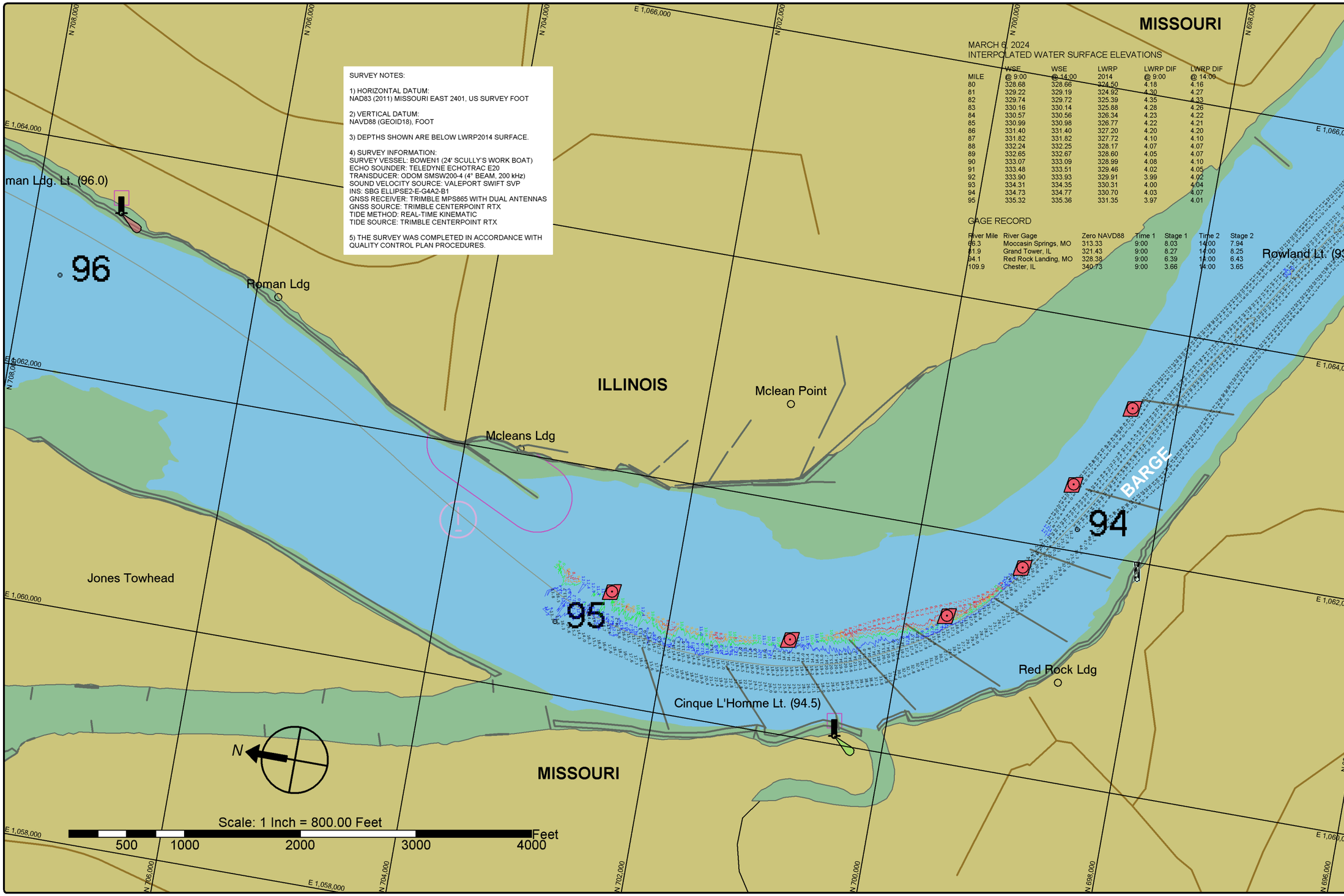


SURVEY NOTES:

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.

MARCH 6, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
80	328.68	328.66	324.50	4.18	4.16
81	329.22	329.19	324.92	4.30	4.27
82	329.74	329.72	325.39	4.35	4.33
83	330.16	330.14	325.88	4.28	4.26
84	330.57	330.56	326.34	4.23	4.22
85	330.99	330.98	326.77	4.22	4.21
86	331.40	331.40	327.20	4.20	4.20
87	331.82	331.82	327.72	4.10	4.10
88	332.24	332.25	328.17	4.07	4.07
89	332.65	332.67	328.60	4.05	4.07
90	333.07	333.09	328.99	4.08	4.10
91	333.48	333.51	329.46	4.02	4.05
92	333.90	333.93	329.91	3.99	4.02
93	334.31	334.35	330.31	4.00	4.04
94	334.73	334.77	330.70	4.03	4.07
95	335.32	335.36	331.35	3.97	4.01

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
66.3	Moccasin Springs, MO	313.33	9:00	8.03	14:00	7.94
81.9	Grand Tower, IL	321.43	9:00	8.27	14:00	8.25
94.1	Red Rock Landing, MO	328.38	9:00	6.39	14:00	6.43
109.9	Chester, IL	340.73	9:00	3.66	14:00	3.65

St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 095_075C0624
REQUEST NO.: W912P923F0086

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

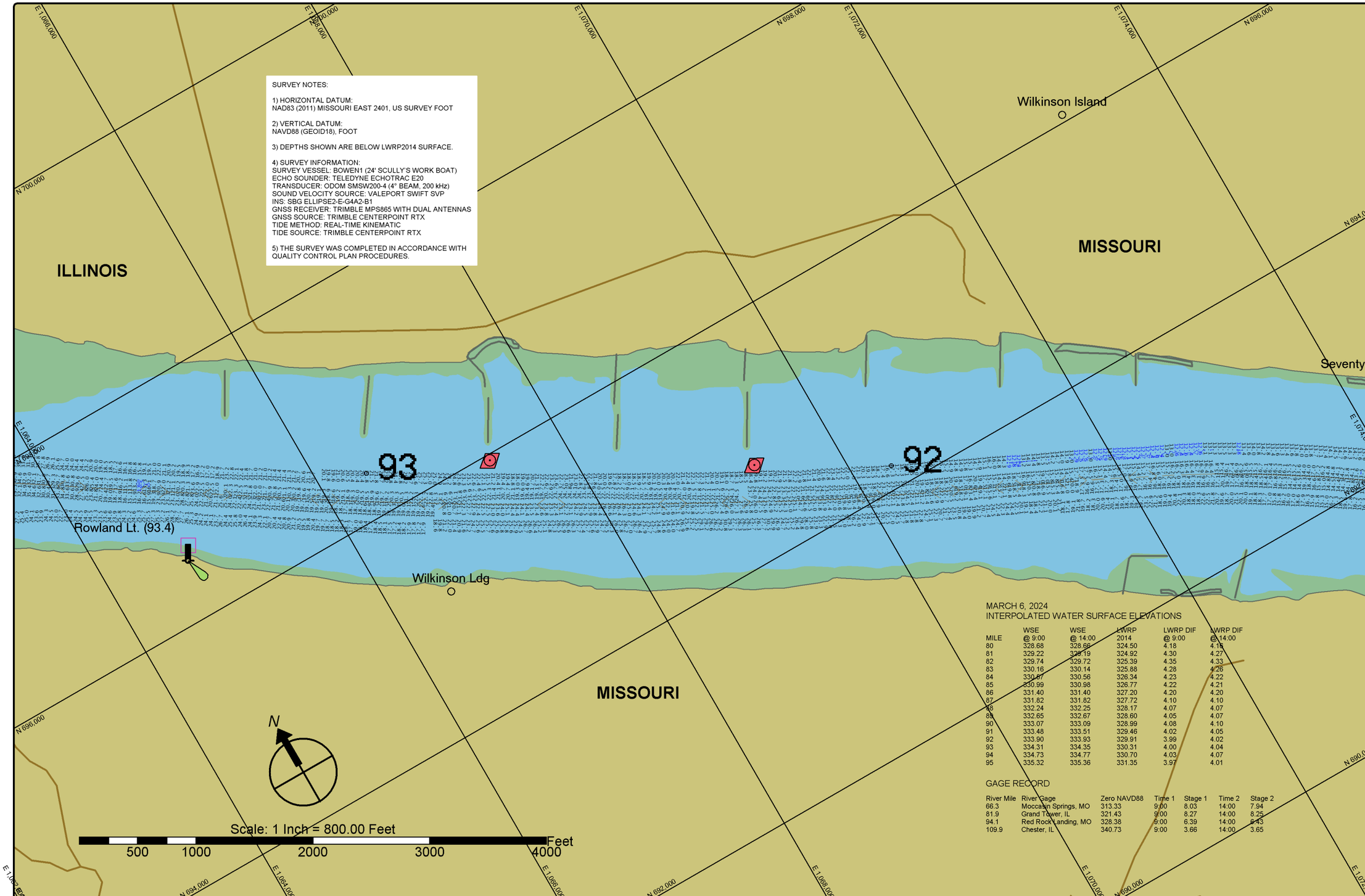
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 93.5 - 95.8

SHEET NO.
1 OF 1



SURVEY NOTES:

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

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

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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.

MARCH 6, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
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81	329.22	329.19	324.92	4.30	4.27
82	329.74	329.72	325.39	4.35	4.33
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84	330.67	330.56	326.34	4.23	4.22
85	330.99	330.98	326.77	4.22	4.21
86	331.40	331.40	327.20	4.20	4.20
87	331.82	331.82	327.72	4.10	4.10
88	332.24	332.25	328.17	4.07	4.07
89	332.65	332.67	328.60	4.05	4.07
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91	333.48	333.51	329.46	4.02	4.05
92	333.90	333.93	329.91	3.99	4.02
93	334.31	334.35	330.31	4.00	4.04
94	334.73	334.77	330.70	4.03	4.07
95	335.32	335.36	331.35	3.97	4.01

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River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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94.1	Red Rock Landing, MO	328.38	9:00	6.39	14:00	6.43
109.9	Chester, IL	340.73	9:00	3.66	14:00	3.65

St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 095_075C0624
REQUEST NO.: W912P923F0086

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 91.2 - 93.5

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.

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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

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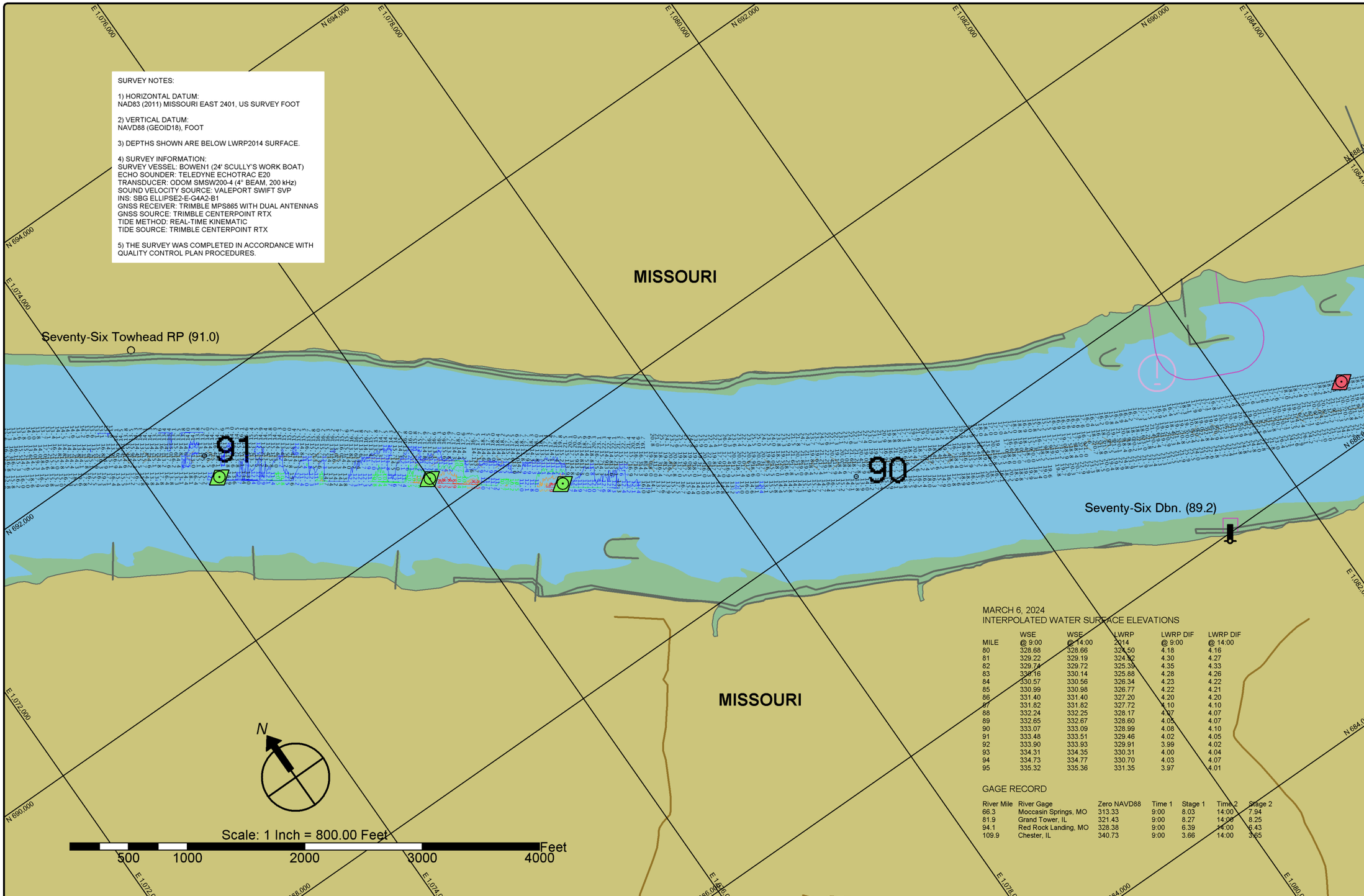

MARCH 6, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
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82	329.74	329.72	325.39	4.35	4.33
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84	330.57	330.56	326.34	4.23	4.22
85	330.99	330.98	326.77	4.22	4.21
86	331.40	331.40	327.20	4.20	4.20
87	331.82	331.82	327.72	4.10	4.10
88	332.24	332.25	328.17	4.07	4.07
89	332.65	332.67	328.60	4.05	4.07
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92	333.90	333.93	329.91	3.99	4.02
93	334.31	334.35	330.31	4.00	4.04
94	334.73	334.77	330.70	4.03	4.07
95	335.32	335.36	331.35	3.97	4.01

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
66.3	Moccasin Springs, MO	313.33	9:00	8.03	14:00	7.94
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94.1	Red Rock Landing, MO	328.38	9:00	6.39	14:00	6.43
109.9	Chester, IL	340.73	9:00	3.66	14:00	3.65

St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 095_075C0624
REQUEST NO.: W912P923F0086

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

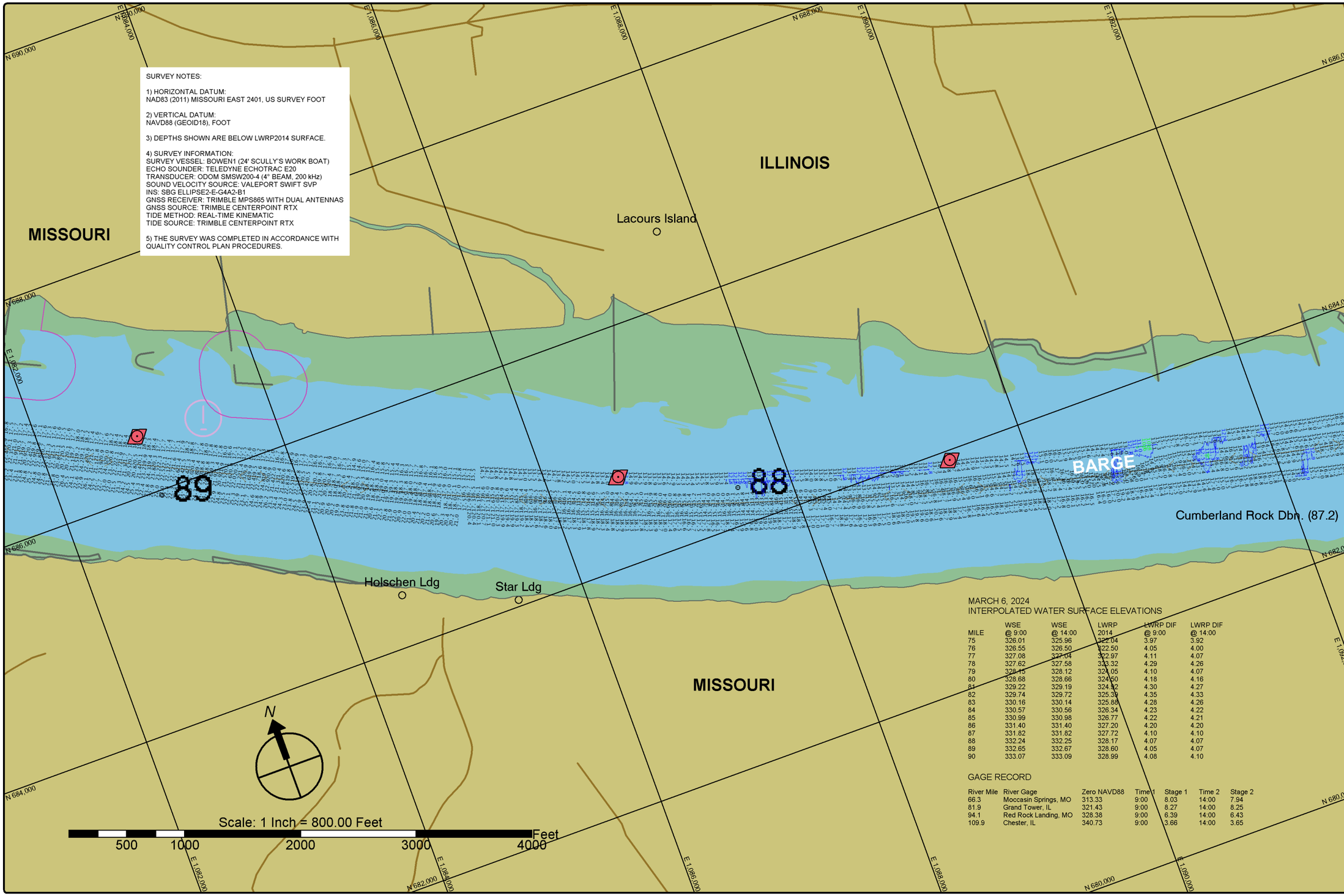
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 89.1 - 91.2

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.

MARCH 6, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
75	326.01	325.96	322.04	3.97	3.92
76	326.55	326.50	322.50	4.05	4.00
77	327.08	327.04	322.97	4.11	4.07
78	327.62	327.58	323.32	4.29	4.26
79	328.15	328.12	324.05	4.10	4.07
80	328.68	328.66	324.50	4.18	4.16
81	329.22	329.19	324.92	4.30	4.27
82	329.74	329.72	325.39	4.35	4.33
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84	330.57	330.56	326.34	4.23	4.22
85	330.99	330.98	326.77	4.22	4.21
86	331.40	331.40	327.20	4.20	4.20
87	331.82	331.82	327.72	4.10	4.10
88	332.24	332.25	328.17	4.07	4.07
89	332.65	332.67	328.60	4.05	4.07
90	333.07	333.09	328.99	4.08	4.10

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
66.3	Moccasin Springs, MO	313.33	9:00	8.03	14:00	7.94
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94.1	Red Rock Landing, MO	328.38	9:00	6.39	14:00	6.43
109.9	Chester, IL	340.73	9:00	3.66	14:00	3.65

St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 095_075C0624
REQUEST NO.: W912P923F0086

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

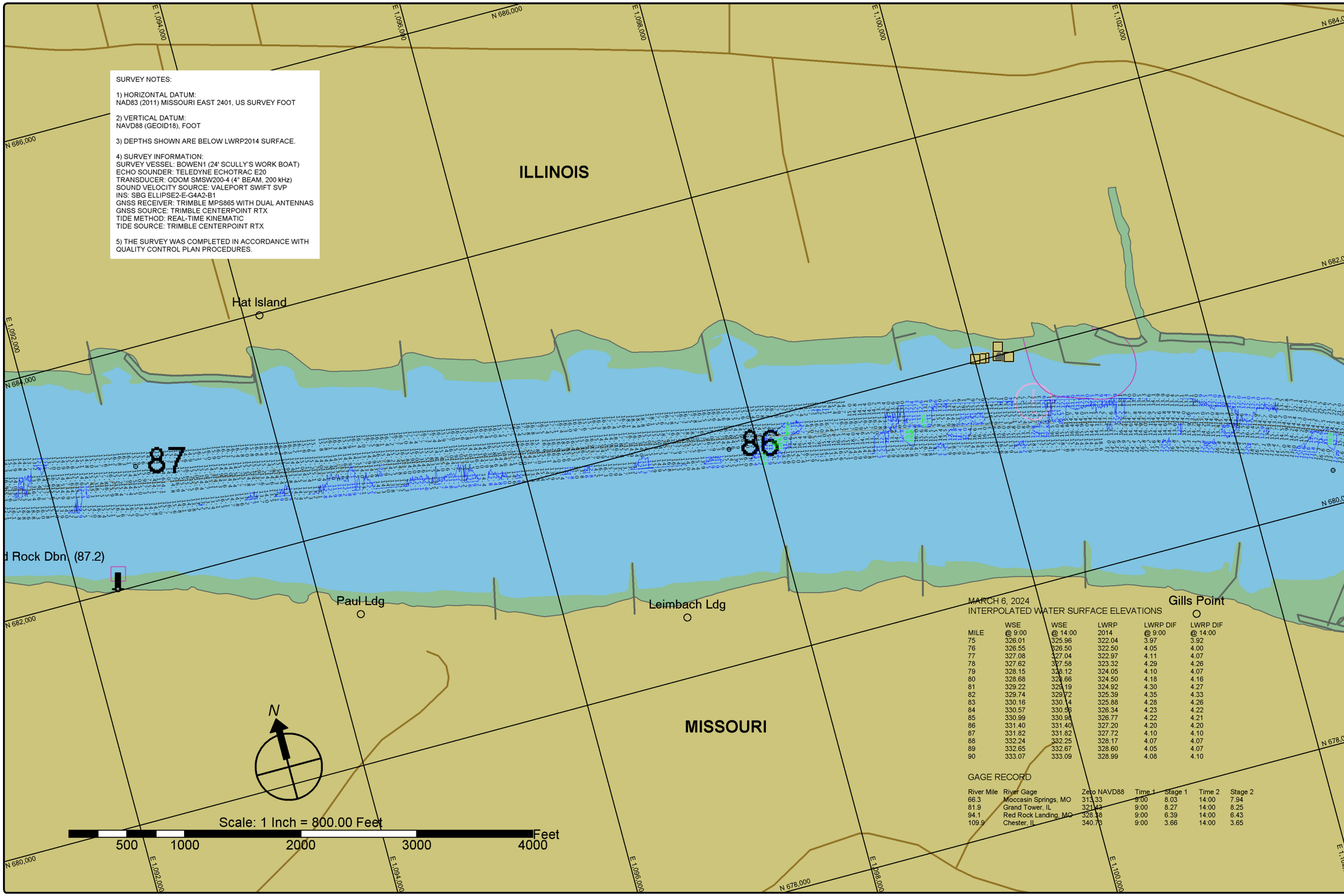
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 87.1 - 89.1

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.

MARCH 6, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
75	326.01	325.96	322.04	3.97	3.92
76	326.55	326.50	322.50	4.05	4.00
77	327.08	327.04	322.97	4.11	4.07
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109.9	Chester, IL	340.73	9:00	3.66	14:00	3.65

St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 099_075C0624
REQUEST NO.: W912P923F0086

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 85.0 - 87.1

SHEET NO.
1 OF 1

SURVEY NOTES:

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

2) VERTICAL DATUM:
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TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

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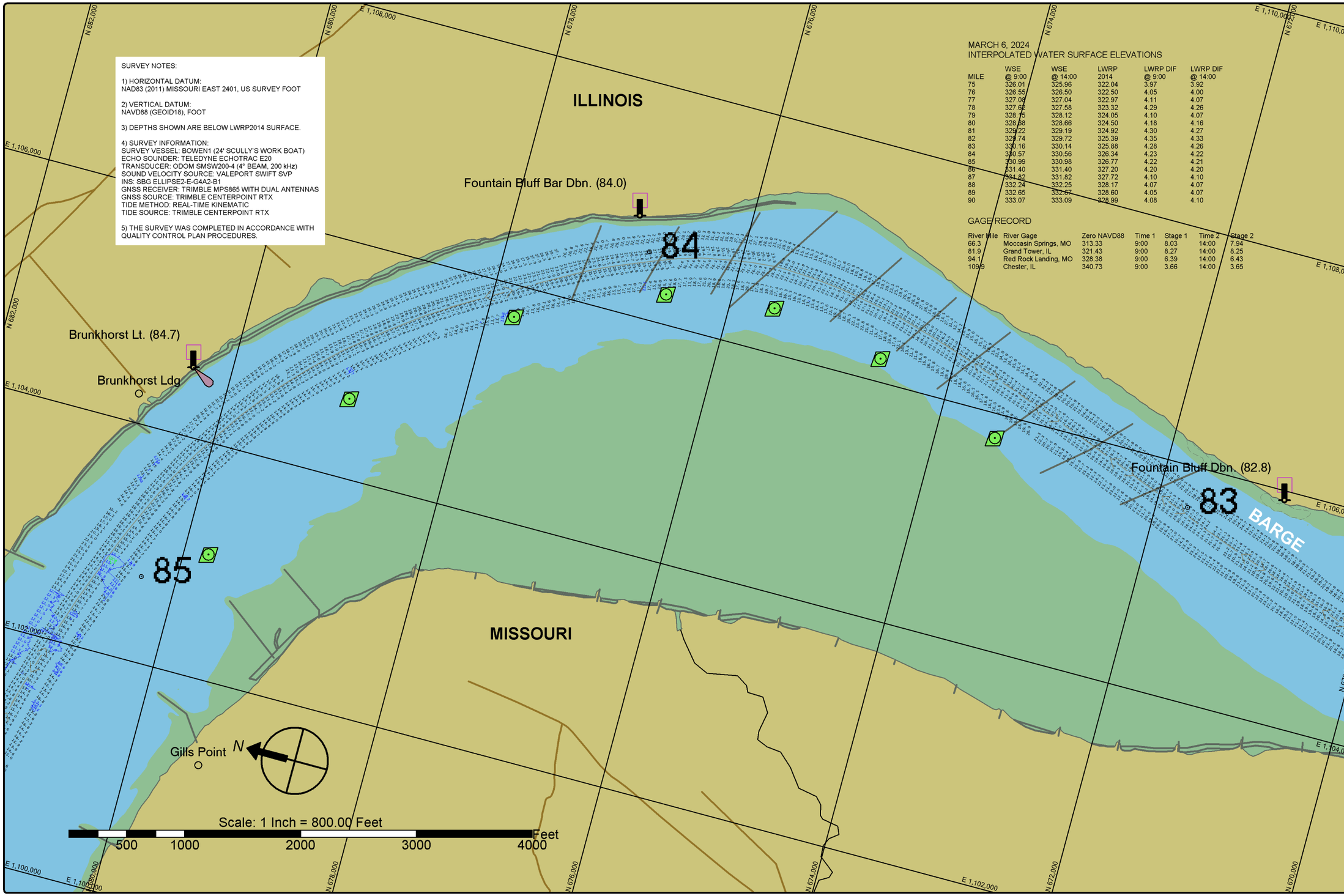

MARCH 6, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
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GAGE RECORD

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109.9	Chester, IL	340.73	9:00	3.66	14:00	3.65

St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 095_075C0624
REQUEST NO.: W912P923F0086

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 MEDAR DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 82.7 - 85.0

SHEET NO.
1 OF 1

SURVEY NOTES:

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

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

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GNSS SOURCE: TRIMBLE CENTERPOINT RTX
TIDE METHOD: REAL-TIME KINEMATIC
TIDE SOURCE: TRIMBLE CENTERPOINT RTX

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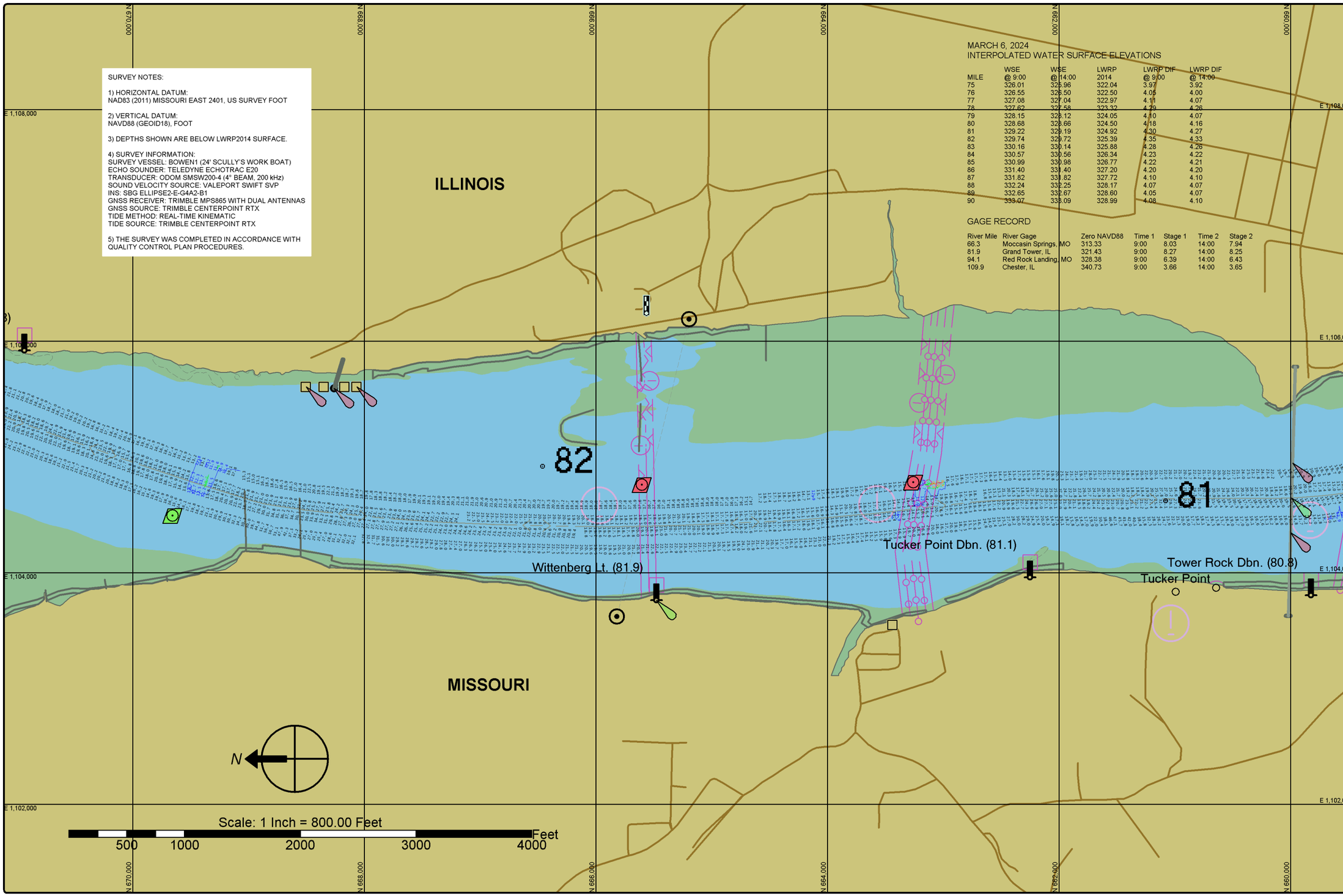
MARCH 6, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
75	326.01	325.96	322.04	3.97	3.92
76	326.55	326.50	322.50	4.05	4.00
77	327.08	327.04	322.97	4.11	4.07
78	327.62	327.58	323.32	4.29	4.26
79	328.15	328.12	324.05	4.10	4.07
80	328.68	328.66	324.50	4.18	4.16
81	329.22	329.19	324.92	4.30	4.27
82	329.74	329.72	325.39	4.35	4.33
83	330.16	330.14	325.88	4.28	4.26
84	330.57	330.56	326.34	4.23	4.22
85	330.99	330.98	326.77	4.22	4.21
86	331.40	331.40	327.20	4.20	4.20
87	331.82	331.82	327.72	4.10	4.10
88	332.24	332.25	328.17	4.07	4.07
89	332.65	332.67	328.60	4.05	4.07
90	333.07	333.09	328.99	4.08	4.10

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
66.3	Moccasin Springs, MO	313.33	9:00	8.03	14:00	7.94
81.9	Grand Tower, IL	321.43	9:00	8.27	14:00	8.25
94.1	Red Rock Landing, MO	328.38	9:00	6.39	14:00	6.43
109.9	Chester, IL	340.73	9:00	3.66	14:00	3.65



St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 095_075C0624
REQUEST NO.: W912P923F0086

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 80.7 - 82.7

SHEET NO.
1 OF 1

SURVEY NOTES:

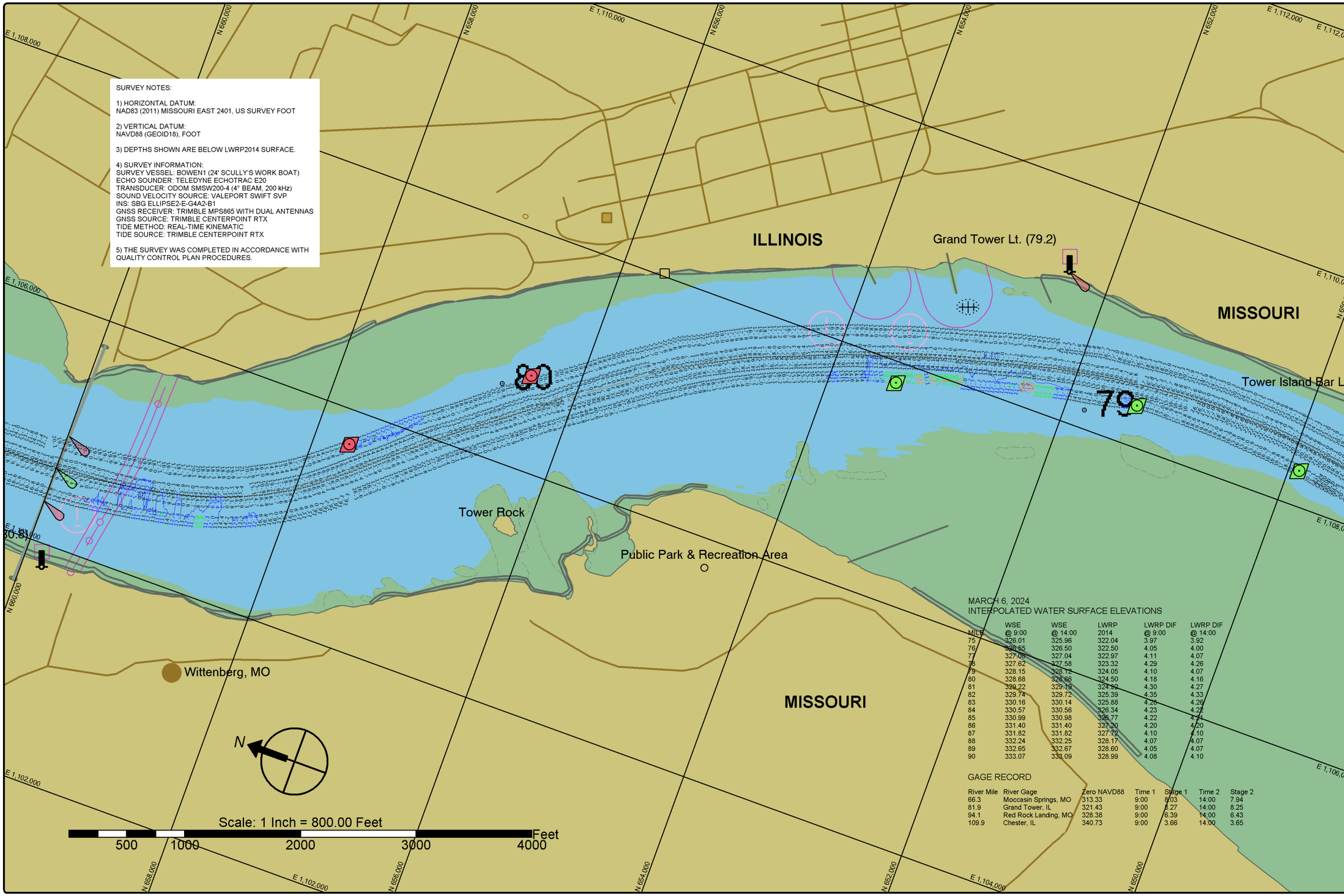
1) HORIZONTAL DATUM:
NAD83 (2011) MISSOURI EAST 2401, US SURVEY FOOT

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.



MARCH 6, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
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80	328.68	328.66	324.50	4.18	4.16
81	329.22	329.19	324.92	4.30	4.27
82	329.74	329.72	325.39	4.35	4.33
83	330.16	330.14	325.88	4.28	4.26
84	330.57	330.56	326.34	4.23	4.22
85	330.99	330.98	326.77	4.22	4.21
86	331.40	331.40	327.20	4.20	4.20
87	331.82	331.82	327.72	4.10	4.10
88	332.24	332.25	328.17	4.07	4.07
89	332.65	332.67	328.60	4.05	4.07
90	333.07	333.09	328.99	4.08	4.10

GAGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
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109.9	Chester, IL	340.73	9:00	3.66	14:00	3.65

St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 095_075C0624
REQUEST NO.: W912P923F0086

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 78.6 - 80.7

SHEET NO.
1 OF 1

SURVEY NOTES:

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MARCH 6, 2024
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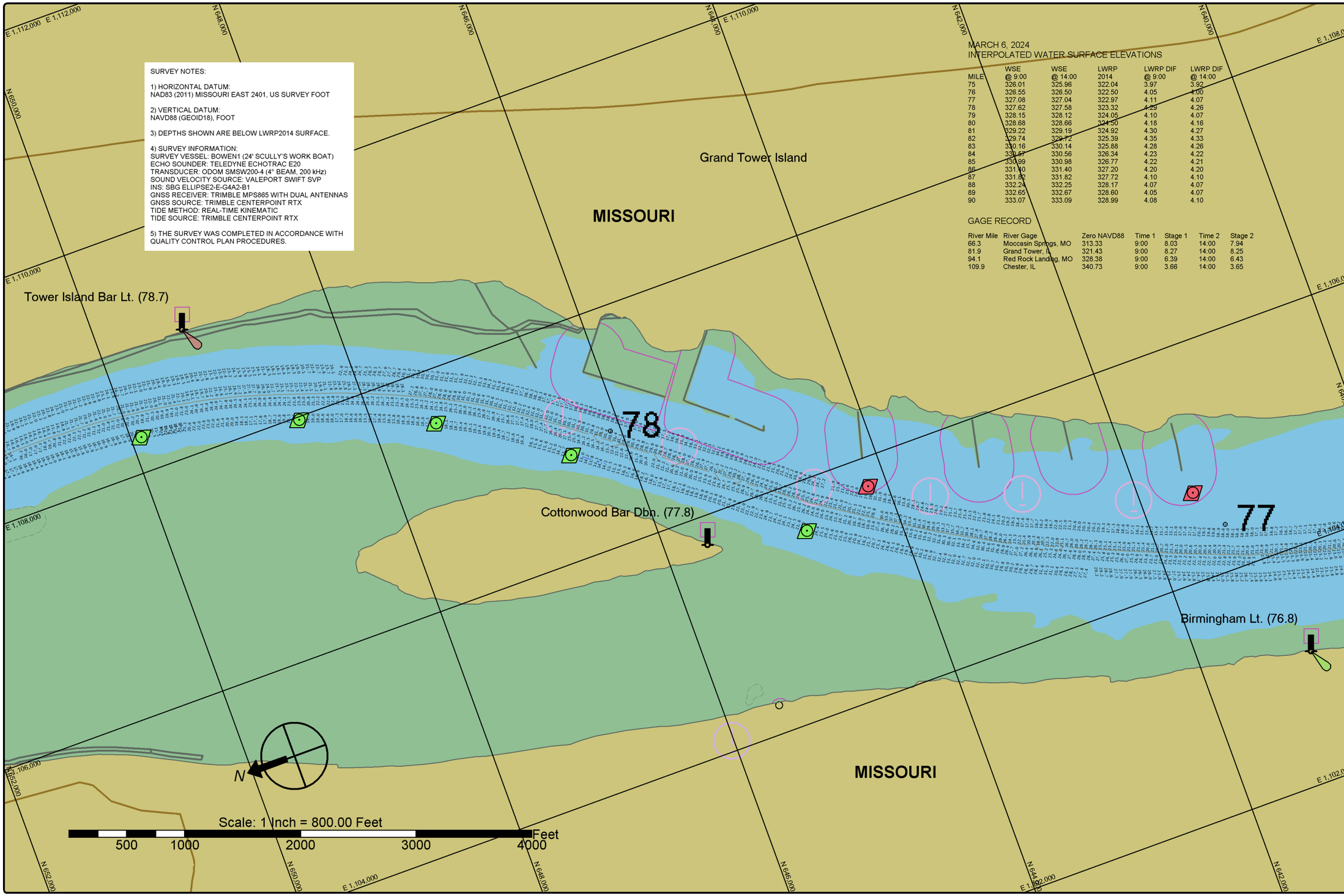

St. Louis District

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SCALE:
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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 MEDIAN DRIVE
CAPE GIRARDEAU, MO 63701

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 76.8 - 78.6

SHEET NO.
1 OF 1

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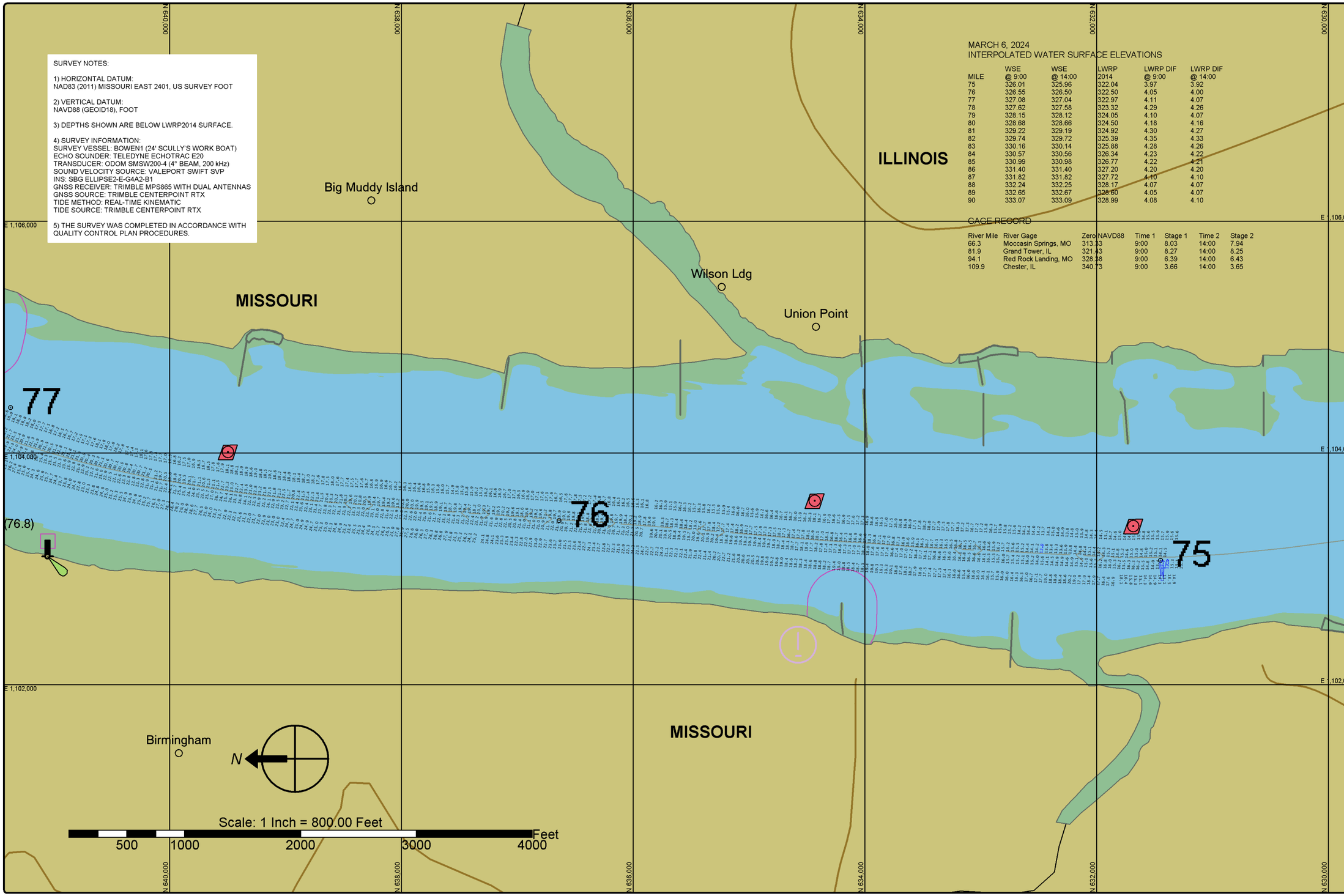

St. Louis District

DATES OF SURVEY:
MARCH 6, 2024

FILE NO.: 095_075C0624
REQUEST NO.: W912P923F0086

SCALE:
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UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 74.7 - 76.8

SHEET NO.
1 OF 1