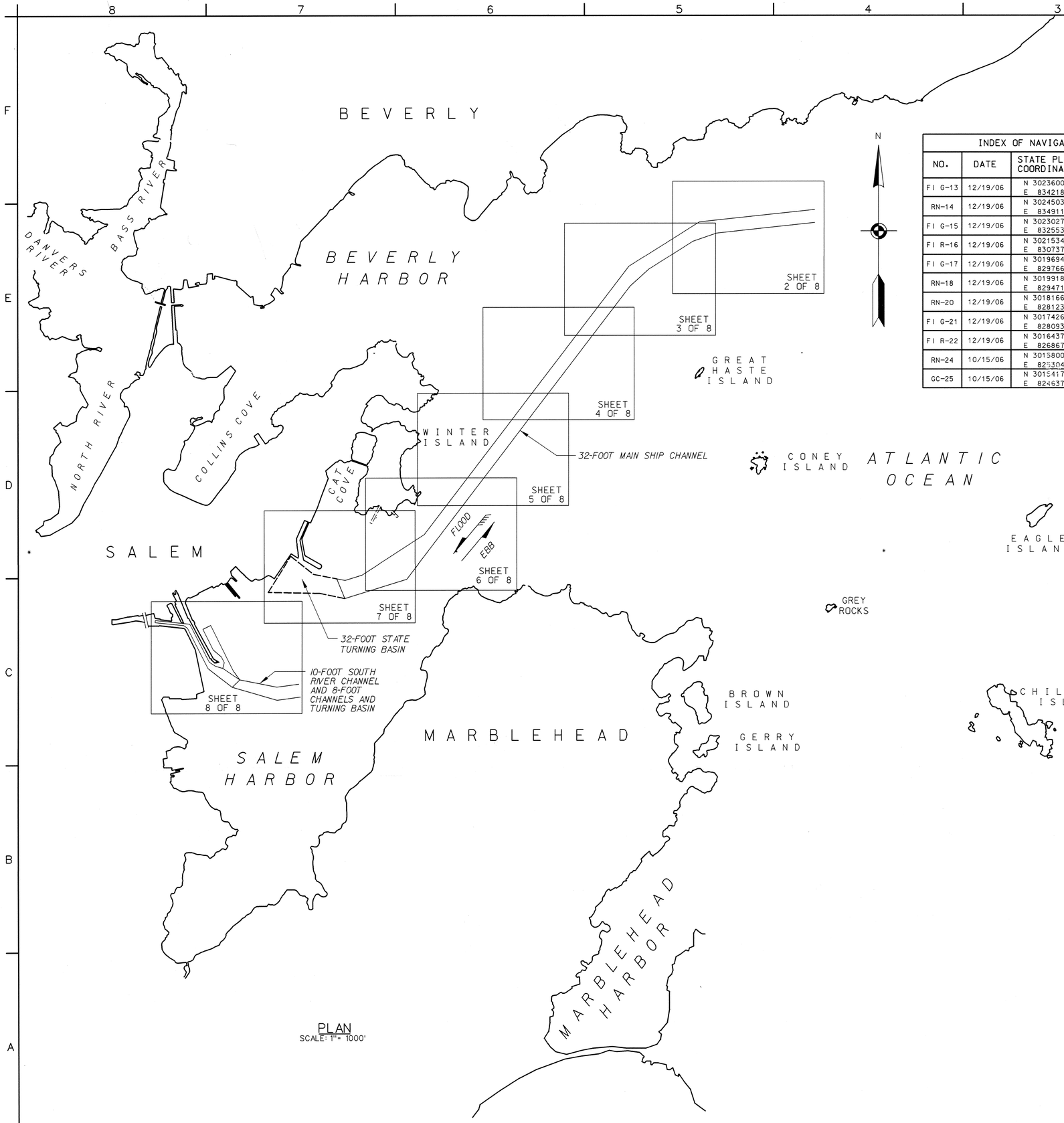
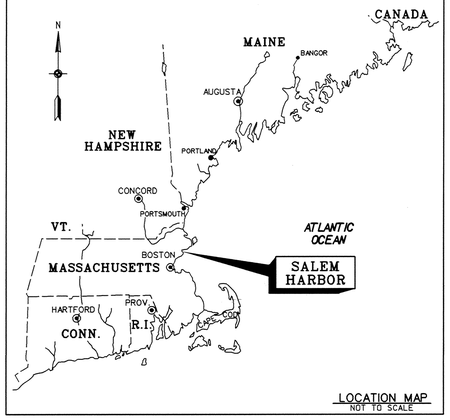


PLAN
SCALE: 1" = 1000'

INDEX OF NAVIGATION AIDS			
NO.	DATE	STATE PLANE COORDINATES	GEOGRAPHIC POSITION
Fl G-13	12/19/06	N 3023600.79 E 834218.45	42° - 32′ - 34.9″N 70° - 50′ - 21.5″W
RN-14	12/19/06	N 3024503.83 E 834911.83	42° - 32′ - 43.7″N 70° - 50′ - 12.1″W
Fl G-15	12/19/06	N 3023027.64 E 832553.24	42° - 32′ - 29.3″N 70° - 50′ - 43.8″W
Fl R-16	12/19/06	N 3021534.33 E 830737.03	42° - 32′ - 14.7″N 70° - 51′ - 08.2″W
Fl G-17	12/19/06	N 3019694.01 E 829766.38	42° - 31′ - 56.6″N 70° - 51′ - 21.3″W
RN-18	12/19/06	N 3019918.47 E 829471.10	42° - 31′ - 58.9″N 70° - 51′ - 25.3″W
RN-20	12/19/06	N 3018166.41 E 828123.45	42° - 31′ - 41.6″N 70° - 51′ - 43.4″W
Fl G-21	12/19/06	N 3017426.07 E 828093.29	42° - 31′ - 34.3″N 70° - 51′ - 43.9″W
Fl R-22	12/19/06	N 3016437.86 E 826867.92	42° - 31′ - 24.7″N 70° - 52′ - 00.4″W
RN-24	10/15/06	N 3015800.99 E 825304.26	42° - 31′ - 18.5″N 70° - 52′ - 21.3″W
GC-25	10/15/06	N 3015417.02 E 824637.45	42° - 31′ - 14.7″N 70° - 52′ - 30.3″W



LOCATION MAP
NOT TO SCALE

GENERAL NOTES:

1. Soundings are in feet and tenths and refer to the plane of Mean Lower Low Water (MLLW) 1983-2001 Tidal Epoch.
2. Topography shown is from previous surveys and/or NOAA Chart No. 13276. All topography, including shoreline, bridges, piers, etc., is located approximate unless otherwise noted and should be used as a general reference only.
3. Bench Mark Data: BM 2645 C (1992) is an NOS Tidal Bench Mark Disk stamped, "2645 C 1992", set in the southeast quadrant of the circular concrete flagpole base at the start of the gravel road leading to the fishing pier 101.0 feet (31.0 m) west-northwest of the northwest corner of the glass enclosed entrance to the Salem Harbor Station Offices, 11.8 feet (3.6 m) west of the south end of the steel rail just east of the flagpole, and 1.7 feet (0.5 m) southeast of the flagpole.
Elevation is 15.92 feet above MLLW.
This benchmark was used for sheets 2 through 7.
4. Bench Mark Data: BM No. 19 (1916) is a USC&GS Tidal Bench Mark Disk stamped, "No. 19 1916", set vertically in the wall at the southwest corner of the U.S. Custom House, 59.8 feet (18.23 m) north-northwest of the centerline of Derby Street, 28.7 feet (8.75 m) east-northeast of the centerline of Orange Street, 0.5 foot (0.15 m) east-northeast of the southwest corner of the building and 0.5 foot (0.15 m) above the sidewalk.
Elevation is 17.98 feet above MLLW.
This benchmark was used for sheet 8.
5. Coordinates shown are based on the Lambert Grid System for the Commonwealth of Massachusetts (Mainland Zone 2001) and NAD 1983.
6. Survey was performed using an Odom MK2 echotrac echosounder. Vessel positioning was obtained utilizing a Trimble 4000 SSE GPS Receiver with the U.S. Coast Guard Beacon System.
7. The sounding information shown on these maps represents the SHOALEST soundings of those obtained from hydrographic surveys conducted from February and December 2006 to January 2007.
8. The sounding information depicted on these maps should NOT be used to determine volumes. Volumes are determined from more sounding information than shown. Additional sounding information is available upon request.
9. The information depicted on these maps represents the results of surveys made on the dates indicated, and can only be considered as indicating the general conditions existing at that time.
10. Field Books: R&H 4519 and 5062
Depthsounder Rolls: 07-857/01-12

SAFETY PAYS

GRAPHIC SCALE:
1" = 1000'
1000 0 1000 2000

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

Surveyed by: Hydrographic Survey Crew
Plotted By: Stephen W. Kelley
Drawing code: 211 SH
File name: S4_V101.001
Plot date: 04/05/07
Plot scale: 1" = 1000'
Design file:
Date: 4/4/2007
Rev.

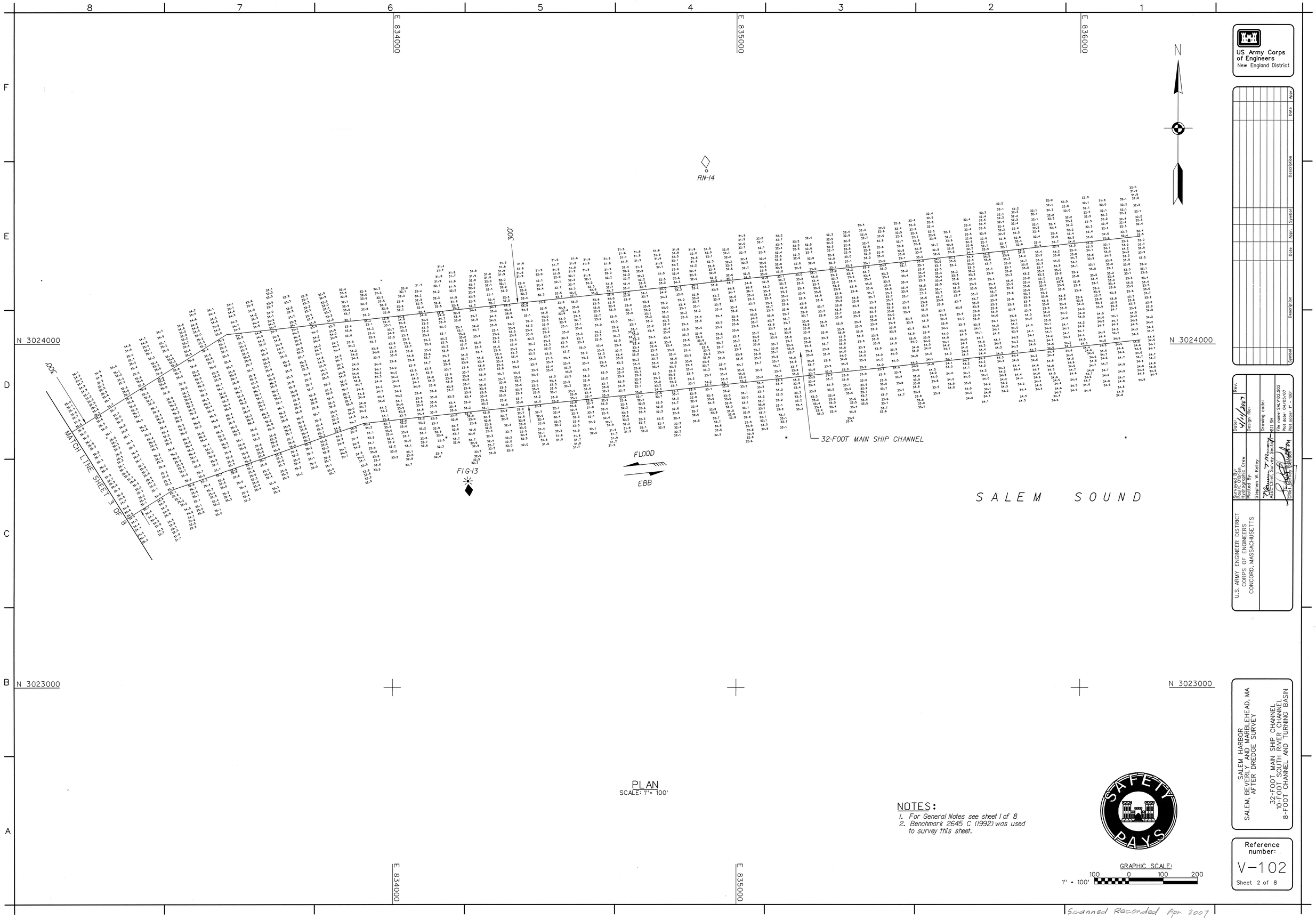
Chief, Survey Section

SALEM HARBOR
SALEM, BEVERLY AND MARBLEHEAD, MA
AFTER DREDGE SURVEY

32-FOOT MAIN SHIP CHANNEL
10-FOOT SOUTH RIVER CHANNEL
8-FOOT CHANNEL AND TURNING BASIN

Reference number:
V-101
Sheet 1 of 8

Scanned Recorded Apr. 2007



PLAN
SCALE: 1" = 100'

NOTES:
1. For General Notes see sheet 1 of 8
2. Benchmark 2645 C (1992) was used to survey this sheet.

GRAPHIC SCALE:
1" = 100'
100 0 100 200

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

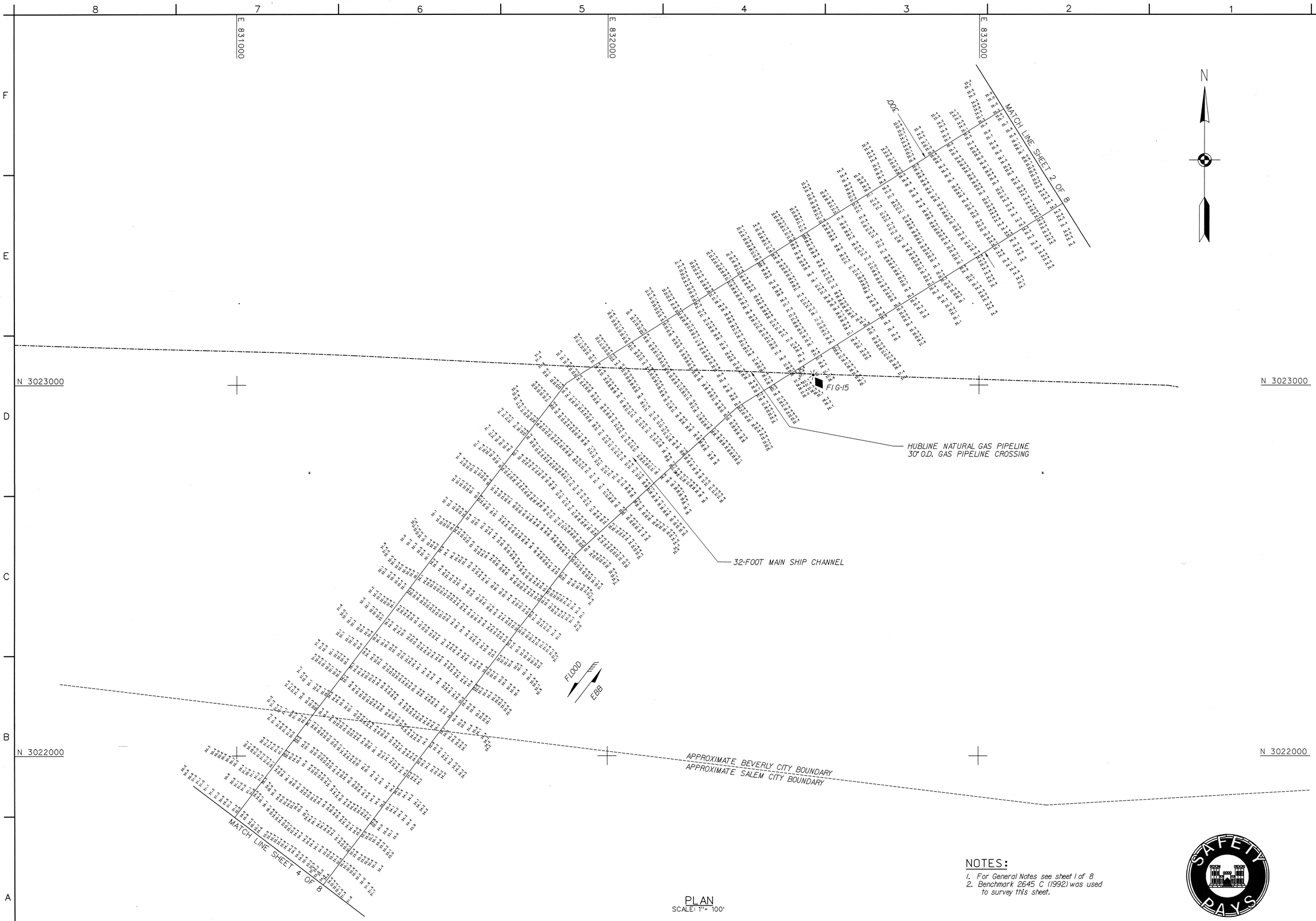
Surveyed By: Paul K. O'Brien
Hydrographic Crew
Plotted By: Stephen W. Kelley
Date: 4/11/2007
Rev.
Design File:
Drawing code: 211SH
File name: SALV102.S02
Plot date: 04/05/07
Plot scale: 1" = 100'
Asst. Chief, Survey Section
Chief, Survey Section

SALEM HARBOR
SALEM, BEVERLY AND MARBLEHEAD, MA
AFTER DREDGE SURVEY

32-FOOT MAIN SHIP CHANNEL
10-FOOT SOUTH RIVER CHANNEL
8-FOOT CHANNEL AND TURNING BASIN

Reference number:
V-102
Sheet 2 of 8

Scanned Recorded Apr. 2007



PLAN
SCALE: 1"= 100'

NOTES:
1. For General Notes see sheet 1 of 8
2. Benchmark 2645 C (1992) was used to survey this sheet.

GRAPHIC SCALE:
1" = 100'
100 0 100 200

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

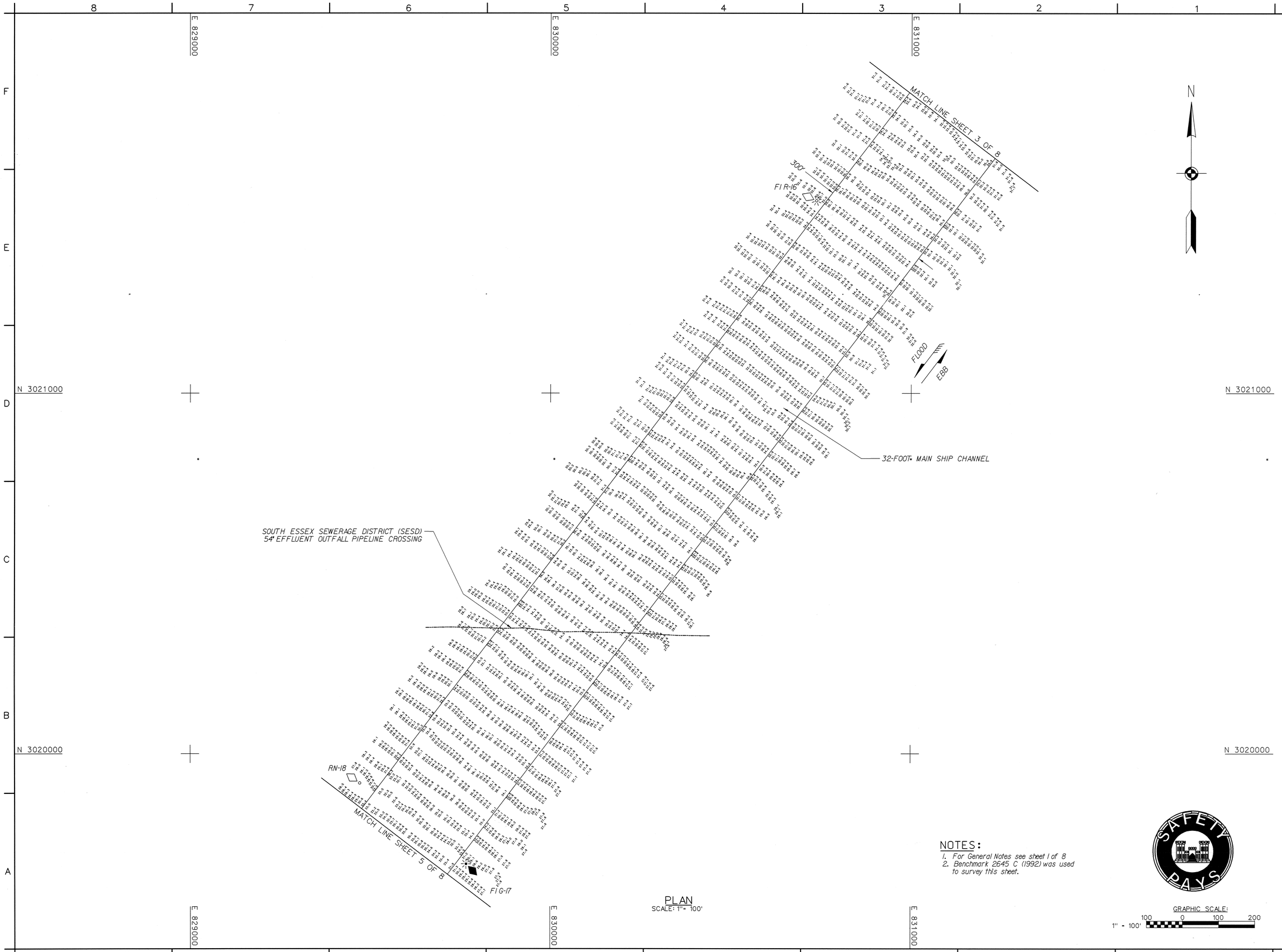
Surveyed By: Paul K. O'Brien, Hydrographic Crew
Plotted By: Stephen W. Kelley
Asst. Chief, Survey Section
Chief, Survey Section
Date: 4/11/2007
Rev.
Design file:
Drawing code: 211.SH
File name: SALV103.S03
Plot date: 04/05/07
Plot scale: 1" = 100'

SALEM HARBOR
SALEM, BEVERLY AND MARBLEHEAD, MA
AFTER DREDGE SURVEY

32-FOOT MAIN SHIP CHANNEL
10-FOOT SOUTH RIVER CHANNEL
8-FOOT CHANNEL AND TURNING BASIN

Reference number:
V-103
Sheet 3 of 8

Scanned Recorded Apr. 2007



PLAN
SCALE: 1" = 100'

NOTES:
1. For General Notes see sheet 1 of 8
2. Benchmark 2645 C (1992) was used to survey this sheet.

GRAPHIC SCALE:
1" = 100'
100 0 100 200

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.

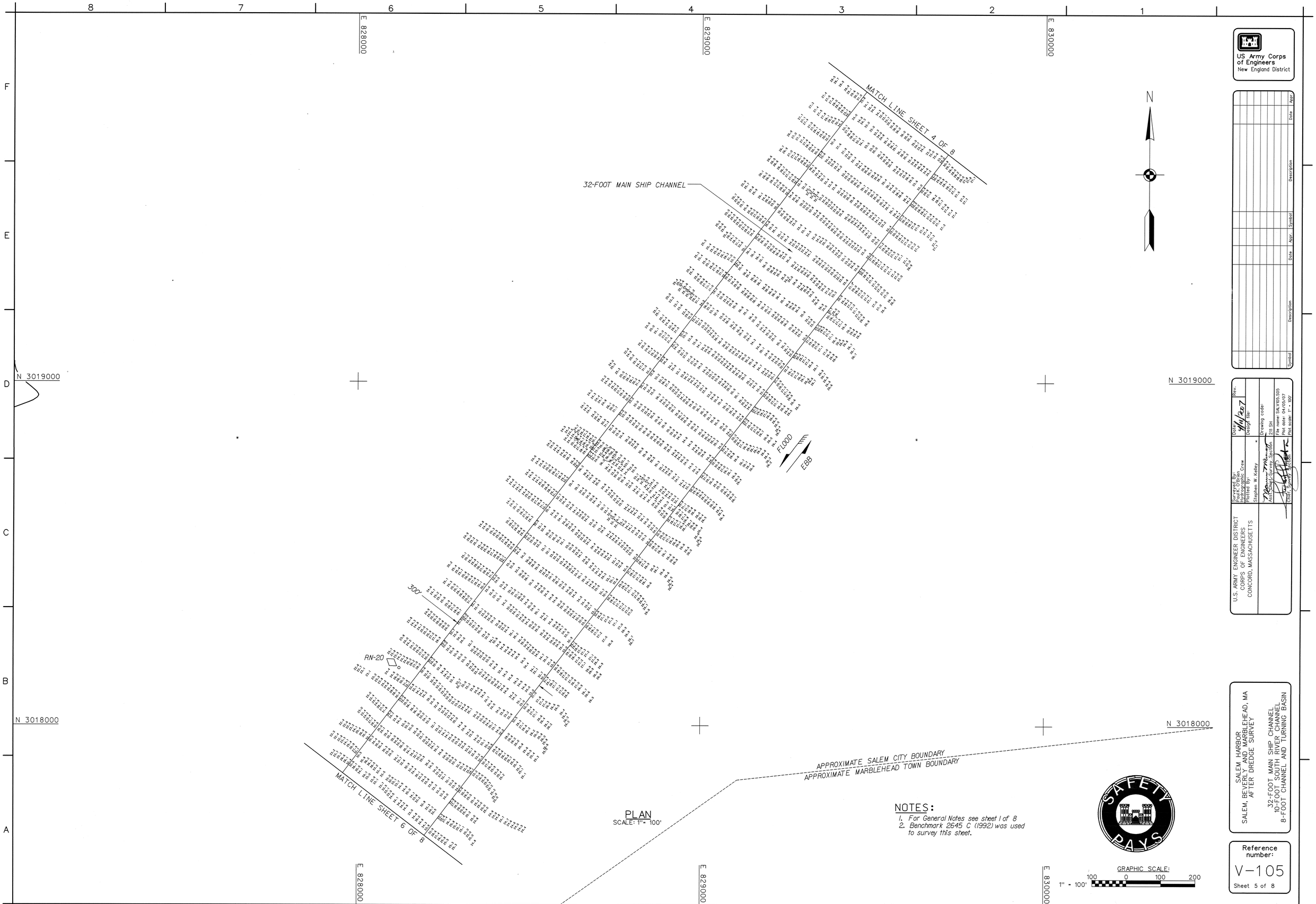
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

Surveyed By: Paul K. O'Brien, Hydrographic Crew
Plotted By: Stephen W. Kelley
Asst. Chief, Survey Section
Chief, Survey Section
Date: 4/11/2007
Design file:
Drawing code: 211 SH
File name: SALV104.S04
Plot date: 04/05/07
Plot scale: 1" = 100'
Rev.

SALEM HARBOR
SALEM, BEVERLY AND MARBLEHEAD, MA
AFTER DREDGE SURVEY

32-FOOT MAIN SHIP CHANNEL
10-FOOT SOUTH RIVER CHANNEL
8-FOOT CHANNEL AND TURNING BASIN

Reference number:
V-104
Sheet 4 of 8



PLAN
SCALE: 1" = 100'

NOTES:
1. For General Notes see sheet 1 of 8
2. Benchmark 2645 C (1992) was used to survey this sheet.

GRAPHIC SCALE:
1" = 100'
100 0 100 200

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

Surveyed By: Paul K. O'Brien, Hydrographic Crew
Plotted By: Stephen W. Kelley
Asst. Chief, Survey Section
Chief, Survey Section

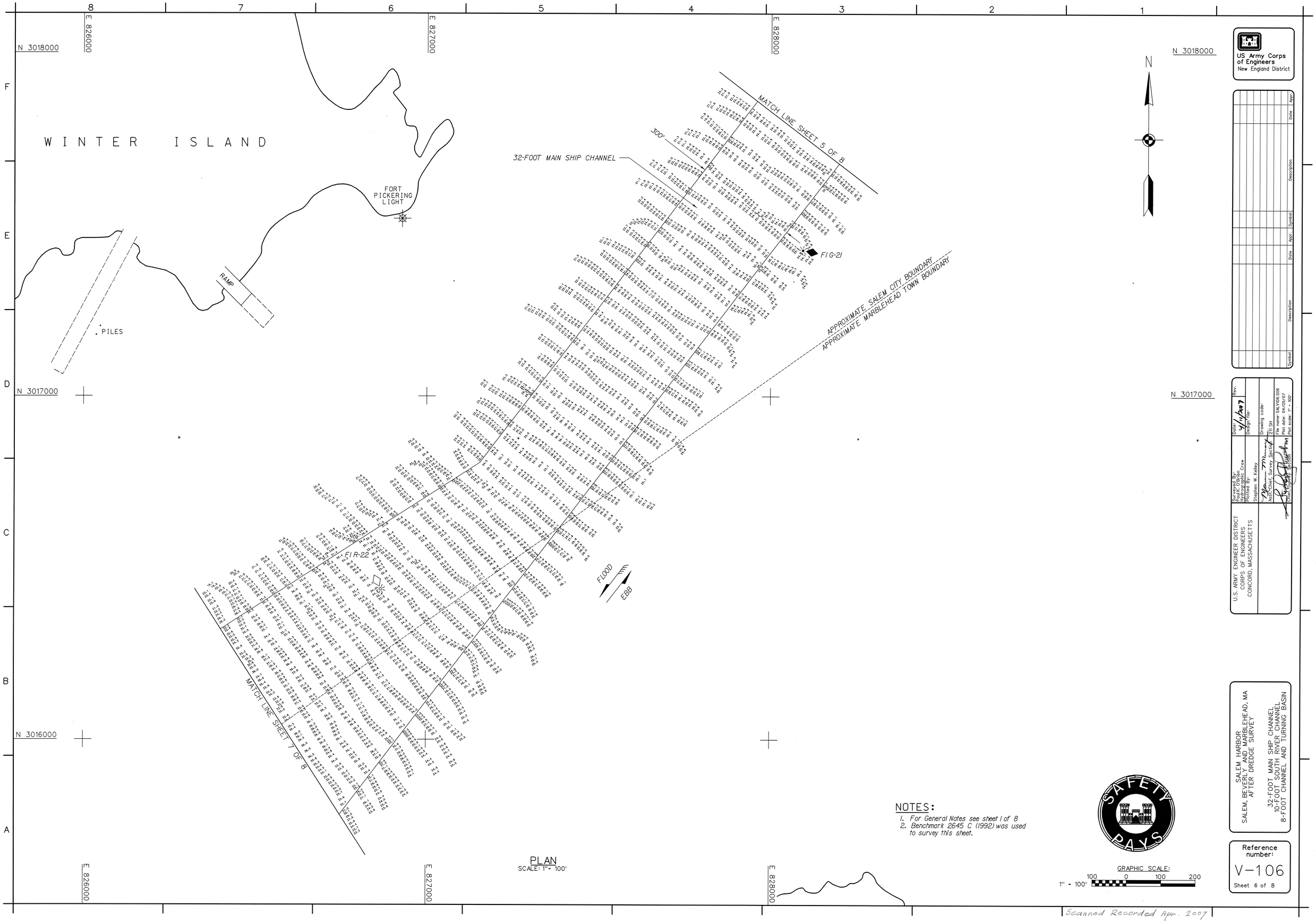
Date: 4/11/2007
Rev.
Design file:
Drawing code: 211 SH
File name: SALV105.S05
Plot date: 04/05/07
Plot scale: 1" = 100'

SALEM HARBOR
SALEM, BEVERLY AND MARBLEHEAD, MA
AFTER DREDGE SURVEY

32-FOOT MAIN SHIP CHANNEL
10-FOOT SOUTH RIVER CHANNEL
8-FOOT CHANNEL AND TURNING BASIN

Reference number:
V-105
Sheet 5 of 8

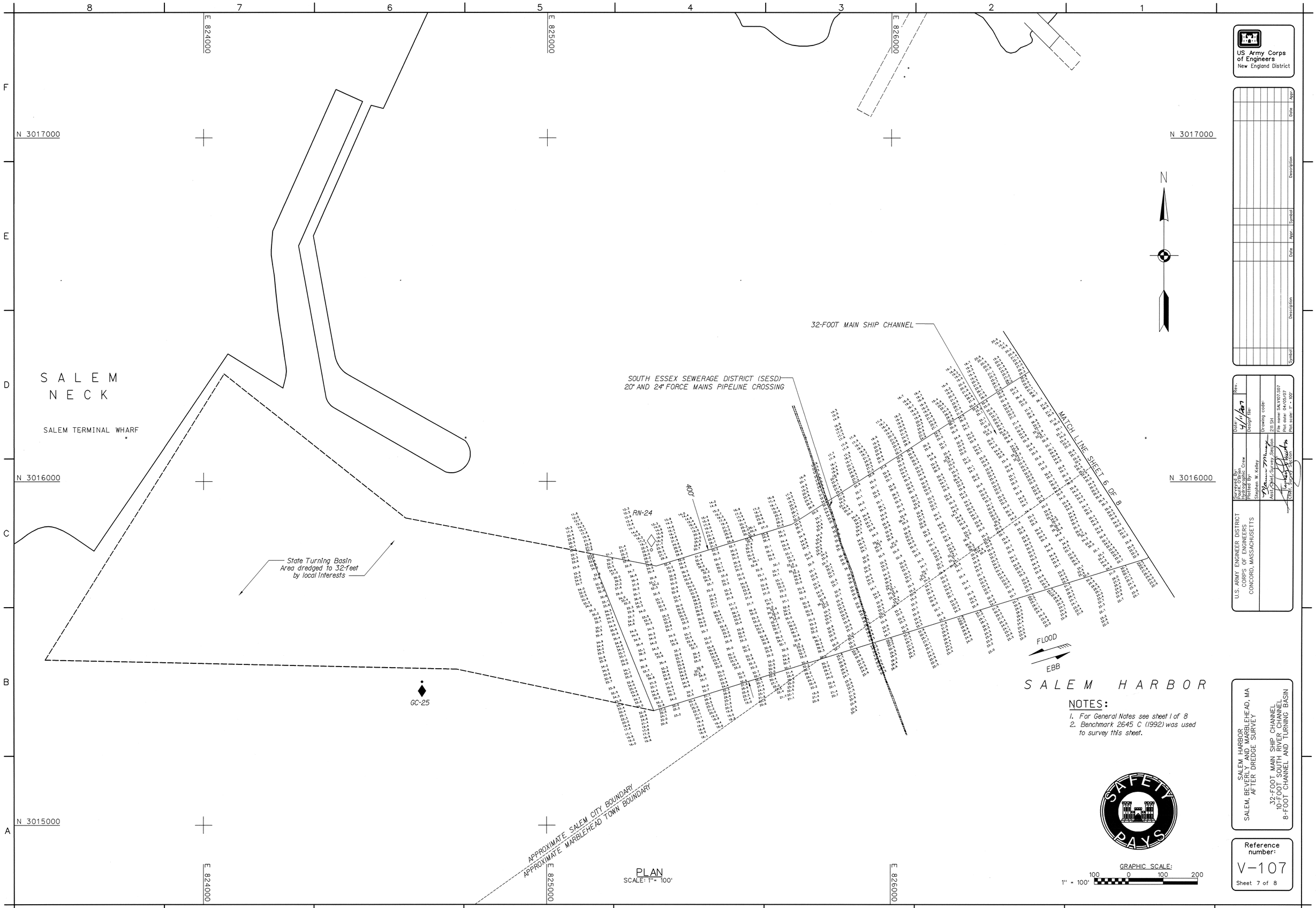
Scanned Recorded Apr. 2007



PLAN
SCALE: 1" = 100'

NOTES:

1. For General Notes see sheet 1 of 8
2. Benchmark 2645 C (1992) was used to survey this sheet.



NOTES:

1. For General Notes see sheet 1 of 8
2. Benchmark 2645 C (1992) was used to survey this sheet.

Scanned Recorded Apr. 2007

PLAN
SCALE: 1" = 100'

NOTES:

1. For General Notes see sheet 1 of 8
2. Benchmark No. 19 (1916) was used to survey this sheet.

GRAPHIC SCALE:
1" - 100'
100 0 100 200

SAFETY PAYS

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

Surveyed By: Hydrographic Crew
Plotted By: Stephen W. Kelley
Asst. Chief, Survey Section

Rev.
Date: 4/1/2007
Design file:
Drawing code: 211 SH
File name: SALV108.508
Plot date: 04/4/2007
Plot scale: 1" = 100'
Chief, Survey Section

SALEM HARBOR
SALEM, BEVERLY AND MARBLEHEAD, MA
AFTER DREDGE SURVEY

32-FOOT MAIN SHIP CHANNEL
10-FOOT SOUTH RIVER CHANNEL
8-FOOT CHANNEL AND TURNING BASIN

Reference number:
V-108
Sheet 8 of 8

Scanned Recorded Apr. 2007