

FE342 WIRE DRAG

Diagram No. 1251-3

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey ... Wire Drag
Field No. R/H-10-1-82
Registry No. FE-342WD

LOCALITY

State Florida
General Locality ... Key West
Sublocality Key West Harbor & Vicinity
..... of Main Ship Channel

1982

CHIEF OF PARTY
LCDR R.C. Arnold

LIBRARY & ARCHIVES

DATE September 19, 1990

**FE342
WIRE DRAG**

'GP' "DD B"

Elis

-11447 - App'd 11/18/90 JS

11441

11445B"

411

11442

11460

11434

11013

11006

11480

11428

HYDROGRAPHIC TITLE SHEET

FE-342 WD

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

10-1-82

State Florida ✓

General locality Key West ✓

Locality Key West Harbor, Anchorage Off E. Triangle Light ✓
and Vicinity of Main Ship Channel

Scale 1:10,000 ✓

Date of survey 18 Mar - 30 Apr 1982 ✓

Instructions dated 9 December 1981 ✓

Project No. OPR-H654-RU/HE-82 ✓

Vessels NOAA Ships RUDE and HECK ✓

Chief of party LCDR Russell C. Arnold ✓

Surveyed by LCDR R. Arnold, LCDR D. Winter, LT A. Bunn, LTJG R. Maxson, ENS F. Collins, ENS S. Barnum ✓

Soundings taken by echo sounder, hand lead, pole PDG & Wire Drag ✓
(Reconnaissance hydrography with Side-Scan Sonar and DE-714 Echo Sounder)

Graphic record scaled by Ship's Personnel ✓

Graphic record checked by N/CG 24411 ✓

Protracted by N/CG 24411 ✓

Automated plot by N/A ✓

Verification by N/CG 24411 ✓

Soundings in Effective Depths feet at MLLW Smooth Predicted Tides ✓
~~MLW~~ ~~MLLW~~

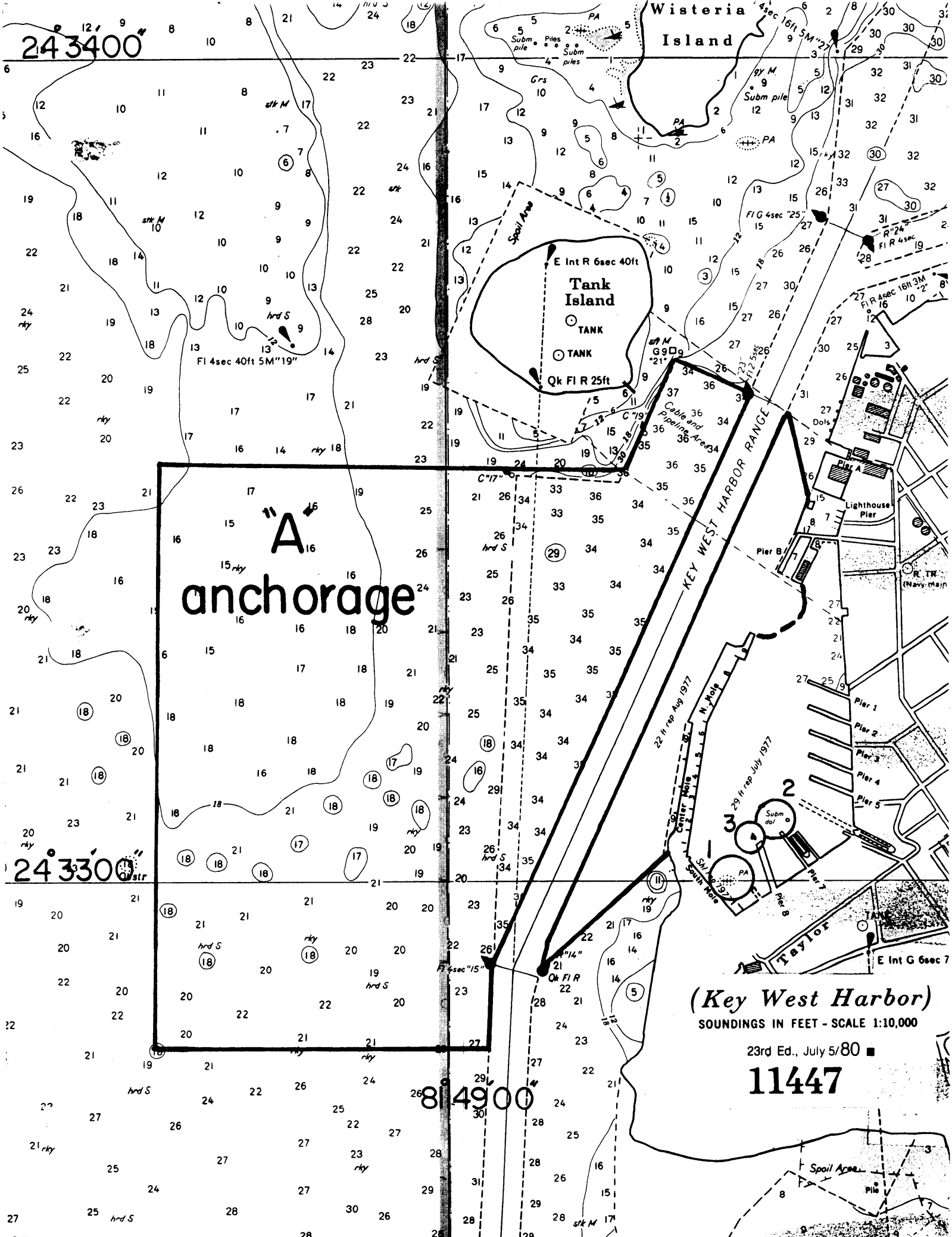
REMARKS:

AWOIS & SURF CHK

MCR 10/16/90

XWLL 9/26/82

24 3400



"A" anchorage

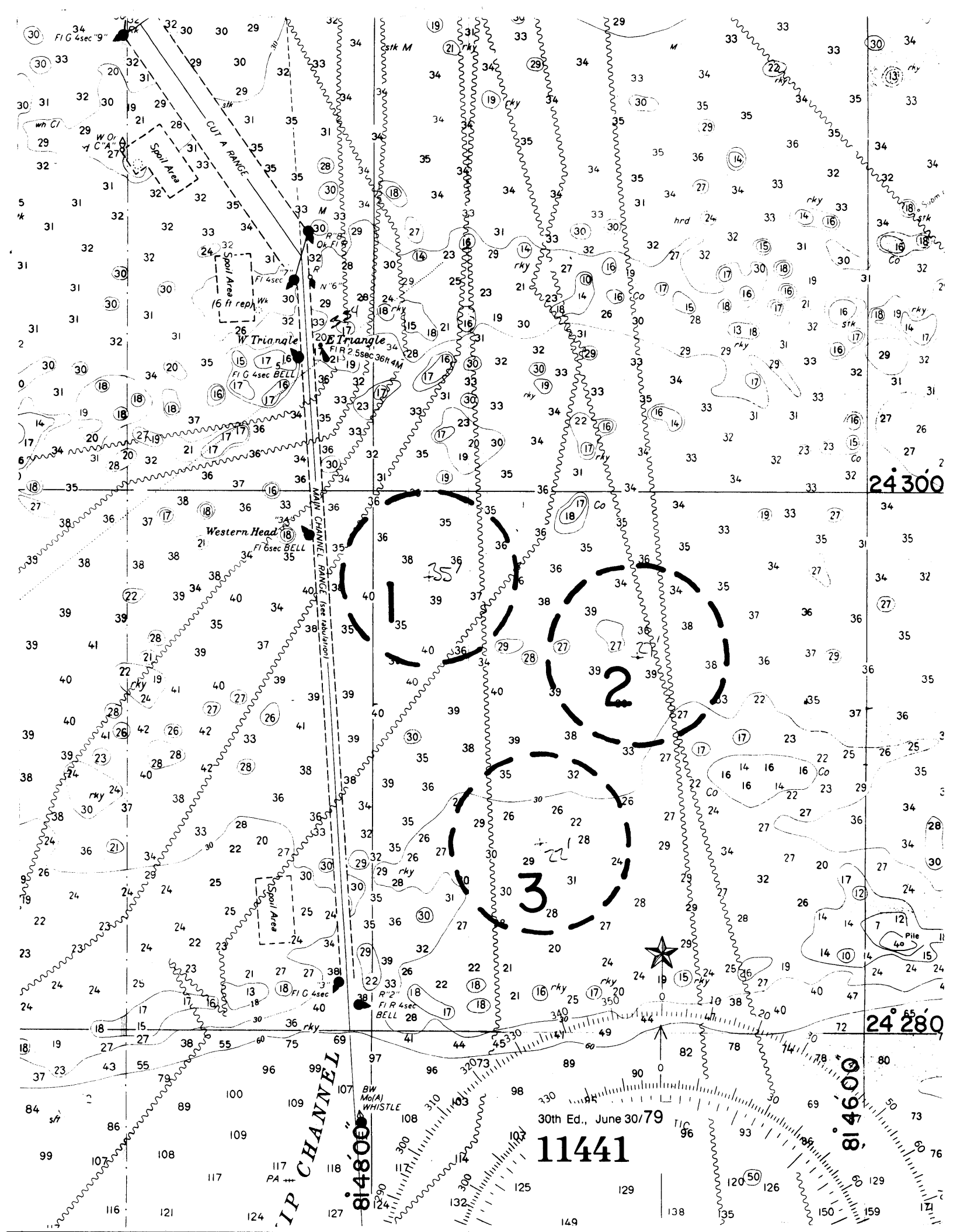
24 3300

81 4900

(Key West Harbor)
SOUNDINGS IN FEET - SCALE 1:10,000

23rd Ed., July 5/80

11447



24 300

2

3

24 280

IP CHANNEL

81 4600

81 4600

30th Ed., June 30/79

11441

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Summary of the results of OPR-H654-RU/HE-82

* = Data removed from the Descriptive Report and filed with the field records.

I.

A. Authority

This project was authorized under Hydrographic Project Instructions, OPR-H654-RU/HE-82, Wire Drag, Key West, Florida, dated December 9, 1981, and Change No. 1, dated January 26, 1982.

B. Character and Limits of Work

The purpose of this project was to determine whether suspected submerged dangerous wrecks existed in portions of Key West Harbor and its adjacent "A" anchorage area, as requested by the Key West Bar Pilots. In addition, wire drag clearance of three newly designated anchorage areas, located 1½ nautical miles southeast of East Triangle Light, were required.

The assigned scale of this survey was 1:10,000. Ship wire drags were plotted on 1:10,000 overlays and all launch drags were plotted on 1:5,000 overlays. Survey data for this project will affect the following NOS Charts: 411, 11013, 11420, 11434, 11441, 11442, 11445, 11447 and 11460.

C. Control

All assigned wire drag and side scan work was electronically controlled using Del Norte electronic positioning equipment operating on a frequency of 9400 MHz. Aids to navigation and certain items not located by Del Norte were positioned with sextant fixes. Applicable control station information is listed below:

For anchorage areas 1, 2 & 3, 1½ nautical miles southeast of East Triangle Light:

R₁ - Cut A, Front Range Light
Latitude 24°33'10.135"N
Longitude 81°50'02.707"W

R₂ - East Martello Tower
Latitude 24°33'06.953"N
Longitude 81°45'18.361"W

For anchorage "A" side scan and item investigation:

R₁ - Cut A, Front Range Light
Latitude 24°33'10.135"N
Longitude 81°50'02.707"W

R₂ - Tank Island
Latitude 24°33'35.844"N
Longitude 81°48'53.022"W

For anchorage "A" side scan and item investigations, northeast corner:

R₁ - Fort Taylor
 Latitude 24°32'51.515"N ✓
 Longitude 81°48'~~38.769~~"W
 39.011

R₂ - Cut A, Front Range Light
 Latitude 24°33'10.135"N ✓
 Longitude 81°48'~~18.361~~"W
 50' 02.707

D. Calibration and Shore Signals

All baseline calibrations of the Del Norte equipment were carried out between the following stations:

North Mole
 Latitude 24°33'16.185"N ✓
 Longitude 81°48'38.769"W

Cut A, Front Range Light
 Latitude 24°33'10.135"N ✓
 Longitude 81°50'02.707"W

This baseline was entirely over water. Computed distance between the two stations was determined to be 2370 meters, using the HP9815 calculator and the Geodetic Package tape (800630). Baseline calibrations were performed on 18 March 1982, 21 March 1982, 4 April 1982, 18 April 1982, and 30 April 1982. ✓

Calibrations were not verified during Modified Processing.

Daily opening and closing calibrations were performed as a go - no go check to determine if the Del Norte equipment was operating properly each day (See Appendix C). All checks were within the ± 5 meters for a 1:10,000 scale survey as prescribed by AMC Operations Order 79 except for JD083, when launch 1291 obtained a 7 meter check and JD105, when the HECK obtained a 6 meter check. ✓

Daily calibrations were performed by:

1. Nosing the launches up to the East Triangle Light platform and comparing calculated rates (R₁ = 5747, R₂ = 6834) with computed rates. ✓
2. Nosing the launches up to the bulkhead directly below station North Mole and comparing calculated rates (R₁ = 2370 or 759, R₂ = 726 or 2370) with observed rates. ✓
3. Circle calibrating around East Triangle Light with the RUDE and HECK and comparing calculated rates with observed rates. ✓

E. Dates of Survey

Work on this project began on 18 March 1982 and was completed on 30 April 1982. ✓

F. Tide Reducers

~~Field reductions of each day's work were accomplished using predicted tides for the reference station at Key West, Florida.~~

Smooth Tides have been applied to the verified data.

G. Junctions and Splits

There were no junctions or splits during this survey. - *One split exists on the present survey (in Lat. 24°28'48"N, Long. 81°47'12"W).*

H. Incomplete Items

All items assigned were completed.

I. Currents and Winds

Currents generally less than 0.5 knot were encountered during drag operations on the anchorage areas 1½ miles southeast of East Triangle Light, and had little effect on drag operations. Winds, however, proved to be a definite problem. Prevailing southeasterly winds of 15 knots plus, stopped all attempts at wire dragging from 25 March through 13 April. The winds moderated during the last half of April, which permitted ship wire drag operations during that period.

J. Equipment and Techniques

1. Survey Operations

Survey operations consisted of standard launch and ship wire drag operations in the anchorage areas southeast of East Triangle Light. All drags were controlled by running along Del Norte arcs, which proved to be a very effective means of controlling drags and insuring that overlap was sufficient.

Side scan sonar operations in the Anchorage "A" area were conducted using launch 1290. 25 meter spacing was accomplished by running Del Norte arcs. The 50 meter range scale was used which, coupled with 25 meter line spacing, meant that each area was scanned 4 separate times. This coverage proved to be so effective that obstructions that projected only two or three feet off the bottom were detected and later investigated by divers.

Item 5 required 3rd order horizontal control work to locate a radio tower. The tower was intersected from several 3rd order control points with a T-2 to obtain a position. A tank and the flagpole at Truman Annex were also positioned to facilitate locating items and aids to navigation in and around Key West Harbor.

2. Diving Operations

Diving operations were extensive for this project. In addition to investigating several wire drag hangs, divers obtained least depths for

Items 1, 3, 6, 8, 9, 10, 11, 12, 13, 14, 15 and 16. Visibility was excellent in the Key West area. This fact, coupled with the excellent positional information obtained from side scan, made item investigation much easier, with minimal searches required. Least depths were determined by using the ship's pneumatic fathometer (See Appendix A for calibration). Positions were obtained either with Del Norte or sextant fixes.

3. Testing

Standard testing procedures were used throughout the project for both launch and ship wire drag operations. Numerous tests were made on each strip.

K. Discrepancies and Comparisons With Recent Charts

Please refer to Summary of the Results of OPR-H654-RU/HE-82. (Section III of this report). The ships found prior survey H-8762 to be particularly useful in helping to determine appropriate depth settings for each drag. This survey proved to be accurate as well in portraying the extent and proper depth of the numerous shoals in and around anchorage areas 1-3.

L. Personnel

The officers participating in this survey were: LCDR Russell C. Arnold, LCDR Donald D. Winter, LT Alan R. Bunn, LTJG Rober V. Maxson, ENS Freddie L. Collins and ENS Steven R. Barnum.

M. General Notes

1. A considerable amount of hydrographic and side scan sonar data was collected by Launch 1290 while side scanning anchorage "A". These records were repeatedly examined by ships' personnel to obtain the 8 contacts (Items 9-16) that were later investigated by divers. The result of many hours of examination is a simple contact plot showing the location of the 8 items. While all fathograms, sonargrams and sounding volumes 2 and 3 are forwarded to you, it is the opinion of this command that no further verification of these records is required. *See the Addendum - Section 1.*

2. Launch wire drag strips run over the northern half of anchorage area 2 were plotted at a scale of 1:5,000. Ship wire drag strips were initially plotted at a scale of 1:5,000 for the southern half of anchorage area 2, but later reduced to 1:10,000. To see how launch and ship work fit together, see the 1:5,000 scale A&D Sheet. The 1:10,000 scale A&D sheet depicts ship wire drag information only. *See the Addendum - Section 1.*

3. The RUDE experienced gyro problems throughout the survey. See the daily journals in volumes 1R-7R for specific details. In the end, it was decided to process all ship wire drag strips using gyro optional code B, which assumes that the end vessel's (HECK's) bearings are correct and ignores the guide vessel's (RUDE's) bearings. The HECK's gyro error fluctuated between 0° and 3°E. It was later discovered that one of the ship's

alidades was out of adjustment by that 3°. As only one alidade was used on any particular day, it became easy to see why one day would indicate 0° error and the very next day would show a 3°E error. ✓

4. Least depths for items listed in Section III of this report, obtained by divers using the pneumatic depth gauge, have been corrected using Appendix A. Details of each investigation can be found in sounding volume 1. ✓

N. Miscellaneous

The Coast Pilot description of the area was carefully reviewed and discussed with Captain Crusoe of the Key West Bar Pilots Association. The ships' input was passed directly to LT Neal Millet, who was in the Key West Area at the same time as the ships, doing a Coast Pilot update. The Current Tables for the area were reviewed by ships' personnel and discussions held with Captain Crusoe, CAPT Horace Benoit, USN (Ret.), officials at the U.S. Coast Guard, and at Treasure Salvours, which does extensive diving in the area. In general, it was agreed that the Coast Pilot and the Current Tables contain accurate information. Captain Crusoe felt that the velocity of the current between Fleming Key and Key West was much stronger than the 5 knots indicated in the Coast Pilot (Volume 4, Page 207). ✓

The positions of all fixed and floating aids were checked by taking sextant fixes. See sounding volume 1 and Appendix B. ✓

O. Approval

All records of this survey are hereby approved. The field work was personally supervised by the undersigned. The field sheets and records were inspected daily. This survey is considered complete and adequate for charting. ✓

Russell C. Arnold
Russell C. Arnold
Commanding Officer
NOAA Ships RUDE & HECK

SUMMARY OF THE RESULTS
OF OPR-H654-RU/HE-82,
WIRE DRAG, KEY WEST, FL

III - Summary

This project consisted of three basic types of operations:

1. Area wire drags to cover the three offshore anchorages S.E. of E. Triangle Light. ✓
2. Side scan sonar coverage of the entire Anchorage "A" and adjacent areas west of Pier B and the North and Center Moles. ✓
3. Individual item investigations. ✓

1. The ships began operations on the offshore anchorages using launch wire drags. Approximately 60 percent of Area 2 was accomplished using launches. After the first week on the project, the weather deteriorated and, for the next three weeks, no work was accomplished on these anchorages. It was then decided to try dragging with the ships to speed up operations, and in spite of numerous shoals in and around these areas, the required coverages were accomplished. In fact, the ships did extra work here by connecting Areas 1 and 2, and also by connecting Area 1 to the Main Channel. ~~Maximum~~ ^{Effective} depths cleared in each area were:

Area 1 - 32 feet ~~to 34 feet~~

Area 2 - 24 feet ~~to 31 feet~~

Area 3 - 21 feet ~~(See Volume 6R, Journal for JD 118)~~
^{to 30 feet}

(These anchorage areas are not presently Charted) ✓

See the attached copy of the progress sketch for these areas.

2. Side scan sonar coverage of Anchorage A and adjacent areas was accomplished on bad weather days. This coverage resulted in the further investigation of eight contacts. All eight investigations were accomplished by divers, who obtained least depths with a pneumatic depth gauge. (See the attached contact plot and chartlet from Chart 11447). - See the Volume for Skiff 587 for notes on these items. ✓

Item 9 - This item proved to be a 17-foot Boston Whaler - type skiff, lying upside down on the bottom. Least depth reduced for ~~predicted~~ ^{Smooth} tide was 31.6 feet. ✓

Charting Recommendation - Chart a 31-foot sounding ^{on a wreck} at Lat: 24°33'06.84"N, Long: 81°48'51.91"W. (31 wk) (Presently charted as a ~~submerged~~ sunken wreck covered by 32 feet.) ✓

Item 10 - This item proved to be a large (2000 lbs plus) anchor. Least depth over the anchor was ~~31.6~~ ^{32.1} feet reduced for ~~predicted~~ ^{Smooth} tides. ✓

Charting Recommendation - Chart a ²31-foot sounding ^{on an obstr.} at Lat: 24°33'06.05"N, Long: 81°48'51.77"W. (32 obstr) (Presently charted as a submerged obstruction covered by 32 feet.) ✓

III-2

Item 11 - This item proved to be a 15-foot Boston Whaler-type skiff, lying upside down on the bottom. Least depth over the skiff, reduced for ~~predicted~~ tides, was ~~18.5~~ ^{smooth} ~~19.2~~ feet.

Charting Recommendation - Chart ~~11447~~ ^{a 19-foot sounding on a wreck at} already has a 19-foot sounding near this item. Position of the skiff is Lat: 24°33'01.79"N, Long: 81°49'04.68"W. (19 wk) (Presently charted as a sunken wreck covered by 19 feet.)

Item 12 - This item proved to be three cement anchors, cubical in shape, about 4 feet on each side. Least depth over the anchors, reduced for ~~predicted~~ tides, was ~~20~~ ^{smooth} feet.

Charting Recommendation - Chart a 20-foot sounding ^{on an obstr.} at Lat: 24°33'08.80"N, Long: 81°49'00.75"W. (20 obstr) (Presently charted as a submerged obstruction covered by 20 feet.)

Item 13 - This item proved to be a large rock on the bottom about 3 feet in diameter. Least depth over the rock, reduced for ~~predicted~~ tides, was ~~31.6~~ ^{smooth} ~~32.8~~ feet.

Charting Recommendation - Chart a ³ 32-foot sounding ^{on a rock} at Lat: 24°33'24.3"N, Long: 81°48'42.75"W (33 rk) (Presently charted as submerged rocks covered by 32 feet.)

Item 14 - This item proved to be a group of 3 coral boulders. Least depth over the boulders, reduced for ~~predicted~~ tides, was ~~32.0~~ ^{smooth} feet.

Charting Recommendation - Chart a 32-foot sounding ^{on a coral formation} at Lat: 24°33'25.37"N, Long: 81°48'41.53"W. (32 Co) (Presently charted as submerged rocks covered by 32 feet.)

Item 15 - This item proved to be a large coral boulder, about 5 feet in diameter. Least depth over the boulder, reduced for ~~predicted~~ tides, was ~~23.1~~ ^{smooth} feet.

Charting Recommendation - Chart a 23-foot sounding ^{on a coral formation} at Lat: 24°33'37.06"N, Long: 81°48'36.56"W. (23 Co) (Presently charted as a submerged rock covered by 23 feet.)

Item 16 - This item proved to be a coral head. Least depth, reduced for ~~predicted~~ tides, was ~~33.0~~ ^{smooth} feet. Item 13 is nearby, with a ~~31.3~~ ^{smooth} foot least depth, so it will not be necessary to chart Item 16. ^{concur}

Charting Recommendation - Position of this coral head is Lat: 24°33' ~~16.19~~ ^{24.62} N, Long: 81°48' ~~38.75~~ ^{43.00} W. (34 Co) (Presently not charted due to its proximity to Item 13.)

3. Five individual items were assigned to the ships in the original project instructions and supplemental instructions. An additional three items were investigated on the ships' initiative. See the attached copy of the progress sketch for the approximate locations of these items.

Item 1 - This item was thoroughly investigated by divers on several occasions and was identified as the Cayman Salvagemaster. This 180-foot

steel-hulled wreck is laying on its port side with the bow heading 145°T and the vessel's masts projected some 50 feet, heading 055°T. The mid-section of the wreck bared 2½ feet at 2247Z on 29 March 1982, (JD:088) when the ~~predicted~~^{smooth} tide reducer was 0.0 feet.

Charting Recommendation - Chart this ^{visible} wreck with the center of the symbol at Lat: 24°32'59.96"N, Long: 81°48'38.83"W. Orient the symbol with the bow heading 145°T. ~~(3)~~ ⁽³⁾ representing the exposed hull, not the masts.]
(Presently charted as a visible wreck with no elevation.)

Item 2 - This item, reported to be a submerged dolphin, Lat: 24°33'04.5"N, Long: 81°48'33"W, was not found. The area in and around the reported position was wire dragged with the ships' launches to an effective depth of ^{28'}~~29~~ feet.

Charting Recommendation - Remove the submerged dolphin from the chart. - Concur

Item 3 - This item was reported to be an obstruction at Lat: 24°33'03"N, Long: 81°48'35"W. Launch wire drag operations conducted on the same day as for Item 2 hung an obstruction. This obstruction was later investigated by divers and proved to be a metal tank 8 feet high by 10 feet square. Least depth over this tank, reduced for ~~predicted~~^{smooth} tides, was 28.2 feet. Depth of the bottom surrounding this tank was 36 feet.

Charting Recommendation - Chart an obstruction with a 28-foot least depth at Lat: 24°33'03.95"N, Long: 81°48'35.89"W. (Presently charted as a submerged obstr. covered by 28 feet.)

Item 4 - This item was a visible wreck and mooring buoy at Lat: 24°33'32.91"N, Long: 81°49'33.1"W. This item was inspected visually, and several three-point fixes were taken along the wreck and at the mooring buoy. The high point of the wreck bared 4½ feet when the ~~predicted~~^{smooth} tide reducer was 0.56 feet.

Charting Recommendation - Chart this visible wreck with the center of the symbol at Lat: 24°32'33.55"N, Long: 81°49'34.03"W. Note that this position is exactly on the Cut A Range. Chart the mooring buoy at Lat: 24°32'35.30"N, Long: 81°49'36.27"W. Note that the mooring buoy is NW of the wreck. (Presently charted as a sunken wreck - no depth or elevation.)

Item 5 - The purpose of this item was to position a 300-foot radio tower that had been moved from Lat: 24°33'22"N, Long: 81°48'23.4"W. This item was accomplished by intersecting the tower from existing 3rd order control points using a T-2.

Charting Recommendation - Remove the RTR (Navy maintd) from the chart at the above position. Chart the RTR (Navy maintd) at Lat: 24°32'45.86"N, Long: 81°48'17.26"W.
Not verified during modified processing.

Item 6 - The purpose of this item was to position a 34-foot Chris Craft pleasure boat that was discovered by divers while conducting practice dives in Key West Harbor. Divers obtained a least depth of

28.1
 27.6 feet, reduced for ^{smooth} ~~predicted~~ tides, over this wreck. Depth of the bottom surrounding this wreck was 38⁷ feet.

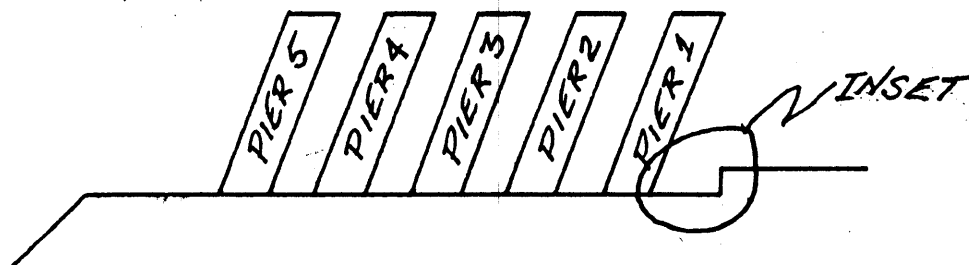
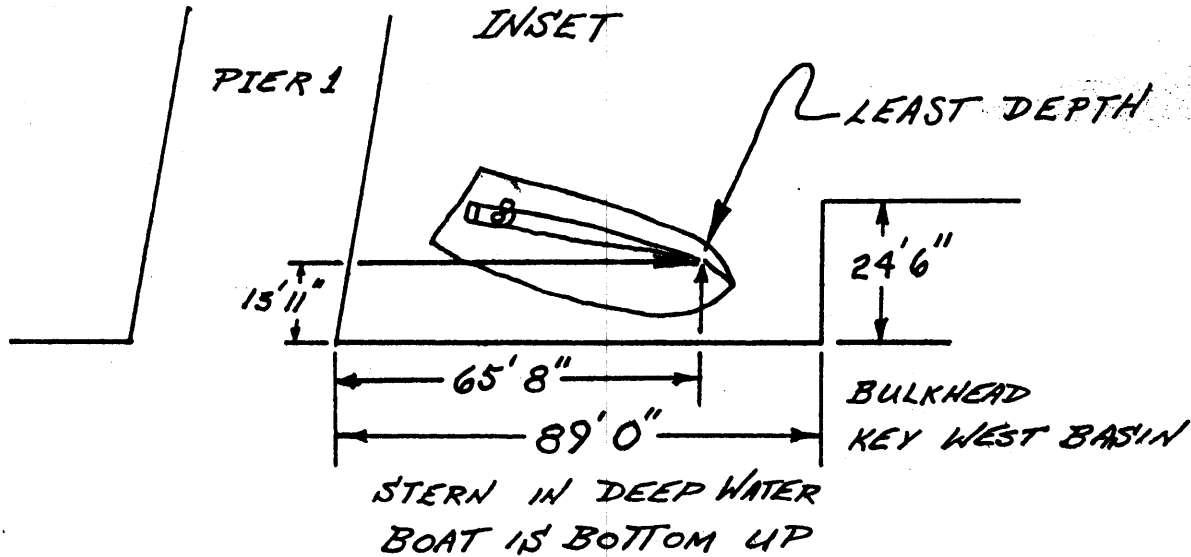
Charting Recommendation - Chart this wreck at Lat: 24°33'19.64"N, Long: 81°48'29.33"W_x as a 28 wk. (Presently charted as a sunken wreck covered by 28 feet.)

Item 7 - The purpose of this item was to position the visible wreck of the 100-foot wooden vessel Emily Brown. The port bow gunwale bared 3 feet when the ^{smooth} ~~predicted~~ tide reducer was 1.0 foot.

Charting Recommendation - Chart this visible wreck at Lat: 24°33'48.56"N, Long: 81°48'59.58"W. Note: Remove the wreck symbol at Lat: 24°33'48"N, Long: 81°49'50"W, from Chart 11445. This symbol was erroneously charted as a result of LNM 28-80, 9 July 1980, Page 7. (Presently charted as a sunken wreck - no depth - because it sinks - no elevation)

Item 8 - The purpose of this item was to investigate the wreck of a 34-foot cabin cruiser that could be seen lying on the bottom at the junction of Pier 1 and the north to south bulkhead in front of the Truman Annex Administration Building. Divers obtained a least depth, reduced for ^{smooth} ~~predicted~~ tides, of 5 feet. Depth of the bottom next to the wreck was 13 feet.

Charting Recommendation - Chart this wreck as ^{4 foot sounding on a wreck} ~~indicated in the sketch below~~ in Latitude 24°33'14.5"N, Longitude 81°48'28.5"W. (Presently charted as a sunken wreck covered by 5 feet.)





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

APR 10 1990

MEMORANDUM FOR: Rudolph D. Sanocki
Chief, Verification Section
FROM: *George H. Mastrogiannis*
George H. Mastrogiannis
Chief, Data Control Section, NCD
SUBJECT: Cancellation of Hydrographic Registry Number
and Reissue as Field Examination Number (by
direction, R. D. Sonocki, 4/9/90)

The following hydrographic registry number H-10062WD, is cancelled by direction this date and reissued as FE-342WD.

Cancellation

<u>Registry No.</u>	<u>Field No.</u>
H-10062WD	RH-10-1-82

Reissue

<u>Registry No.</u>	<u>Field No.</u>	<u>Locality</u>	<u>Project No.</u>
FE-342WD	RH-10-1-82	FLORIDA KEY WEST KEY WEST HARBOR AND VICINITY OF MAIN SHIP CHANNEL	OPR-H654

CC:
N/CG22x2 - STARS
N/CG24x2 - Wellman
N/CG241 - Riddle
N/CG244 - Lawrence
N/CG245 - Chelgren-Koterba
PMC1 - Wilder



DATE: November 29, 1982

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 872-4580 Key West, Florida

Period: March 19-April 28, 1982

HYDROGRAPHIC SHEET: ~~H-10062WD~~ FE-342 WD

OPR: H-654

Locality: Key West, Florida

Plane of reference (mean lower low water): 4.33 ft.

Height of Mean High Water above Plane of Reference is 1.6 ft.

REMARKS: Recommended Zoning:

Zone Direct

for Donald D. Carrier
Chief, Tidal Datums and Information Branch

N/CG244-60-90

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU
BY (Check):

- ORDINARY MAIL
- AIR MAIL
- REGISTERED MAIL
- EXPRESS
- GBL (Give number) _____

TO:

Chief, Data Control Section, N/CG243
 Room 151, WSC-1
 Hydrographic Surveys Branch
 National Ocean Service
 Rockville, MD 20852

DATE FORWARDED

13 Sept. 1990

NUMBER OF PACKAGES

two (2)

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-342WD (R/H-10-1-82)
OPR-H654, FLORIDA, KEY WEST

Pkg. 1: (Box)

- ~~14~~ "WIRE DRAG" Volumes.
- ~~3~~ "SOUNDINGS" Volume.
- ~~1~~ "Tester Record" Volume.
- ~~1~~ Envelope containing Smooth Tides.
- ~~1~~ Envelope containing Verified Wire Drag Strips.
- ~~1~~ Envelope containing data removed from the Descriptive Report.
- ~~1~~ Accordion Folder containing original field data of Year Days 078, 081, 082, 083, 091, 092, 095, 096, 097, 098, 099, 104, 105, 109, 110, 111, 112, 113, 118, and miscellaneous data (Listing Of All Suspected Contacts Scanned From The Side Scan Sonargrams, Tide Station Information, Position Control Calibration Data, and Horizontal Control Data).

DO NOT DISCARD ANY OF THIS DATA.

Page #1 of 2.

FROM: (signature)

Maurice B. Hickson, III
 Maurice B. Hickson, III

RECEIVED THE ABOVE
(Name, Division, Date)

D. S. Clark
 9/17/90

Return receipted copy to:

Chief, Atlantic Hydrographic Section
 N/CG244
 Atlantic Marine Center
 439 W. York Street
 Norfolk, VA 23510-1114

N/CG244-60-90

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU
BY (Check):

ORDINARY MAIL AIR MAIL

REGISTERED MAIL EXPRESS

GBL (Give number) _____

TO:

Chief, Data Control Section, N/CG243
Room 151, WSC-1
Hydrographic Surveys Branch
National Ocean Service
Rockville, MD 20852

DATE FORWARDED

13 Sept. 1990

NUMBER OF PACKAGES

two (2)

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-342WD (R/H-10-1-82)
OPR-H654, FLORIDA, KEY WEST

Pkg. 2: (Box)

~~1~~ Original Descriptive Report containing three (3) Smooth
Sheets.

~~12~~ Side Scan Sonargrams.

DO NOT DISCARD ANY OF THIS DATA.

Page #2 of 2.

FROM: (Signature)

Maurice B. Hickson III
Maurice B. Hickson, III

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Chief, Atlantic Hydrographic Section
N/CG244
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

09/07/90

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-342WD

NUMBER OF CONTROL STATIONS	5
NUMBER OF POSITIONS	2498
NUMBER OF SOUNDINGS	14

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	23	11/05/82
VERIFICATION OF FIELD DATA	247	06/08/90
QUALITY CONTROL CHECKS	0	
EVALUATION AND ANALYSIS	177	09/06/90
FINAL INSPECTION	2	08/24/90
TOTAL TIME	426	
MARINE CENTER APPROVAL		09/07/90

ADDENDUM TO ACCOMPANY SURVEY FE-342WD

1. INTRODUCTION

a. In accordance with the memorandum from CDR Russell C. Arnold, Chief, Hydrographic Surveys Branch, N/CG24, dated December 27, 1988, a modified approach to marine center processing of this survey was undertaken. Processing was limited to:

1) The verification of the positions and the least depths on all items resolved by diver investigations.

2) The verification of wire drag effective depths and positions of all hangs and clearance depths over these hangs.

3) The verification of all the wire drag strips (positions and effective depths) covering the three proposed offshore anchorage areas and the inner harbor of Key West.

4) The verification of all groundings. No groundings were found to conflict with charted hydrography and were therefore disregarded.

5) Charting recommendations based upon findings from the limited survey processing and a comparison with the latest largest scale charts of the area.

b. Some processing beyond the intent of the modified processing approach was done to provide verified wire drag effective depths over three proposed offshore anchorage areas (#1, #2, and #3) and in the inner harbor of Key West. The results of the additional processing of the wire drag data are portrayed on the survey smooth plots (#1 of 3 and #2 of 3) and are addressed in this addendum and Section III. of the Descriptive Report.

c. Three smooth plots of the results of the investigations of this survey were generated during processing and are attached to this addendum. These plots contain four hangs and fifteen least depths on items located and investigated. These plots are considered the final or smooth sheets for this survey.

d. The inshore investigations on this survey have been smooth plotted at the surveyed scale of 1:10,000. The offshore wire drag investigations have been smooth plotted at 1:20,000. The smaller scale was used to plot the offshore wire drag investigations to make the smooth plots meet the size requirements for a field examination. No significant loss of clarity or detail occurred in the reduction of scale.

e. Anchorage area "A" was primarily investigated by side scan sonar on the present survey. The entire anchorage area and the adjacent harbor area was covered by side scan sonar. The range scale setting was 80 meters and the track spacing was

generally 25 meters. The appearance is that sufficient work was accomplished to claim complete coverage over the entire area. However, complete coverage cannot be claimed because:

- 1) The sonargrams are not presently satisfactory to claim complete coverage. These sonargrams are over 8 years old and have significantly degraded with age. The maximum effective scanning range on any track would be 25 meters and, in many cases, the effective scanning range was less than 25 meters.
- 2) As stated in Section III. of the Descriptive Report, This side scan sonar work was accomplished by a launch on bad weather days and is therefore doubtful that these records could have ever met the criteria for complete coverage.
- 3) This work was accomplished in 1982. Side scan sonar at that time was considered and used as a reconnaissance tool, not a surveying tool. The only instructions available to the field at the time of this survey was the manufacturer's technical operations manual. The British Professional Paper No. 24 was not available to the field until 1983.
- 4) Side scan sonargram annotations that are considered essential, particularly for the old Kline system, were not made. These essential annotations include: layback, equipment settings, unusual conditions, range scale, paper speed, heading, speed, and significant contacts.
- 5) No confidence checks were made.
- 6) At times the towfish height was only 2 to 3 meters above the bottom.
- 7) Within the area covered by side scan sonar are areas as shoal as 15 feet which is too shoal for side scan sonar operations.
- 8) None of the side scan sonar data was logged by the field; only manually recorded in Sounding Volumes.
- 9) No contact list or log was provided.
- 10) No track plots were provided.
- 11) No coverage plots or abstracts of coverage were provided.
- 12) The only contact plot provided was of the contacts resolved by diver investigations.

The side scan sonargrams were examined during processing since it initially appeared that complete coverage of anchorage area "A" was obtained and was verifiable. Considering the degraded nature of the sonargrams, any suspicious side scan sonar return was flagged as a contact. These contacts, numbering 455, have been tabulated and are included in the survey records. The contacts resolved by diver investigation are the only contacts recommended for charting since the side scan sonar data has not been fully processed. However, the possibility of numerous other significant contacts exist and it is recommended that this area be completely resurveyed at an opportune time. From the remarks made by the hydrographer pertaining to water clarity and considering the relatively shoal nature of this area, a photobathymetric survey or a laser hydrographic survey may be the most productive method of obtaining complete coverage.

f. This survey was formerly registered as survey H-10062WD (1982); the registry number of which has subsequently been rescinded.

2. CHARTING RECOMMENDATIONS FOR CHARTS

11441, 34th ED., JAN. 21, 1989

11447, 26th ED., NOV. 12, 1988

These two charts cover the entire surveyed area. Some of the charted hydrography within the common area originates with prior surveys H-8762 (1963), H-8763 (1963), H-5934a (1934-36 & 1937), and H-5934b (1934-36). The sources of the remainder of the charted hydrography within the common area are not readily available, but may be U. S. Army Corps Of Engineers and/or U. S. Navy surveys.

The items investigated, the results of the investigations, and the appropriate charting recommendations are adequately discussed in Section III. of the Descriptive Report (SUMMARY OF RESULTS).

The assigned three proposed anchorage areas (#1, #2, and #3), located approximately 1½ nautical miles southeast of East Triangle Light, were required to be cleared by wire drag. These three areas were investigated and are addressed as follows:

a. Proposed anchorage area #1 was cleared by effective depths ranging from 32 to 34 feet. No hangs or conflicting groundings occurred within this area. This area is considered cleared to a minimum effective depth of 32 feet.

b. Proposed anchorage area #2 was cleared by effective depths ranging from 24 to 31 feet. This entire area is considered cleared to a minimum effective depth of 24 feet except

in a very small section in Latitude 24°29'10"N, Longitude 81°46'41"W where there is no coverage. Two hangs occurred within the assigned area of this proposed anchorage. These hangs are:

1) A hang occurred at 28 feet in Latitude 24°29'28.0"N, Longitude 81°47'02.8"W, position approximate (± 150 meters), and was cleared by 25 feet. This hang was identified as a shoal area. This shoal was hung at the location of a charted 27-foot shoal. This hang is not recommended to be charted.

2) A hang occurred at 30 feet in Latitude 24°29'25.4"N, Longitude 81°47'12.8"W, position approximate (± 150 meters), and was cleared by 25 feet. This hang was not investigated and was referred to as an obstruction. This hang is in the location of a charted 27-foot shoal. This hang is not recommended to be charted.

c. Proposed anchorage area #3 was cleared by effective depths ranging from 21 to 30 feet. One hang occurred within the area and one hang occurred just west of the area. These two hangs are:

1) A hang occurred at 23 feet in Latitude 24°28'47.1"N, Longitude 81°47'12.5"W and was not cleared. This hang was investigated and identified as a coral shoal. A least depth of 21 feet was obtained on this shoal. This 21-foot coral shoal is in the vicinity (approximately 60 meters southwest) of a charted 22-foot sounding. It is recommended that this 21-foot least depth be charted in the position determined by the present survey and the charted 22-foot sounding be deleted from the chart.

2) A hang occurred at 28 feet in Latitude 24°28'44.1"N, Longitude 81°47'48.1"W, position approximate (± 150 meters), and was not cleared. This hang was investigated and identified as a coral head extending $1\frac{1}{2}$ feet off the bottom. This hang is in the location of a 26-foot charted depth. This hang is not recommended to be charted.

d. Proposed anchorage area #3 was cleared to a minimum effective depth of 21 feet except in the area of the hang on the 21-foot coral shoal where a small split exists. The 21-foot least depth is the shoalest feature and the entire area should be considered cleared to an effective depth of 21 feet.

These proposed anchorage areas are not presently (1989) charted as anchorage areas. If these anchorage areas are ever designated and charted, it is recommended that the clearance depths not be charted but listed in the appropriate Coast Pilot.

Numerous aids to navigation were positioned on the present survey. Only the fixed aids to navigation listed in the signal list have been verified positionally. No other aids to navigation were verified during processing. No aids to navigation were smooth plotted.

3. RECOMMENDATIONS FOR ADDITIONAL WORK

The proposed offshore anchorage areas #1, #2, and #3 are considered complete and no additional field work is recommended. The wire drag and other investigations conducted in the Key West inner harbor area appear adequate and no additional field work is recommended. The side scan sonar records covering Anchorage Area "A" indicate a need for additional field work. See section 1.e. of this Addendum for additional field work recommendations.

Verification and
Recommendations by,

Checked by,

Maurice B. Hickson III
Maurice B. Hickson, III
Cartographer
Evaluation & Analysis Team

R. D. Sanocki
R. D. Sanocki
Chief, Hydrographic
Processing Unit

APPROVAL SHEET
FE-342WD

Initial Approvals:

The completed wire drag survey has been examined with regards to presentation of survey results. The survey complies with National Ocean Service requirements except as noted in the Addendum to the Descriptive Report. This survey is not to be considered a basic hydrographic survey and is not approved as such. Only the data that has been verified, smooth plotted, and addressed in the Addendum to the Descriptive Report is approved for charting. There will be no digital file accompanying this survey.

Robert D. Sanocki Date: 7 Sept 1990
For R. D. Sanocki
Chief, Hydrographic Processing Unit
Atlantic Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. The verified and smooth plotted data meet or exceed NOS requirements and standards for products in support of nautical charting except as noted in the Addendum to the Descriptive Report.

Christopher B. Lawrence Date: Sept. 7, 1990
Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

Final Approval:

Approved: Wesley V. Hull Date: 9/25/90
Wesley V. Hull
Rear Admiral, NOAA
Director, Charting and
Geodetic Services

INDEX
HYDROGRAPHIC SURVEYS
Complete through August 1978
1956-1965
KEY WEST - DRY TORTUGAS
FLORIDA



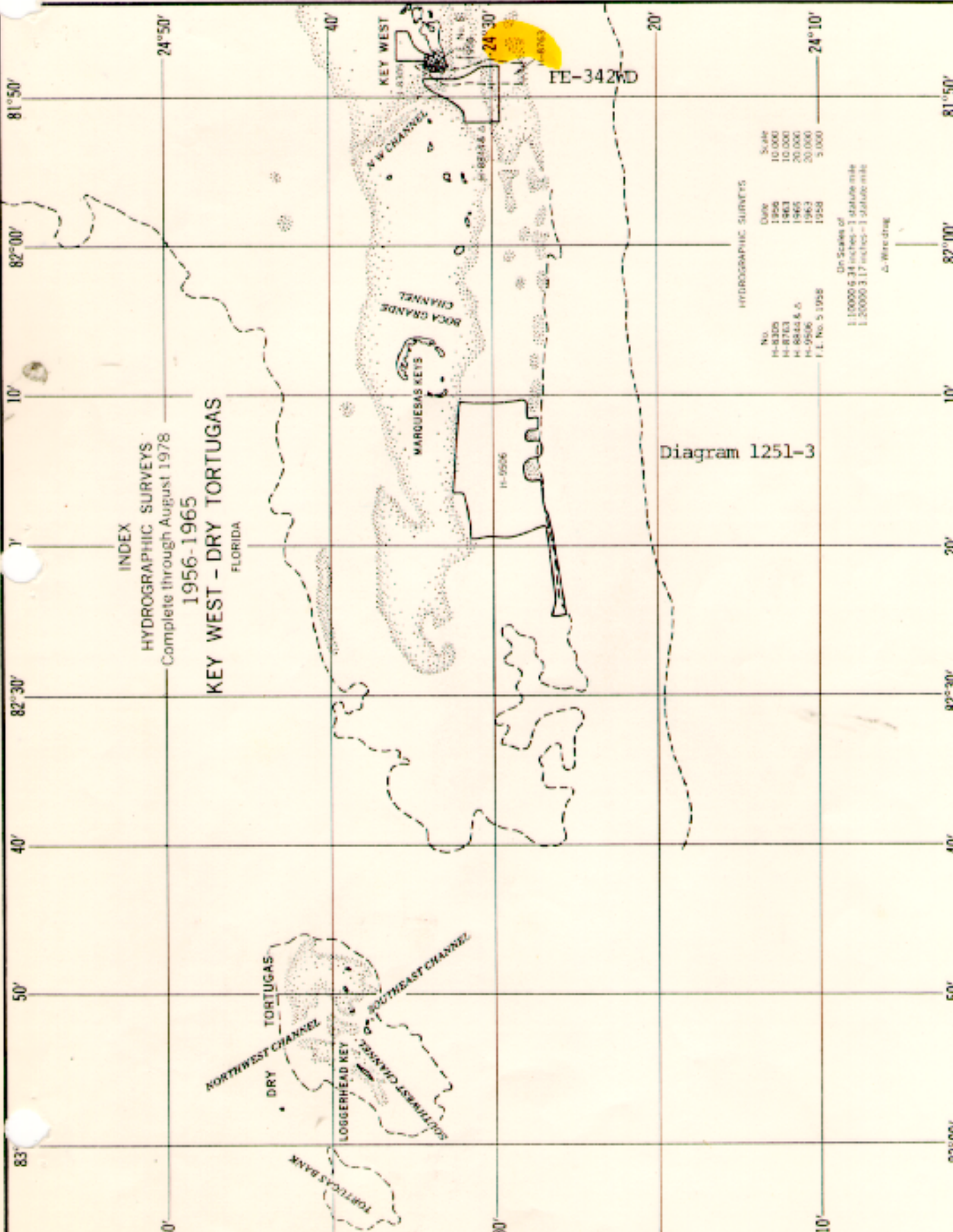
HYDROGRAPHIC SURVEYS

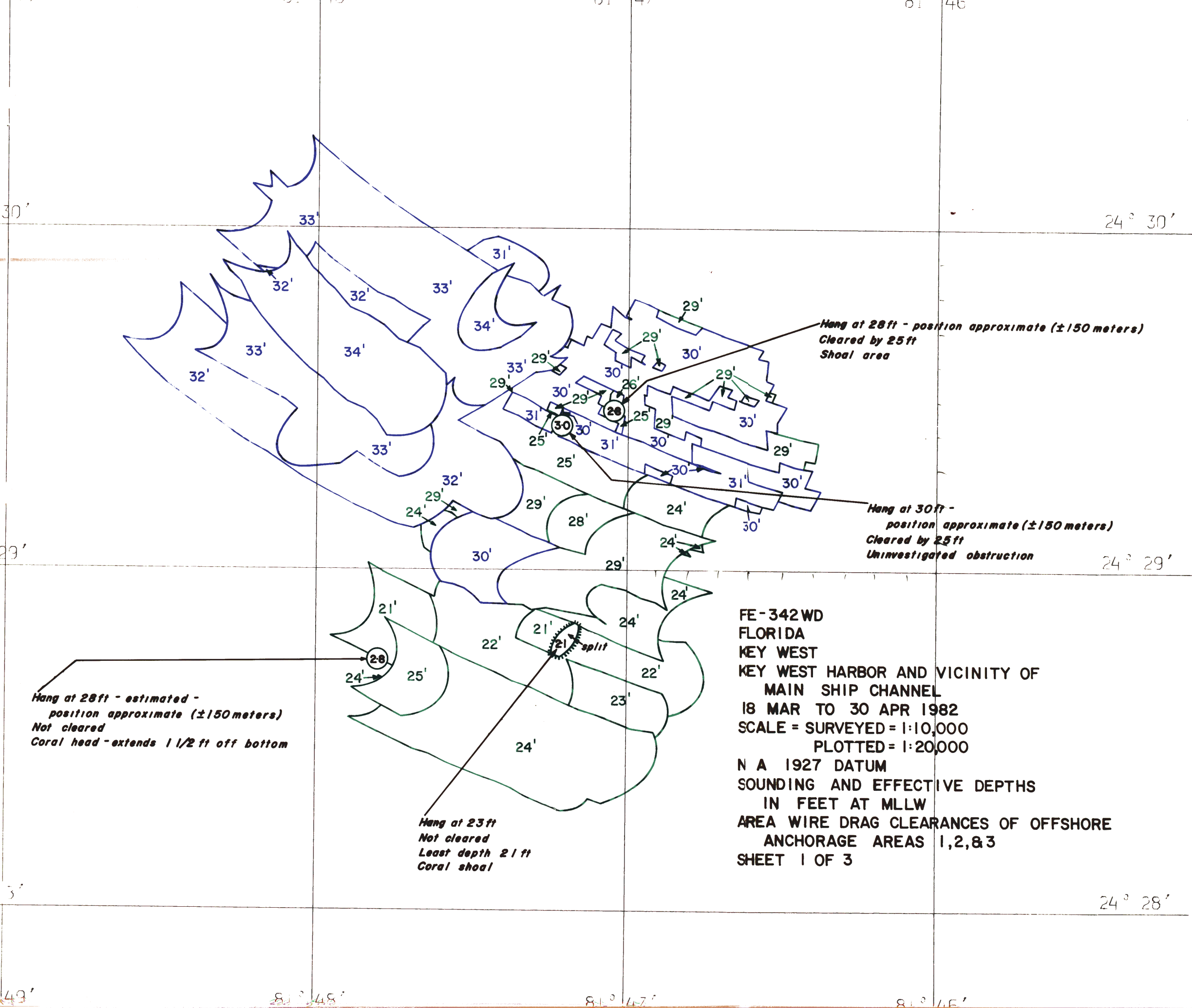
No.	Date	Scale
H-8320	1956	10,000
H-8321	1963	10,000
H-8322 & 6	1965	20,000
H-9506	1963	20,000
F.L. No. 5 1958	1958	5,000

On Scales of
 1:10000 5.31 inches = 1 statute mile
 1:20000 3.17 inches = 1 statute mile
 Δ Wire drag

Diagram 1251-3

FE-342WD





Hang at 28ft - estimated -
 position approximate (± 150 meters)
 Not cleared
 Coral head - extends 1 1/2 ft off bottom

Hang at 23ft
 Not cleared
 Least depth 21ft
 Coral shoal

Hang at 28ft - position approximate (± 150 meters)
 Cleared by 25ft
 Shoal area

Hang at 30ft -
 position approximate (± 150 meters)
 Cleared by 25ft
 Uninvestigated obstruction

FE-342WD
 FLORIDA
 KEY WEST
 KEY WEST HARBOR AND VICINITY OF
 MAIN SHIP CHANNEL
 18 MAR TO 30 APR 1982
 SCALE = SURVEYED = 1:10,000
 PLOTTED = 1:20,000
 N A 1927 DATUM
 SOUNDING AND EFFECTIVE DEPTHS
 IN FEET AT MLLW
 AREA WIRE DRAG CLEARANCES OF OFFSHORE
 ANCHORAGE AREAS 1,2,&3
 SHEET 1 OF 3

24° 30'

24° 29'

24° 28'

30'

29'

3'

81° 48'

81° 48'

81° 47'

81° 47'

81° 46'

81° 46'

81°49'30"

81°49'00"

81°48'30"

24°33'30"

24°33'00"

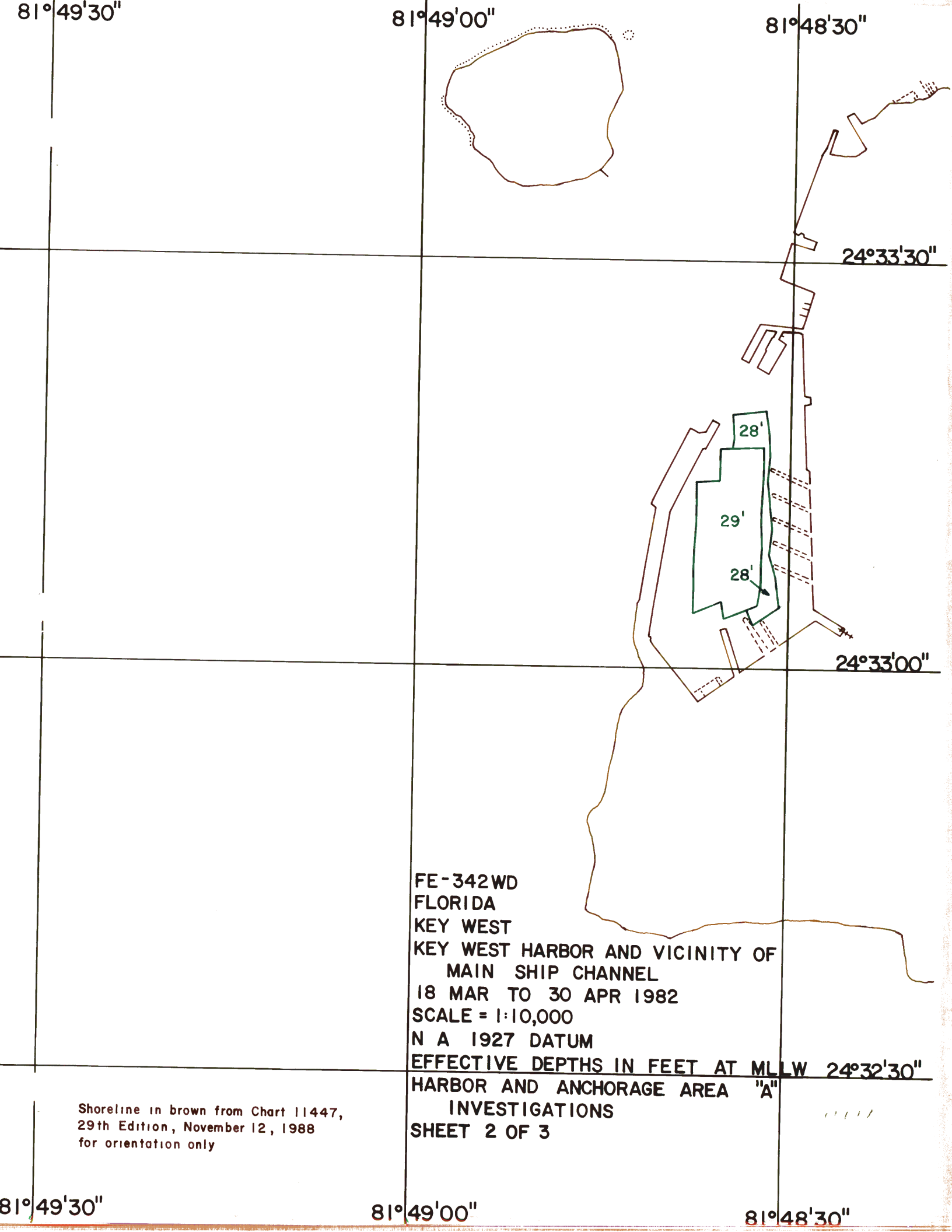
FE-342WD
 FLORIDA
 KEY WEST
 KEY WEST HARBOR AND VICINITY OF
 MAIN SHIP CHANNEL
 18 MAR TO 30 APR 1982
 SCALE = 1:10,000
 N A 1927 DATUM
 EFFECTIVE DEPTHS IN FEET AT MLLW 24°32'30"
 HARBOR AND ANCHORAGE AREA "A"
 INVESTIGATIONS
 SHEET 2 OF 3

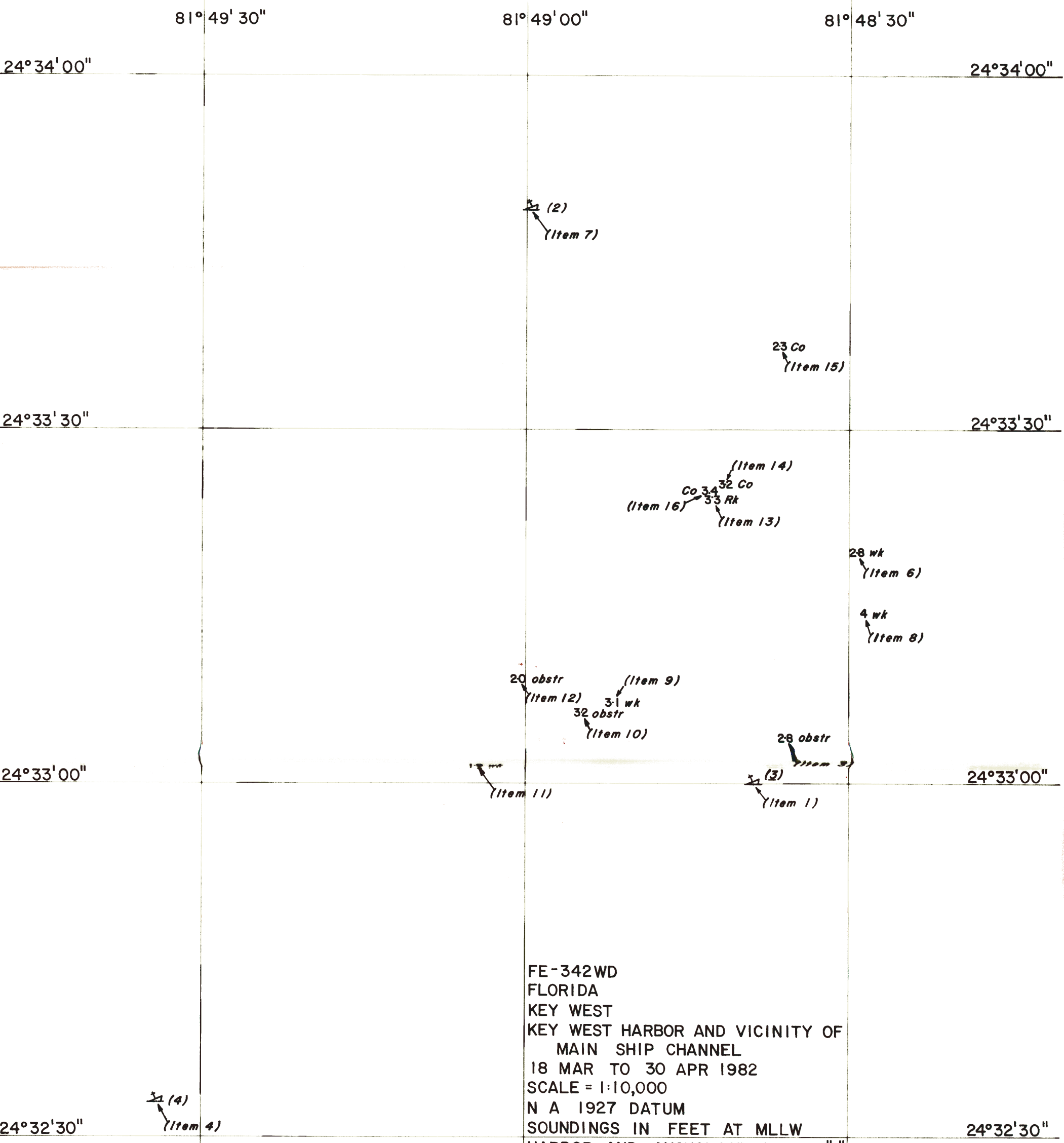
Shoreline in brown from Chart 11447,
 29th Edition, November 12, 1988
 for orientation only

81°49'30"

81°49'00"

81°48'30"





FE-342WD
 FLORIDA
 KEY WEST
 KEY WEST HARBOR AND VICINITY OF
 MAIN SHIP CHANNEL
 18 MAR TO 30 APR 1982
 SCALE = 1:10,000
 N A 1927 DATUM
 SOUNDINGS IN FEET AT MLLW
 HARBOR AND ANCHORAGE AREA "A"
 INVESTIGATIONS
 SHEET 3 OF 3

∇ (4)
 (Item 4)

∇
 (Item 11)

20 obstr
 (Item 12)
 3-1 wk
 32 obstr
 (Item 10)
 (Item 9)

28 obstr
 (Item 5)
 ∇ (3)
 (Item 1)

28 wk
 (Item 6)
 4 wk
 (Item 8)

(Item 14)
 32 Co
 Co 34
 33 Rk
 (Item 13)
 (Item 16)

23 Co
 (Item 15)

∇ (2)
 (Item 7)

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

**EXAMINED FOR NM
GDBU**

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-342WD

R 11-16-90 NCC

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
11447	11-16-90	<i>James T. Leighton</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. 40
11441	11-27-90	<i>Ed Martin</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. 43 in part thru 11447
11442	11-28-90	<i>John Pierce</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. 52
11445	7-15-91	<i>Ed Martin</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. 28 B thru 11441 dg 44
411	4-8-92	<i>Ken Foster</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. 63 Exam - n/c - scale.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
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