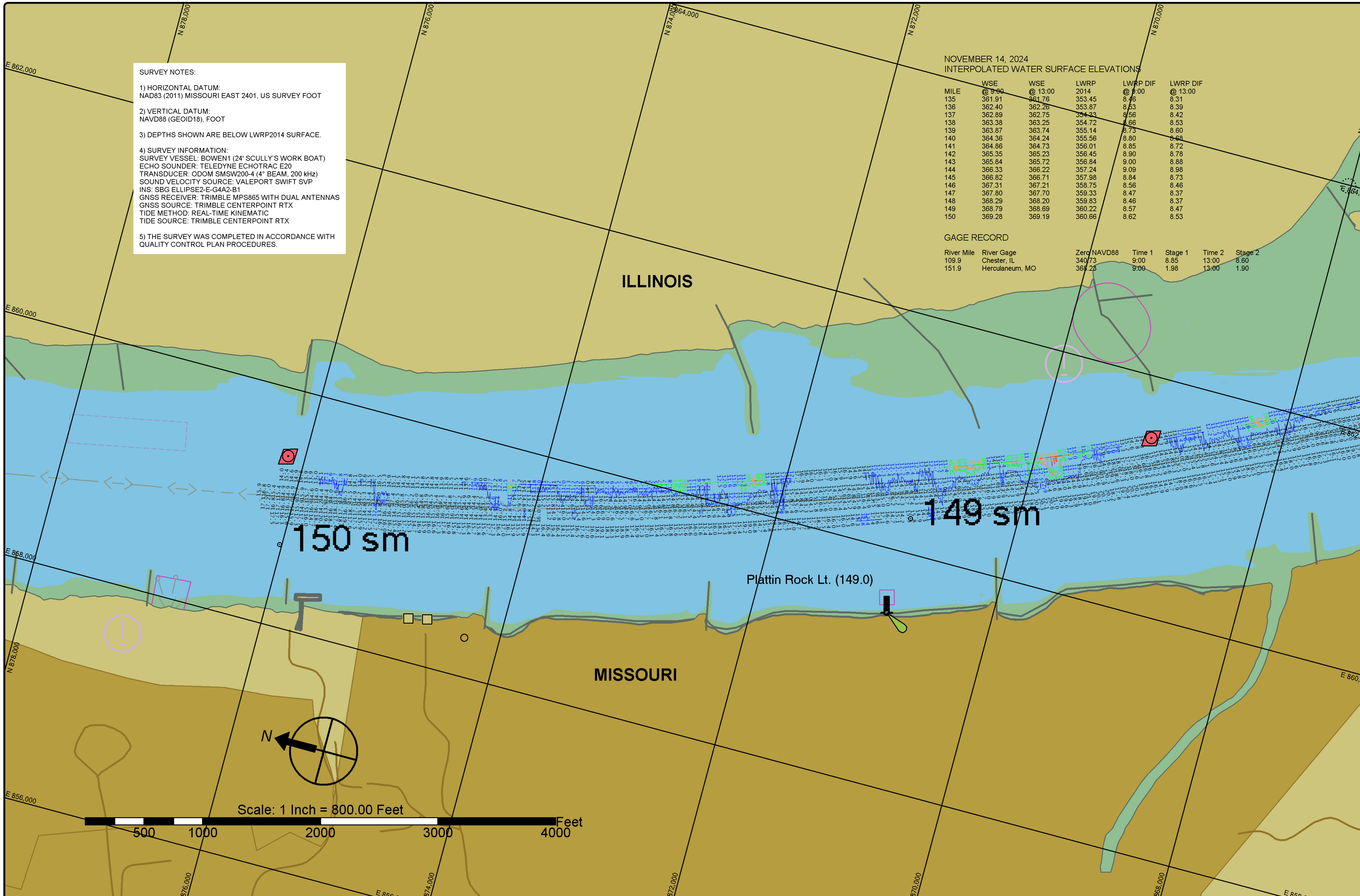

SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

NOVEMBER 14, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 13:00
135	361.91	361.76	353.45	8.46	8.31
136	362.40	362.26	353.87	8.53	8.39
137	362.89	362.75	354.33	8.56	8.42
138	363.38	363.25	354.72	8.66	8.53
139	363.87	363.74	355.14	8.73	8.60
140	364.36	364.24	355.56	8.80	8.68
141	364.86	364.73	356.01	8.85	8.72
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143	365.84	365.72	356.84	9.00	8.88
144	366.33	366.22	357.24	9.09	8.98
145	366.82	366.71	357.98	8.84	8.73
146	367.31	367.21	358.75	8.56	8.46
147	367.80	367.70	359.33	8.47	8.37
148	368.29	368.20	359.83	8.46	8.37
149	368.79	368.69	360.22	8.57	8.47
150	369.28	369.19	360.66	8.62	8.53

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	8.85	13:00	8.60
151.9	Herculaneum, MO	368.23	9:00	1.98	13:00	1.90

St. Louis District

DATES OF SURVEY:
NOVEMBER 14, 2024

FILE NO.: 150_130K1424
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

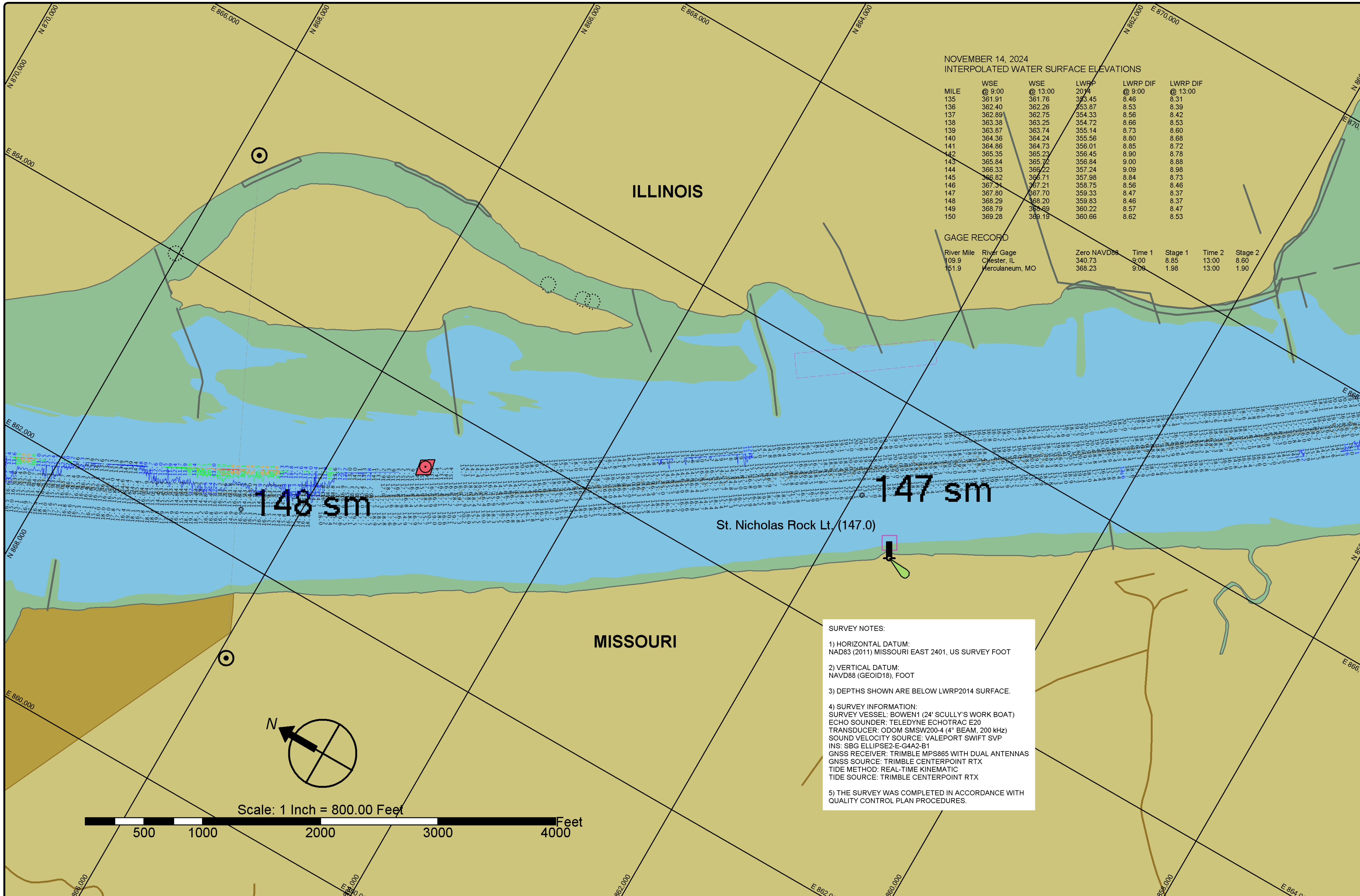
Approved: ____ FIELD CARTOGRAPHER
Approved: ____ CIVIL ENGINEERING TECHNICIAN
Approved: ____ ASST. CHIEF OF SURVEY
Approved: ____ CHIEF OF SURVEY
Date: ____

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 148.3 - 150.3

SHEET NO.
1 OF 1



NOVEMBER 14, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

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109.9	Chester, IL	340.73	9:00	8.85	13:00	8.60
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SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
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3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

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INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

St. Louis District

DATES OF SURVEY:
NOVEMBER 14, 2024

FILE NO.: 150_130K1424
REQUEST NO.: W912P924F0029

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Approved: ____ CIVIL ENGINEERING TECHNICIAN
Approved: ____ ASST. CHIEF OF SURVEY
Approved: ____ CHIEF OF SURVEY
Date: ____

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER
BASIN
MISSISSIPPI RIVER

CHANNEL PATROL
RIVER MILES 146.2 - 148.3

SHEET NO.
1 OF 1

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NOVEMBER 14, 2024
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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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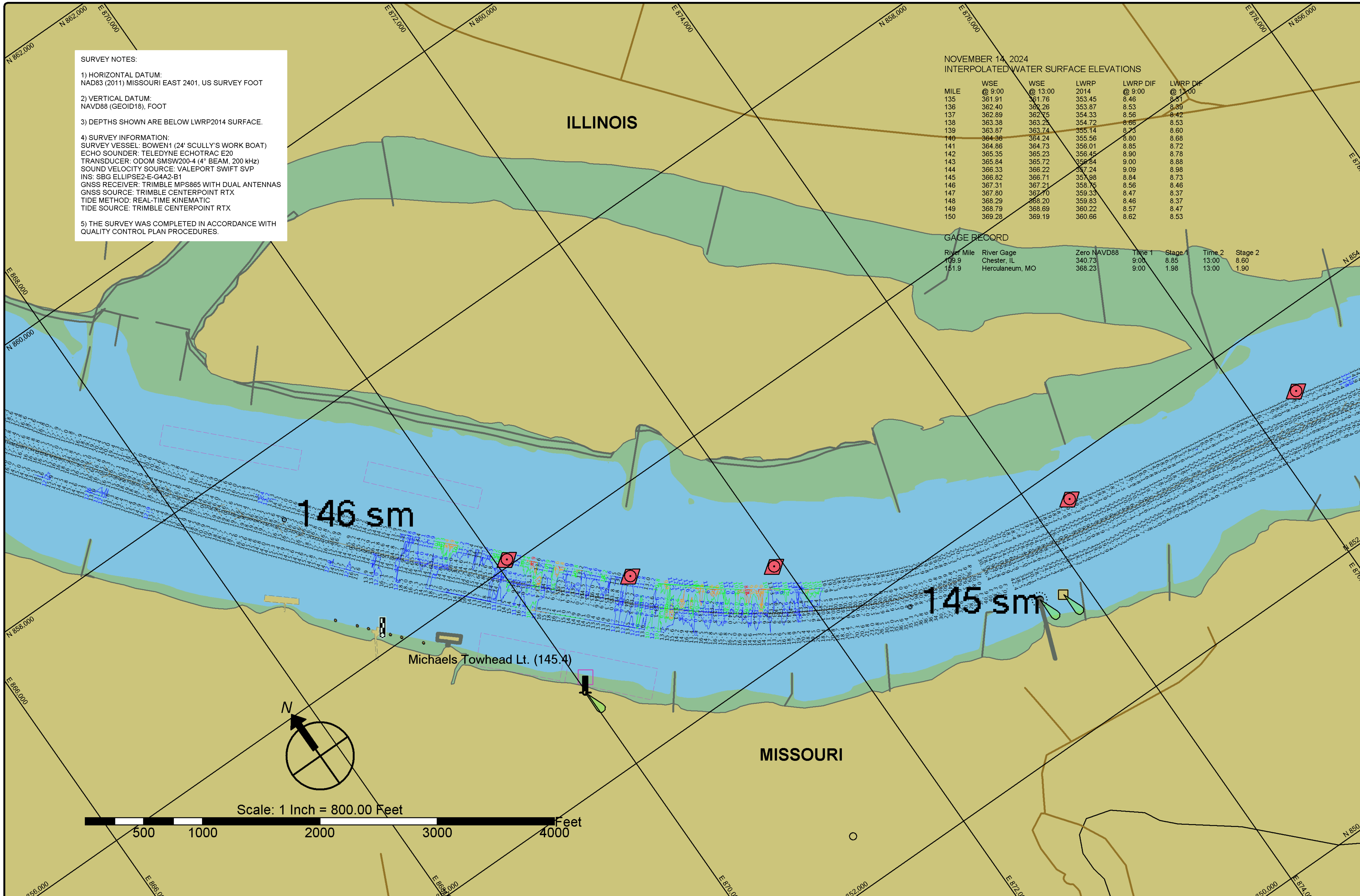

St. Louis District

DATES OF SURVEY:
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FILE NO.: 150_130K1424
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

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Approved: ______ CIVIL ENGINEERING TECHNICIAN
Approved: ______ ASST. CHIEF OF SURVEY
Approved: ______ CHIEF OF SURVEY
Date: ______

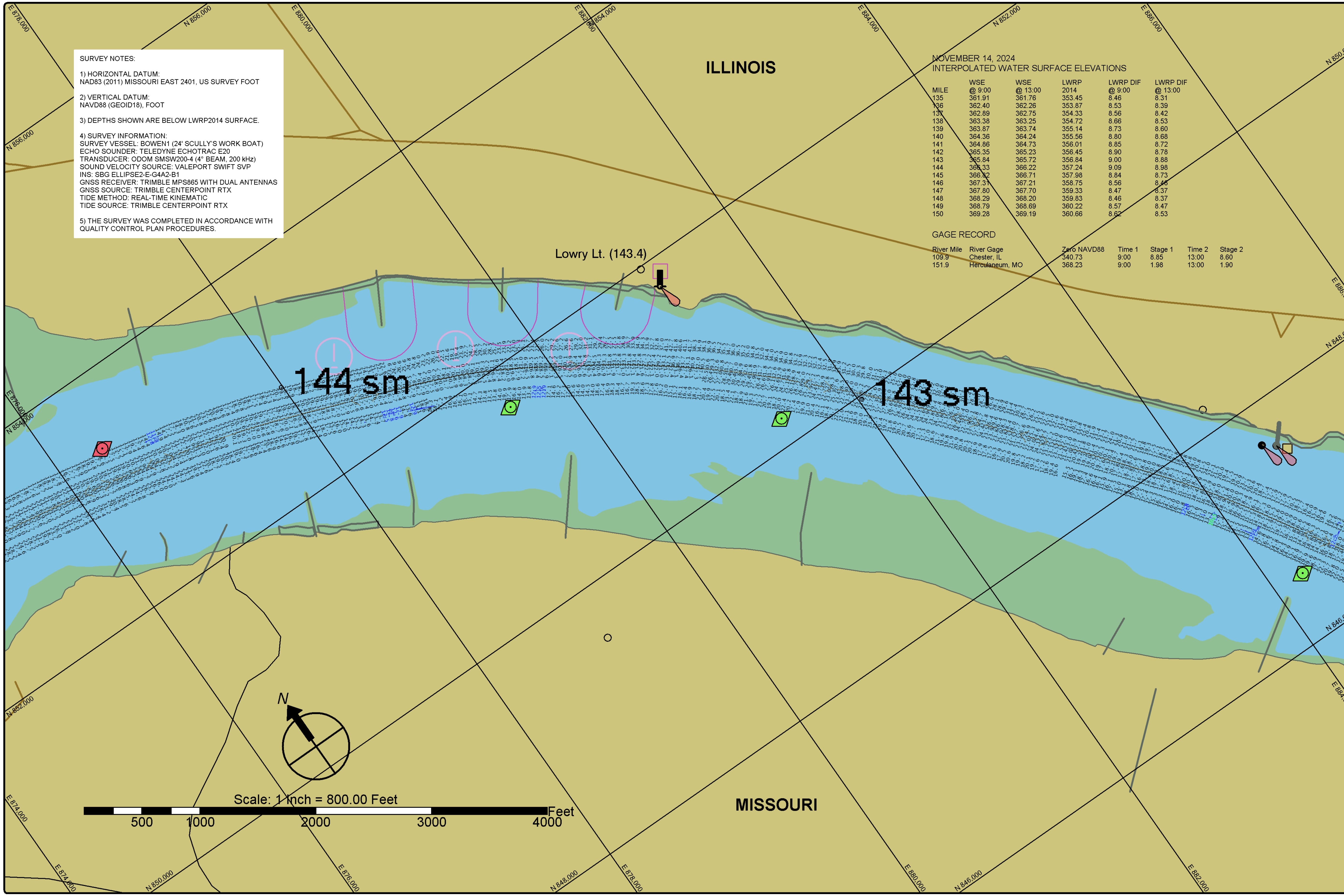
U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER
BASIN
MISSISSIPPI RIVER

CHANNEL PATROL
RIVER MILES 144.2 - 146.2

SHEET NO.
1 OF 1



SURVEY NOTES:

1) HORIZONTAL DATUM:
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GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

NOVEMBER 14, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

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GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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St. Louis District

DATES OF SURVEY:
NOVEMBER 14, 2024

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Date:

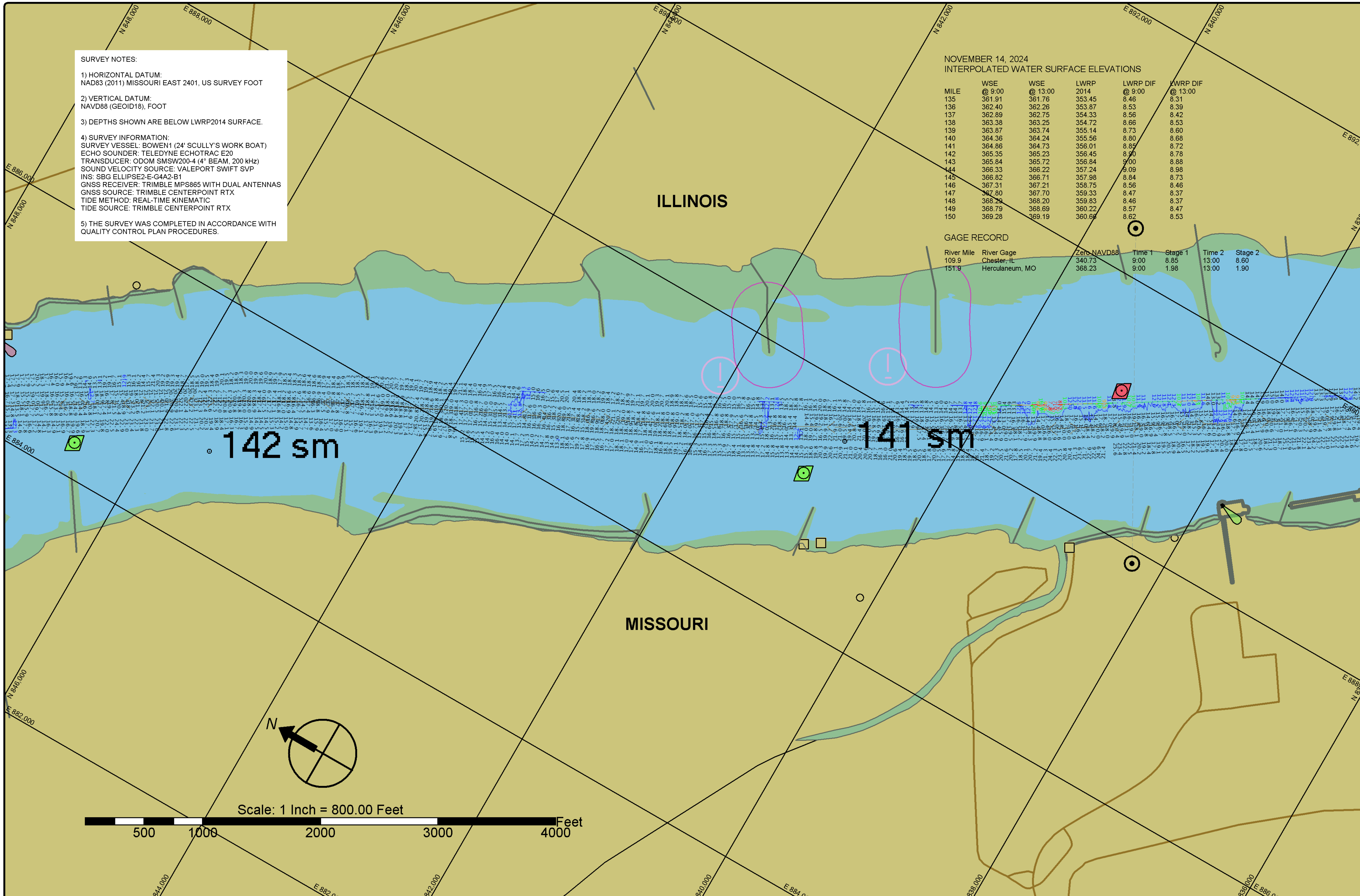
U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

CHANNEL PATROL
RIVER MILES 142.2 - 144.2

SHEET NO.
1 OF 1



SURVEY NOTES:

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St. Louis District

DATES OF SURVEY:
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U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

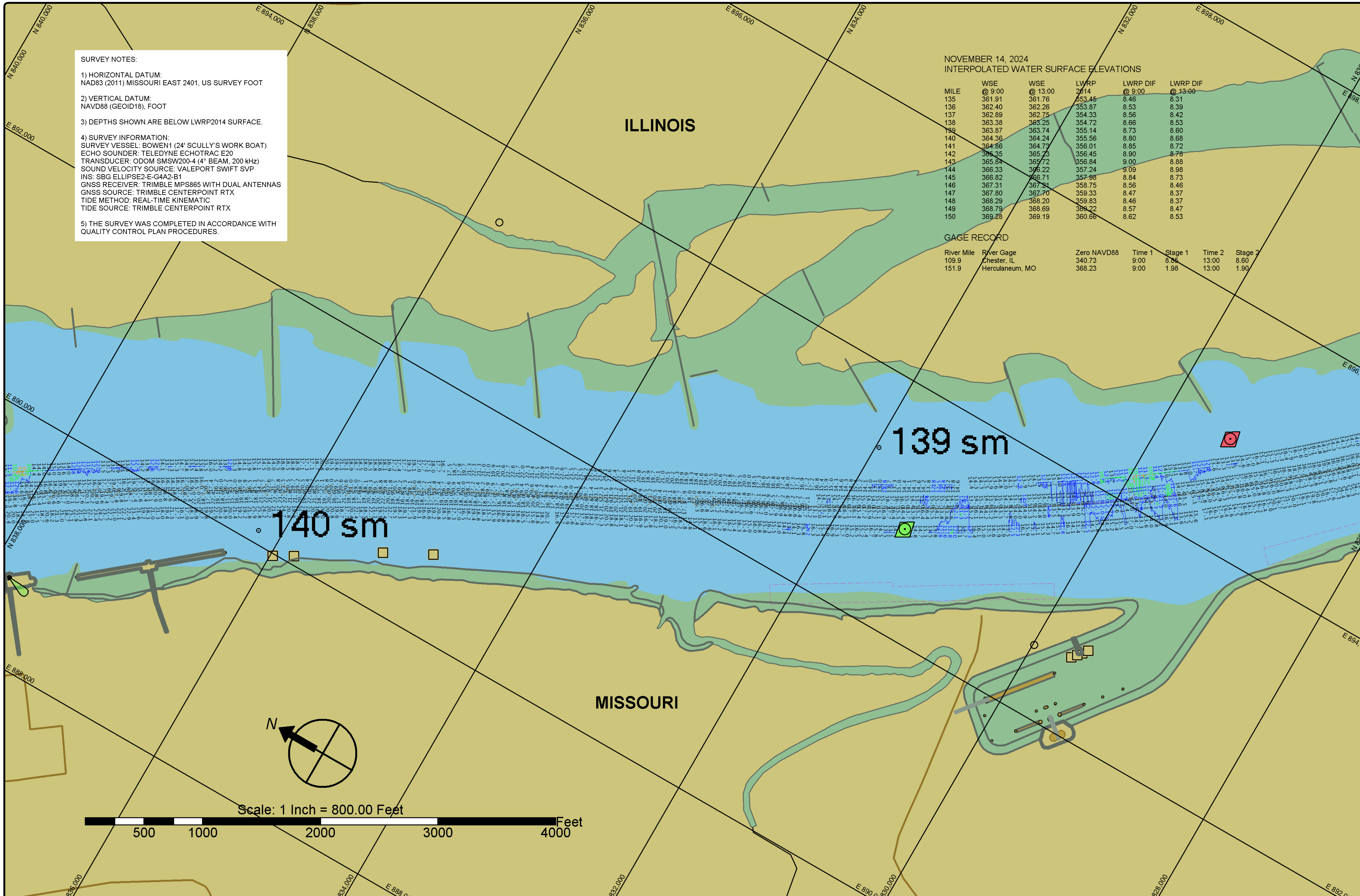
SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER
BASIN
MISSISSIPPI RIVER

CHANNEL PATROL
RIVER MILES 140.2 - 142.2

SHEET NO.

1 OF 1



SURVEY NOTES:

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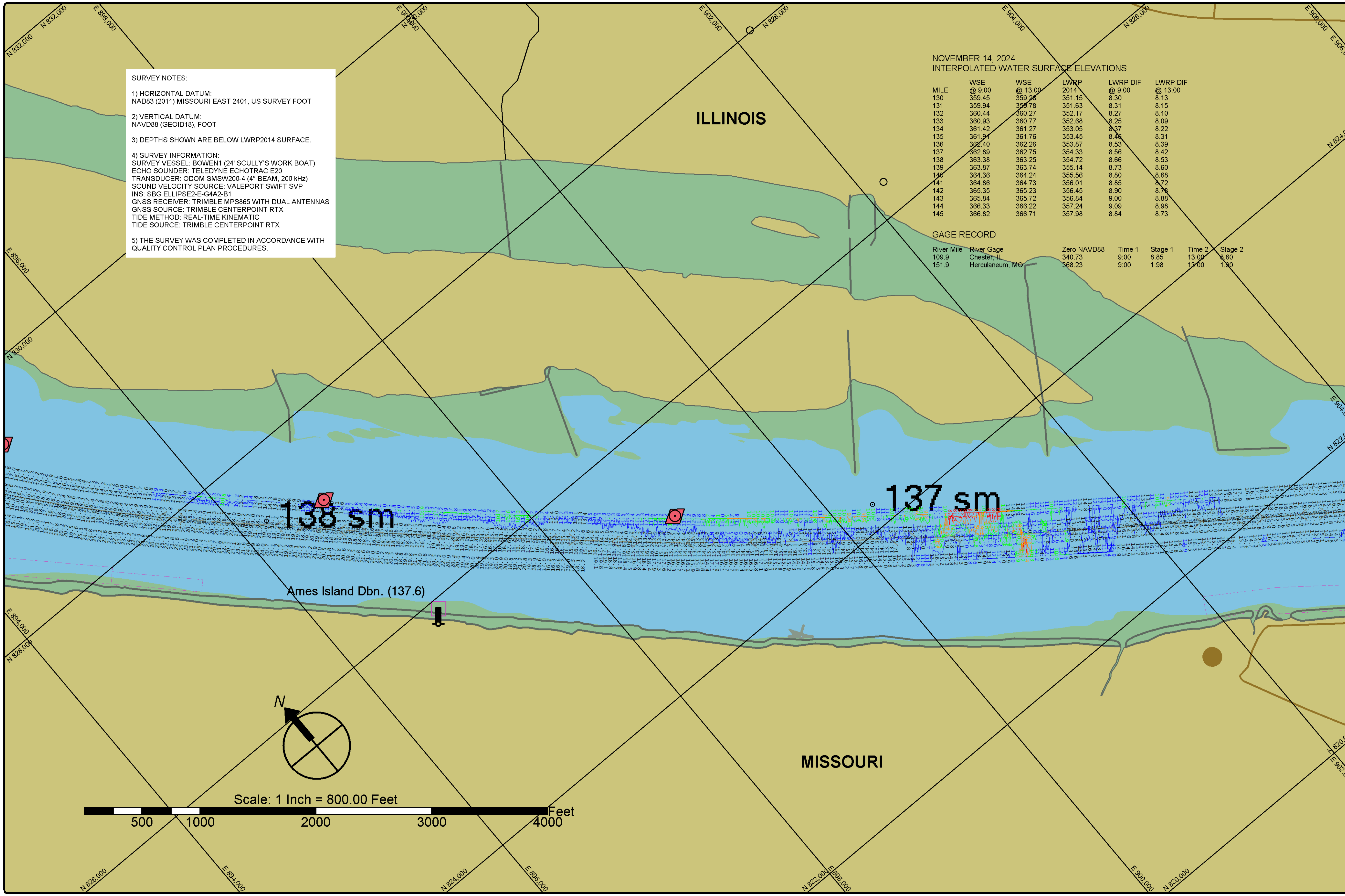
U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER
BASIN
MISSISSIPPI RIVER

CHANNEL PATROL
RIVER MILES 138.2 - 140.2

SHEET NO.
1 OF 1



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132	360.44	360.27	352.17	8.27	8.10
133	360.93	360.77	352.68	8.25	8.09
134	361.42	361.27	353.05	8.37	8.22
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St. Louis District

DATES OF SURVEY:
NOVEMBER 14, 2024

FILE NO.: 150_130K1424
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

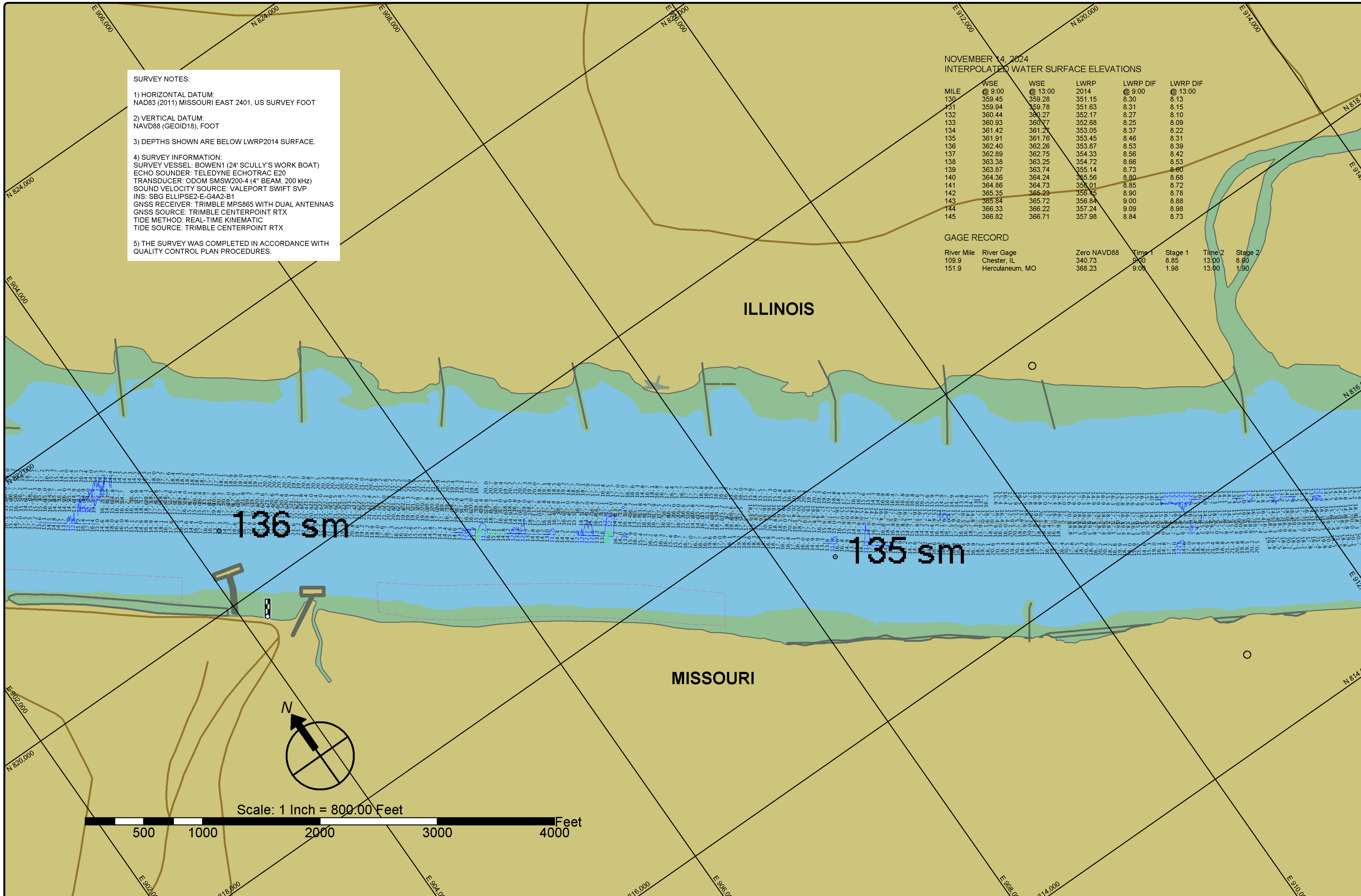
Approved: ______ FIELD CARTOGRAPHER
Approved: ______ CIVIL ENGINEERING TECHNICIAN
Approved: ______ ASST. CHIEF OF SURVEY
Approved: ______ CHIEF OF SURVEY
Date: ______

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

SURVEYED BY:
BOWEN ENGINEERING AND SURVEYING, P.C.
2121 MEGAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 136.2 - 138.2

SHEET NO.
1 OF 1



SURVEY NOTES:

1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

3) DEPTHS SHOWN ARE BELOW LWRP2014 SURFACE.

4) SURVEY INFORMATION:
SURVEY VESSEL: BOWEN1 (24' SCULLY'S WORK BOAT)
ECHO SOUNDER: TELEDYNE ECHOTRAC E20
TRANSDUCER: ODOM SMSW200-4 (4° BEAM, 200 kHz)
SOUND VELOCITY SOURCE: VALEPORT SWIFT SVP
INS: SBG ELLIPSE2-E-G4A2-B1
GNSS RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

5) THE SURVEY WAS COMPLETED IN ACCORDANCE WITH QUALITY CONTROL PLAN PROCEDURES.

NOVEMBER 14, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 13:00
130	359.45	359.28	351.15	8.30	8.13
131	359.94	359.78	351.63	8.31	8.15
132	360.44	360.27	352.17	8.27	8.10
133	360.93	360.77	352.68	8.25	8.09
134	361.42	361.27	353.05	8.37	8.22
135	361.91	361.76	353.45	8.46	8.31
136	362.40	362.26	353.87	8.53	8.39
137	362.89	362.75	354.33	8.56	8.42
138	363.38	363.25	354.72	8.66	8.53
139	363.87	363.74	355.14	8.73	8.60
140	364.36	364.24	355.56	8.80	8.68
141	364.86	364.73	356.01	8.85	8.72
142	365.35	365.23	356.45	8.90	8.78
143	365.84	365.72	356.84	9.00	8.88
144	366.33	366.22	357.24	9.09	8.98
145	366.82	366.71	357.98	8.84	8.73

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
109.9	Chester, IL	340.73	9:00	8.85	13:00	8.60
151.9	Herculaneum, MO	368.23	9:00	1.98	13:00	1.90

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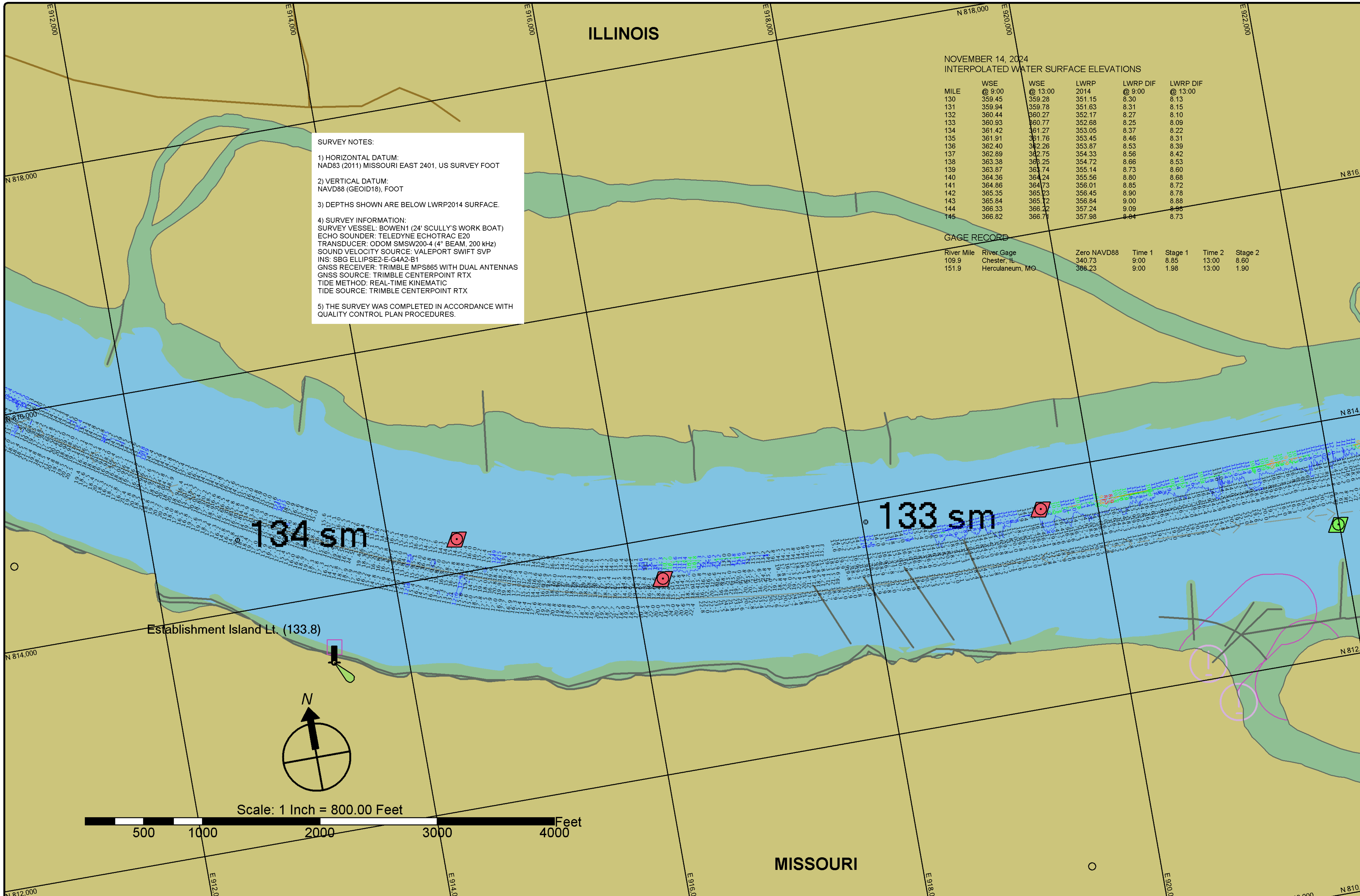

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UPPER MISSISSIPPI RIVER
BASIN
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CHANNEL PATROL
RIVER MILES 132.2 - 134.2

SHEET NO.

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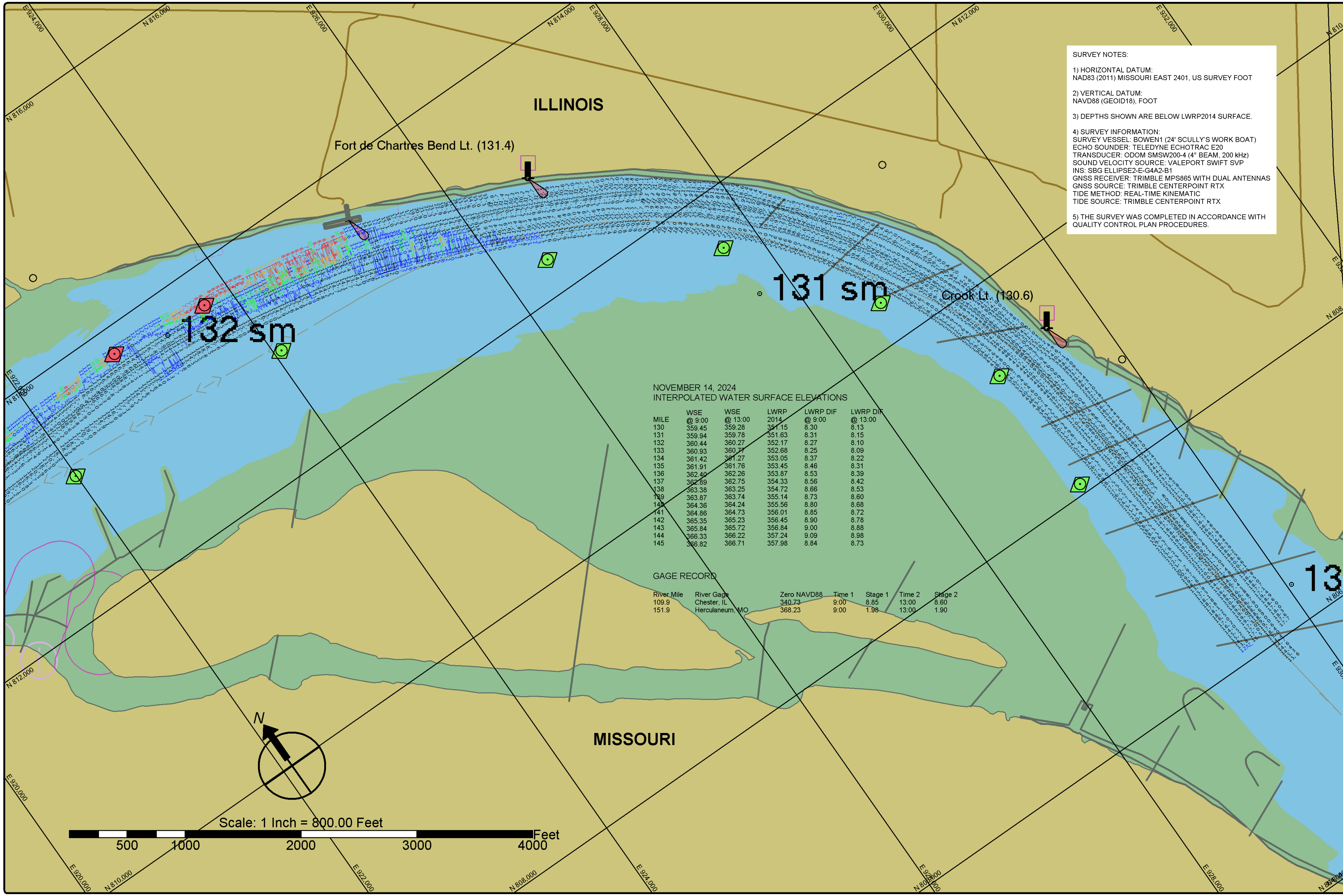

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