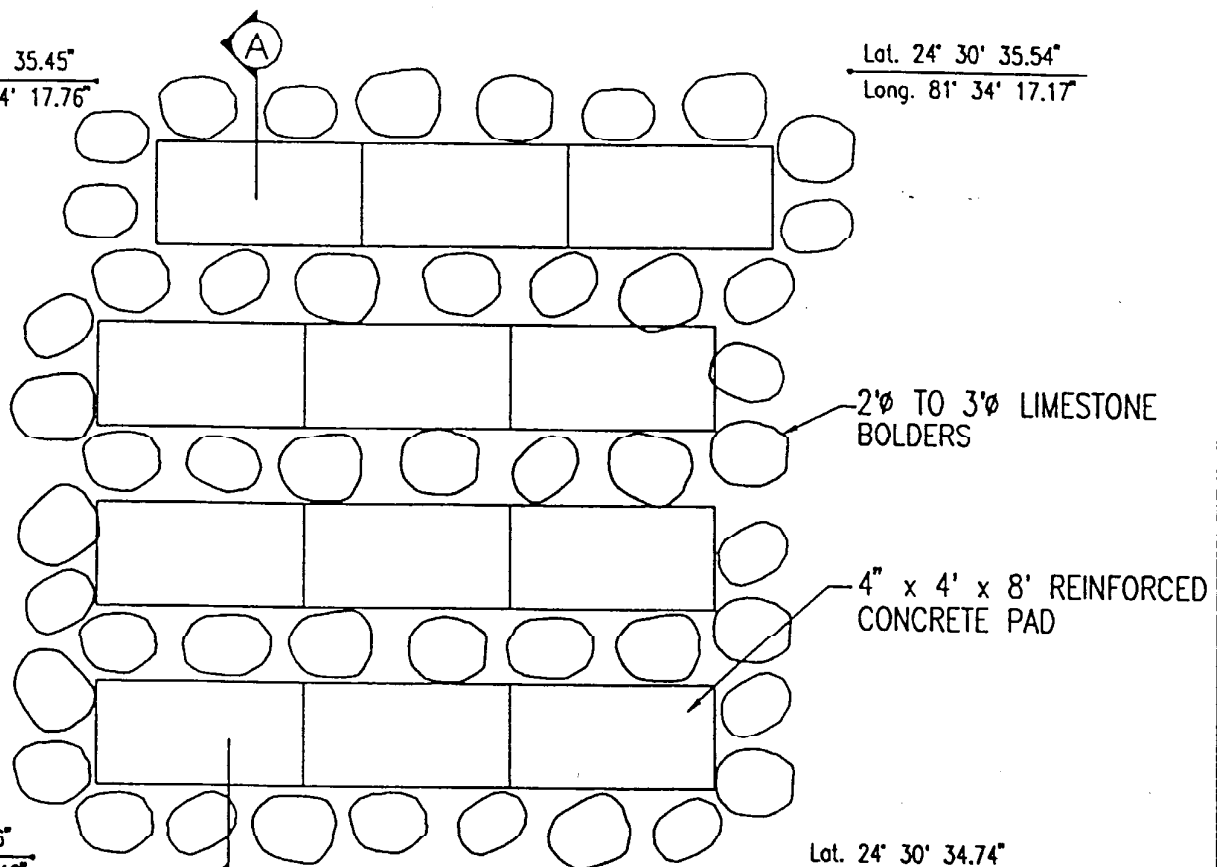
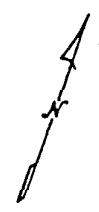


ATTACHMENT 1

Lot. 24° 30' 35.45"
Long. 81° 34' 17.76"

Lot. 24° 30' 35.54"
Long. 81° 34' 17.17"

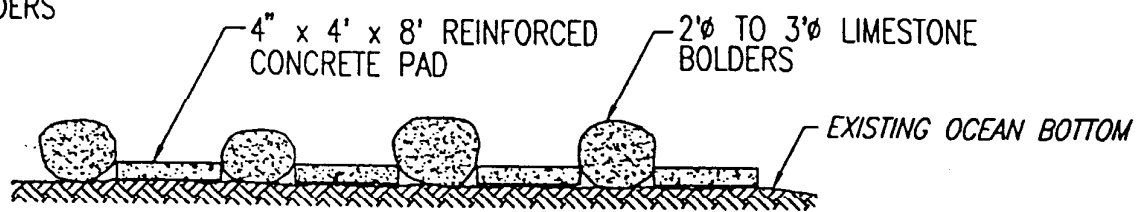


Lot. 24° 30' 34.66"
Long. 81° 34' 17.46"

Lot. 24° 30' 34.74"
Long. 81° 34' 16.95"

PLAN OF PL-1
SCALE: NONE

4,425 SQ. FT. DAMAGED AREA
216 TONS BOULDERS
25 MATS



SECTION
SCALE: NONE (A)

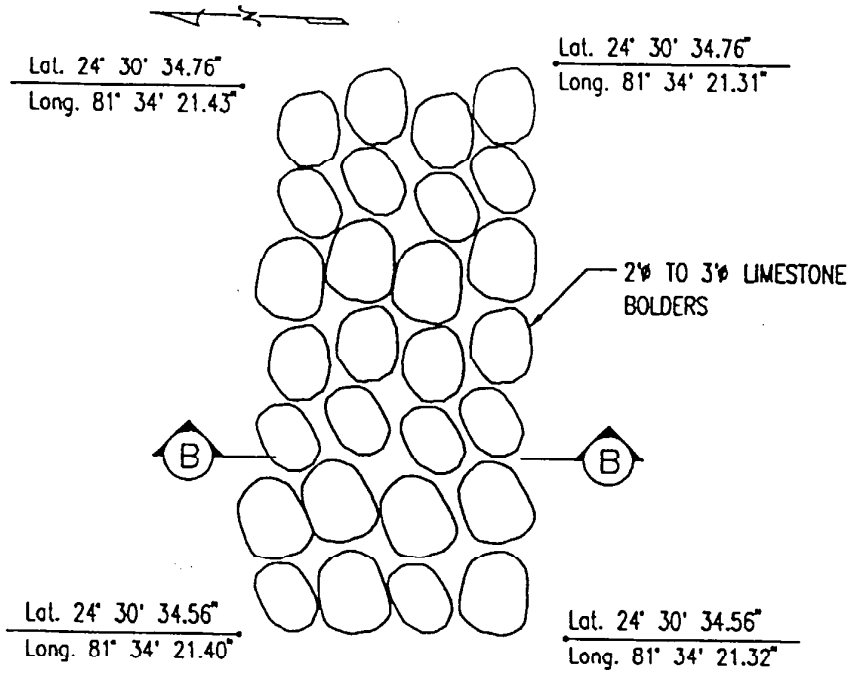
FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 2 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

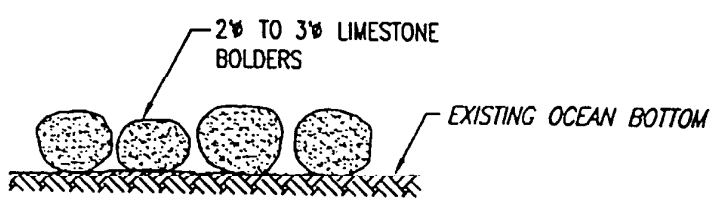
PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

5000



PLAN OF PL-4
SCALE: NONE

210 SQ. FT. DAMAGED AREA
25 TONS BOULDERS
0 MATS



SECTION
SCALE: NONE (B)

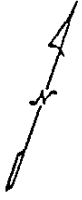
FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 3 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY: ECM/Hudson Maritime Services, LLC	

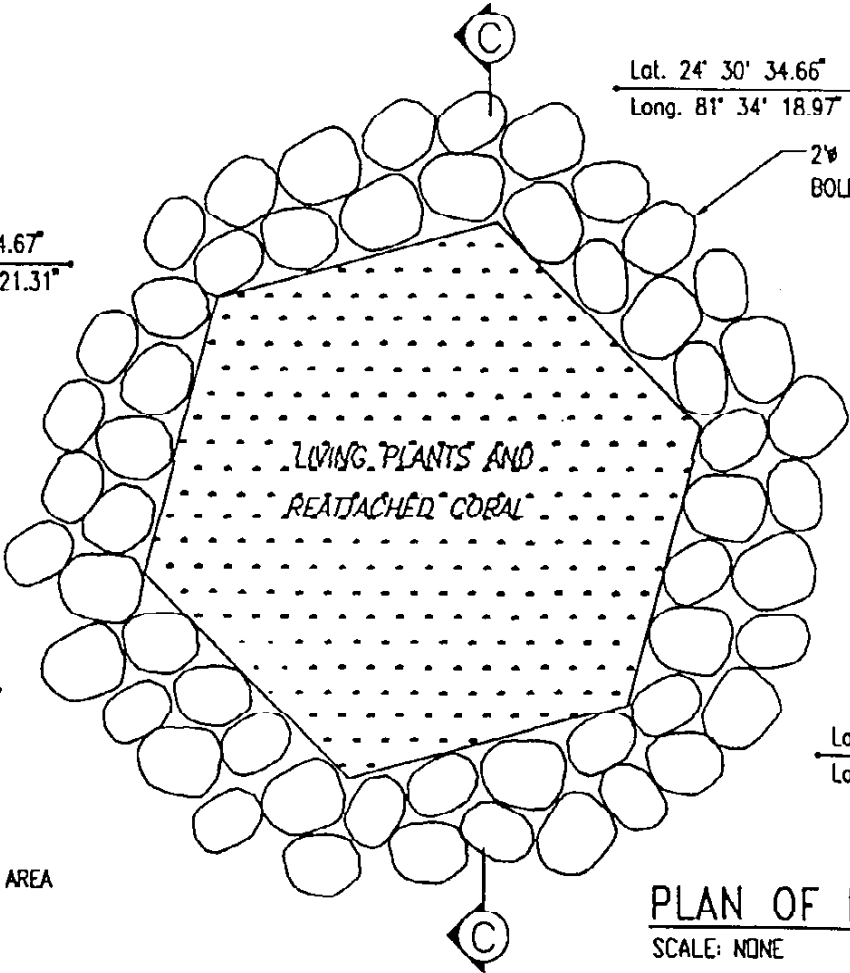
LUMBER



Lat. 24° 30' 34.67"
Long. 81° 34' 21.31"

Lat. 24° 30' 34.66"
Long. 81° 34' 18.97"

2" TO 3" LIMESTONE
BOLDERS



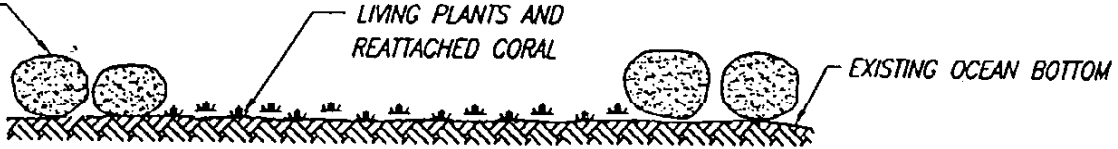
Lat. 24° 30' 34.44"
Long. 81° 34' 19.22"

Lat. 24° 30' 34.43"
Long. 81° 34' 19.03"

763 SQ. FT. DAMAGED AREA
85 TONS BOLDERS
0 MATS

PLAN OF RP-2
SCALE: NONE

2" TO 3" LIMESTONE
BOLDERS



LIVING PLANTS AND
REATTACHED CORAL

EXISTING OCEAN BOTTOM

SECTION
SCALE: NONE



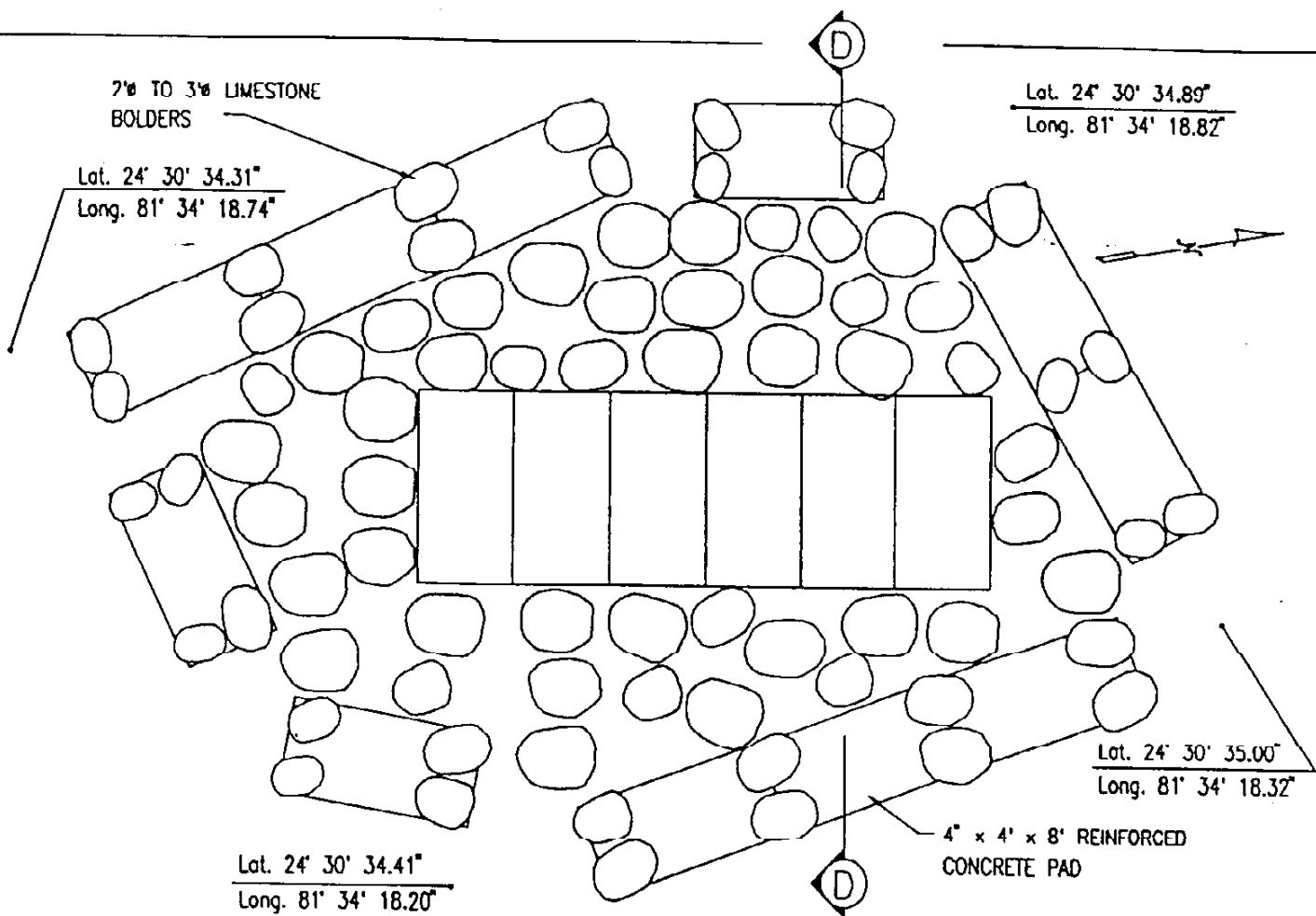
FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 4 of 6

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

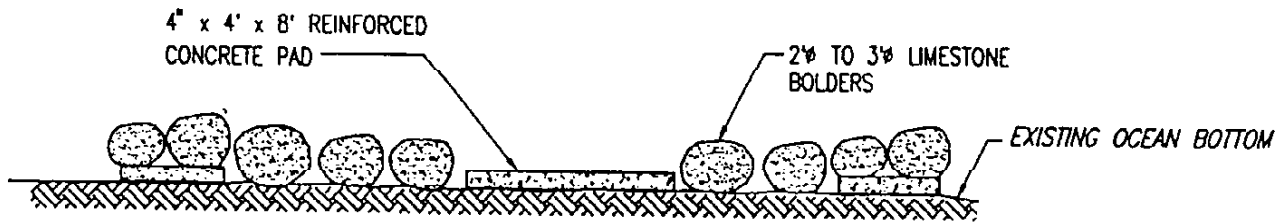
PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

50070



3,225 SQ. FT. DAMAGED AREA
125 TONS BOLDERS
15 MATS

PLAN OF RP-1
SCALE: NONE



SECTION
SCALE: NONE (D)

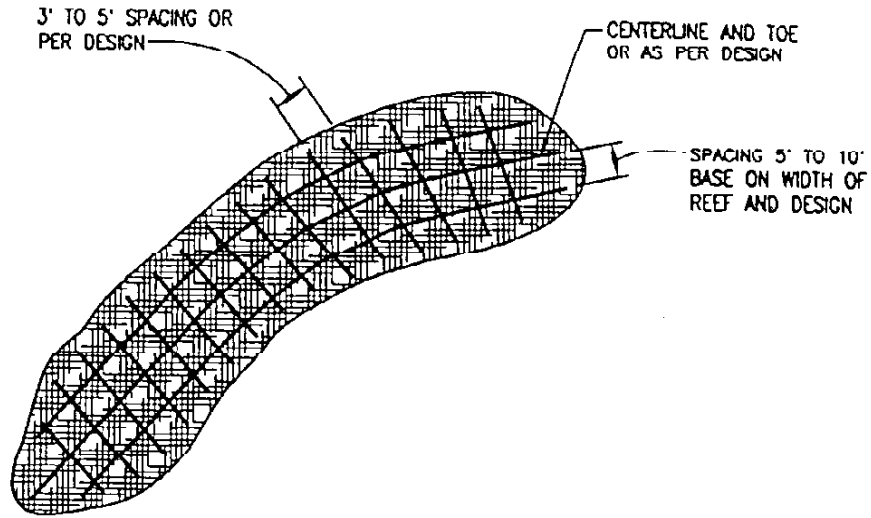
FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 5 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

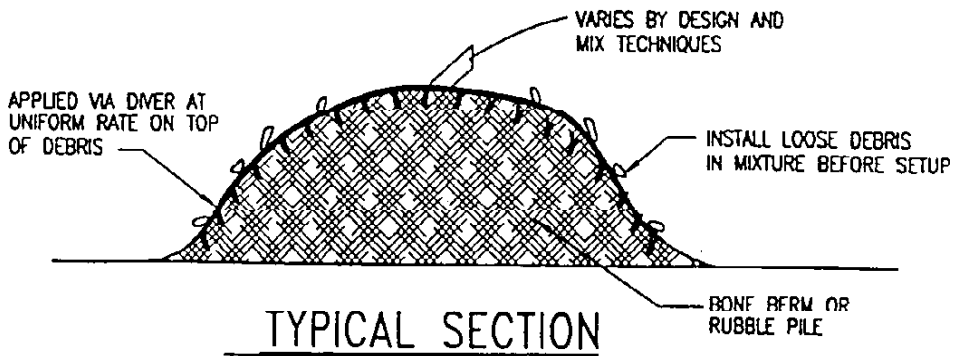
ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

C 877 000111



TYPICAL CORAL REEF PLAN
SCALE: NONE



TYPICAL SECTION
SCALE: NONE

TYPICAL FOR BB-1, BB-2, BB-3 & BB-4

Coral Rubble Stabilization Method (CRSM)

NOTES:

1. EPOXY TO BE APPLIED BY DIVERS IN CONTROLLED MANNER TO MINIMIZE TURBIDITY, AND MONITOR FLOW RATES.
2. TYPICAL EPOXY BAND WIDTHS 10 TO 12 INCHES.
3. MINIMIZE COLD JOINTS AND MAINTAIN BUCKET CONTACT WITH BERM.

FILE No. C-2013
 CONTRACT No. H-5137-02
 DATE 12/15/97
 SHEET No. 6 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

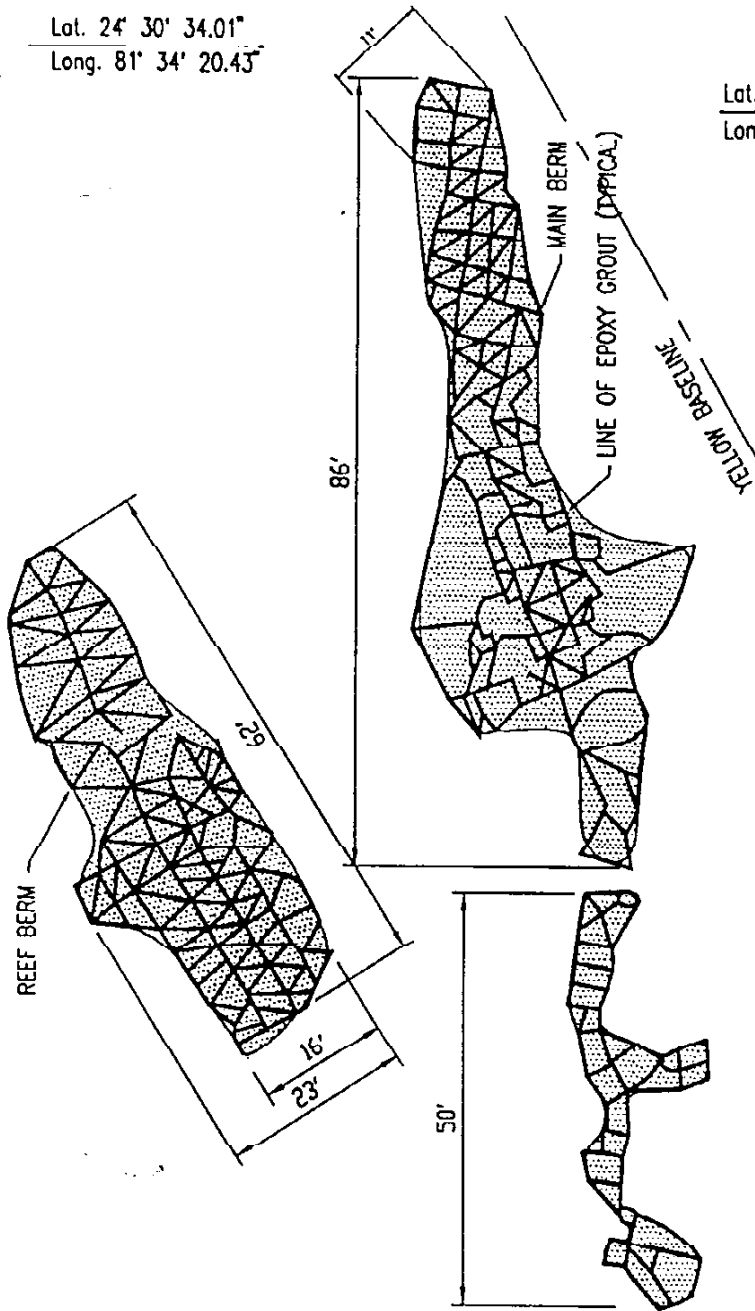
ECM/Hudson Maritime Services, LLC
 64 Danbury Road
 Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY: ECM/Hudson Maritime Services, LLC	



Lat. 24° 30' 34.01"
 Long. 81° 34' 20.43"

Lat. 24° 30' 33.71"
 Long. 81° 34' 20.64"



PLAN OF BB-1
 SCALE: NONE

Lat. 24° 30' 34.22"
 Long. 81° 34' 21.56"

FILE No. E-2013
 CONTRACT No. H-5137-02
 DATE 12/15/97
 SHEET No. 7 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

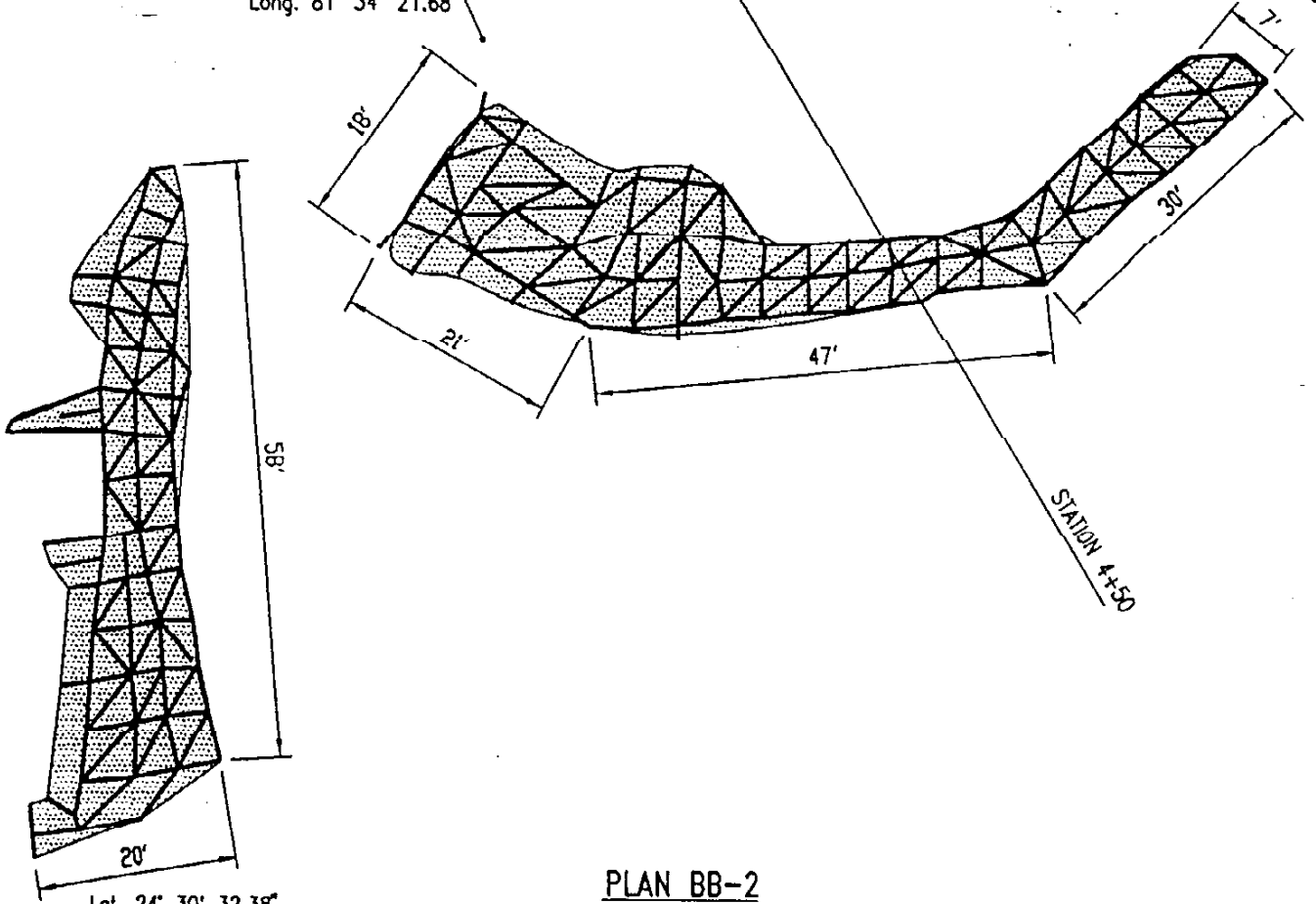
ECM/Hudson Maritime Services, LLC
 64 Danbury Road
 Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY: ECM/Hudson Maritime Services, LLC	



Lot. 24° 30' 32.98"
Long. 81° 34' 21.68"

Lot. 24° 30' 32.91"
Long. 81° 34' 20.74"



Lot. 24° 30' 32.38"
Long. 81° 34' 22.21"

PLAN BB-2
SCALE: NONE

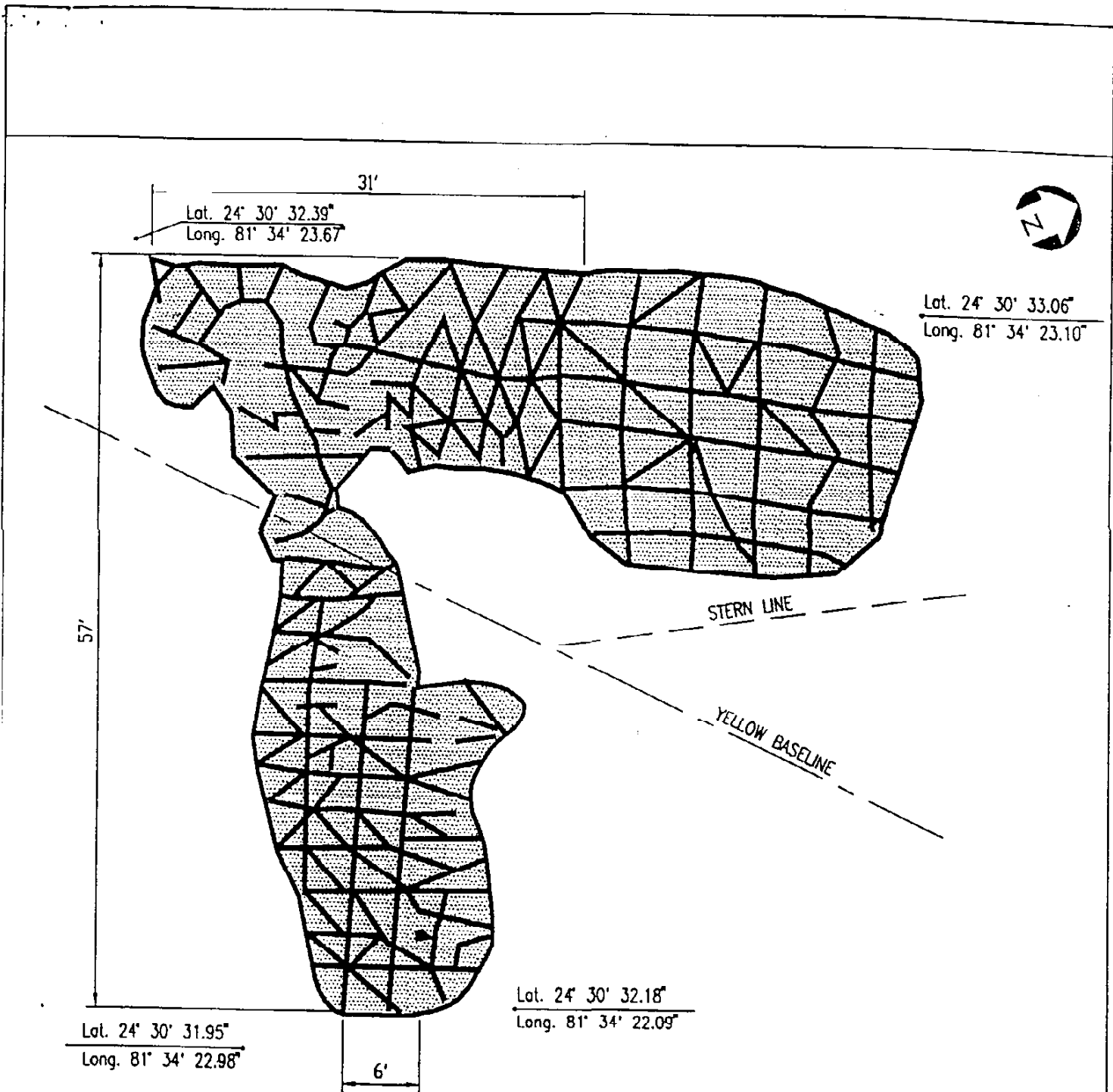
NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 8 of 10

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

106.5P2



PLAN BB-3

SCALE: NONE

FILE No. E-2013
 CONTRACT No. H-5137-02
 DATE 12/15/97
 SHEET No. 9 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

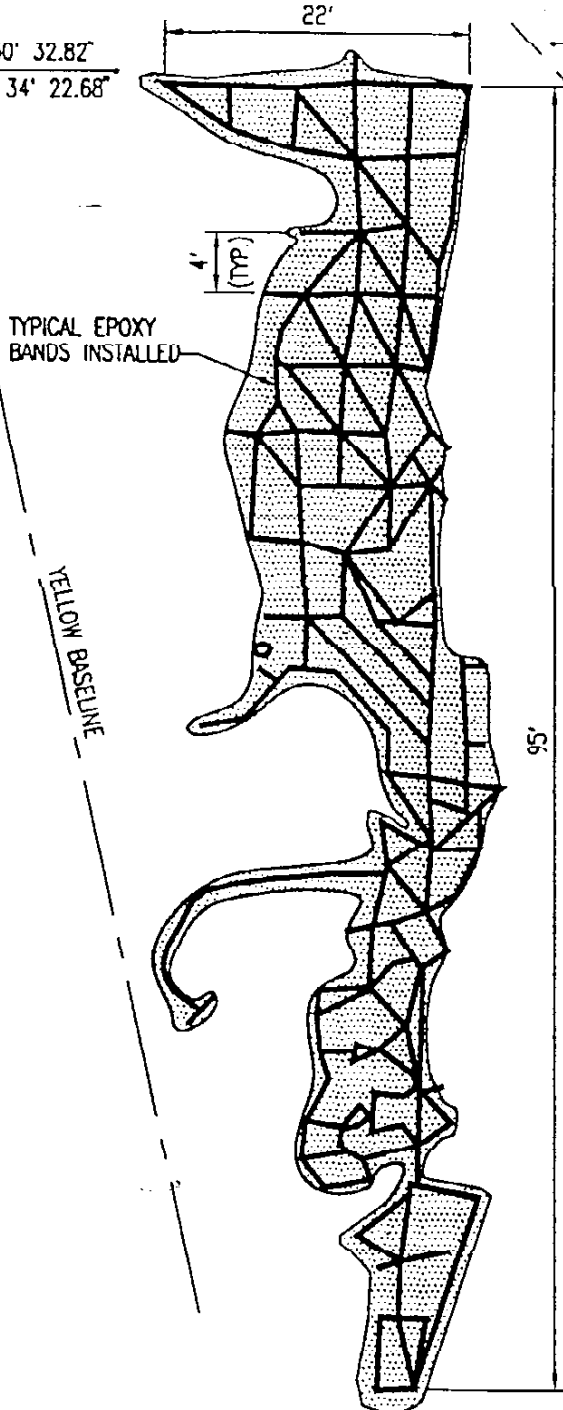
ECM/Hudson Maritime Services, LLC
 64 Danbury Road
 Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

512702B

Lot. 24' 30' 32.82"
Long. 81' 34' 22.68"

Lot. 24' 30' 33.06"
Long. 81' 34' 22.83"



PLAN BB-4

SCALE: NONE

Lot. 24' 30' 33.08"
Long. 81' 34' 21.98"

FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 10 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION
ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

506592

ATTACHMENT 2



Connecticut Office
64 Danbury Road
Wilton, CT 06897
Tel: 203-761-6030
Fax: 203-761-6007

New Jersey Office
800 Cooper Street
Camden, NJ 08102
Tel: 609-342-7500
Fax: 609-342-8722

Texas Office
11550 Fuqua, Suite 315
Houston, TX 77034
Tel: 713-481-2566
Fax: 713-484-9271

19 February 1998

Chuck Schnepel
U.S. Army Corps of Engineers
11420 North Kendall Drive
Suite 104
Miami, FL 33176

FEB 23 1998

Re Request for modification of permit application #1997-03492 (LP-VA)
Contship Houston rubble removal/disposal

Dear Mr. Schnepel:

Pursuant to discussions with G.P. Schmahl of the Florida Keys National Marine Sanctuary, information is herein provided so that the processing of the application for the removal and disposal of rubble from the Contship Houston grounding site can be appropriately modified.

As you are probably aware, the NRDA Trustees in this case had originally requested that the rubble created by the grounding be removed so as to prevent collateral injury to the reef during subsequent storm events. We proceeded to investigate the amount of rubble that needed to be removed so that the types and involvement of the necessary equipment could be determined. At the same time, a suitable disposal site was located.

A Joint Application for an ERP-authorization to use State-owned submerged lands and a dredge & fill permit was submitted in a timely fashion to FLDEP (Monroe County - ERP File No. 443045085). However, it soon became evident that the amount of rubble to be removed could not be accurately determined without far more effort than was deemed practical. This difficulty was primarily attributable to the extremely broad area over which large amounts of rubble had been distributed.

The results of preliminary testing and the prior experience of NOAA personnel in similar situations further suggested that it would be problematic to reliably segregate Contship Houston rubble from that which was present in the injury area before the grounding. Since excessive removal of rubble and associated sediment could be structurally and ecologically harmful and also pose an unacceptable cost burden, it was decided to evaluate whether any suitable alternatives to removal/disposal might exist.

After considerable review and experimentation, it was proposed that much of the on-site rubble, which consisted of staghorn coral fragments, could be adequately stabilized using an

epoxy. The selected product had been widely used elsewhere in marine applications, but never to achieve this specific purpose. The staghorn coral and other relatively large pieces of rubble were assembled in berms designated as BB-1, BB-2, BB-3 and BB-4 on the attached 15 December 1997 GIS map entitled "Injury Area," with sectional details provided on sheets #1, #6, #7, #8, #9 and #10 on the attached 15 December 1997 "Reef Restoration" design drawings.

The berm rubble was then epoxied using a delivery system that mixed the adhesive components at the nozzle. There was no discernible cloud of material as it was applied to the berms and one could thus reasonably infer that no adverse water quality impacts resulted. Approximately 570 product gallons of epoxy were used. Field operations for epoxy stabilization of these berms occurred from 31 July to 14 August 1997. The engineering calculations projecting the bonding strength of the material was provided to and subsequently approved by NOAA. Smaller rubble pieces not assembled into the berms and not found within the primary restoration areas (see below) were evenly distributed into on-site grooves or other natural formations.

When the grounding occurred, the vessel crushed the edges of several reef spurs. These areas were the focus of the primary restoration effort. They contained relatively large volumes of generally well-crushed rubble that formed an unconsolidated layer in these locations. To stabilize unconsolidated material and to maintain the structural integrity in these areas, it was decided to utilize both flexible concrete ("Armorflex") mats and large limestone boulders.

Four primary restoration areas were established ranging in size from 210 to 4,425 square feet and are designated as PL-4, RP-1, RP-2 and PL-1 on the attached GIS map with details provided on sheets #2 through #5 in the design drawings/cross-sections attachment. In general, the focus of the primary restoration effort was to create some suitable physical relief that would provide similar habitat for the biota that formerly and/or currently utilized this portion of the reef. Quarried limestone rock was the most obvious choice to accomplish this task based on the characteristics (i.e., physical, chemical and biological specifications) required for replacement habitat. It was also attractive in that limestone had already been used for restoration purposes at several similar locations, including one nearby.

Concern was also expressed that the finely crushed, unconsolidated material present in much of the targeted primary restoration areas might be subjected to erosional forces that could cause any replacement habitat to be structurally compromised. It could not be assured that simply blanketing the primary restoration areas' surfaces with limestone boulders would ensure that this erosion did not take place. These concerns established the framework for consideration of potential materials and techniques by which they could be deployed. Our extensive analyses suggested that the selective use of concrete mats with limestone boulders represented an optimal solution.

The armorflex concrete mats were Class 40-S Open Cell, with 0.25 inch Poly Cable, 4000 psi concrete. Their thickness was 4.75 inches. Dimensions of each mat segment was 8 feet by 20 feet at a weight of 40-PLF. The technical specifications from the manufacturer can be provided.

The limestone was provided by a local (Dade County) supplier. Each of the boulders was approximately 2-3 feet in diameter, so that a single row of stone could provide the relatively low level of relief that was characteristic of this reef area. The size and its relatively spherical shape would also facilitate stacking of boulders wherever appropriate. Limestone density was 155 pounds per cubic foot, with a specific gravity ranging from 2.10 to 2.86. The rock was pre-washed at the quarry to minimize turbidity concerns at the site.

Both the armorflex mats and the limestone boulders were positioned at each primary restoration area with the assistance of a 65-ton crane mounted on a 140 by 40 (foot) barge. At the site, divers guided the material into position through the use of a wireless communication system with a direct voice link to the crane operator. The entire operation was continually monitored by scientific divers whose sole functions were to identify and protect environmentally sensitive habitat features.

The concrete mats were physically lifted by the barge-mounted crane using a special spreader-bar device furnished by the mat distributor. With direct communications between the crane operator and the divers, the mats were carefully placed over the injured locations. Adjustment in positioning was made by lifting them slightly with the crane so that the divers could re-position to the desired location. The actual positions and locations of each concrete mat is shown on the attached 16 December 1997 GIS map entitled "Mat and Boulder Layout."

The limestone boulders were deployed with cargo nets and nylon lifting slings. Nets were pre-loaded inshore with multiple boulders. Nylon slings were used for pre-loading the nets and to set individual boulders around pre-existing or reattached coral. Once lowered down with diver guidance, each limestone boulder was rolled into position or unstrapped in place.

Several factors determined the design (i.e., selection/placement of concrete mats and/or limestone boulders) for each of the four primary restoration areas. Of major concern was the amount of unconsolidated material that was present. Relatively large open, flat expanses (e.g., PL-1) uniformly characterized by this erosion-prone sediment were deemed to require the greatest need for stabilization via concrete mats. Of equal importance, any areas of existing reef habitat relief or areas where any emergency coral reattachment/relocation occurred were unsuitable surfaces for installing concrete mats. Areas not spatially defined by either of these criteria were most suitable to receive limestone. To the extent that it could be reasonably accommodated, there was also interest in slightly varying the design among the primary restoration areas to facilitate post-construction comparisons.

The conceptual designs for each of the four primary restoration areas (PL-4, RP-1, RP-2 and PL-4) are attached. Although preparations for primary restoration required several months, actual field operations for the installation of mats and limestone occurred from 8 November through 13 November 1997. At restoration areas PL-1 and RP-1, a combination of limestone boulders and concrete armorflex mats was used. Restoration activity at RP-2 and at PL-4 consisted exclusively of limestone boulder deposition.

At PL-1, concrete mats were used extensively because the area was flat and uniformly composed of the unconsolidated material. Approximately 216 tons (97 cubic yards) of limestone boulders were added to provide some additional relief. At RP-1, concrete mats were used wherever relatively broad expanses of unconsolidated material was present, but existing reef structures and biota prevented it from being covered as seamlessly as achieved in PL-1. The limestone was used to provide relief and to add structural stability to relatively smaller mat segments. Approximately 125 tons (56 cubic yards) of limestone were used at RP-1.

At both RP-1 and PL-1, there were a few spots where the mats had to be cut so that it did not drape over any pre-existing or reattached coral. A total of approximately 6,350 square feet of concrete armorflex mats was used (at RP-1 and PL-1), of which approximately 4,675 square feet was applied at PL-1 and approximately 1,675 square feet was applied at RP-1.

At RP-2, the extent of (emergency) re-attached coral locations and uninjured biota was deemed too significant to permit safe placement of either armorflex mats or limestone. Nevertheless, the underlying reef spur had been injured. It was decided to stack approximately 85 tons (38 cubic yards) of limestone boulders in a narrow band around the periphery of RP-2 that was not the focus of coral reattachment effort nor was a highly successfully colonized reef area. By stacking the limestone boulders on the periphery, it was postulated that erosional forces within RP-2 could be most effectively minimized.

PL-4 was blanketed with approximately 25 tons (11 cubic yards) of limestone because it was too small an area for effective deployment of concrete mats. Density and height of boulder placement was greater than used in the other primary restoration areas so as to additionally provide an opportunity for developing some meaningful post-construction comparisons.

I hope this information is of value for your review. If I may be of any further assistance on this matter, please do not hesitate to contact either Mr. Christensen or me.

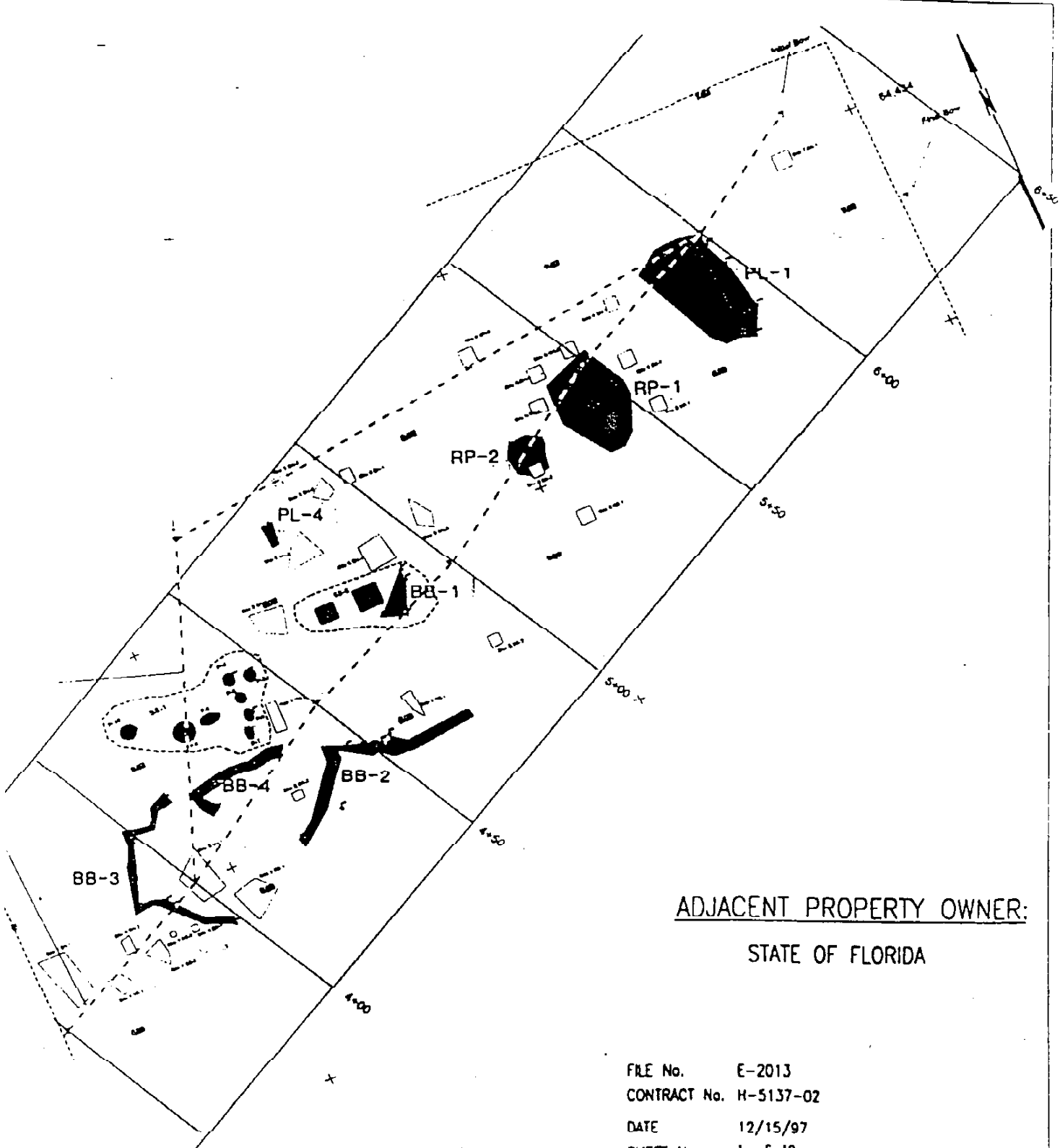
Very truly yours,



Jeffrey B. Waxman, Ph.D.

JBW/
Enclosures:

cc: E. Barham (FLDEP)
G.P. Schmahl (w/o encl.)
P. Christensen, P.E. (w/o encl.)
C. De Leo, Esq. (w/o encl.)



ADJACENT PROPERTY OWNER:
STATE OF FLORIDA

FILE No. E-2013
 CONTRACT No. H-5137-02
 DATE 12/15/97
 SHEET No. 1 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

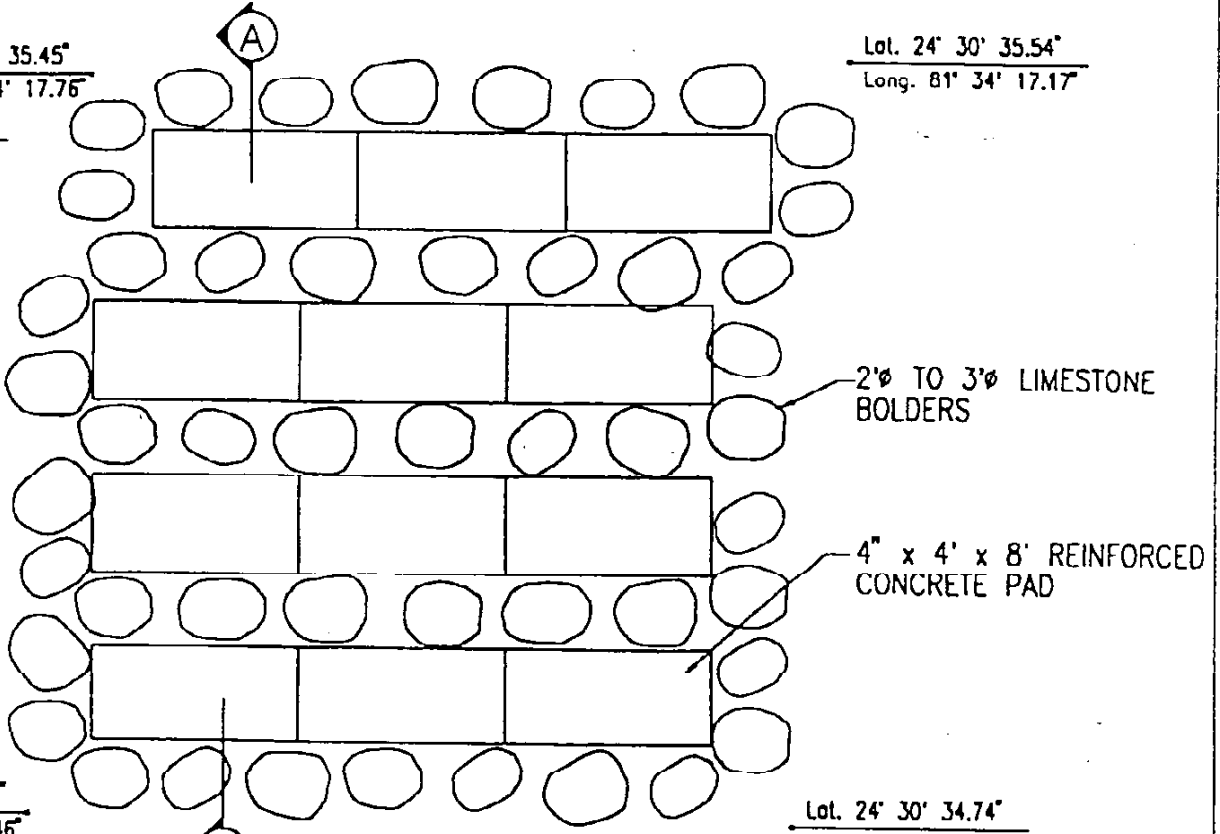
ECM/Hudson Maritime Services, LLC
 64 Danbury Road
 Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

C:\WORK

Lat. 24° 30' 35.45"
Long. 81° 34' 17.76"

Lat. 24° 30' 35.54"
Long. 81° 34' 17.17"



2" TO 3" LIMESTONE BOLDERS

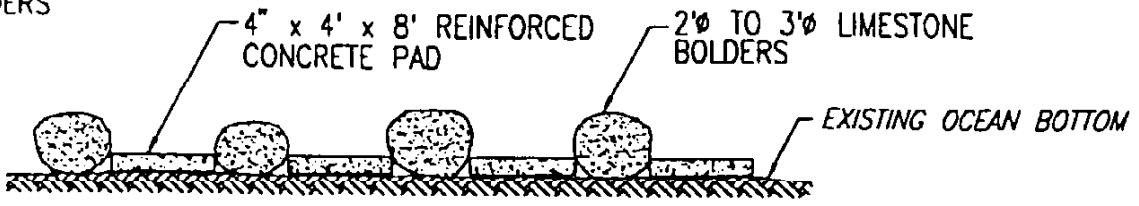
4" x 4" x 8" REINFORCED CONCRETE PAD

Lat. 24° 30' 34.66"
Long. 81° 34' 17.46"

Lat. 24° 30' 34.74"
Long. 81° 34' 16.95"

PLAN OF PL-1
SCALE: NONE

4,425 SQ. FT. DAMAGED AREA
216 TONS BOLDERS
25 MATS



4" x 4" x 8" REINFORCED CONCRETE PAD

2" TO 3" LIMESTONE BOLDERS

EXISTING OCEAN BOTTOM

SECTION
SCALE: NONE (A)

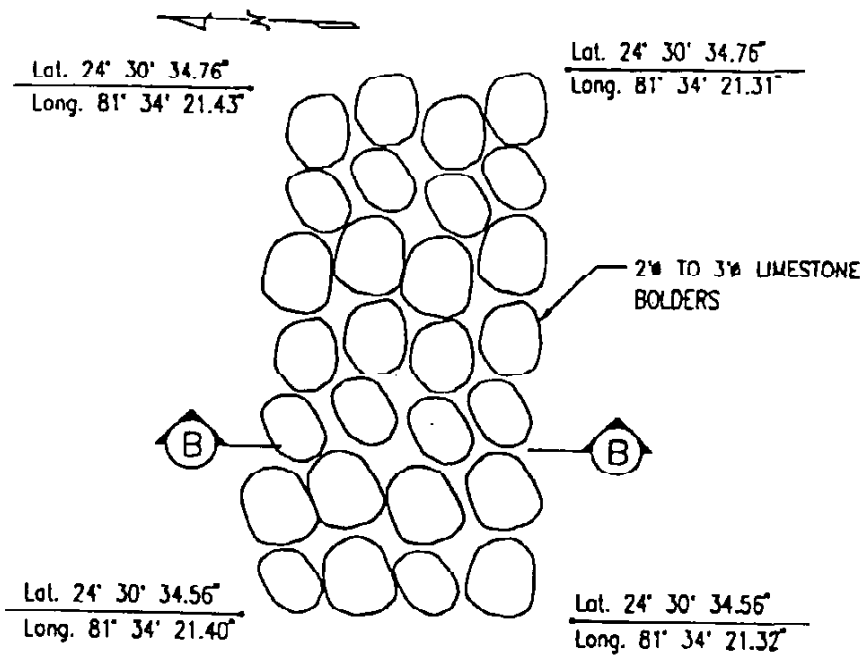
FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 2 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

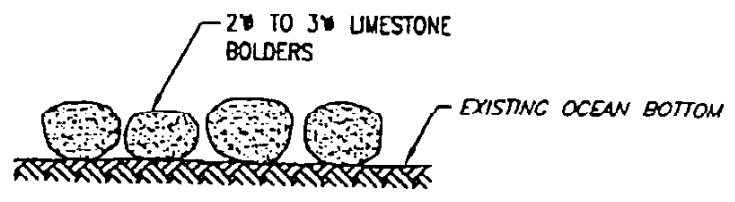
ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

DATE PLOTTED



PLAN OF PL-4
SCALE: NONE



SECTION
SCALE: NONE (B)

210 SQ. FT. DAMAGED AREA
25 TONS BOULDERS
) MATS

FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 3 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

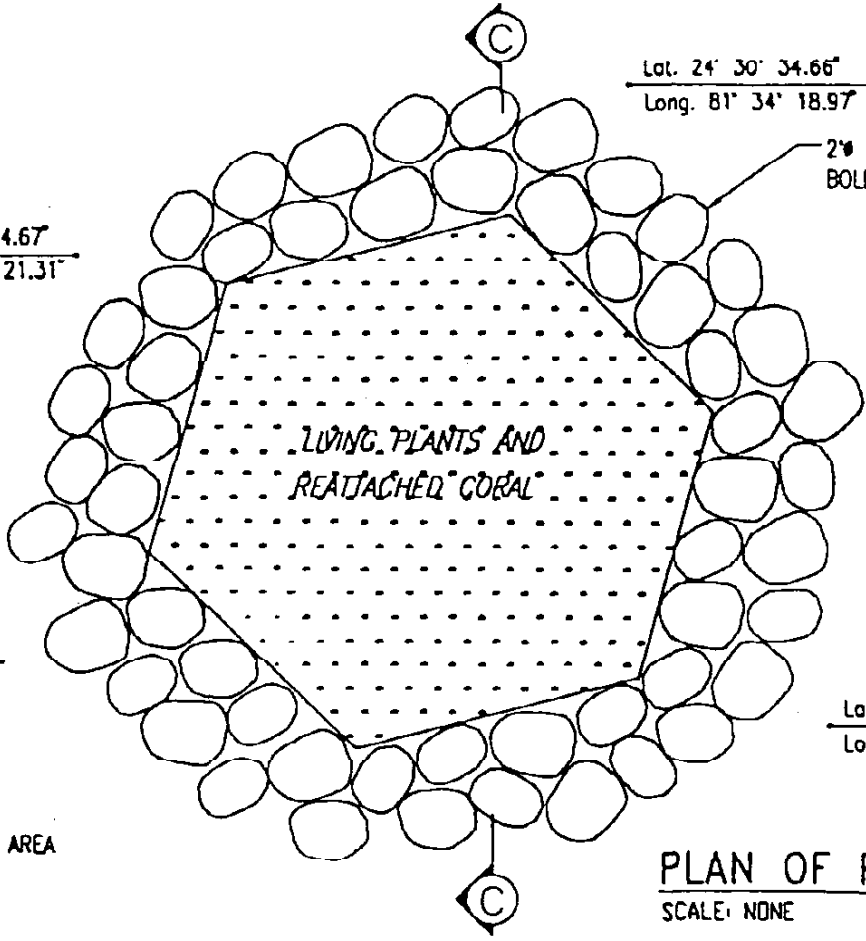
E-2013



Lot. 24° 30' 34.67"
Long. 81° 34' 21.31"

Lot. 24° 30' 34.66"
Long. 81° 34' 18.97"

2' TO 3' LIMESTONE
BOLDERS



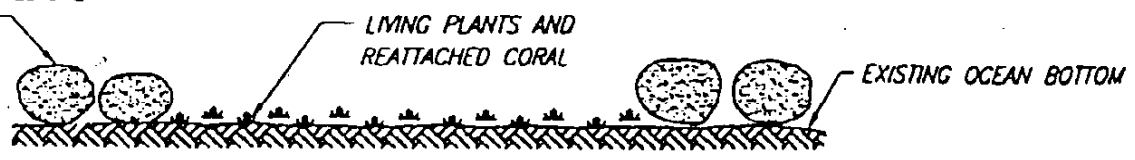
Lot. 24° 30' 34.44"
Long. 81° 34' 19.22"

Lot. 24° 30' 34.43"
Long. 81° 34' 19.03"

763 SQ. FT. DAMAGED AREA
85 TONS BOLDERS
0 MATS

PLAN OF RP-2
SCALE: NONE

2' TO 3' LIMESTONE
BOLDERS



SECTION
SCALE: NONE

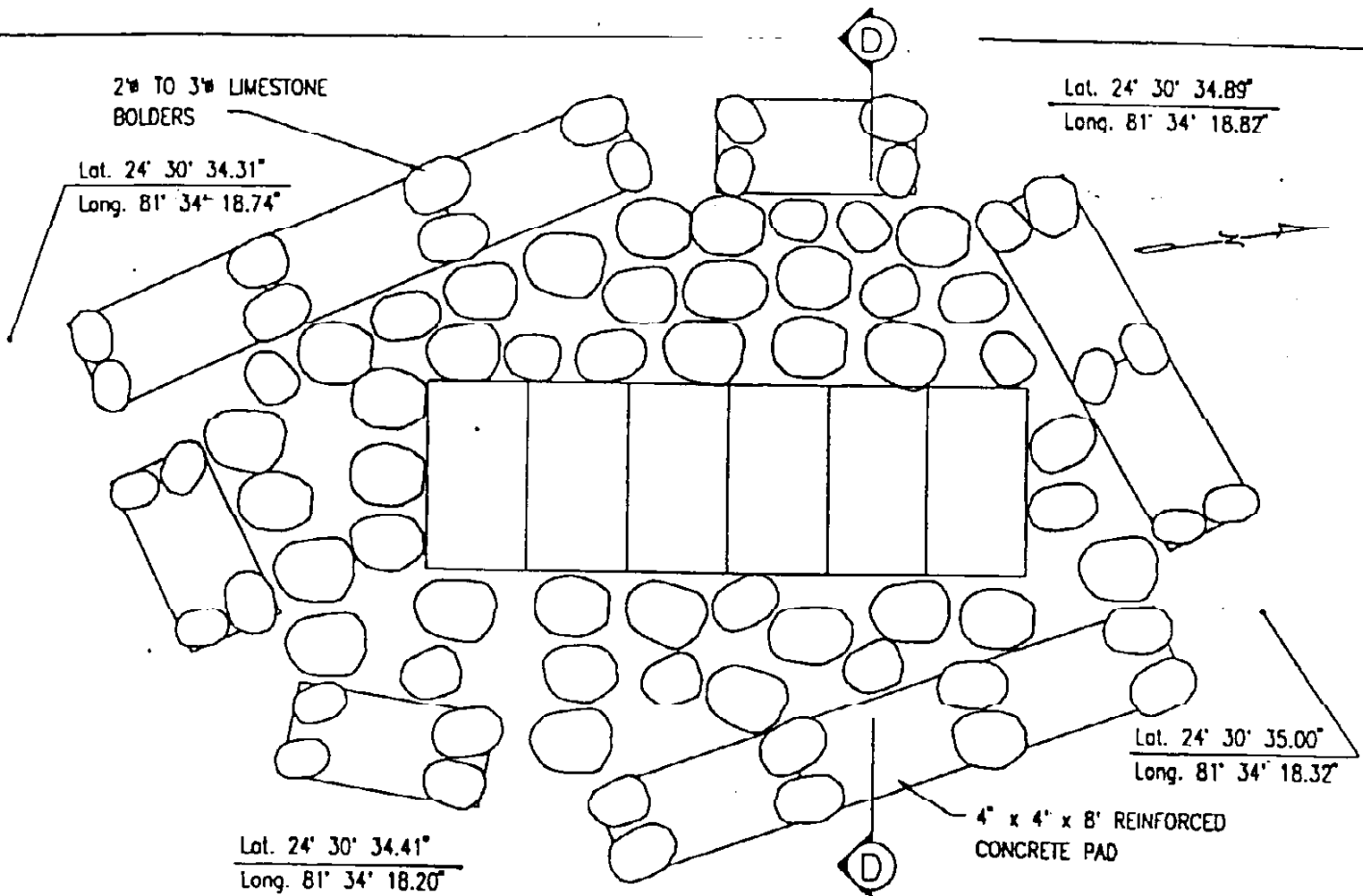


FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 4 of 6

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

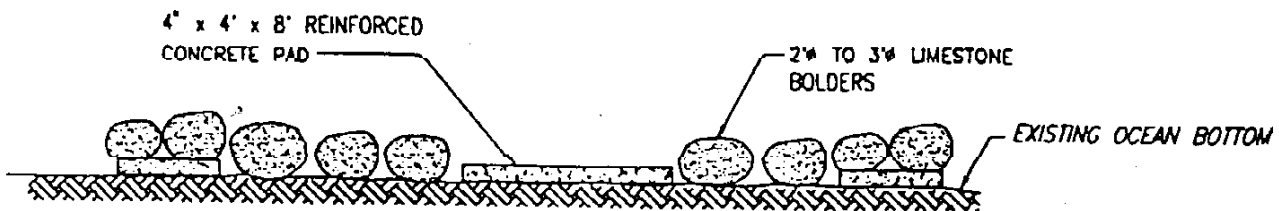
ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

PROPOSED:	RFFF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC



3,225 SQ. FT. DAMAGED AREA
125 TONS BOLDERS
15 MATS

PLAN OF RP-1
SCALE: NONE



SECTION
SCALE: NONE (D)

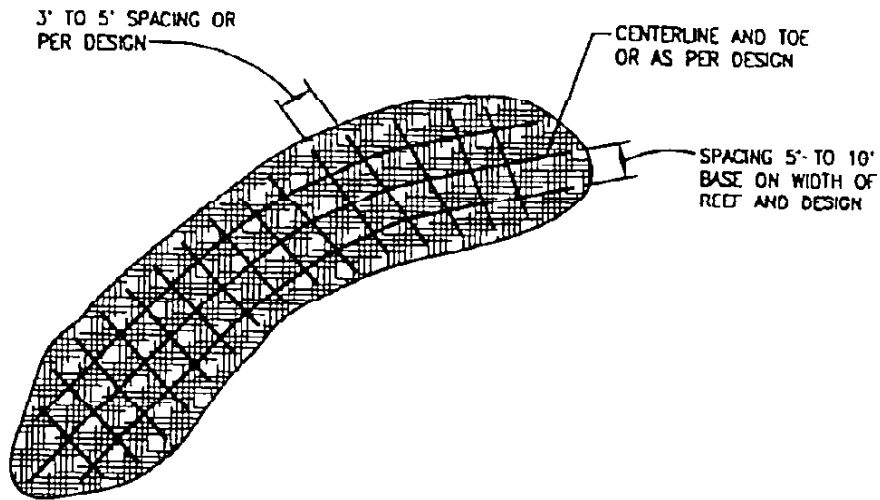
FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 5 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

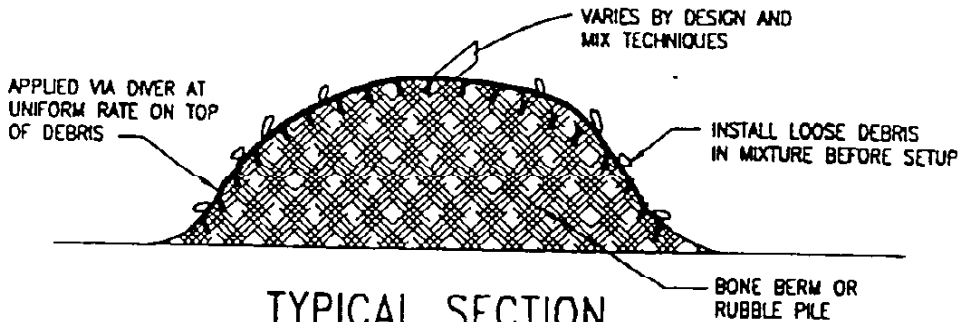
PROPOSED:	RFFF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

5/10/97



TYPICAL CORAL REEF PLAN

SCALE: NONE



TYPICAL SECTION

SCALE: NONE

TYPICAL FOR BB-1, BB-2, BB-3 & BB-4

Coral Rubble Stabilization Method (CRSM)

NOTES:

1. EPOXY TO BE APPLIED BY DIVERS IN CONTROLLED MANNER TO MINIMIZE TURBIDITY, AND MONITOR FLOW RATES.
2. TYPICAL EPOXY BAND WIDTHS 10 TO 12 INCHES.
3. MINIMIZE COLD JOINTS AND MAINTAIN BUCKET CONTACT WITH BERM.

FILE No. E-2013
 CONTRACT No. H-5137-02
 DATE 12/15/97
 SHEET No. 6 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
 64 Danbury Road
 Wilton, CT 06897

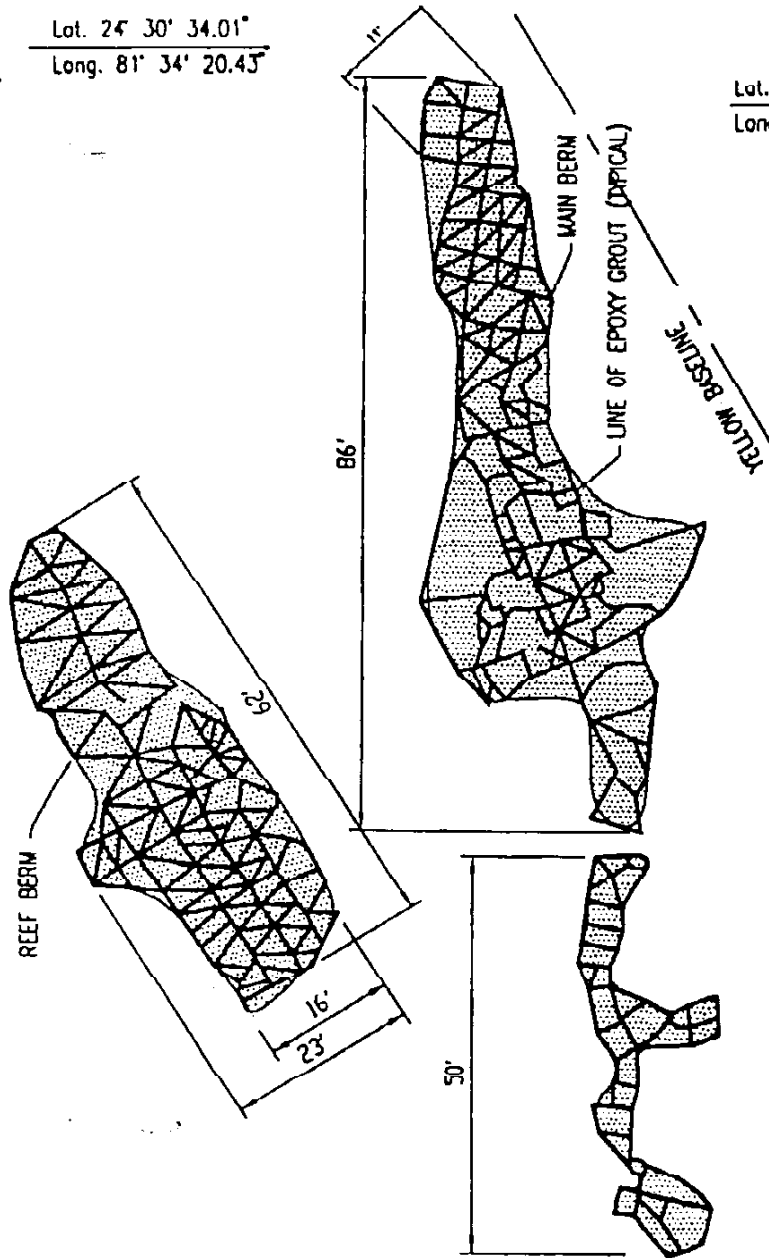
PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

513702P



Lot. 24° 30' 34.01"
 Long. 81° 34' 20.43"

Lot. 24° 30' 33.71"
 Long. 81° 34' 20.64"



PLAN OF BB-1
 SCALE: 1:100

Lot. 24° 30' 34.22"
 Long. 81° 34' 21.56"

FILE No. E-2013
 CONTRACT No. H-5137-02
 DATE 12/15/97
 SHEET No. 7 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

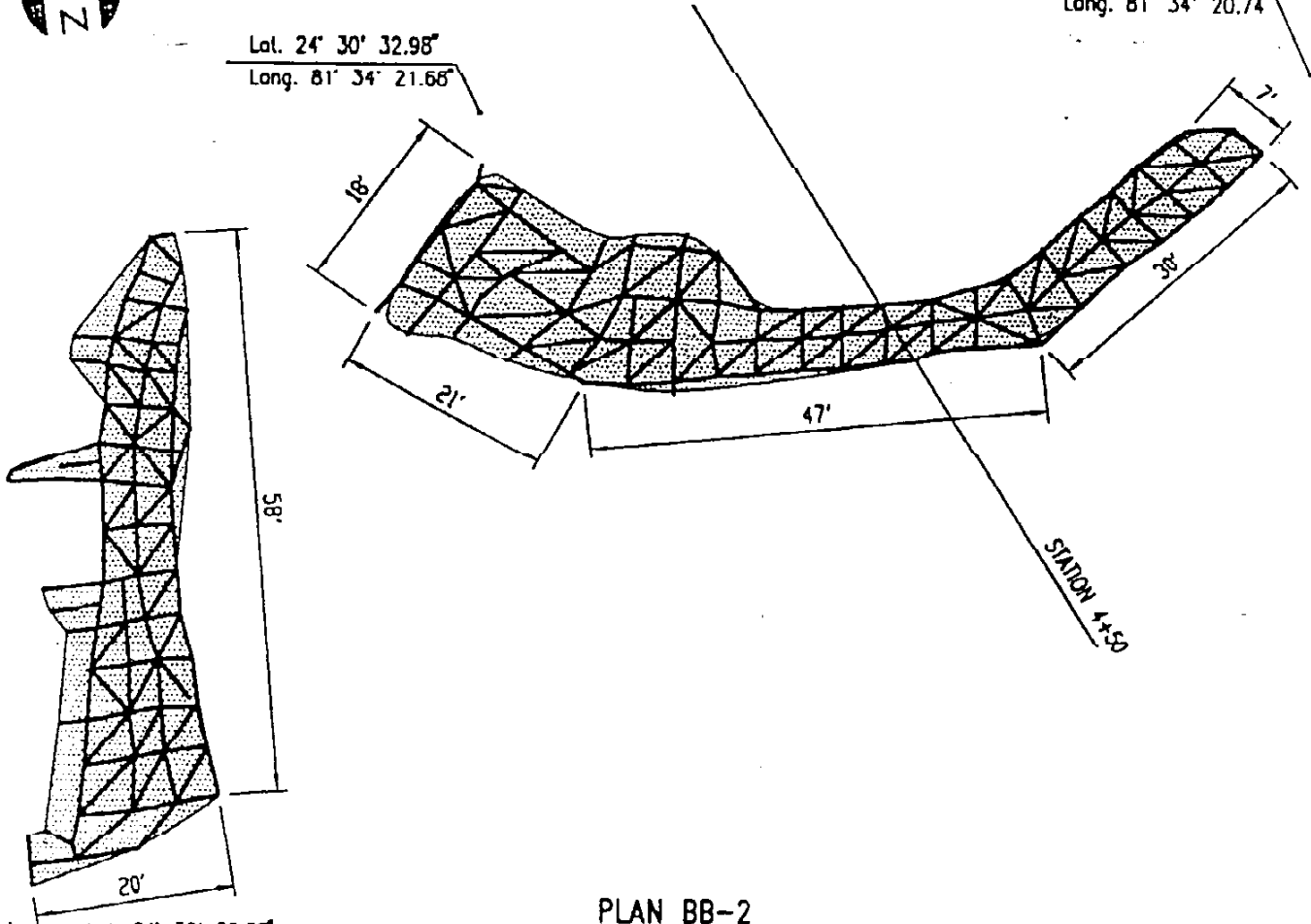
ECM/Hudson Maritime Services, LLC
 64 Danbury Road
 Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC



Lat. 24° 30' 32.98"
Long. 81° 34' 21.66"

Lat. 24° 30' 32.91"
Long. 81° 34' 20.74"



Lat. 24° 30' 32.38"
Long. 81° 34' 22.21"

PLAN BB-2
SCALE: NONE

FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 8 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

506592

31'

Lat. 24° 30' 32.39"
Long. 81° 34' 23.67"



Lat. 24° 30' 33.06"
Long. 81° 34' 23.10"

57'

STERN LINE

YELLOW BASELINE

Lat. 24° 30' 32.18"
Long. 81° 34' 22.09"

Lat. 24° 30' 31.95"
Long. 81° 34' 22.98"

6'

PLAN BB-3

SCALE: NONE

FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 9 of 10

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE

APPLICATION BY: ECM/Hudson Maritime Services, LLC

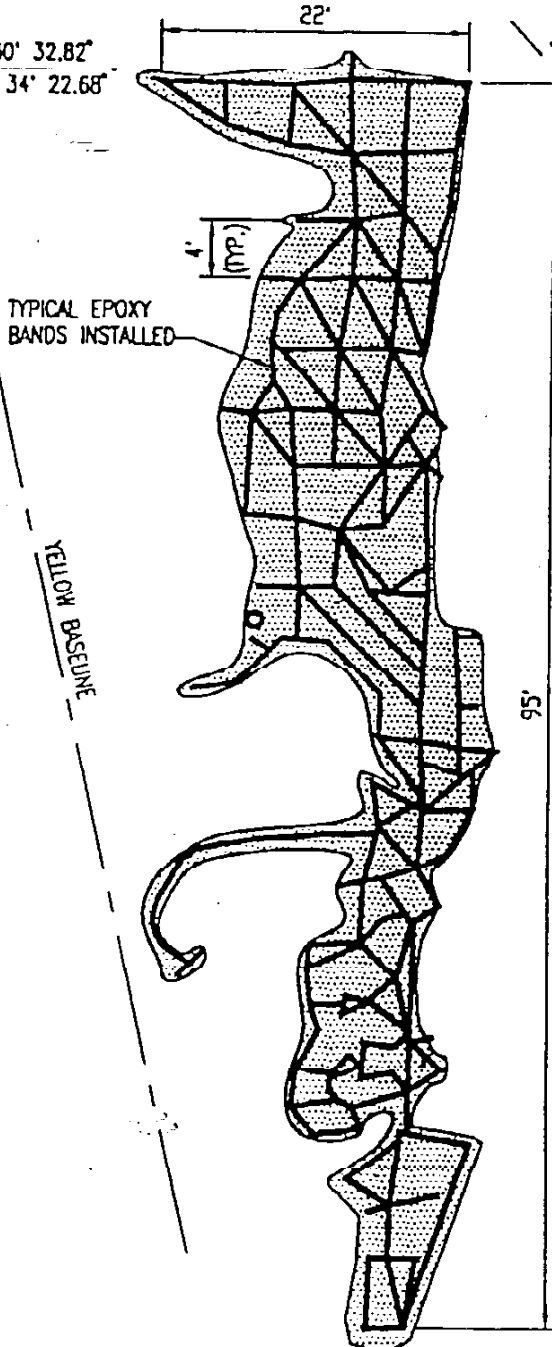
NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

513702D

Lat. 24° 30' 32.82"
Long. 81° 34' 22.68"

Lat. 24° 30' 33.06"
Long. 81° 34' 22.83"



PLAN BB-4
SCALE: NONE

Lat. 24° 30' 33.08"
Long. 81° 34' 21.98"

FILE No. E-2013
CONTRACT No. H-5137-02
DATE 12/15/97
SHEET No. 10 of 10

NOTE: FINAL DESIGN REQUIRED FOR CONSTRUCTION

ECM/Hudson Maritime Services, LLC
64 Danbury Road
Wilton, CT 06897

PROPOSED:	REEF RESTORATION
AT:	KEY WEST, FLORIDA
COUNTY OF:	MONROE
APPLICATION BY:	ECM/Hudson Maritime Services, LLC

5065P2