12 inches in solid bedrock.
5. The toe-berm of all sheet pile seawalls shall be protected by a stone rip-rap revetment placed on a filter fabric erosion control blanket in accordance with Section 4.D as follows:
 - a. At locations where soils will not adequately resist toe-out failure by additional penetration depth along;
 - b. At locations where lateral tidal flows create excessive scour and erosion of the toe-berm;
 - c. At any other location where the design Engineer deems it necessary for the preservation of the integrity of the seawall.

B. Concrete Sheet Pile Seawalls

1. All seawalls under this Section may be of concrete, utilizing the tongue and groove, or other approved method of construction, with poured-in-place concrete cap.
2. The concrete shall have a minimum test strength in accordance with Chapter 3 of the

American Concrete Institute Standard 318,
"Building Code Requirements for Reinforced
Concrete," Latest Edition.

3. Concrete cover for the reinforcing steel and sheet piling slab thickness shall be governed by Chapter 7 of the American Concrete Institute Standards 318, "Building Code Requirements for Reinforced Concrete," Latest Edition.
4. The concrete cap shall not be less than 10 inches in thickness, nor less than 16 inches in width, and contain construction/contraction joints at all property lines but in no case more than 50 foot intervals.
5. All tie-back rods shall be of a size, material and composition to ensure a three-to-one (3:1) safety factor under the design criteria outlined in Section 2.A.2. Tie rod connections to the seawall shall transmit the forces from the tie rod to the seawall slabs either by integrating the sheet piling slab steel with the tie rod in the cap, or by a positive connection on the waterside of the sheet piling slab. All connections shall be made at elevation = 3.0 feet ngvd or higher and all metal exposed to the atmosphere shall be environmentally "double-protected" by galvanizing and other protective coatings. Tie rods shall be environmentally protected against corrosion by "hot-dip" galvanizing in accordance with ASTM A-153, epoxy coating in accordance with ASTM A-775, or any other equivalent protection material, as well as be encased in a polyethylene or other approved plastic material tube.

6. Tie rod anchors shall provide a passive resistance of two times the maximum design tension in the tie rods.

C. Aluminum Sheet Pile Seawalls

1. All seawalls under this Section may be of aluminum, with all members conforming to the appropriate ASTM standards so specified.
2. Sheet piles shall be fabricated from aluminum alloy 5052-H141, conforming to ASTM B-209 alloy 5052 for chemical composition; also having a minimum thickness of 0.125 inches and a minimum ultimate tensile strength of 35,500 p.s.i.
3. Cap and joint extrusions shall be fabricated from aluminum alloy 6063-T6, conforming to ASTM B-221 alloy 6063 for chemical composition; also having a minimum thickness of 0.15 inches and a minimum ultimate tensile strength of 30,000 p.s.i. The cap shall be a minimum of six inches wide and five and three-quarters (5.75) inches deep.
4. Anchor rods and anchor plates shall be fabricated from aluminum alloy 6061-T6, conforming ASTM B-221 alloy 6061 for chemical composition; also having a minimum thickness of 0.125 inches for anchor plates and a minimum diameter of 0.75 inches for anchor rods, both with a minimum ultimate tensile strength of 38,000 p.s.i. Anchor rods shall be designed to ensure a three-to-one (3:1) safety factor under the design criteria outlined in Section 2.A.2.
5. Installation procedures shall follow the guidelines and methods required by the aluminum seawall manufacturer.

6. If the aluminum material is brought in contact with concrete, a coating of clear methacrylate lacquer shall be applied to the aluminum contact surface to prevent corrosion. There shall be no dissimilar metals or metal systems bonded to the wall.

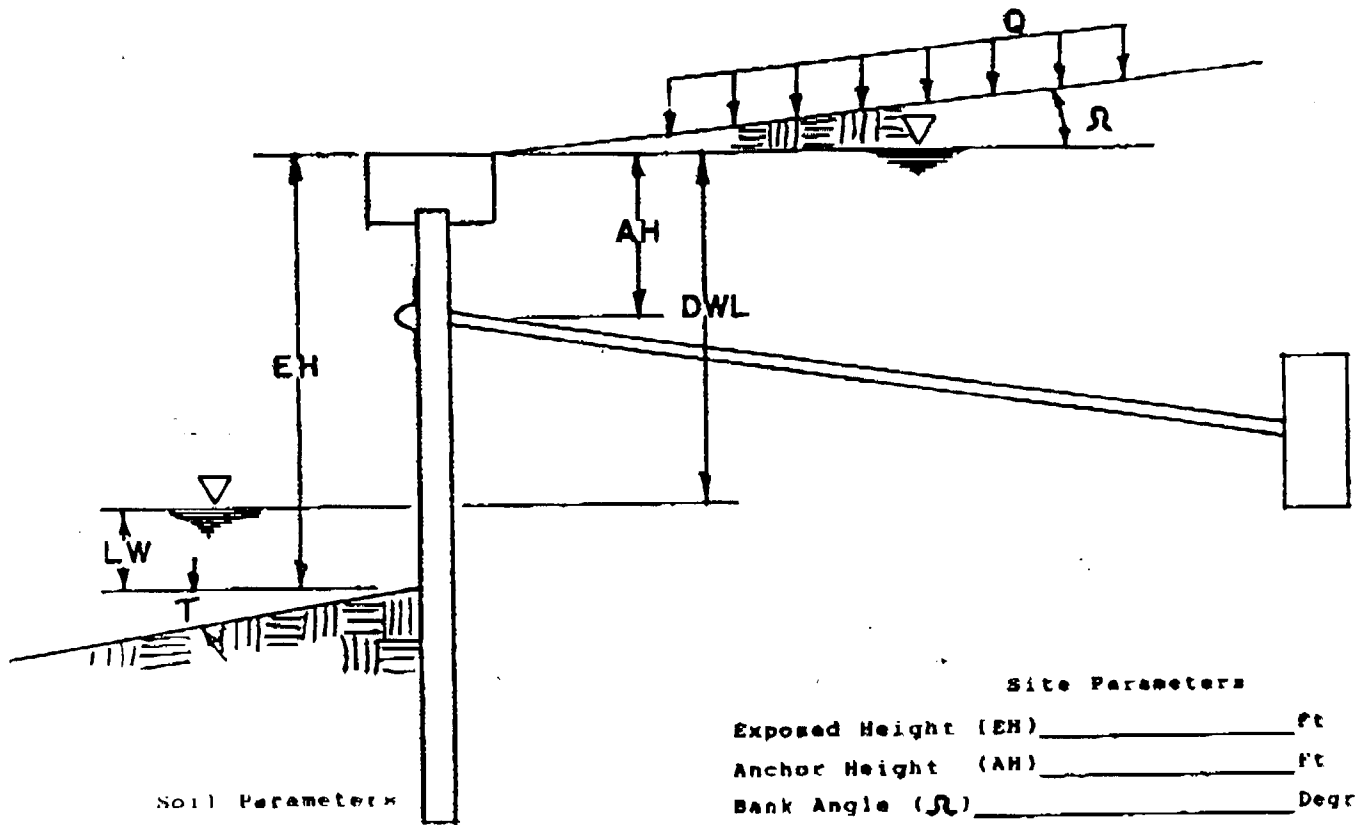
D. Revetments

1. The work under this Section is comprised of a heavy armor facing of precast concrete blocks, natural stones and boulders, bags filled with sand-cement mixture of grout, or some other durable facing material placed on a stable natural sloping shore.
2. The revetment shall be placed on a smooth, even, compacted slope with a gradient not exceeding one foot vertical drop for every two feet of horizontal distance.
3. All revetments shall be placed on a woven plastic filter fabric in accordance with F.D.O.T. Specifications, Section 514. This fabric shall be overlaid by a layer of one inch to four inch stone which shall serve as a cushion for the armor layer protection. The fabric shall be folded over and anchored by larger rock at the toe of the revetment slope.
4. The stone revetment armor layer shall be comprised of boulders of sufficient quantity and size to withstand all tide and wave forces, but in no case be less than that specified by F.D.O.T. Specifications Section 530.
5. Alternative armor layers of protection may be sand-cement bags interconnected by #4 reinforcing dowels, in accordance with F.D.O.T. Specifications Section 530, "Armorflex,"

"Terrafix, "Tri-lock" or any other approved interlocking, precast, modular concrete armor system.

SECTION 5. PERFORMANCE REQUIREMENTS

These Specifications detail minimum requirements for seawalls and revetments which are to be constructed in the City of Naples. Individual design is the responsibility of the landowner, based upon specific site conditions, type of shore stabilization structure desired, method of construction, and all other factors affecting the stability of the structure. These Specifications are minimum requirements only and are not intended to be a final design relating to a specific site or any other affecting conditions.



Soil Parameters

Dry Density _____ Lbs/Ft³
 Saturated Density _____ Lbs/Ft³
 Buoyant Density _____ Lbs/Ft³
 Angle of Internal Friction _____ Degrees

Site Parameters

Exposed Height (EH) _____ Ft
 Anchor Height (AH) _____ Ft
 Bank Angle (Ω) _____ Degrees
 Berm Angle (T) _____ Degrees
 Surcharge (Q) _____ Lbs/Ft
 Low Water (LW) _____ Ft
 Differential Water Level (DWL) _____ Ft

Design Criteria

These Specifications detail minimum requirements for seawalls and revetments which are to be constructed in the City of Naples. These Specifications are minimum requirements only and are not intended to be a final design relating to a specific site or any other affecting conditions.

FIGURE



CITY OF NAPLES
 Engineering Department
 735 Eighth Street South
 NAPLES, FLORIDA 33940
 (813) 649-3446

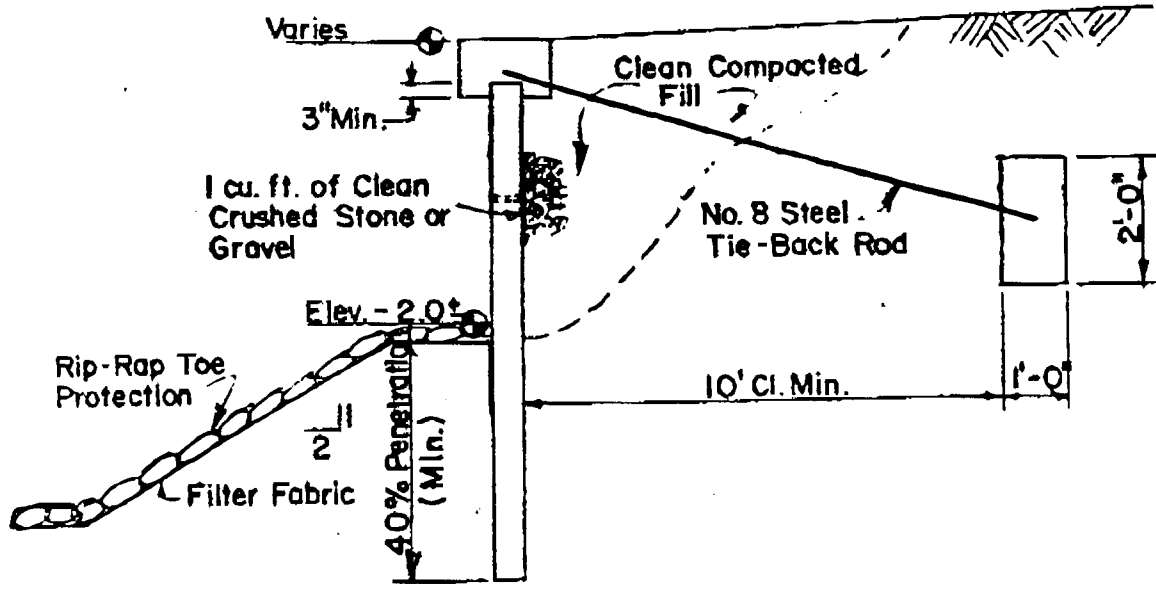
JOB SEAWALL DESIGN CRITERIA

DRAWN BY _____ DATE 2/87

CHECKED BY _____ DATE _____

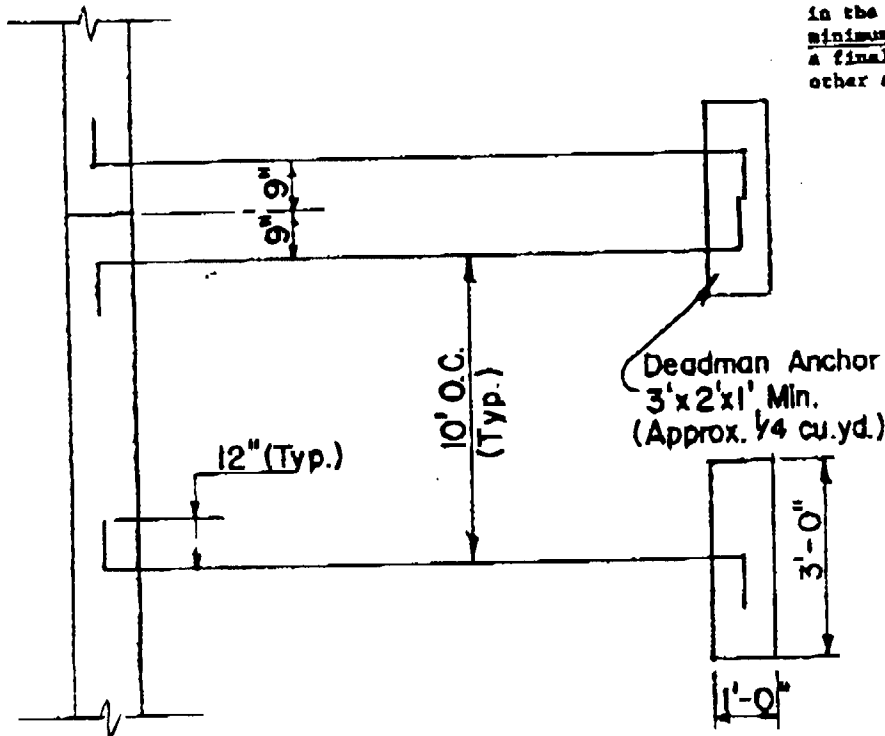
SCALE N.T.S. SHEET 9 OF 15

000049



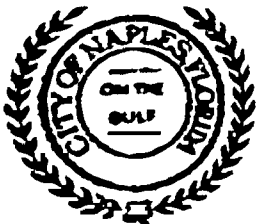
SECTION TYPICAL SEAWALL

These Specifications detail minimum requirements for seawalls and revetments which are to be constructed in the City of Naples. These Specifications are minimum requirements only and are not intended to be a final design relating to a specific site or any other affecting conditions.



PLAN TYPICAL SEAWALL

FIGURE



CITY OF NAPLES
 Engineering Department
 735 Eighth Street South
 NAPLES, FLORIDA 33940
 (813) 649-3446

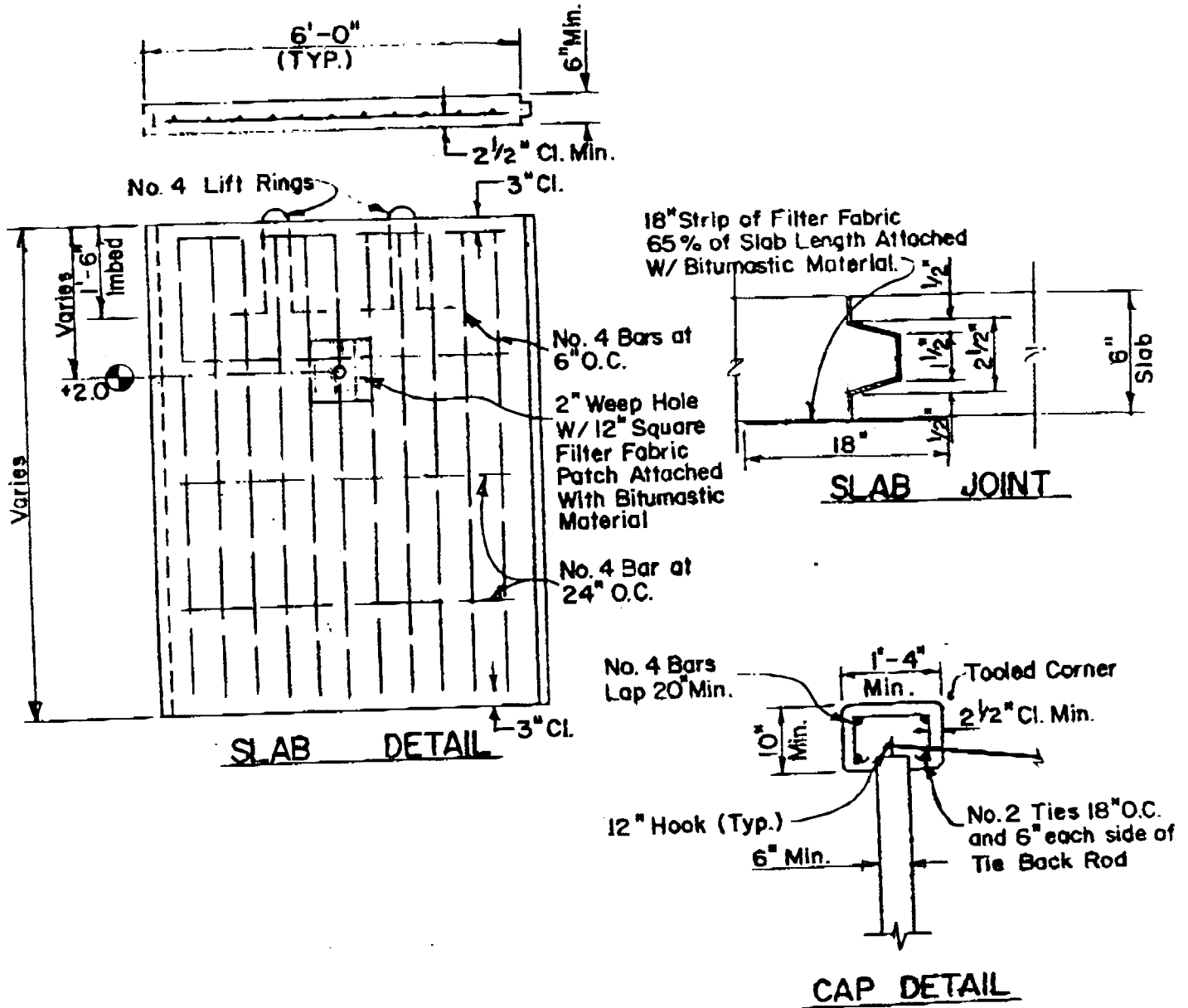
JOB SAMPLE CONCRETE SEAWALL

DRAWN BY _____ DATE 2/87

CHECKED BY _____ DATE _____

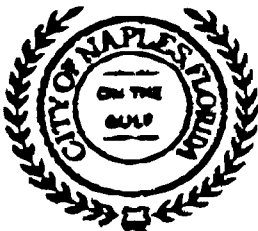
SCALE N.T.S. SHEET 10 OF 15

000051



These Specifications detail minimum requirements for seawalls and revetments which are to be constructed in the City of Naples. These Specifications are minimum requirements only and are not intended to be a Final design relating to a specific site or any other affecting conditions.

FIGURE 2



CITY OF NAPLES
 Engineering Department
 735 Eighth Street South
 NAPLES, FLORIDA 33940
 (813) 649-3446

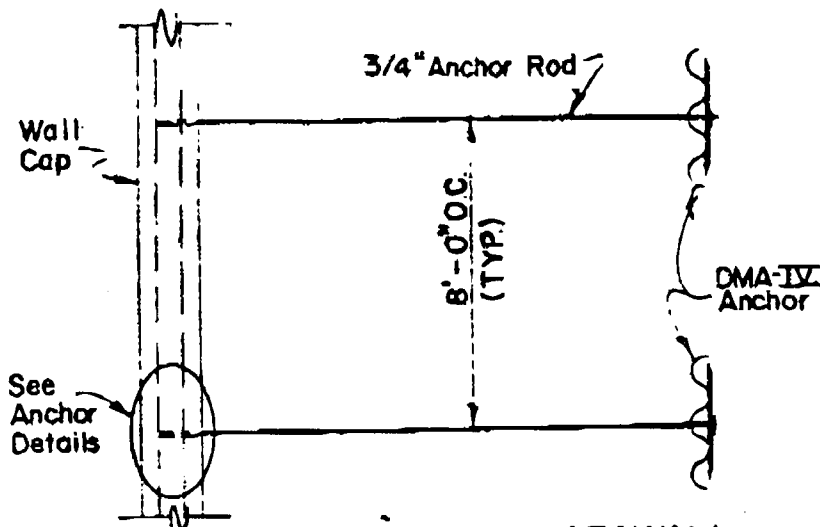
JOB SAMPLE CONCRETE SEAWALL

DRAWN BY _____ **DATE** 2/87

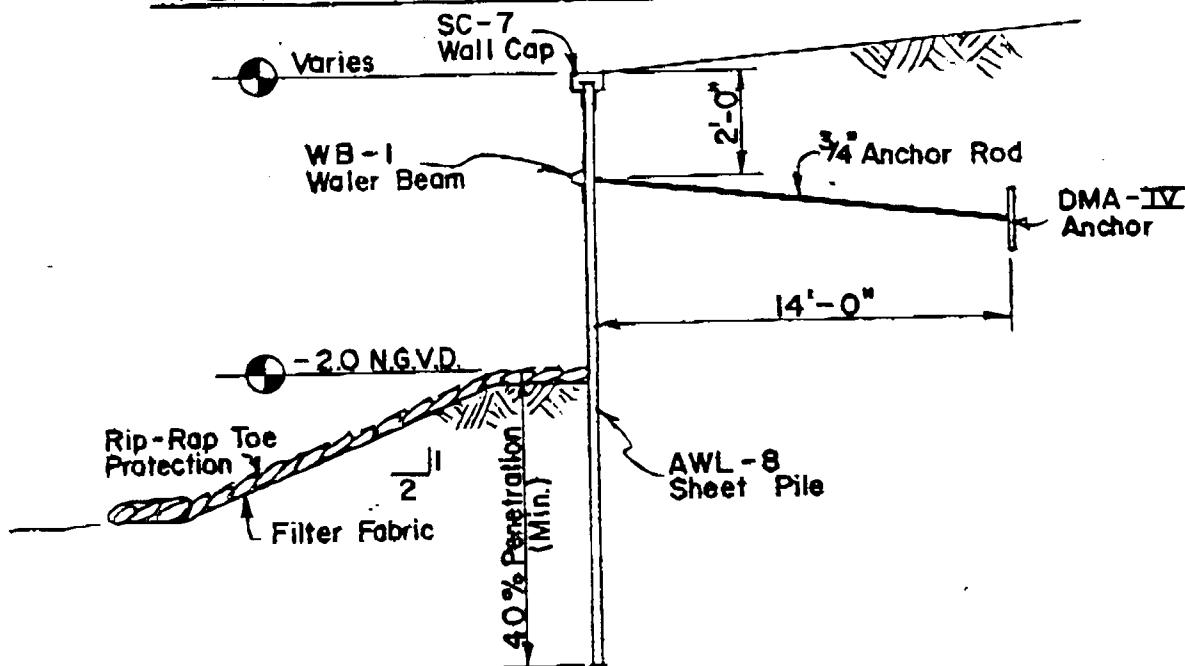
CHECKED BY _____ **DATE** _____

SCALE N.T.S. **SHEET** 11 **OF** 11

000053



PLAN TYPICAL SEAWALL



SECTION TYPICAL SEAWALL

These Specifications detail minimum requirements for seawalls and revetments which are to be constructed in the City of Naples. These Specifications are minimum requirements only and are not intended to be a final design relating to a specific site or any other affecting conditions.

FIGURE



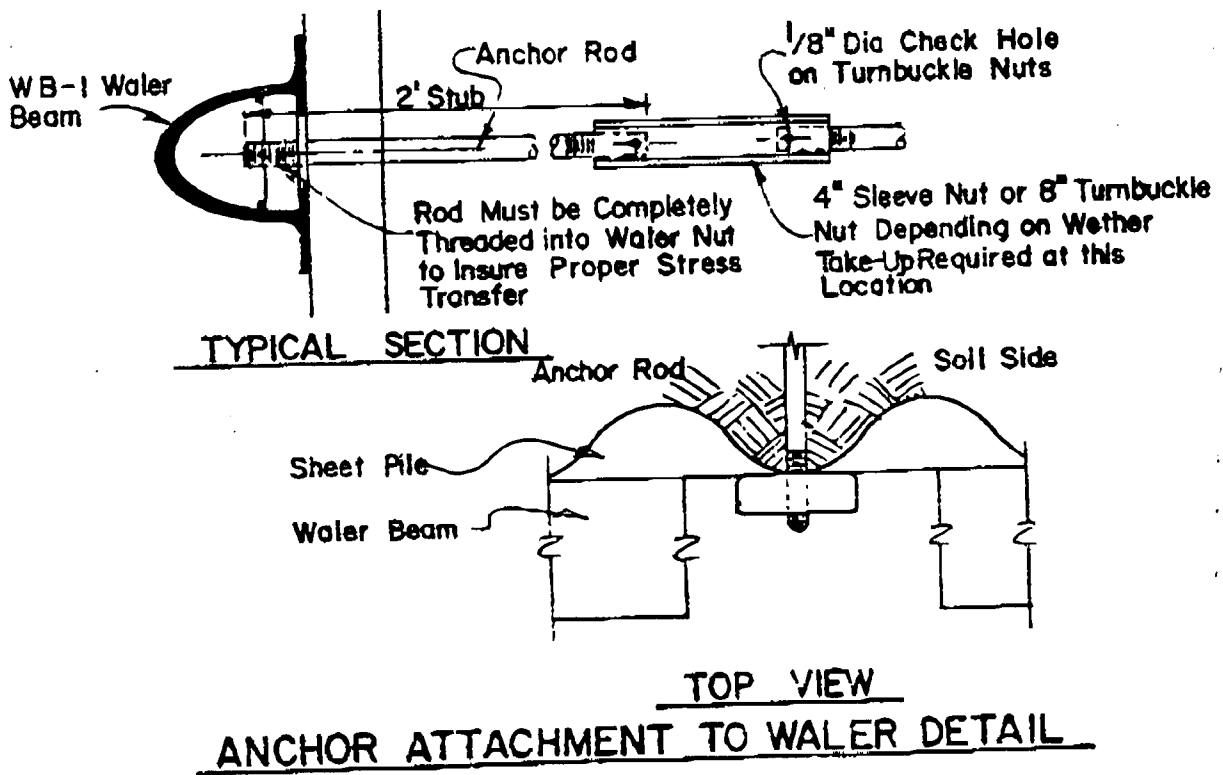
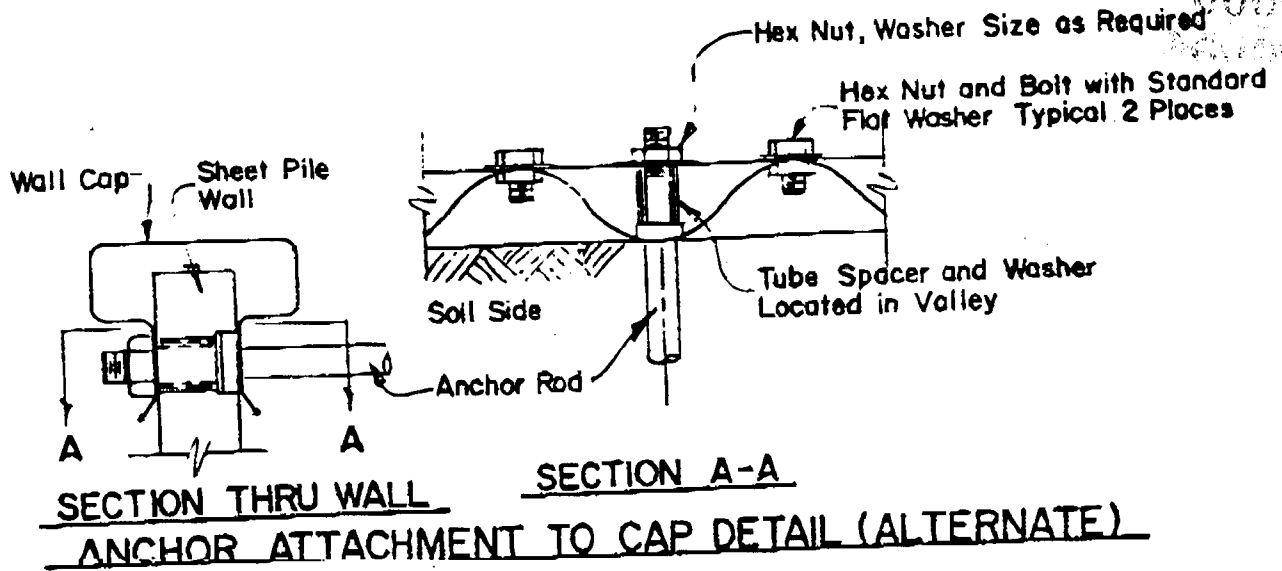
CITY OF NAPLES
 Engineering Department
 735 Eighth Street South
 NAPLES, FLORIDA 33940
 (813) 649-3446

JOB SAMPLE ALUMINUM SEAWALL

DRAWN BY _____ DATE 2/87

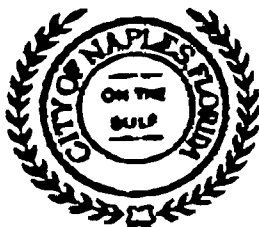
CHECKED BY _____ DATE _____

SCALE N.T.S. SHEET 12 OF 1



These Specifications detail minimum requirements for seawalls and revetments which are to be constructed in the City of Naples. These Specifications are minimum requirements only and are not intended to be a final design relating to a specific site or any other affecting conditions.

FIGURE 3



CITY OF NAPLES
 Engineering Department
 735 Eighth Street South
 NAPLES, FLORIDA 33940
 (813) 649-3446

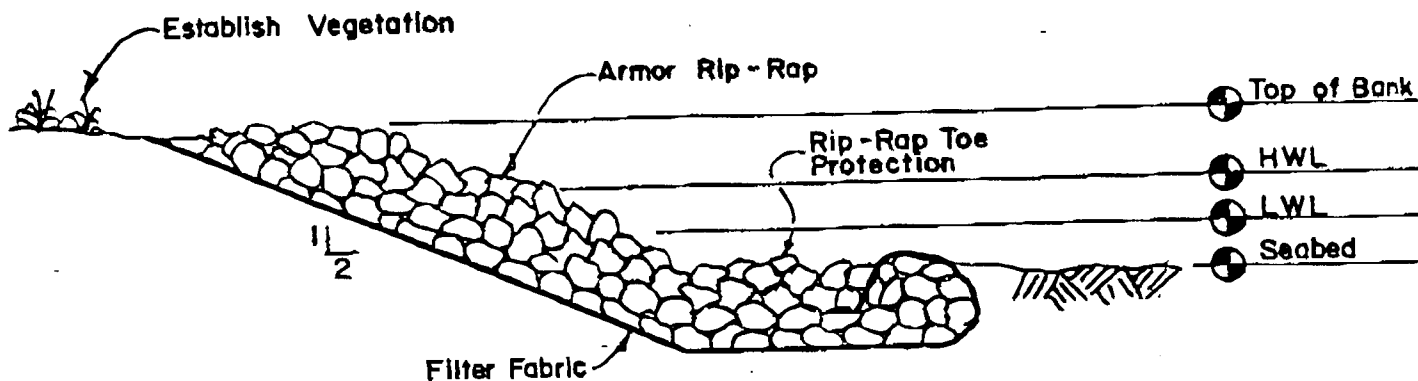
JOB SAMPLE ALUMINUM SEAWALL

DRAWN BY _____ DATE 2/87

CHECKED BY _____ DATE _____

SCALE N.T.S. SHEET 13 OF 15

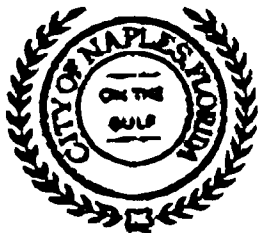
000057



TYPICAL STONE REVETMENT

These Specifications detail minimum requirements for seawalls and revetments which are to be constructed in the City of Naples. These Specifications are minimum requirements only and are not intended to be a final design relating to a specific site or any other affecting conditions.

FIGURE



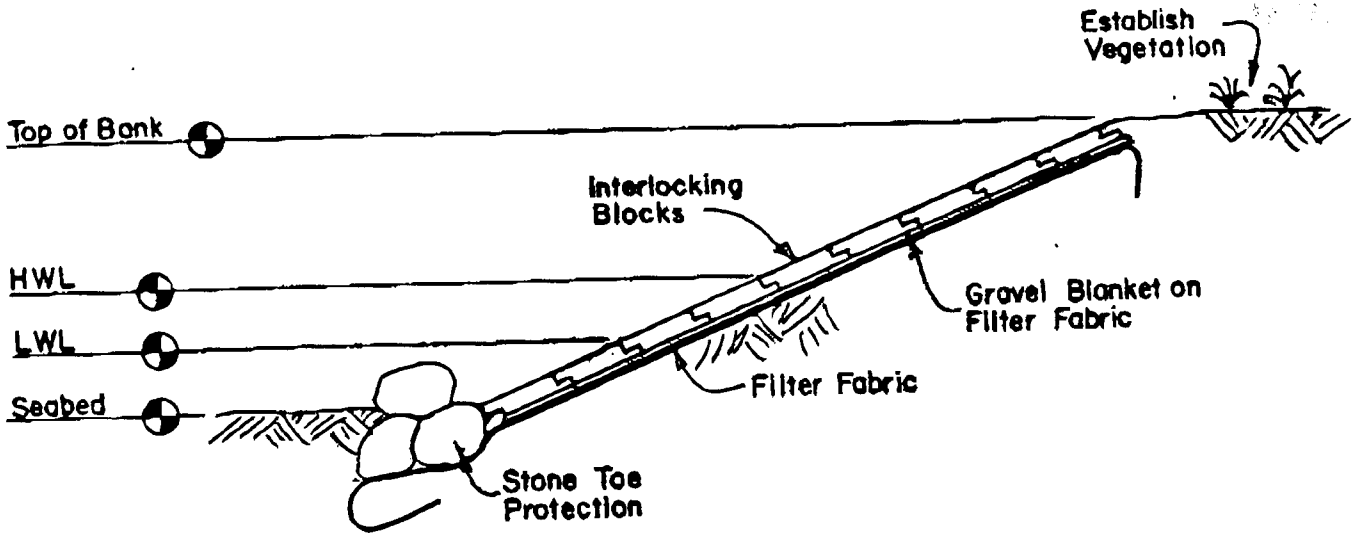
CITY OF NAPLES
 Engineering Department
 735 Eighth Street South
 NAPLES, FLORIDA 33940
 (813) 649-3446

JOB TYPICAL REVETMENT

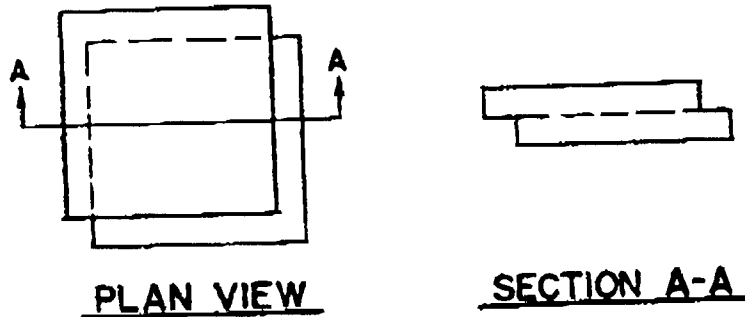
DRAWN BY _____ **DATE** 2/87

CHECKED BY _____ **DATE** _____

SCALE N.T.S. **SHEET** 14 **OF** 1



TYPICAL CONCRETE-BLOCK REVETMENT



INTERLOCKING BLOCK

These Specifications detail minimum requirements for seawalls and revetments which are to be constructed in the City of Naples. These Specifications are minimum requirements only and are not intended to be a final design relating to a specific site or any other affecting conditions.

FIGURE 4



CITY OF NAPLES
 Engineering Department
 735 Eighth Street South
 NAPLES, FLORIDA 33940
 (813) 649-3446

JOB TYPICAL REVETMENT
 DRAWN BY _____ DATE 2/87
 CHECKED BY _____ DATE _____
 SCALE N.T.S. SHEET 15 OF 1