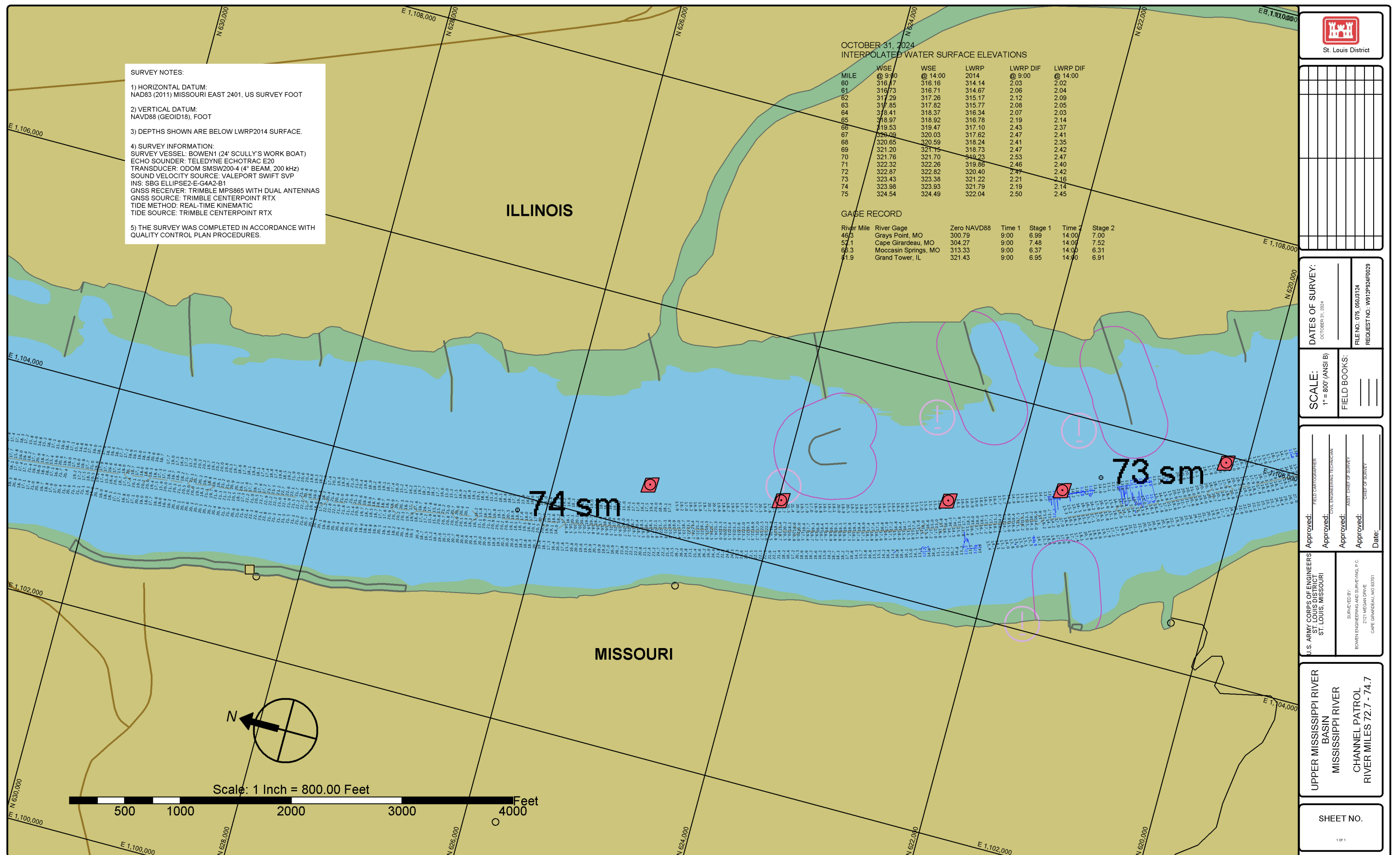
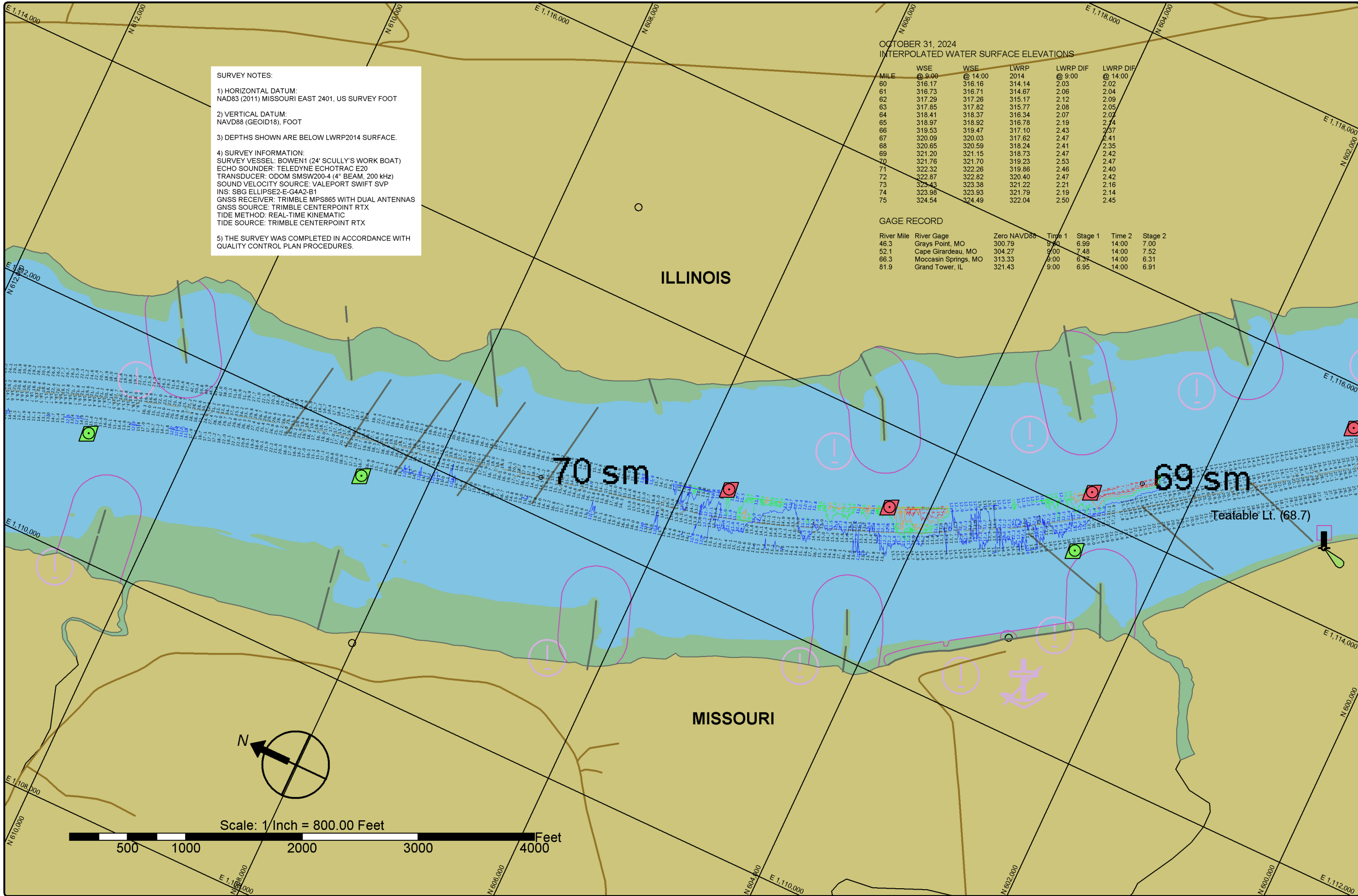






SURVEY NOTES:

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.

**OCTOBER 31, 2024
INTERPOLATED WATER SURFACE ELEVATIONS**

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
60	316.17	316.16	314.14	2.03	2.02
61	316.73	316.71	314.67	2.06	2.04
62	317.29	317.26	315.17	2.12	2.09
63	317.85	317.82	315.77	2.08	2.05
64	318.41	318.37	316.34	2.07	2.03
65	318.97	318.92	316.78	2.19	2.14
66	319.53	319.47	317.10	2.43	2.37
67	320.09	320.03	317.62	2.47	2.41
68	320.65	320.59	318.24	2.41	2.35
69	321.20	321.15	318.73	2.47	2.42
70	321.76	321.70	319.23	2.53	2.47
71	322.32	322.26	319.86	2.46	2.40
72	322.87	322.82	320.40	2.47	2.42
73	323.43	323.38	321.22	2.21	2.16
74	323.98	323.93	321.79	2.19	2.14
75	324.54	324.49	322.04	2.50	2.45

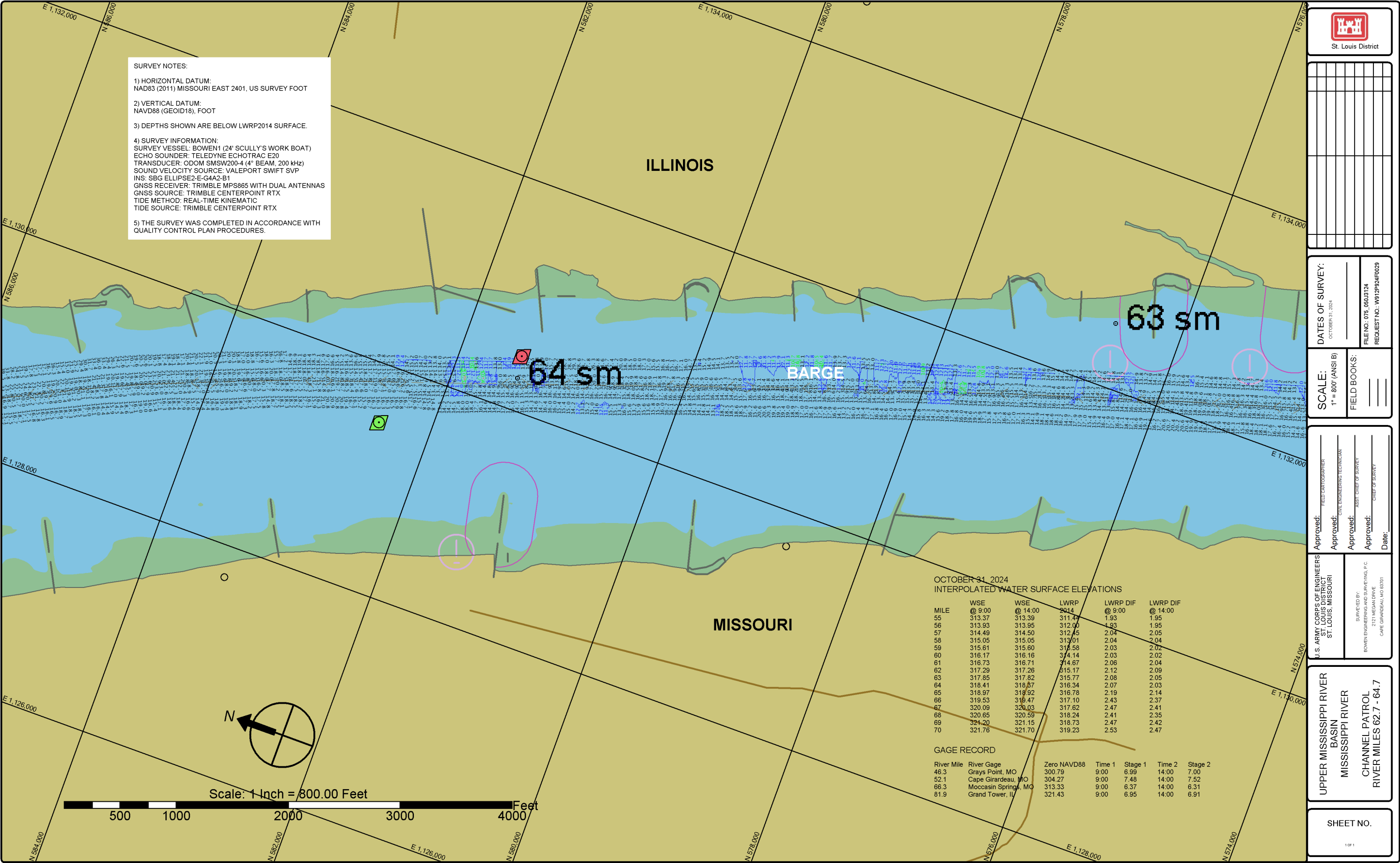
GAGE RECORD

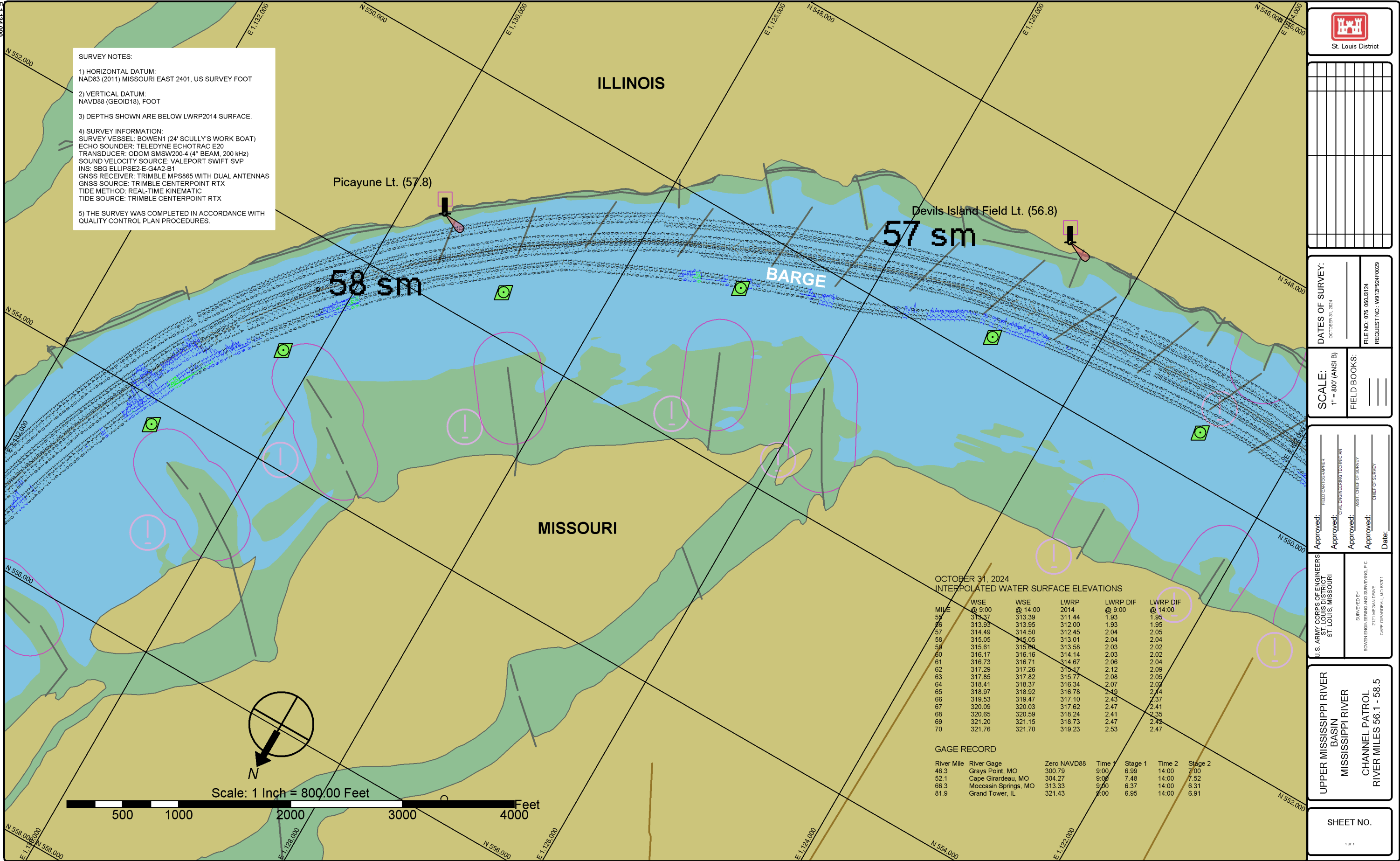
River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
46.3	Grays Point, MO	300.79	9:00	6.99	14:00	7.00
52.1	Cape Girardeau, MO	304.27	9:00	7.48	14:00	7.52
66.3	Moccasin Springs, MO	313.33	9:00	6.37	14:00	6.31
81.9	Grand Tower, IL	321.43	9:00	6.95	14:00	6.91

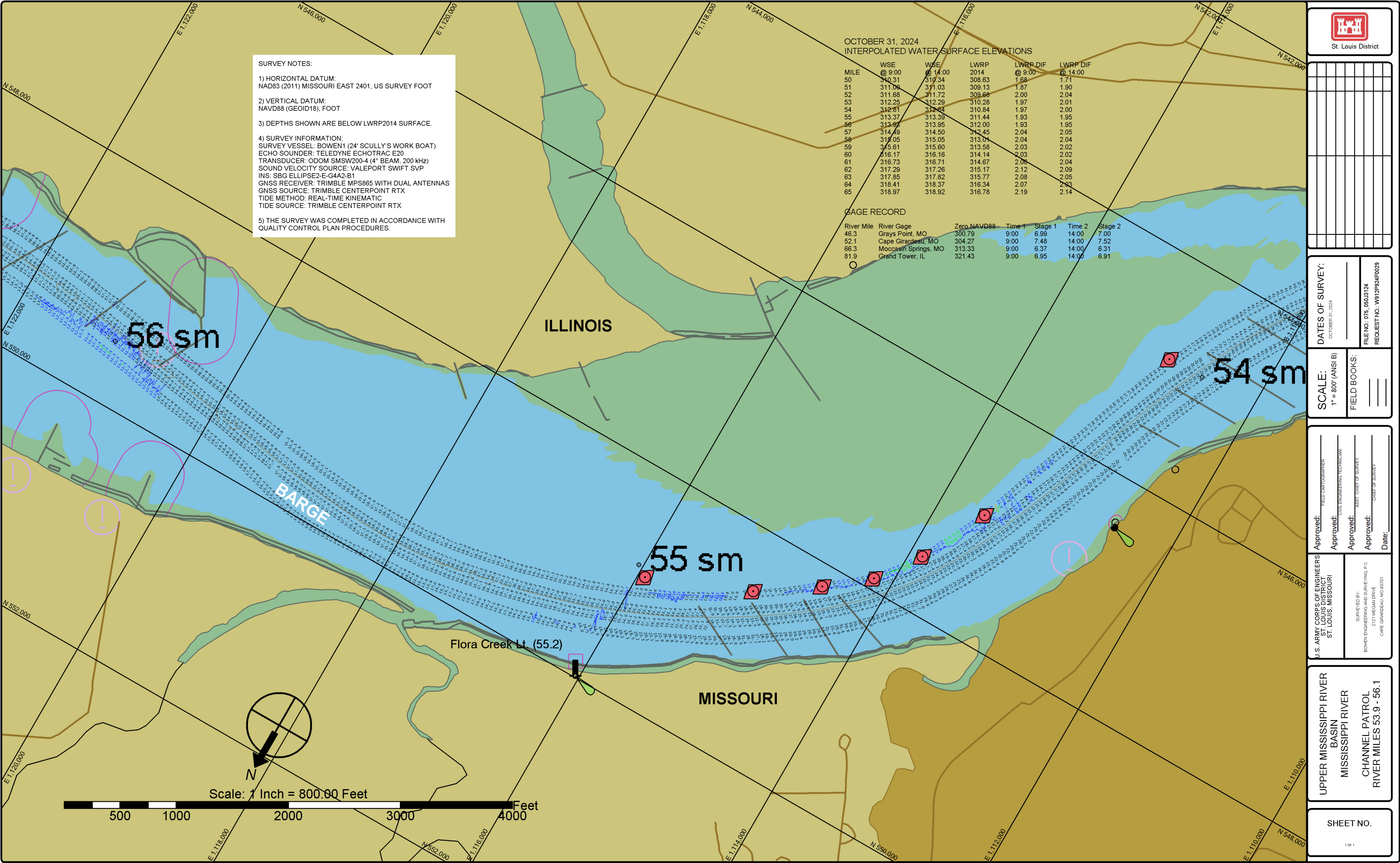


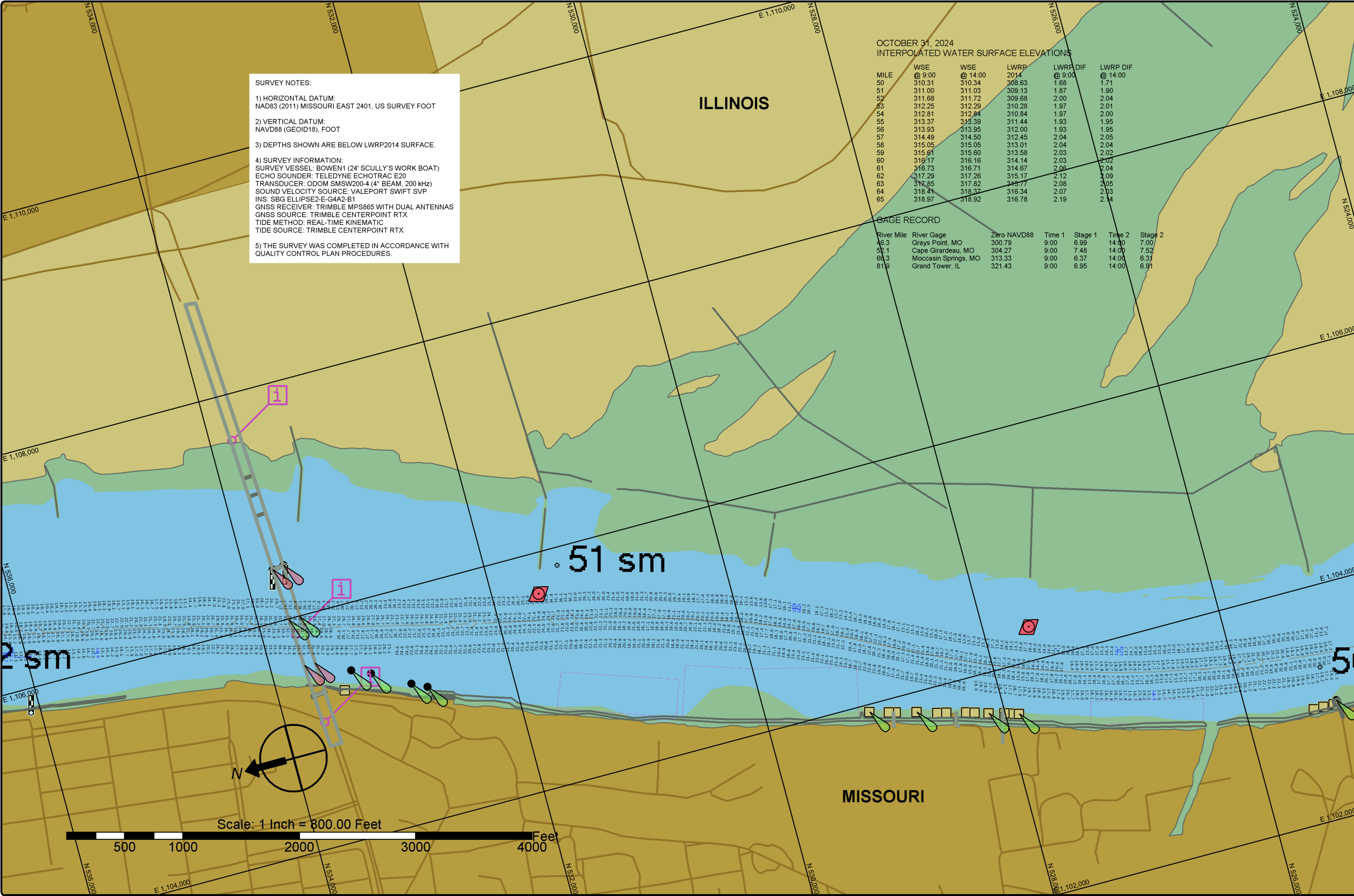
St. Louis District

DATES OF SURVEY: OCTOBER 31, 2024		FILE NO.: 075_0603124 REQUEST NO.: W912P924F0029	
SCALE: 1" = 800' (ANSI B)		FIELD BOOKS: _____ _____	
Approved: _____ FIELD CATEGORIST		Approved: _____ CIVIL ENGINEERING TECHNICIAN	
Approved: _____ AST. CHIEF OF SURVEY		Approved: _____ CHIEF OF SURVEY	
Date: _____		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 63301	
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER CHANNEL PATROL RIVER MILES 68.7 - 70.7			
SHEET NO. 1 OF 1			









SURVEY NOTES:

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

2) VERTICAL DATUM:
NAVD88 (GEOID18), FOOT

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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 MP5865 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.

OCTOBER 31, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 14:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 14:00
50	310.31	310.34	308.63	1.68	1.71
51	311.00	311.03	309.13	1.87	1.90
52	311.68	311.72	309.68	2.00	2.04
53	312.25	312.29	310.28	1.97	2.01
54	312.81	312.84	310.84	1.97	2.00
55	313.37	313.39	311.44	1.93	1.95
56	313.93	313.95	312.00	1.93	1.95
57	314.49	314.50	312.45	2.04	2.05
58	315.05	315.05	313.01	2.04	2.04
59	315.61	315.60	313.58	2.03	2.02
60	316.17	316.16	314.14	2.03	2.02
61	316.73	316.71	314.67	2.06	2.04
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63	317.85	317.82	315.77	2.08	2.05
64	318.41	318.37	316.34	2.07	2.03
65	318.97	318.92	316.78	2.19	2.14

GAUGE RECORD

River Mile	River Gage	Zero NAVD88	Time 1	Stage 1	Time 2	Stage 2
46.3	Grays Point, MO	300.79	9:00	6:99	14:00	7:00
52.1	Cape Girardeau, MO	304.27	9:00	7:48	14:00	7:52
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St. Louis District

DATES OF SURVEY: OCTOBER 31, 2024	
FILE NO.: 075_0603124 REQUEST NO.: W91P924F0029	
SCALE: 1" = 800' (ANSI B)	FIELD BOOKS: _____ _____
APPROVED: FIELD CATEGORIST _____ CIVIL ENGINEERING TECHNICIAN _____ ASST. CHIEF OF SURVEY _____ CHIEF OF SURVEY _____ Date: _____	APPROVED: 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 63031
UPPER MISSISSIPPI RIVER BASIN MISSISSIPPI RIVER CHANNEL PATROL RIVER MILES 50.0 - 51.8	
SHEET NO. 1 OF 1	