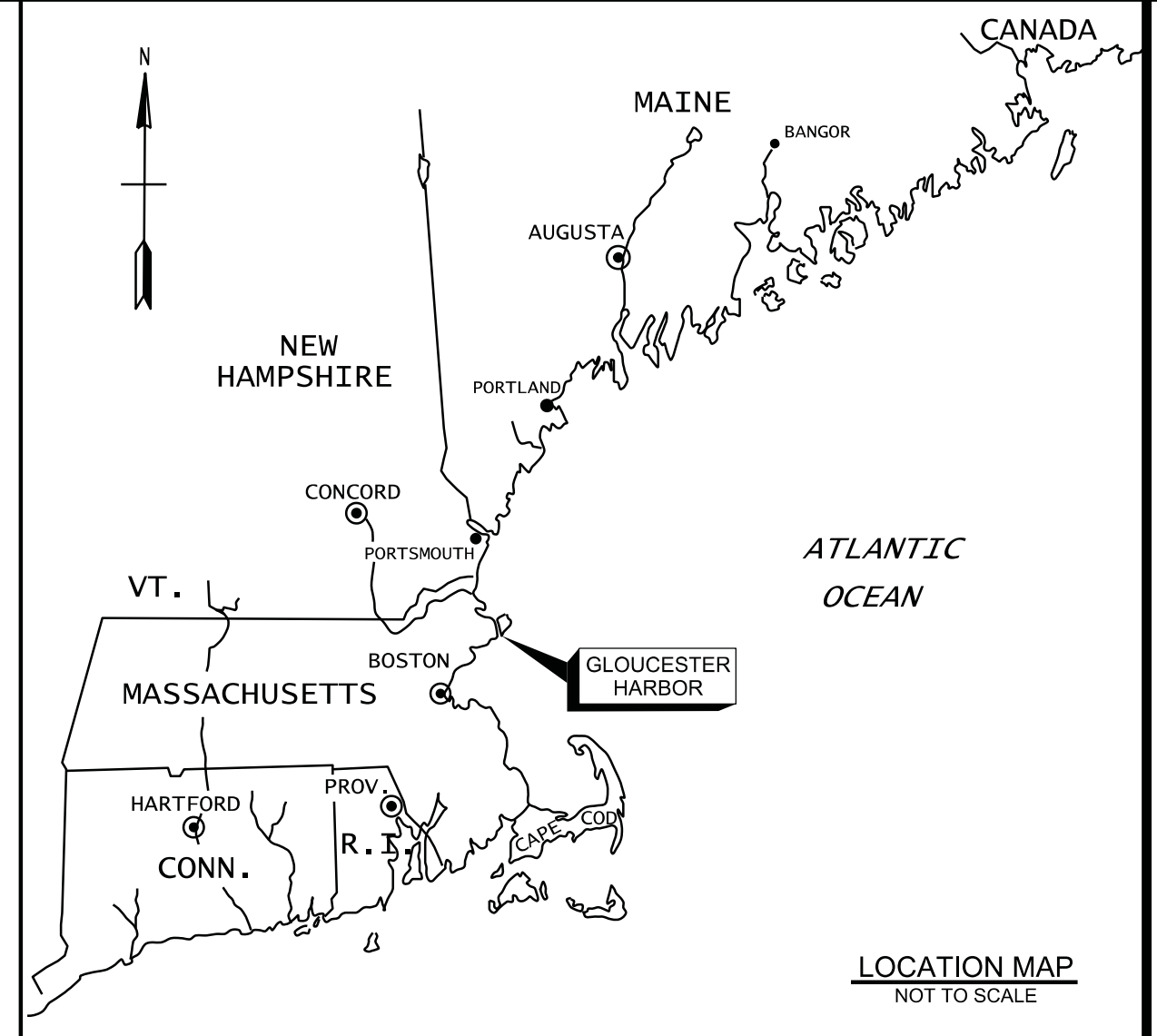


INDEX OF NAVIGATION AIDS			
NO.	DATE	STATE PLANE COORDINATES	GEOGRAPHIC POSITION
FL R-10	01/19/17	N 3046637.09 E 881276.72	42°-36'-18.3"N 70°-39'-49.9"W
FL R-12	01/19/17	N 3047716.65 E 882618.79	42°-36'-28.9"N 70°-39'-31.8"W
RN-2	01/25/17	N 3049243.15 E 883264.56	42°-36'-43.9"N 70°-39'-22.9"W
RN-2S	01/21/17	N 3048249.61 E 883415.41	42°-36'-34.1"N 70°-39'-21.0"W
GC-3	01/19/17	N 3048730.62 E 883866.91	42°-36'-38.8"N 70°-39'-14.9"W



- GENERAL NOTES:**
- SOUNDINGS ARE IN FEET AND TENTHS. THE REFERENCE PLANE IS MEAN LOWER LOW WATER (MLLW) AND IS BASED ON THE 1983-2001 TIDAL EPOCH. SOUNDINGS NOTED WITH A (+) ARE ABOVE THE REFERENCE PLANE OF MLLW. SOUNDINGS WITHOUT A SIGN ARE BELOW THE REFERENCE PLANE OF MLLW, AND SHOULD BE CONSIDERED NEGATIVE.
  - TOPOGRAPHY SHOWN IS FROM PREVIOUS SURVEYS, AERIAL IMAGERY AND/OR NOAA CHART NO. 13281. ALL TOPOGRAPHY, INCLUDING SHORELINE, BRIDGES, PIERS, ETC., IS LOCATED APPROXIMATE UNLESS OTHERWISE NOTED AND SHOULD BE USED AS A GENERAL REFERENCE ONLY.
  - BENCH MARK DATA: TIDES WERE RECORDED USING RTK GPS. THE MLLW TO NAVD88 CORRECTION FOR THIS PROJECT IS 5.05 FEET. THE CORRECTION WAS CALCULATED BY AVERAGING CORRECTIONS THAT WERE ESTABLISHED IN THE VICINITY OF NOAA BENCH MARKS AT:  
  
 GLOUCESTER HARBOR, (STATION ID 8441841, 04/21/2003) AND  
 LOBSTER COVE, ANNISQUAM RIVER, (STATION ID 8441571, 04/21/2003).

- THE REFERENCE POINTS USED FOR THE AVERAGE WERE BM HELIO (1986) (4.98) AND STATION POST (2017) (5.12). NAVD88 IS ABOVE MLLW; THEREFORE THE CORRECTION SHOULD BE ADDED TO NAVD88 TO CONVERT TO MLLW. NO TIDE GAUGES WERE USED ON THIS PROJECT. THE AVERAGE RANGE OF TIDE IS 8.8 FEET.
- COORDINATES SHOWN ARE BASED ON THE LAMBERT GRID SYSTEM FOR THE COMMONWEALTH OF MASSACHUSETTS (MAINLAND ZONE 2001), NAD 1983 AND ARE BASED ON U.S. SURVEY FEET.
  - SURVEY WAS PERFORMED USING AN ODOM MK 3 ECHO SOUNDER OPERATING AT 200 KHZ. HORIZONTAL POSITIONING AND REAL TIME TIDE READINGS WERE RECORDED UTILIZING A TRIMBLE SPS 855 RTK GPS SYSTEM. THE RTK BASE STATION USED WAS STATION HELIO (1986).
  - THE SOUNDING INFORMATION SHOWN ON THESE MAPS REPRESENTS THE SHOALEST SOUNDINGS OF THOSE OBTAINED FROM HYDROGRAPHIC SURVEYS CONDUCTED FROM JANUARY THRU MARCH 2017.
  - THE SOUNDING INFORMATION DEPICTED ON THESE MAPS SHOULD NOT BE USED TO DETERMINE VOLUMES. VOLUMES ARE DETERMINED FROM MORE SOUNDING INFORMATION THAN SHOWN.
  - THE INFORMATION DEPICTED ON THESE MAPS REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED, AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME.
  - FIELD BOOK: R&H 4477  
 15-FOOT DEPTH CONTOUR SHOWN THUS:   
 16-FOOT DEPTH CONTOUR SHOWN THUS:   
 18-FOOT DEPTH CONTOUR SHOWN THUS:   
 20-FOOT DEPTH CONTOUR SHOWN THUS:   
 SURVEYED BY: FREDERICK W. PERRY AND CREW  
 REFER TO SURVEY NO. 17-1448

**US Army Corps of Engineers®**

ISSUE DATE: MAY 31, 2017

CHK BY: MWV  
 SWM BY: MWV  
 PREPARED BY: MWV  
 DRAWING CODE: GLO-330  
 SHEET 1 OF 4

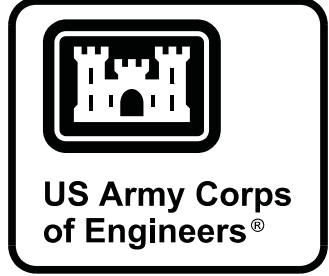
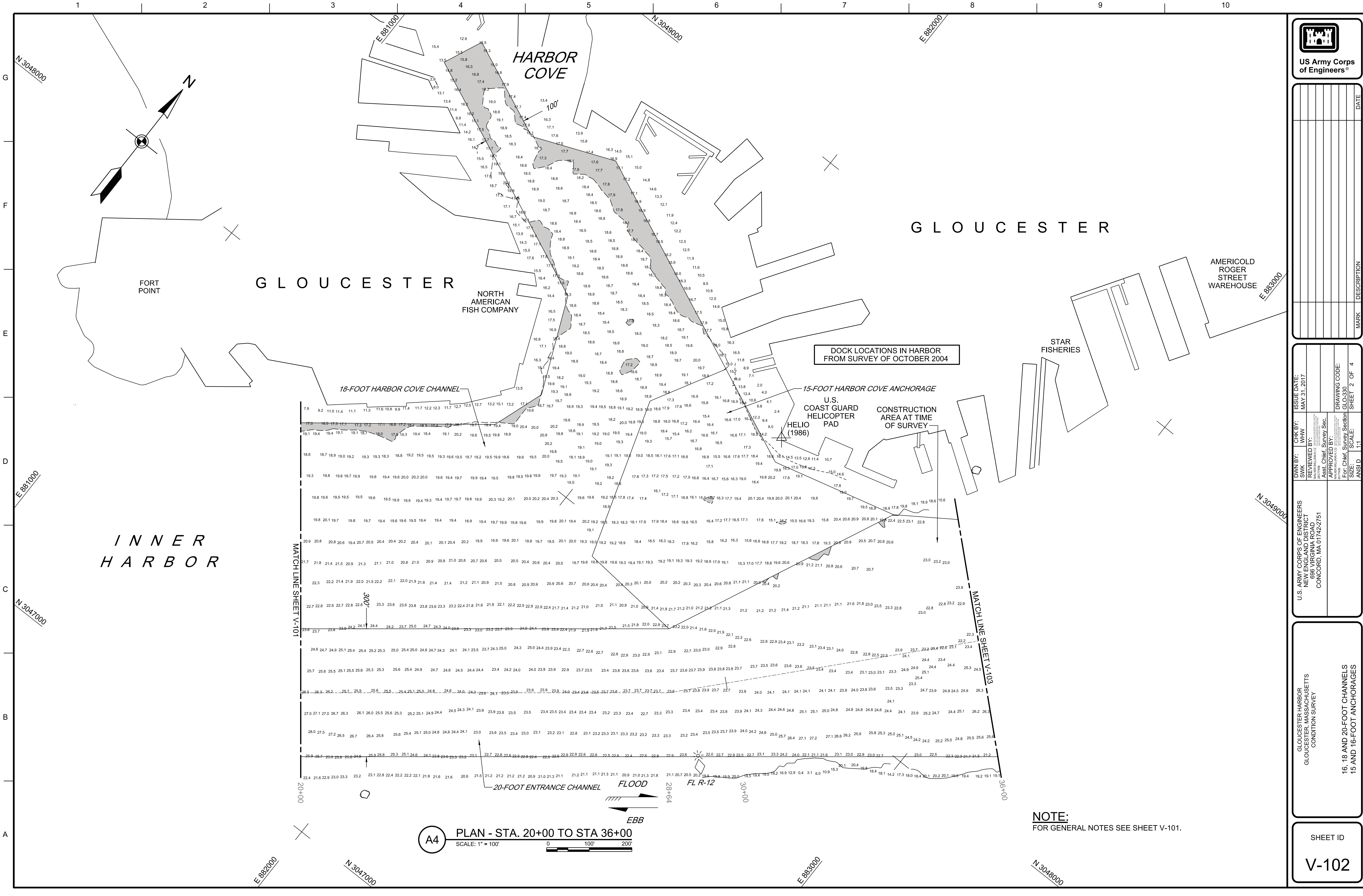
U.S. ARMY CORPS OF ENGINEERS  
 NEW ENGLAND DISTRICT  
 696 VIRGINIA ROAD  
 CONCORD, MA 01742-2751

GLOUCESTER HARBOR  
 GLOUCESTER, MASSACHUSETTS  
 CONDITION SURVEY

16, 18 AND 20-FOOT CHANNELS  
 15 AND 16-FOOT ANCHORAGES

SHEET ID  
**V-101**





DATE	DESCRIPTION	MARK

DWN BY: SWK DATE: MAY 31, 2017	CHK BY: MWM	ISSUE DATE: MAY 31, 2017
DESIGNED BY: W.M. WILKINS ASST. CHIEF SURVEY SEC.	APPROVED BY: W.M. WILKINS CHIEF SURVEY SEC.	DRAWING CODE: GLO-330 SHEET 2 OF 4
U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DISTRICT 696 VIRGINIA ROAD CONCORD, MA 01742-2751		For Chief Survey Section SCALE: 1" = 100'

GLOUCESTER HARBOR  
 GLOUCESTER, MASSACHUSETTS  
 CONDITION SURVEY

SHEET ID  
**V-102**

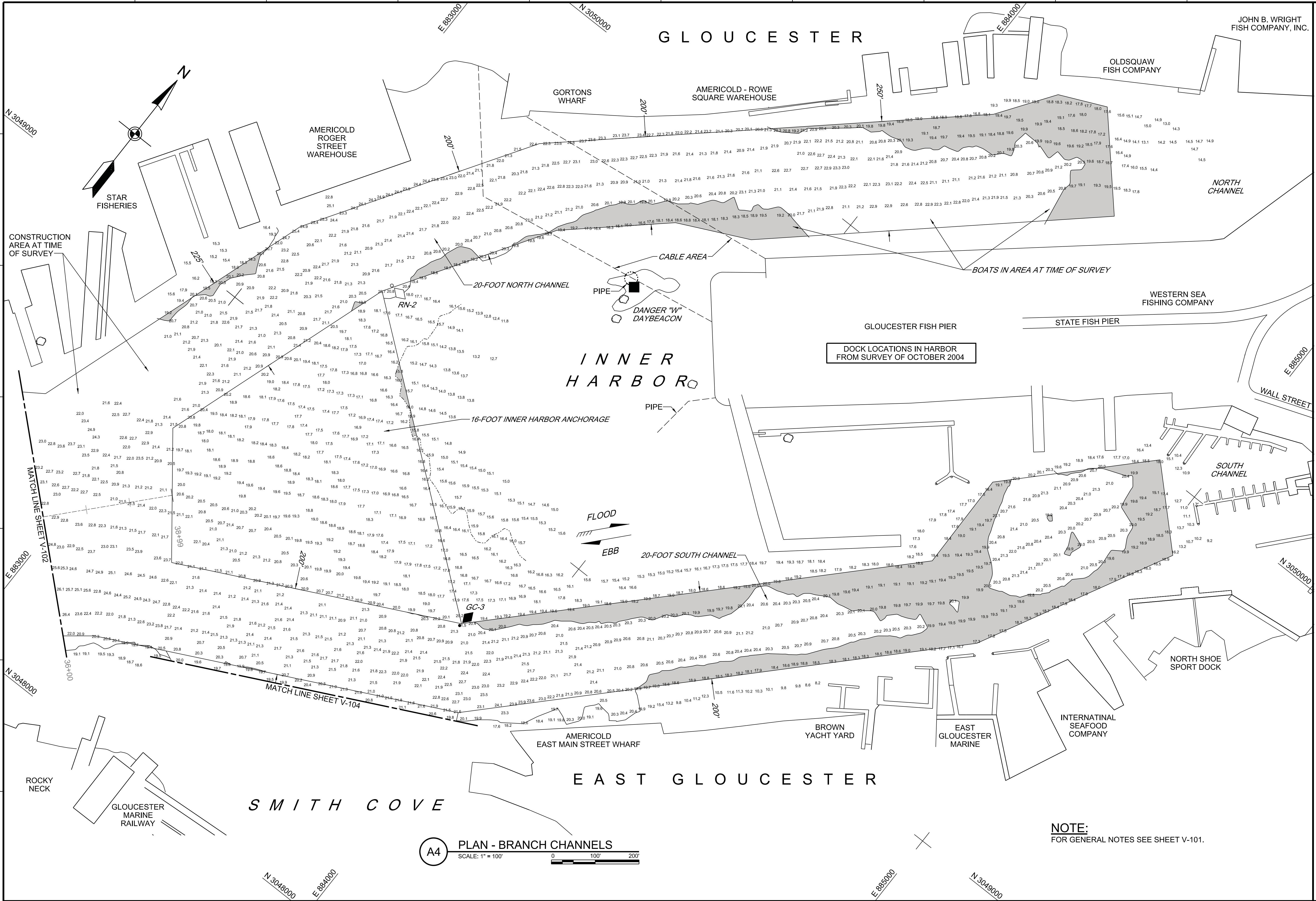
**NOTE:**  
 FOR GENERAL NOTES SEE SHEET V-101.

**A4** PLAN - STA. 20+00 TO STA 36+00  
 SCALE: 1" = 100'



16, 18 AND 20-FOOT CHANNELS  
 15 AND 16-FOOT ANCHORAGES





# G L O U C E S T E R

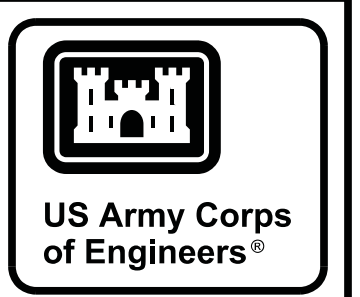
# I N N E R H A R B O R

# E A S T G L O U C E S T E R

# S M I T H C O V E

**A4** PLAN - BRANCH CHANNELS  
SCALE: 1" = 100'

**NOTE:**  
FOR GENERAL NOTES SEE SHEET V-101.

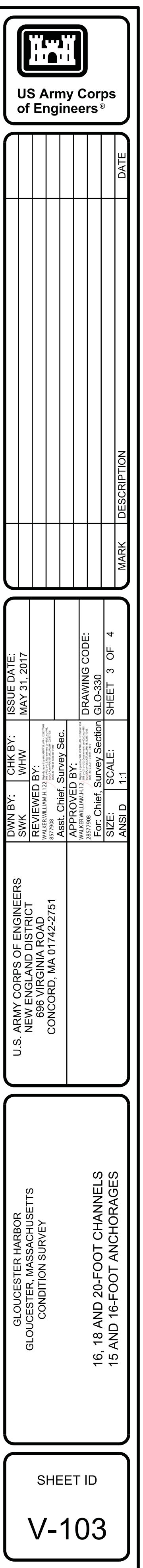


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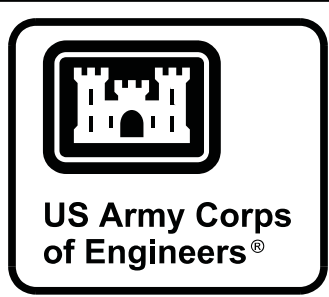
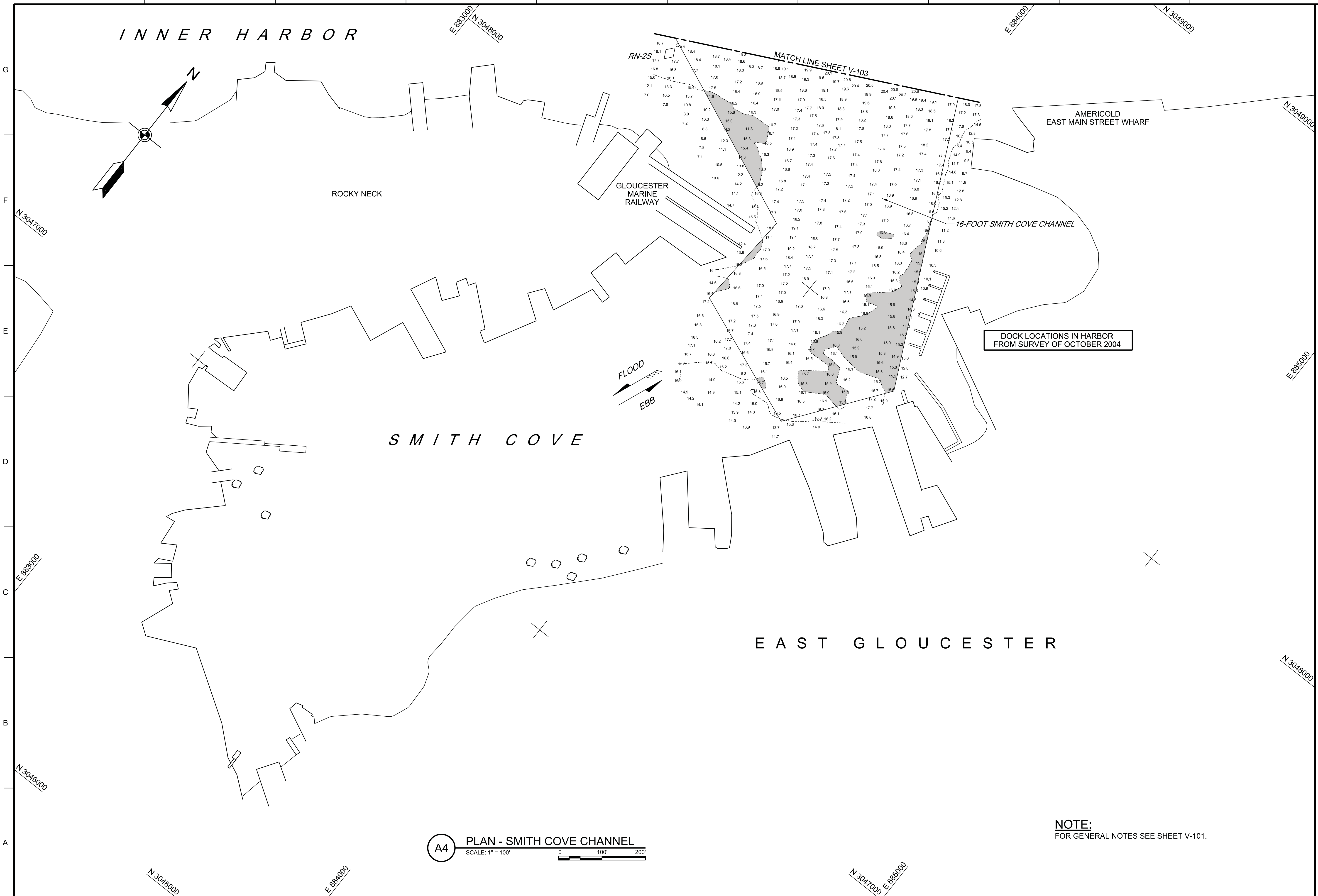
DWN BY: SWM	CHK BY: MW	ISSUE DATE: MAY 31, 2017
DRAWN BY: JLV	APPROVED BY: [Signature]	DRAWING CODE: GLO-330
FOR: Chief, Survey Section	SCALE: 1:1	SHEET 3 OF 4
U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DISTRICT 696 VIRGINIA ROAD CONCORD, MA 01742-2751		

GLOUCESTER HARBOR GLOUCESTER, MASSACHUSETTS CONDITION SURVEY	16, 18 AND 20-FOOT CHANNELS 15 AND 16-FOOT ANCHORAGES
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SHEET ID	V-103
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MARK	DESCRIPTION	DATE

DWN BY: SWM DATE: 05/31/2017	CHK BY: MRM	ISSUE DATE: MAY 31, 2017
DESIGNED BY: MRM	APPROVED BY: Asst. Chief Survey Sec.	DRAWING CODE: GLO-330
U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DISTRICT 696 VIRGINIA ROAD CONCORD, MA 01742-2751		For Chief, Survey Section SHEET 4 OF 4

GLOUCESTER HARBOR GLOUCESTER, MASSACHUSETTS CONDITION SURVEY	16, 18 AND 20-FOOT CHANNELS 15 AND 16-FOOT ANCHORAGES
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SHEET ID <b>V-104</b>
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**A4** PLAN - SMITH COVE CHANNEL  
 SCALE: 1" = 100'

**NOTE:**  
 FOR GENERAL NOTES SEE SHEET V-101.