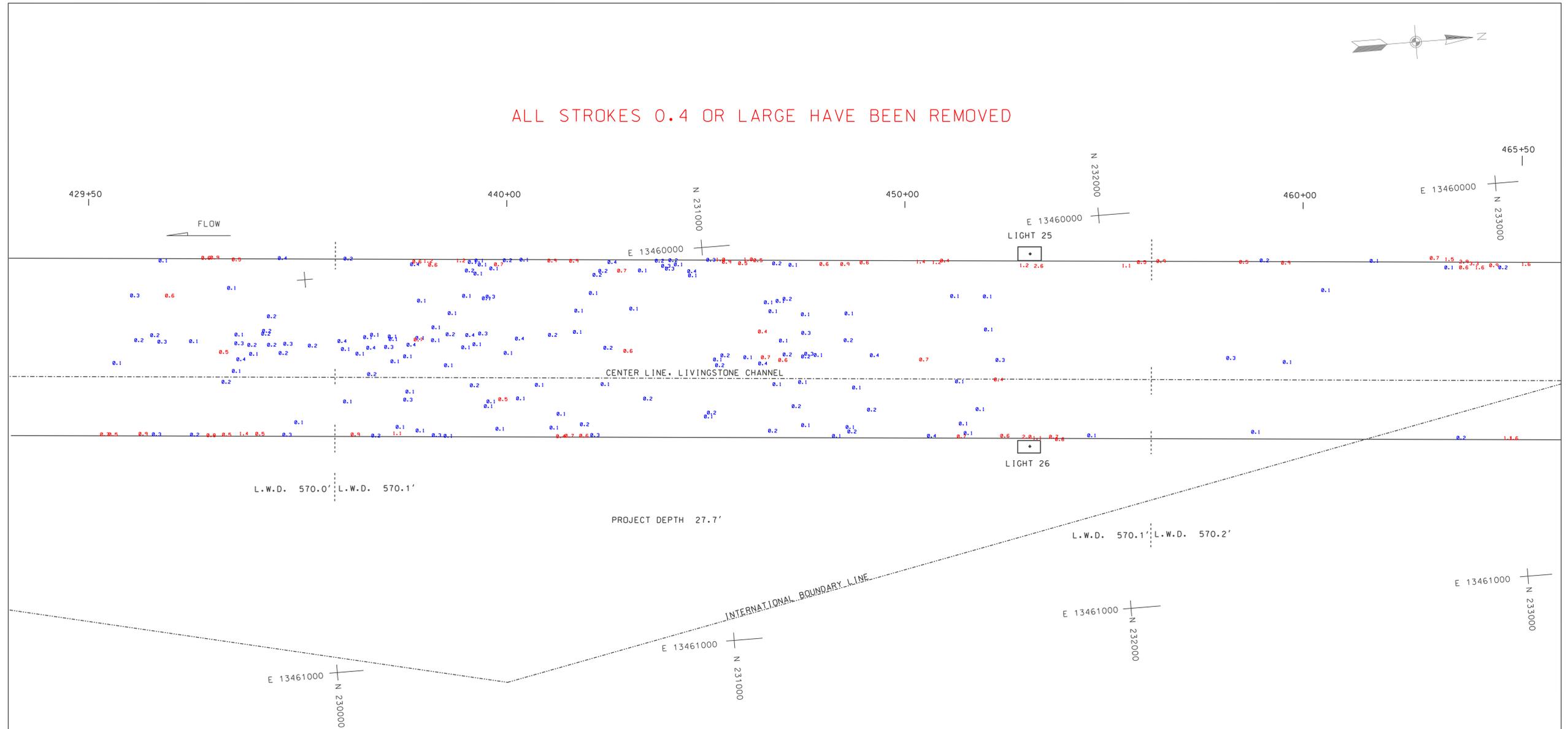
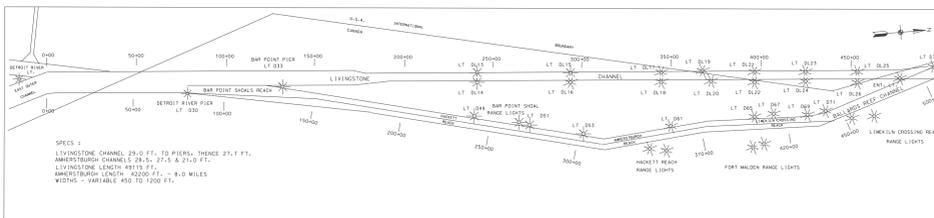




ALL STROKES 0.4 OR LARGE HAVE BEEN REMOVED



ALL STROKES 0.4 OR LARGE HAVE BEEN REMOVED



LEGEND
 THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS AT THE TIME.

LOW WATER DATUM
 ELEVATIONS AND PROJECT DEPTHS ARE REFERRED TO INTERNATIONAL GREAT LAKES DATUM, 1985.

GRID COORDINATES
 GRIDS SHOWN ARE BASED ON NATIONAL GEODETIC SURVEY PROJECTION TABLES, STATE OF MICHIGAN, SOUTH ZONE (2113), LAMBERT PROJECTION, 1983 NORTH AMERICAN DATUM.

ALL COORDINATES ARE IN U.S. SURVEY FEET.

DIRECTIONS
 ALL DIRECTIONS ARE GRID AZIMUTHS REFERRED TO NORTH ZERO.

PROJECT DEPTHS ARE AS SHOWN ON DRAWING.

THE AUTOMATED ELECTRONIC SURVEY WAS CONDUCTED BY JOHN C. HAAS AND CHRISTOPHER V. LINDMAN, ABOARD THE USACE SURVEY VESSEL "WHEELER".

AUTOMATED EQUIPMENT USED
 POSITIONING: TSS POS-MV 4
 SOFTWARE: HYPACK HYPSWEEP
 SONIC SOUNDER: R2 SONIC 2024

NOTES:

- GAGES USED WERE OBTAINED FROM A TEMPORARY GAGE BOARD SET FROM A TBM ON LIGHT 26
- POSITIONS WERE DETERMINED BY GPS REFERENCE BEACON 838, LOCATED AT FORT WAYNE DETROIT, MICHIGAN - FREQUENCY 319 KHZ, 200 BPS
- DEPTH MEASURED USING R2 SONIC 2024 ULTRA HIGH RESOLUTION FOCUSED MULTI-BEAM ECHOSOUNDER SYSTEM AND THE ODOM DIGIBAR PRO 081200 VELOCITY PROFILER. THE FREQUENCY USED WAS 400KHZ AND THE BEAM ANGLE WAS 120°.
- EDITED MULTIBEAM SOUNDINGS WERE SORTED INTO A 37 FT. BY 15 FT. MATRIX. THE LARGEST STRIKE LOCATED IN EACH MATRIX CELL WAS THEN SELECTED FOR PLOTTING AT THE CELL CENTER.



NO.	DATE	REVISION	BY
U.S. ARMY ENGINEER DISTRICT, DETROIT CORPS OF ENGINEERS DETROIT, MICHIGAN			
DESIGNED BY:		DETROIT AREA OFFICE	17 NOVEMBER 2011
DRAWN BY:		DETROIT RIVER, MICHIGAN LIVINGSTONE CHANNEL	
CHECKED BY:		CS 429+50 TO CS 465+50 MULTI-BEAM CONDITION SWEEP SURVEY STRIKE PLOT	
REVIEWED BY:			
SUBMITTED BY:		APPROVAL RECOMMENDED:	P.E. DATE
CHIEF, PROJ OPNS SEC		CHIEF, OPERATIONS TECHNICAL SUPPORT BRANCH	
APPROVED:		SCALE AS SHOWN	DRAWING NUMBER
CHIEF, CONSTRUCTION - OPERATIONS DIVISION		SHEET 13 OF 14	liv13cs1111.dgn