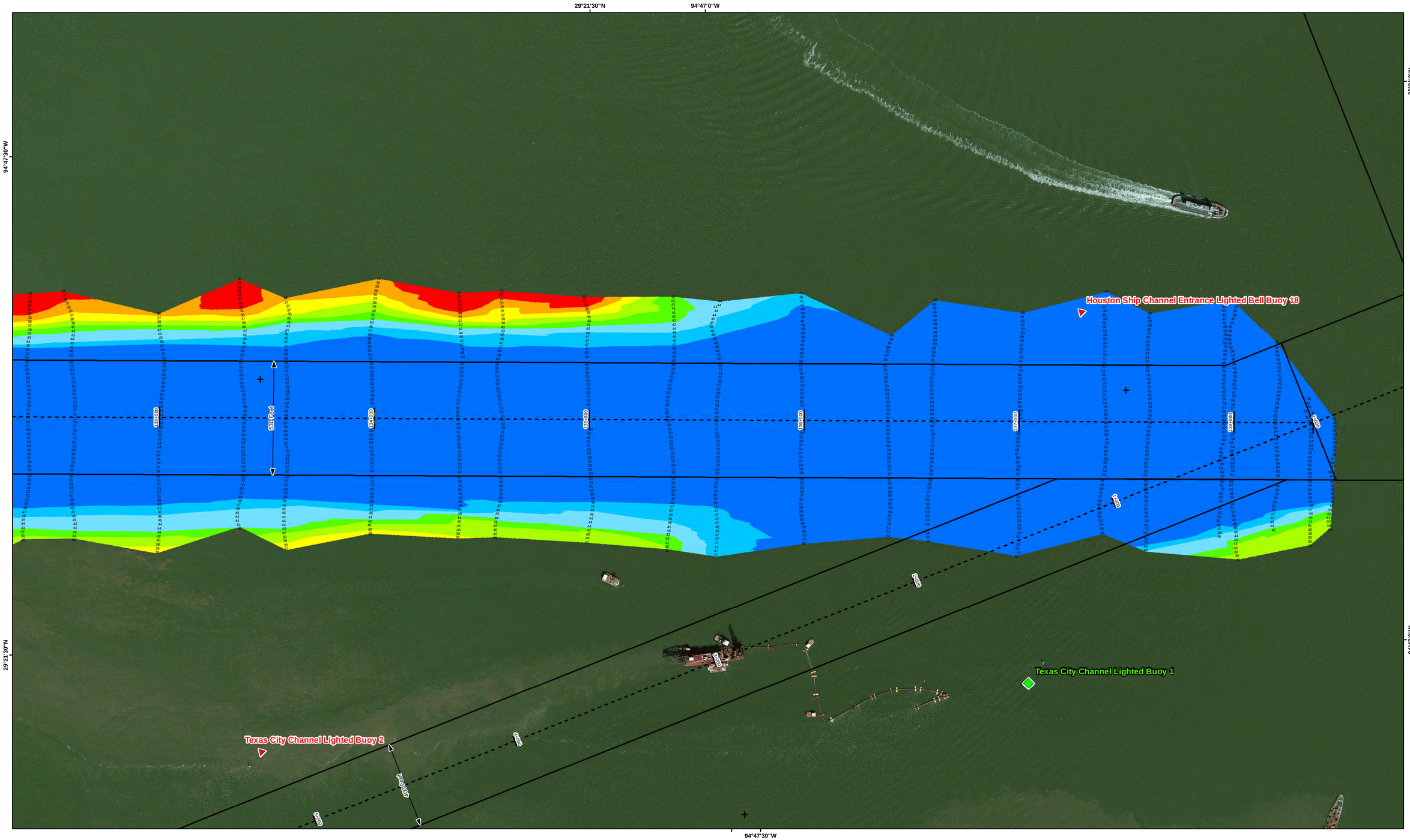
Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Survey Date(s): 02 March 2016
Page: 1 of 57 Map: 1
Scale: 1:2,400

Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation
Lights
Red Side Aids
Green Side Aids
Mooring Buoy

Depth in Feet (MLLW Datum)
30 and Shallower
30 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 45
45 - 47
47 and Deeper

NOTES:

1. HORIZONTAL COORDINATES ARE REFERENCED TO TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE NAD83 US SURVEY FEET.

2. ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW WATER (MLLW) DATUM.

3. THIS PROJECT WAS DESIGNED BY THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER1110-1-8152.

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N E S W

Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,968,500.0000
False Northing: 13,123,333.3333
Central Meridian: -99.0000
Standard Parallel 1: 28.3833
Standard Parallel 2: 30.2833
Latitude Of Origin: 27.8333
Units: Foot US

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp.,

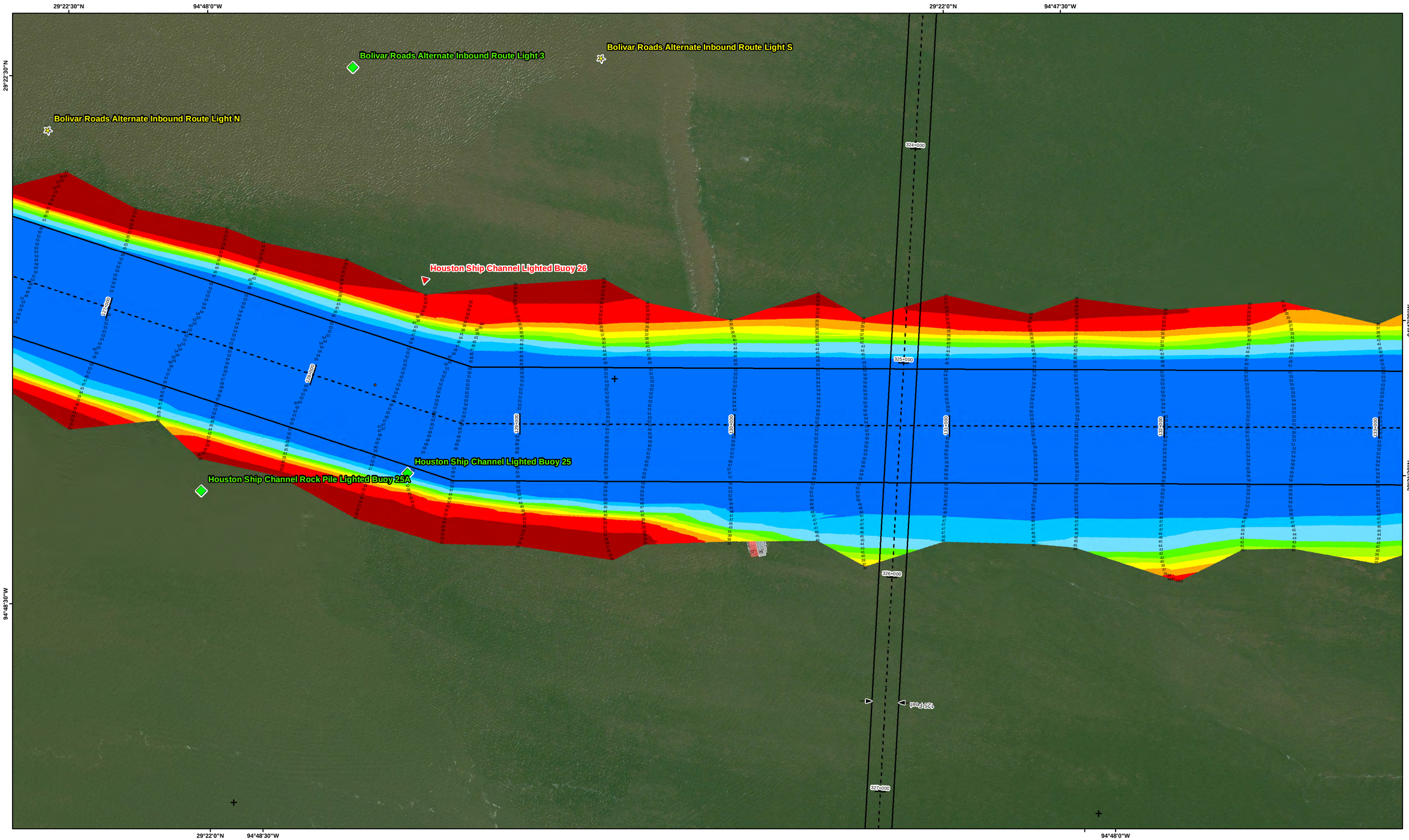
0 145 290 580 870 Feet

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Survey Date(s): 02 March 2016
Page: 2 of 57 Map: 2
Scale: 1:2,400

Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation
Lights
Red Side Aids
Green Side Aids
Mooring Buoy

Depth in Feet (MLLW Datum)
30 and Shallower
30 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 45
45 - 47
47 and Deeper

NOTES:

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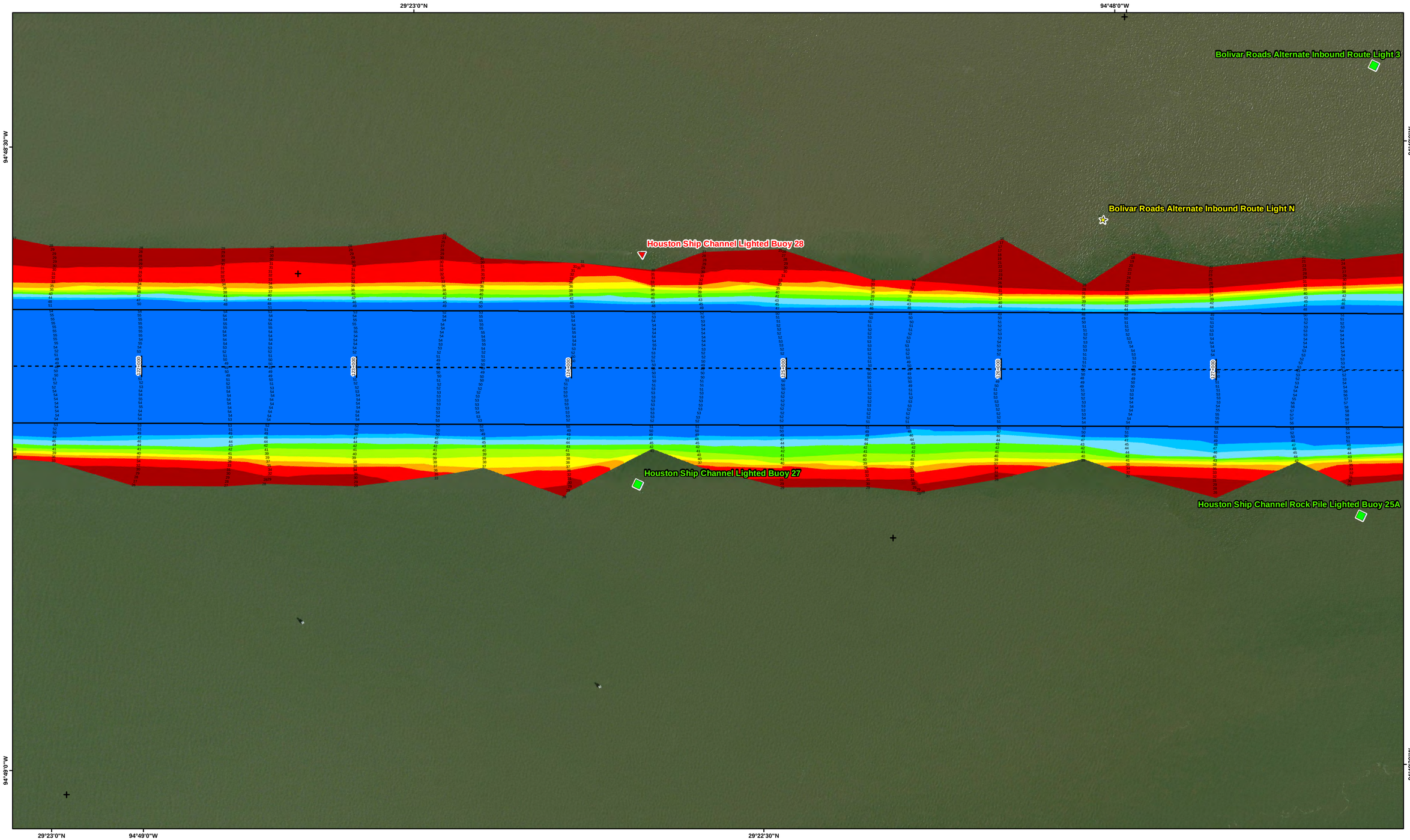
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp.,

0 145 290 580 870 Feet

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Survey Date(s): 02 March 2016
Page: 3 of 57 Map: 3
Scale: 1:2,400

Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation
Lights
Red Side Aids
Green Side Aids
Mooring Buoy

Depth in Feet (MLLW Datum)
30 and Shallower
30 - 34
34 - 36
36 - 38
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47 and Deeper

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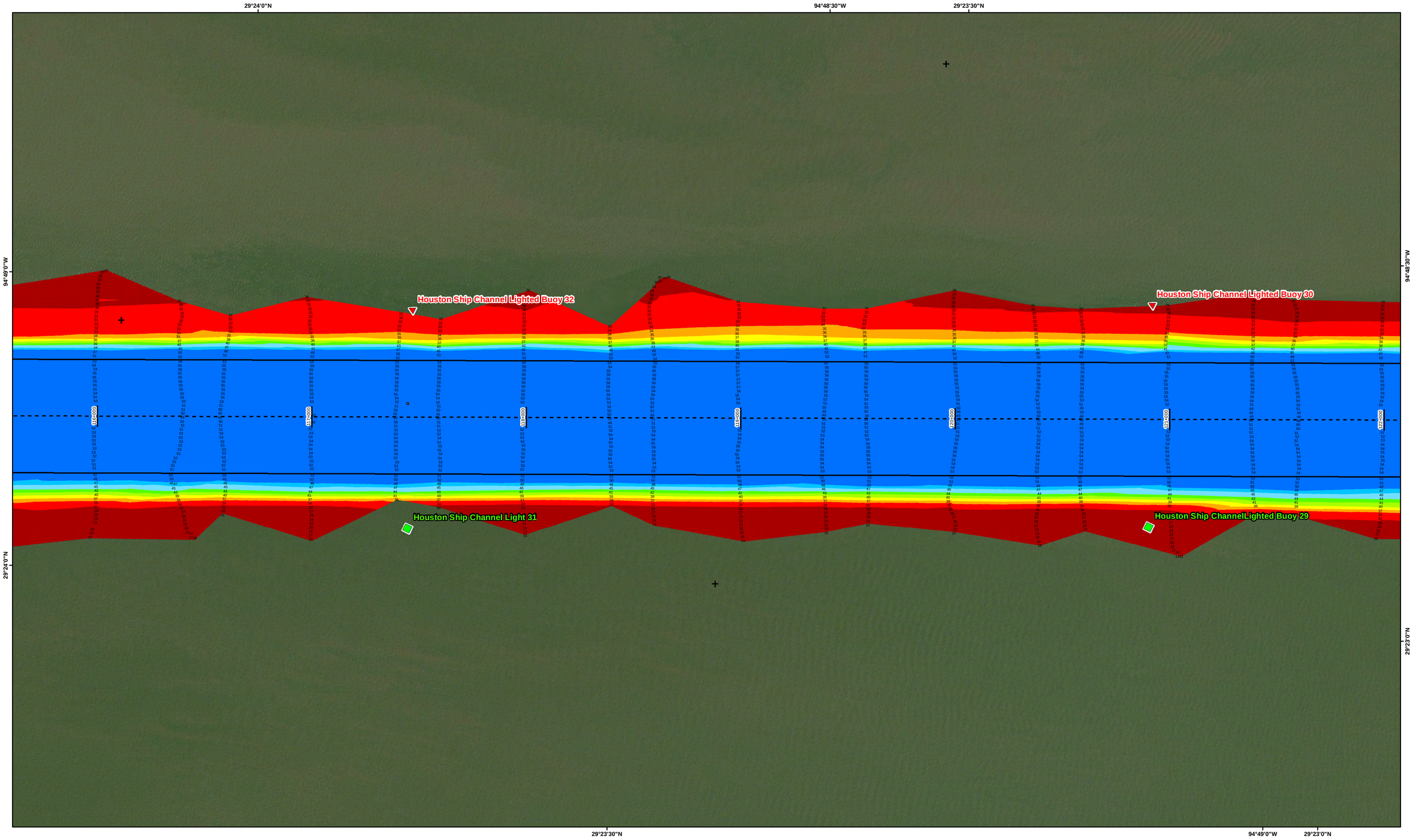
0 145 290 580 870 Feet

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Authorized Depth: -46ft.

Side Slope Ratio: 1:2.5 (Rise : Run)

Survey Date(s): 02 March 2016

Page: 4 of 57 Map: 4

Scale: 1:2,400

Mapped by: M3AOXPAC

Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation

- Lights
- Red Side Aids
- Green Side Aids
- Mooring Buoy

Depth in Feet (MLLW Datum)

30 and Shallower | 30 - 34 | 34 - 36 | 36 - 38 | 38 - 40 | 40 - 42 | 42 - 45 | 45 - 47 | 47 and Deeper

NOTES:

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N E S W

Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,968,500.0000
False Northing: 13,123,333.3333
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Units: Foot US

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0 145 290 580 870 Feet

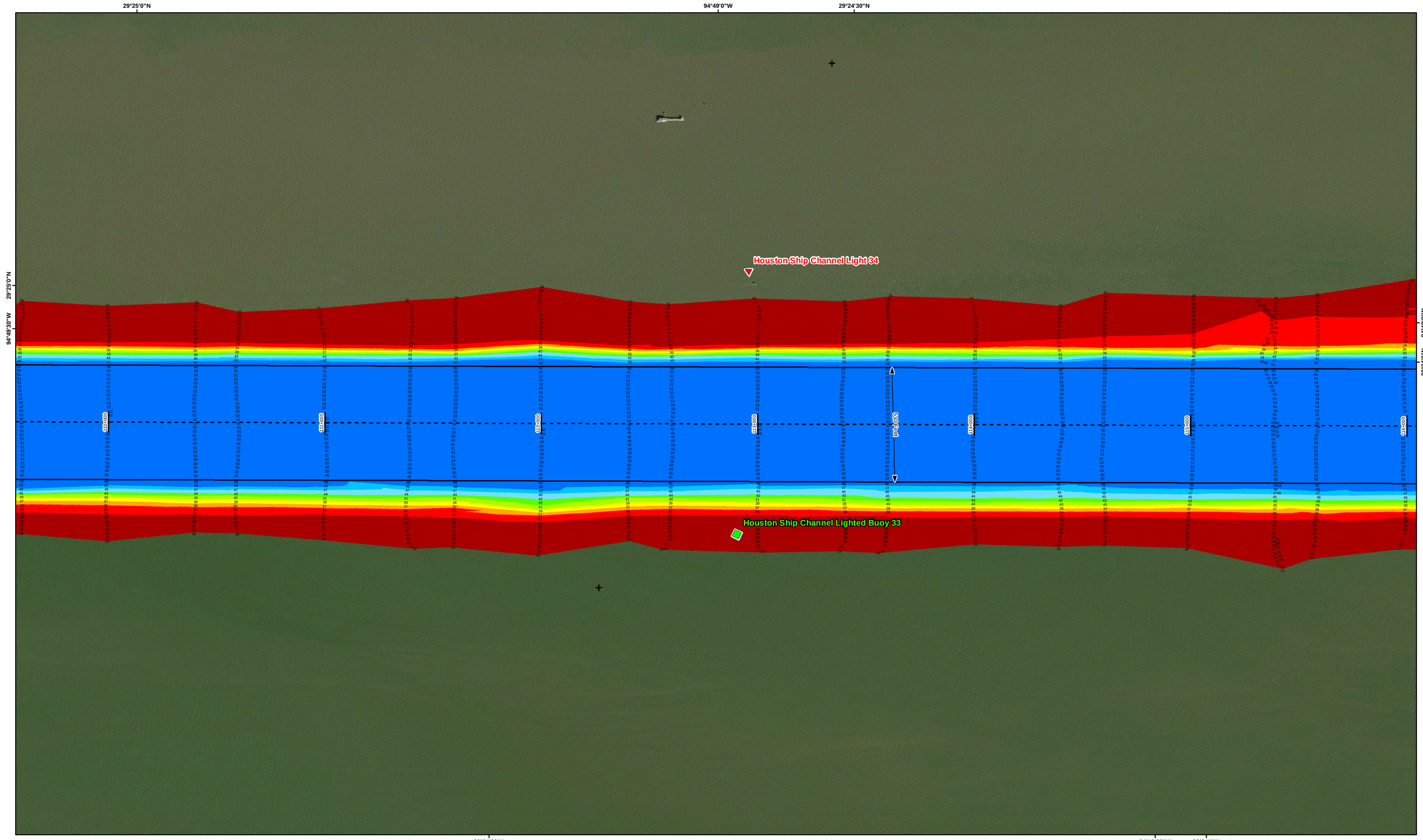
HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Survey Date(s): 02 March 2016
Page: 5 of 57 Map: 5
Scale: 1:2,400

Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation

- Lights
- Red Side Aids
- Green Side Aids
- Mooring Buoy

Depth in Feet (MLLW Datum)

30 and Shallower | 30 - 34 | 34 - 36 | 36 - 38 | 38 - 40 | 40 - 42 | 42 - 45 | 45 - 47 | 47 and Deeper

NOTES:

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N E S W

Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
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False Northing: 13,123,333.3333
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Units: Foot US

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Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp.,

0 145 290 580 870 Feet

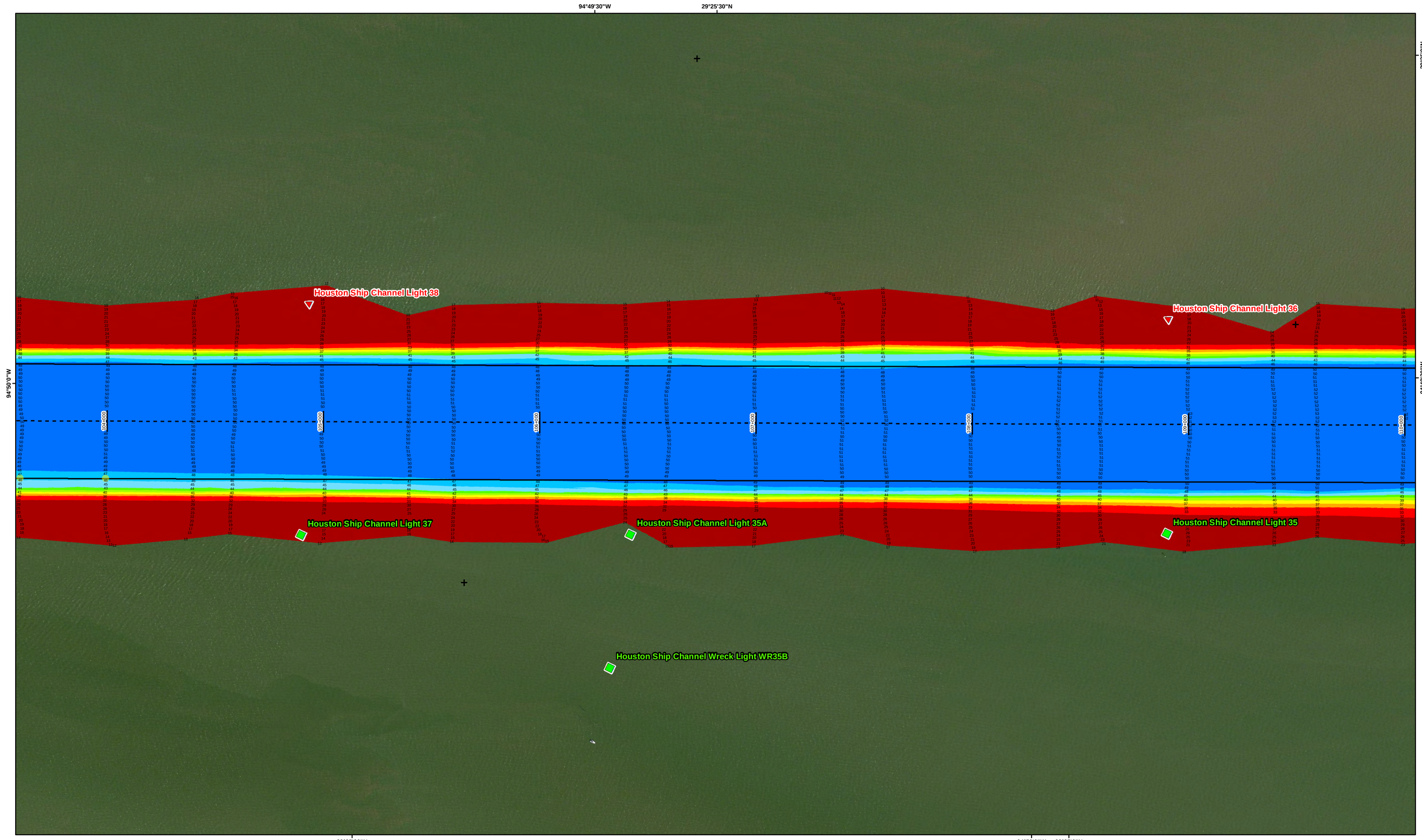
HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Survey Date(s): 02 March 2016
Page: 6 of 57 Map: 6
Scale: 1:2,400

Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation

- Lights
- Red Side Aids
- Green Side Aids
- Mooring Buoy

Depth in Feet (MLLW Datum)

30 and Shallower | 30 - 34 | 34 - 36 | 36 - 38 | 38 - 40 | 40 - 42 | 42 - 45 | 45 - 47 | 47 and Deeper

NOTES:

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N E S W

Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,968,500.0000
False Northing: 13,123,333.3333
Central Meridian: -99.0000
Standard Parallel 1: 28.3833
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Units: Foot US

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0 145 290 580 870 Feet

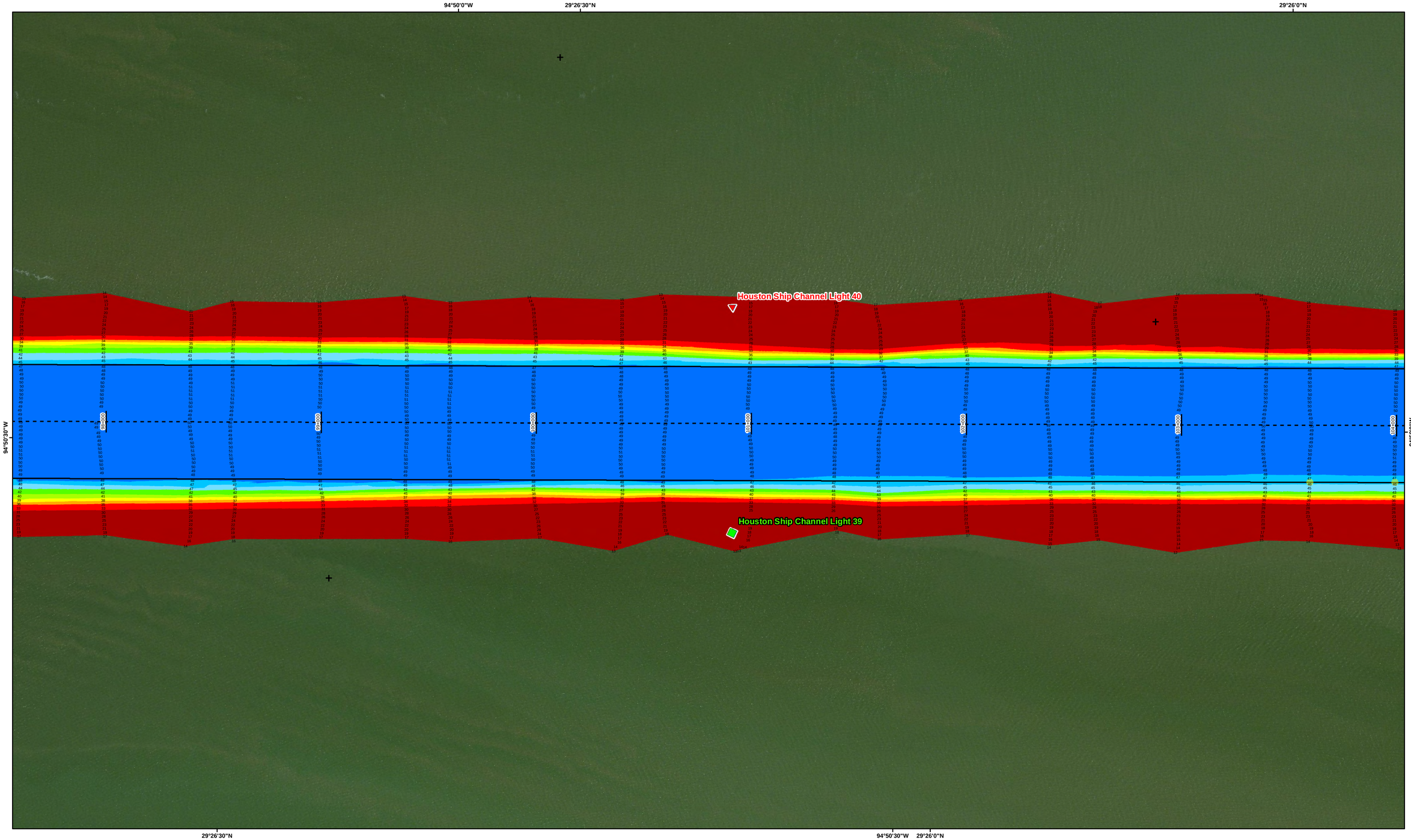
HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Survey Date(s): 02 March 2016
Page: 7 of 57 Map: 7
Scale: 1:2,400

Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation

- Lights
- Red Side Aids
- Green Side Aids
- Mooring Buoy

Depth in Feet (MLLW Datum)

30 and Shallower | 30 - 34 | 34 - 36 | 36 - 38 | 38 - 40 | 40 - 42 | 42 - 45 | 45 - 47 | 47 and Deeper

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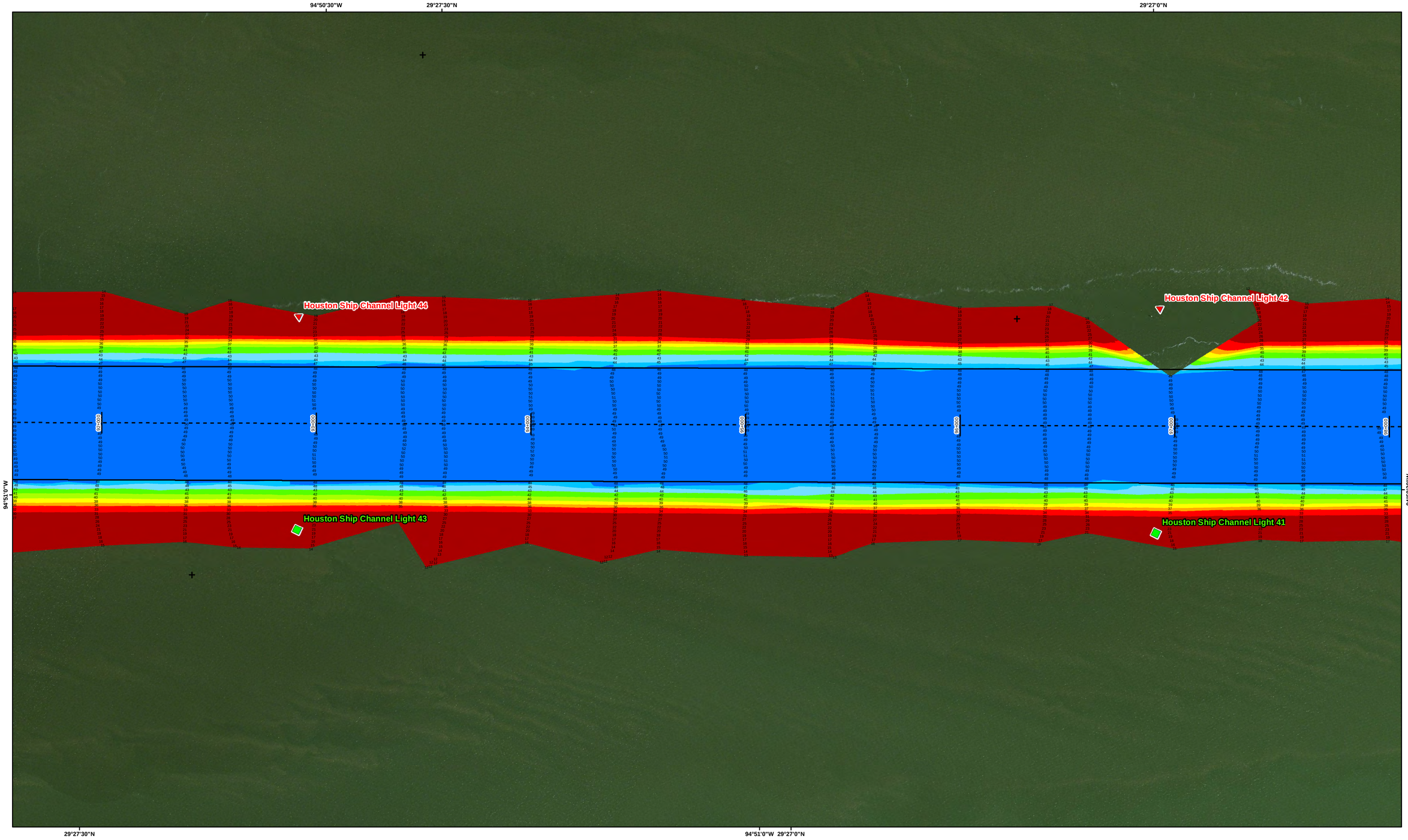
0 145 290 580 870 Feet

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Survey Date(s): 02 March 2016
Page: 8 of 57 Map: 8
Scale: 1:2,400
Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation

- Lights
- Red Side Aids
- Green Side Aids
- Mooring Buoy

Depth in Feet (MLLW Datum)

30 and Shallower | 30 - 34 | 34 - 36 | 36 - 38 | 38 - 40 | 40 - 42 | 42 - 45 | 45 - 47 | 47 and Deeper

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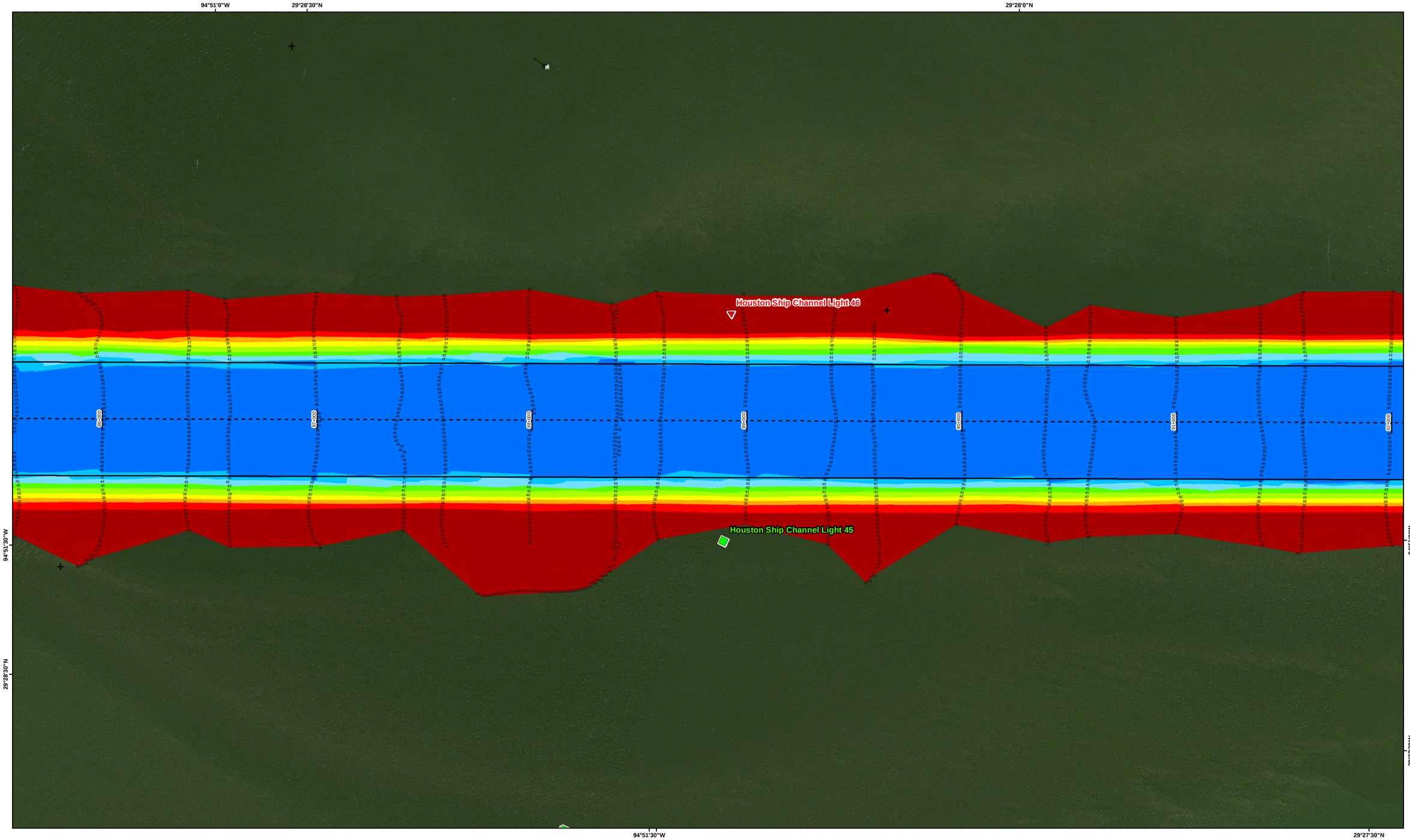
0 145 290 580 870 Feet

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District

Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Survey Date(s): 02 March 2016
Page: 9 of 57 Map: 9
Scale: 1:2,400

Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation
- Lights
- Red Side Aids
- Green Side Aids
- Mooring Buoy

Depth in Feet (MLLW Datum)

30 and Shallower	30 - 34	34 - 36	36 - 38	38 - 40	40 - 42	42 - 45	45 - 47	47 and Deeper

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2. ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW WATER (MLLW) DATUM.

3. THIS PROJECT WAS DESIGNED BY THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER1110-1-8152.

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5. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: WWW.SWG.USACE.ARMY.MIL

N E S W

Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,968,500.0000
False Northing: 13,123,333.3333
Central Meridian: -99.0000
Standard Parallel 1: 28.3833
Standard Parallel 2: 30.2833
Latitude Of Origin: 27.8333
Units: Foot US

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
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0 145 290 580 870 Feet

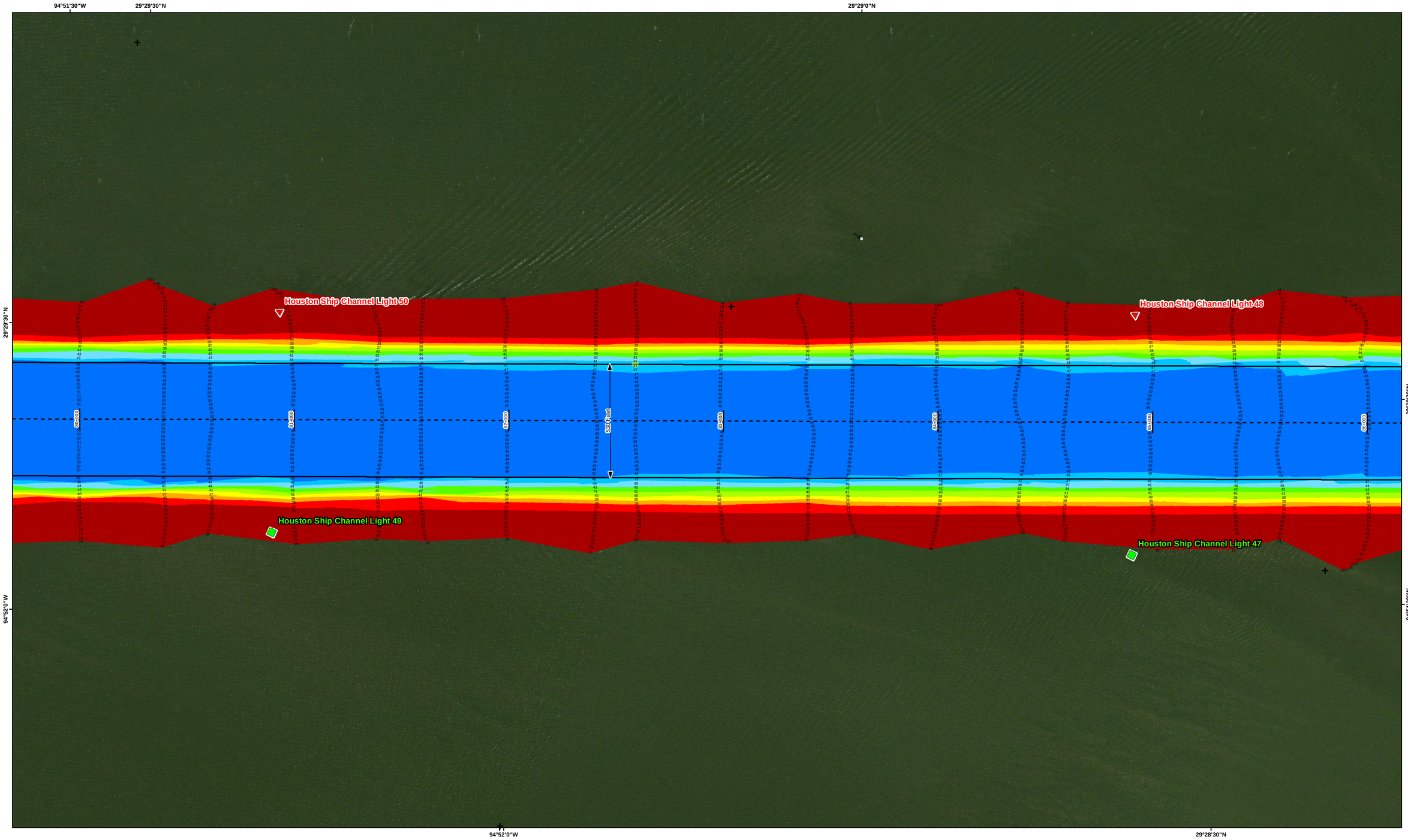
HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

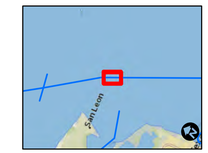
Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District



Authorized Depth: -46ft.
Side Slope Ratio: 1:2.5 (Rise : Run)

Survey Date(s): 02 March 2016
Page: 10 of 57 Map: 10
Scale: 1:2,400

Mapped by: M3AOXPAC
Imagery Date: October 27, 2013 © DigitalGlobe Inc.

Station Line
Channel Center Line
Navigation Channel
Dimensions

Aids to Navigation

- Lights
- Red Side Aids
- Green Side Aids
- Mooring Buoy

Depth in Feet (MLLW Datum)

30 and Shallower | 30 - 34 | 34 - 36 | 36 - 38 | 38 - 40 | 40 - 42 | 42 - 45 | 45 - 47 | 47 and Deeper

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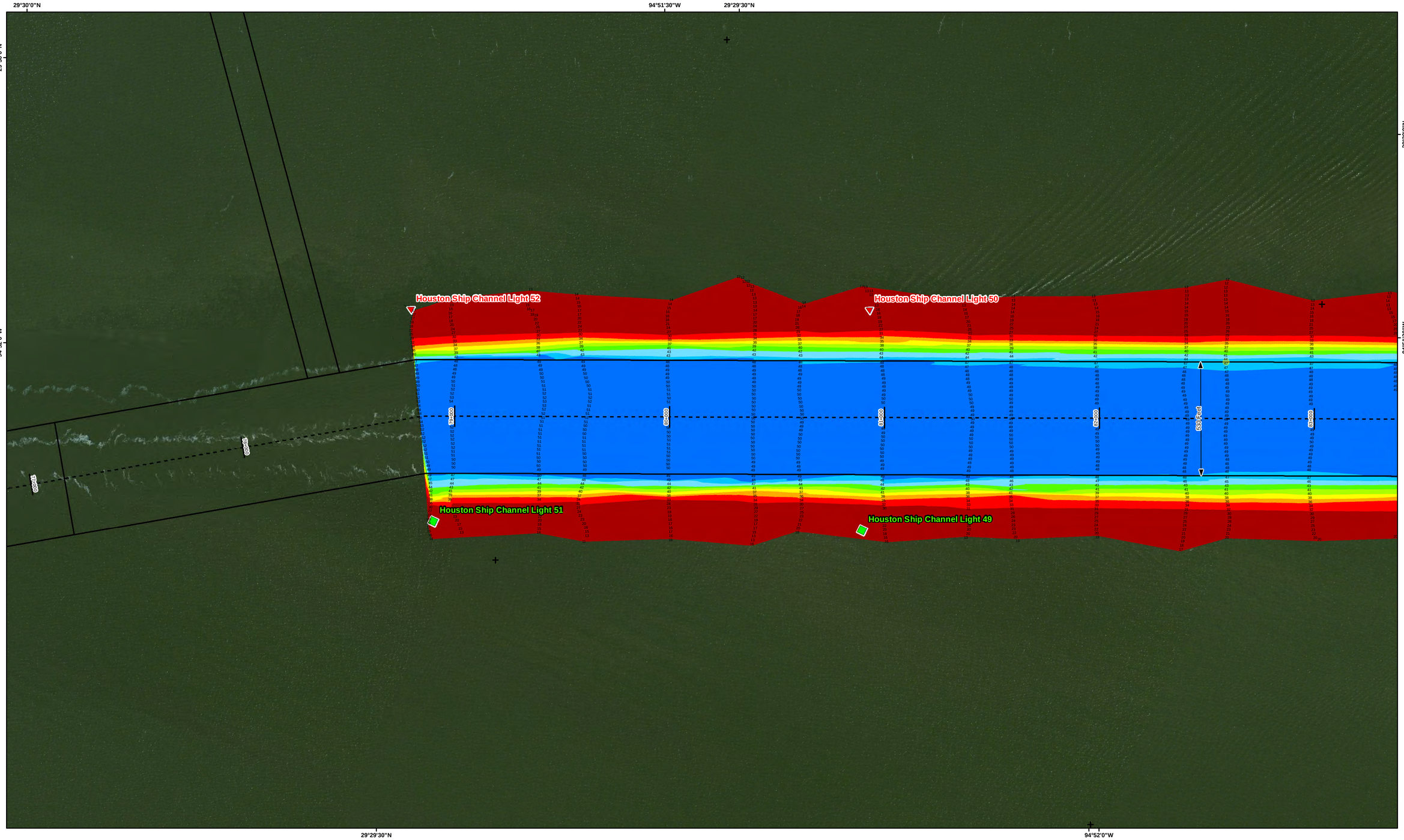
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

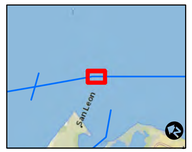
Bolivar Roads to Red Fish Light 1

Station: 138+476 to 78+844
Houston Ship Channel
HOUSTON, TEXAS

Bolivar Roads to Red Fish Light 1



US Army Corps of Engineers ®
Galveston District



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Page: 11 of 57 Map: 11
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