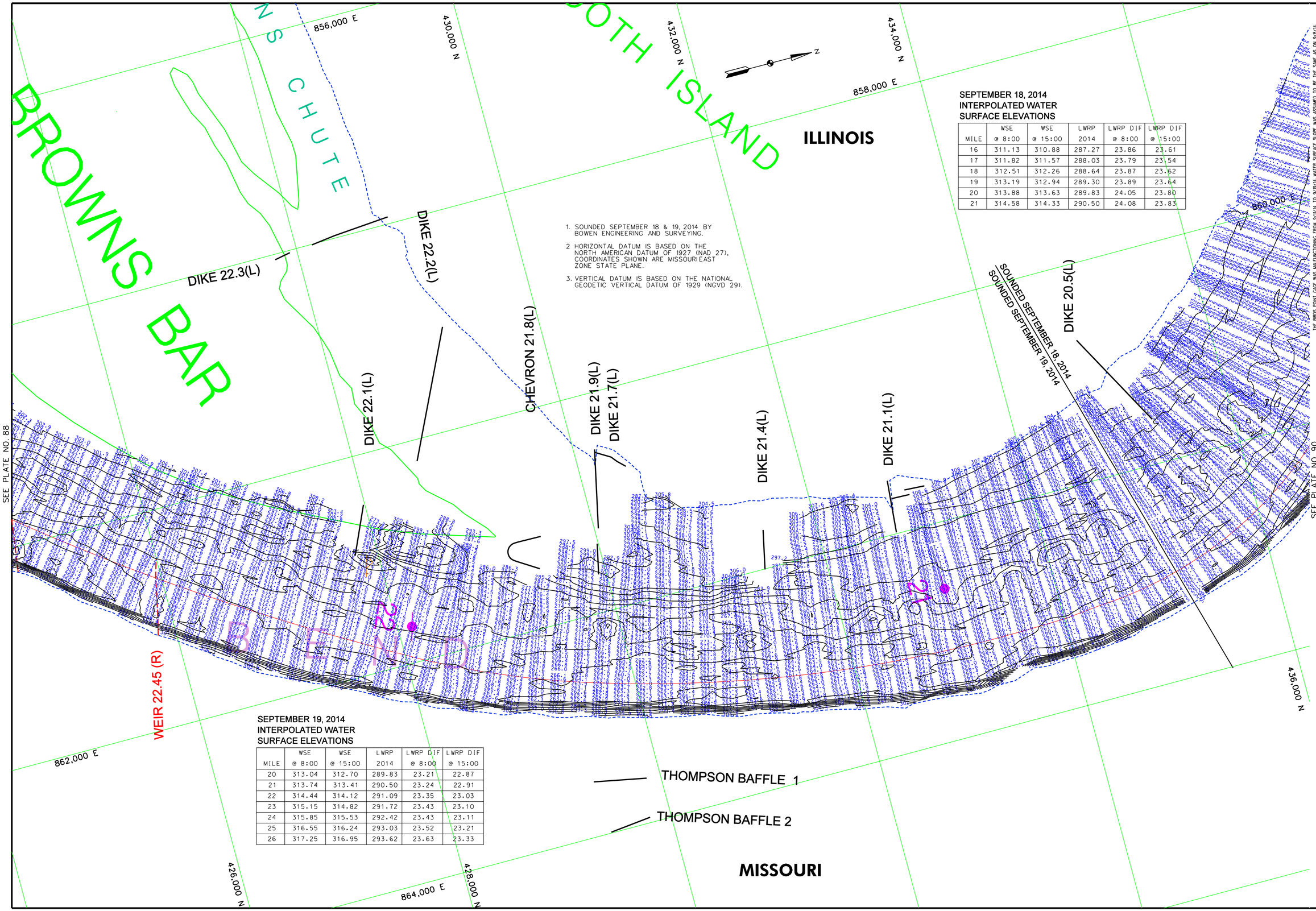


1. SOUNDED SEPTEMBER 18 & 19, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

SEPTEMBER 18, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
16	311.13	310.88	287.27	23.86	23.61
17	311.82	311.57	288.03	23.79	23.54
18	312.51	312.26	288.64	23.87	23.62
19	313.19	312.94	289.30	23.89	23.64
20	313.88	313.63	289.83	24.05	23.80
21	314.58	314.33	290.50	24.08	23.83

SEPTEMBER 19, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
20	313.04	312.70	289.83	23.21	22.87
21	313.74	313.41	290.50	23.24	22.91
22	314.44	314.12	291.09	23.35	23.03
23	315.15	314.82	291.72	23.43	23.10
24	315.85	315.53	292.42	23.43	23.11
25	316.55	316.24	293.03	23.52	23.21
26	317.25	316.95	293.62	23.63	23.33

US Army Corps of Engineers
St. Louis District

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
18 SEP 2014	x	34.02(8:00) 33.77(15:00)	19.85(8:00) 19.65(15:00)	x
19 SEP 2014	x	33.18(8:00) 32.84(15:00)	19.05(8:00) 18.76(15:00)	x

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 18 & 19, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE/TIME####
File name: ####DESIGNFILE\BSPCOFA\TOWN###

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

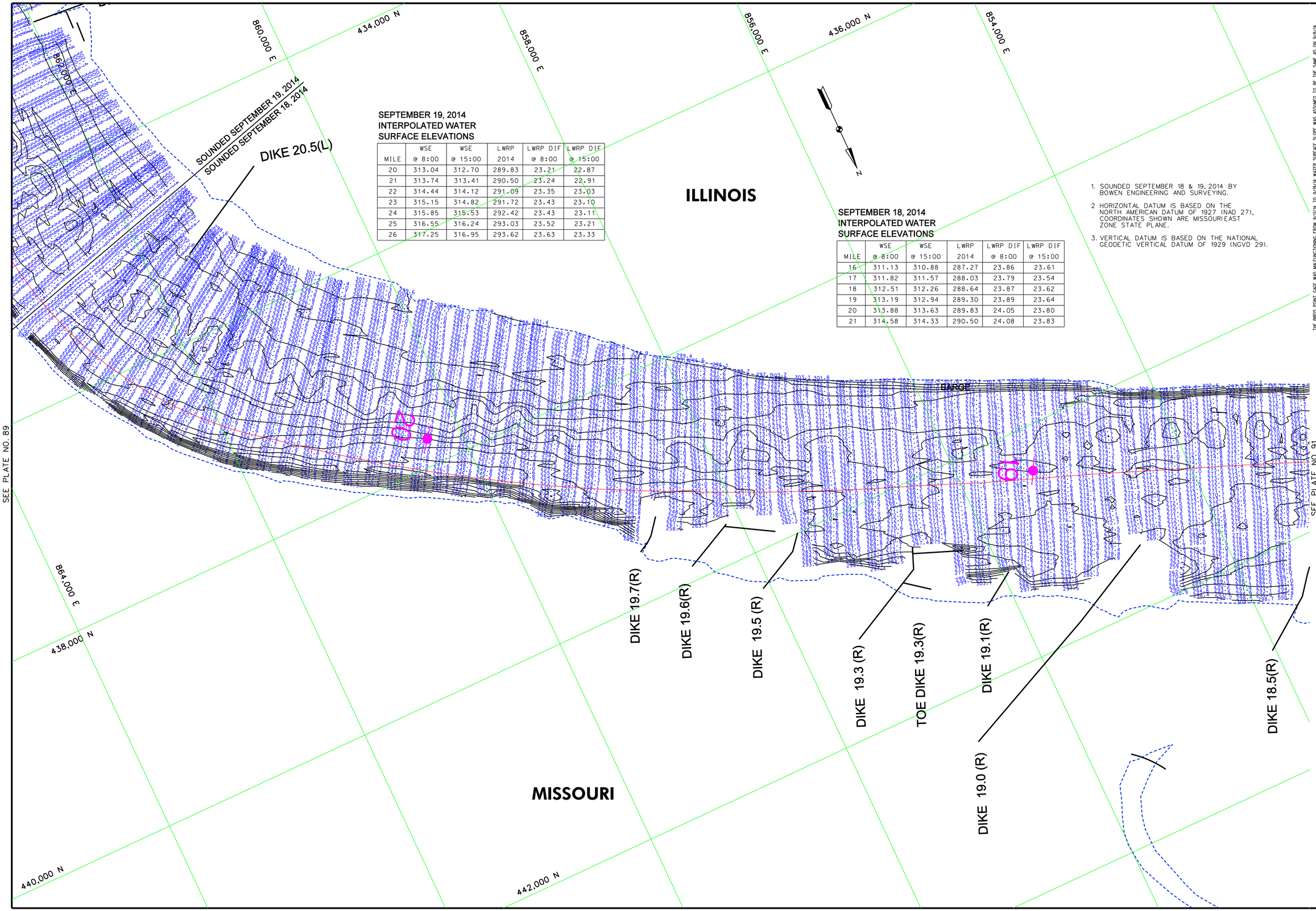
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

HYDROGRAPHIC SURVEYS
RIVER MILES 20.5 – 22.5

120 400 0 0 120 240 METERS
400 800 FEET

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ST. LOUIS DISTRICT, CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

PLATE NUMBER
89



SEPTEMBER 19, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
20	313.04	312.70	289.83	23.21	22.87
21	313.74	313.41	290.50	23.24	22.91
22	314.44	314.12	291.09	23.35	23.03
23	315.15	314.82	291.72	23.43	23.10
24	315.85	315.53	292.42	23.43	23.11
25	316.55	316.24	293.03	23.52	23.21
26	317.25	316.95	293.62	23.63	23.33

SEPTEMBER 18, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
16	311.13	310.88	287.27	23.86	23.61
17	311.82	311.57	288.03	23.79	23.54
18	312.51	312.26	288.64	23.87	23.62
19	313.19	312.94	289.30	23.89	23.64
20	313.88	313.63	289.83	24.05	23.80
21	314.58	314.33	290.50	24.08	23.83

1. SOUNDED SEPTEMBER 18 & 19, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
18 SEP 2014	x	34.02(8:00) 33.77(15:00)	19.85(8:00) 19.65(15:00)	x
19 SEP 2014	x	33.18(8:00) 32.84(15:00)	19.05(8:00) 18.76(15:00)	x

US Army Corps of Engineers
St. Louis District

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 18 & 19, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ##########DATE/TIME##########
File name: ##########DESIGNFILEDESCRIPTION##########

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

120 400 0 0 120 240 METERS
400 800 FEET

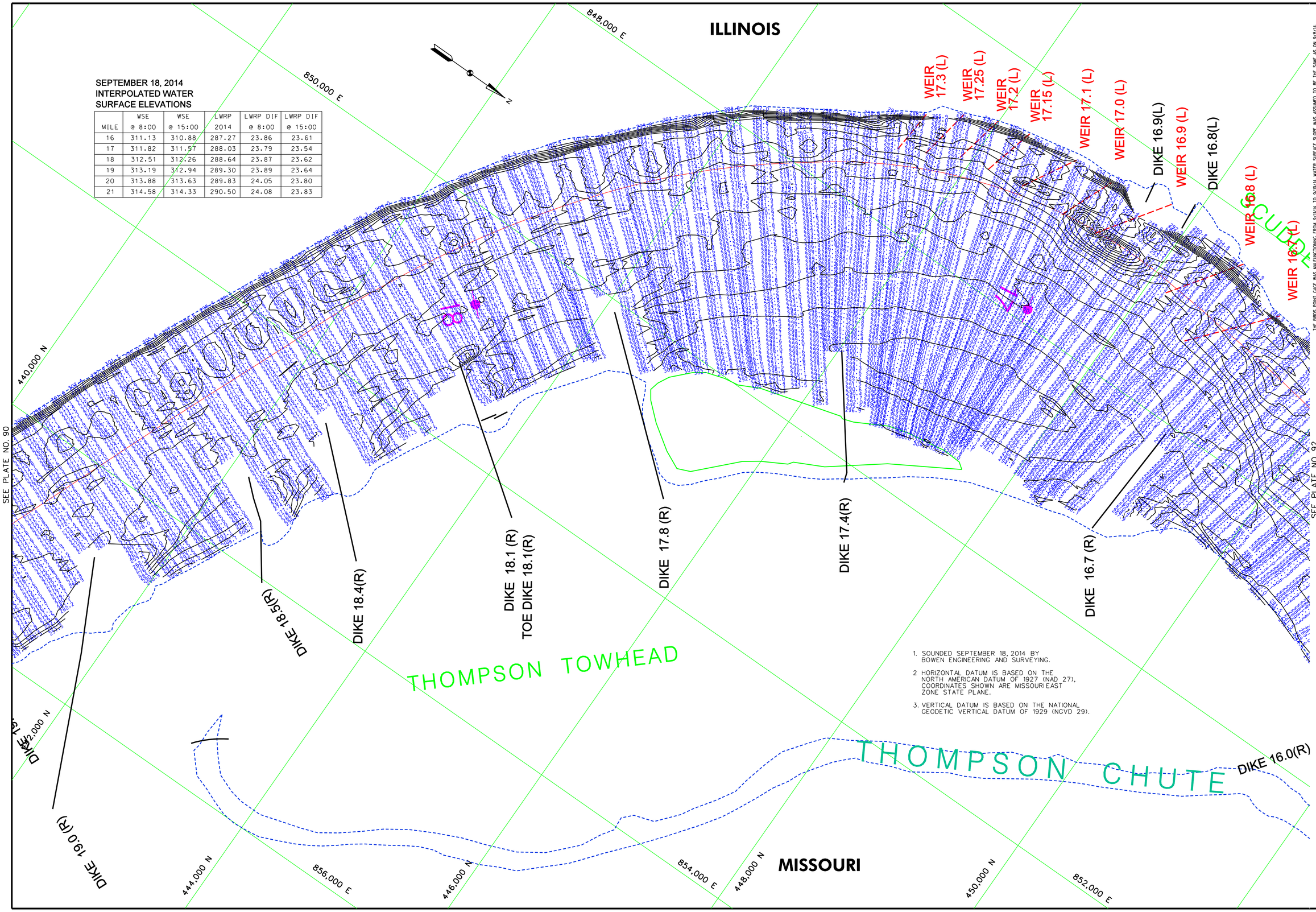
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY BOWEN ENGINEERING AT THE TIME SHOWN AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

HYDROGRAPHIC SURVEYS

RIVER MILES 18.7 – 20.5

PLATE NUMBER

90



MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
16	311.13	310.88	287.27	23.86	23.61
17	311.82	311.57	288.03	23.79	23.54
18	312.51	312.26	288.64	23.87	23.62
19	313.19	312.94	289.30	23.89	23.64
20	313.88	313.63	289.83	24.05	23.80
21	314.58	314.33	290.50	24.08	23.83

1. SOUNDED SEPTEMBER 18, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

US Army Corps of Engineers
St. Louis District

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
18 SEP 2014	x	34.02(8:00) 33.77(15:00)	19.85(8:00) 19.65(15:00)	x

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 18, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE-TIME####
File name: ####DESIGNFILEBRTPCFCATCH####

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

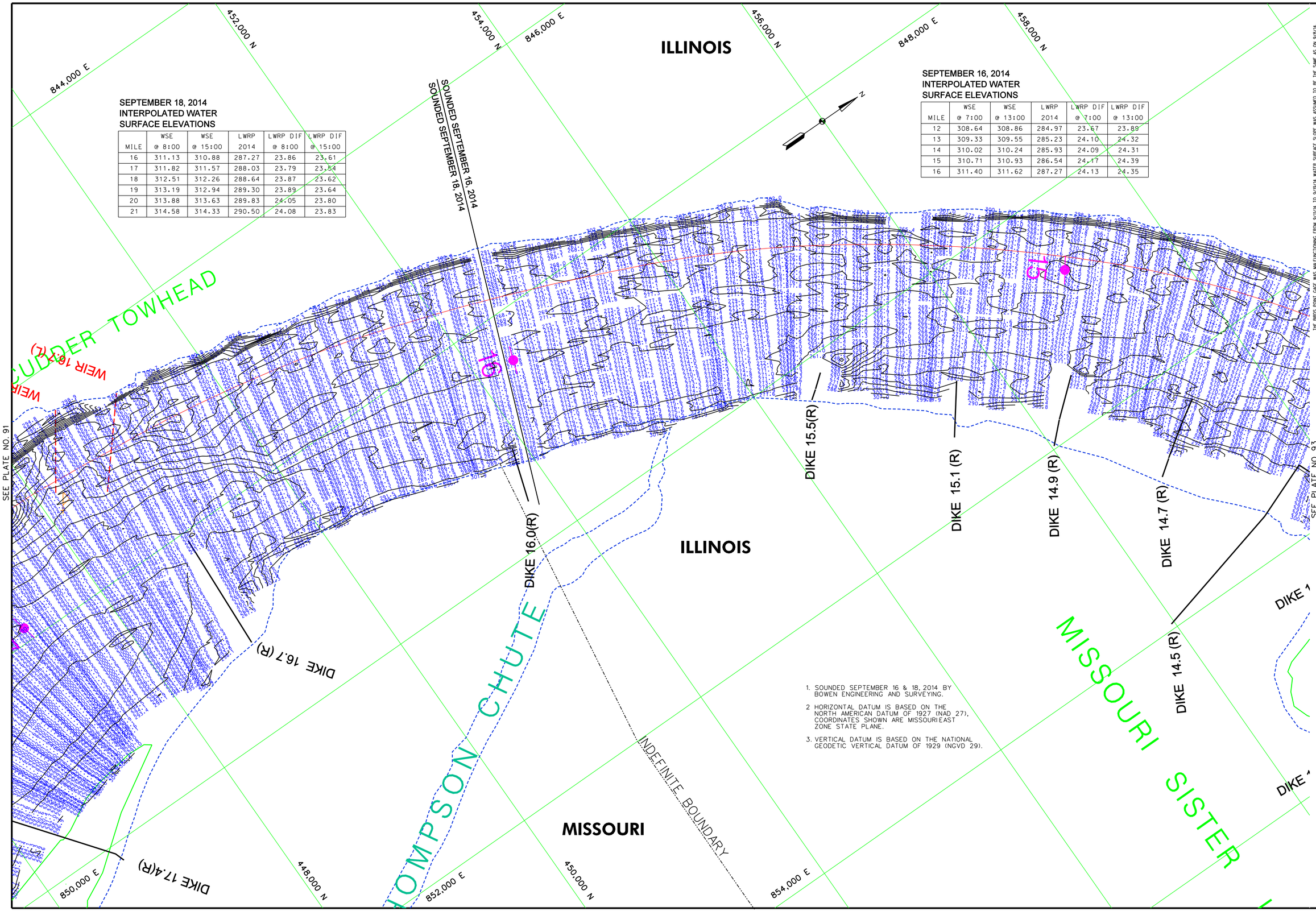
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS
800 FEET
120 0 120 400 0 400

THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND IS PRESENTED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

HYDROGRAPHIC SURVEYS
RIVER MILES 16.4 – 18.7

PLATE NUMBER
91



SEPTEMBER 18, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
16	311.13	310.88	287.27	23.86	23.61
17	311.82	311.57	288.03	23.79	23.54
18	312.51	312.26	288.64	23.87	23.62
19	313.19	312.94	289.30	23.89	23.64
20	313.88	313.63	289.83	24.05	23.80
21	314.58	314.33	290.50	24.08	23.83

SEPTEMBER 16, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
12	308.64	308.86	284.97	23.67	23.89
13	309.33	309.55	285.23	24.10	24.32
14	310.02	310.24	285.93	24.09	24.31
15	310.71	310.93	286.54	24.17	24.39
16	311.40	311.62	287.27	24.13	24.35

1. SOUNDED SEPTEMBER 16 & 18, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

US Army Corps of Engineers
St. Louis District

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
16 SEP 2014	x	34.29(7:00) 34.51(13:00)	x	x
18 SEP 2014	x	34.02(8:00) 33.77(15:00)	19.85(8:00) 19.65(15:00)	x

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 16 & 18, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE-TIME####
File name: ####DESIGNFILEBRTCFICATION####

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

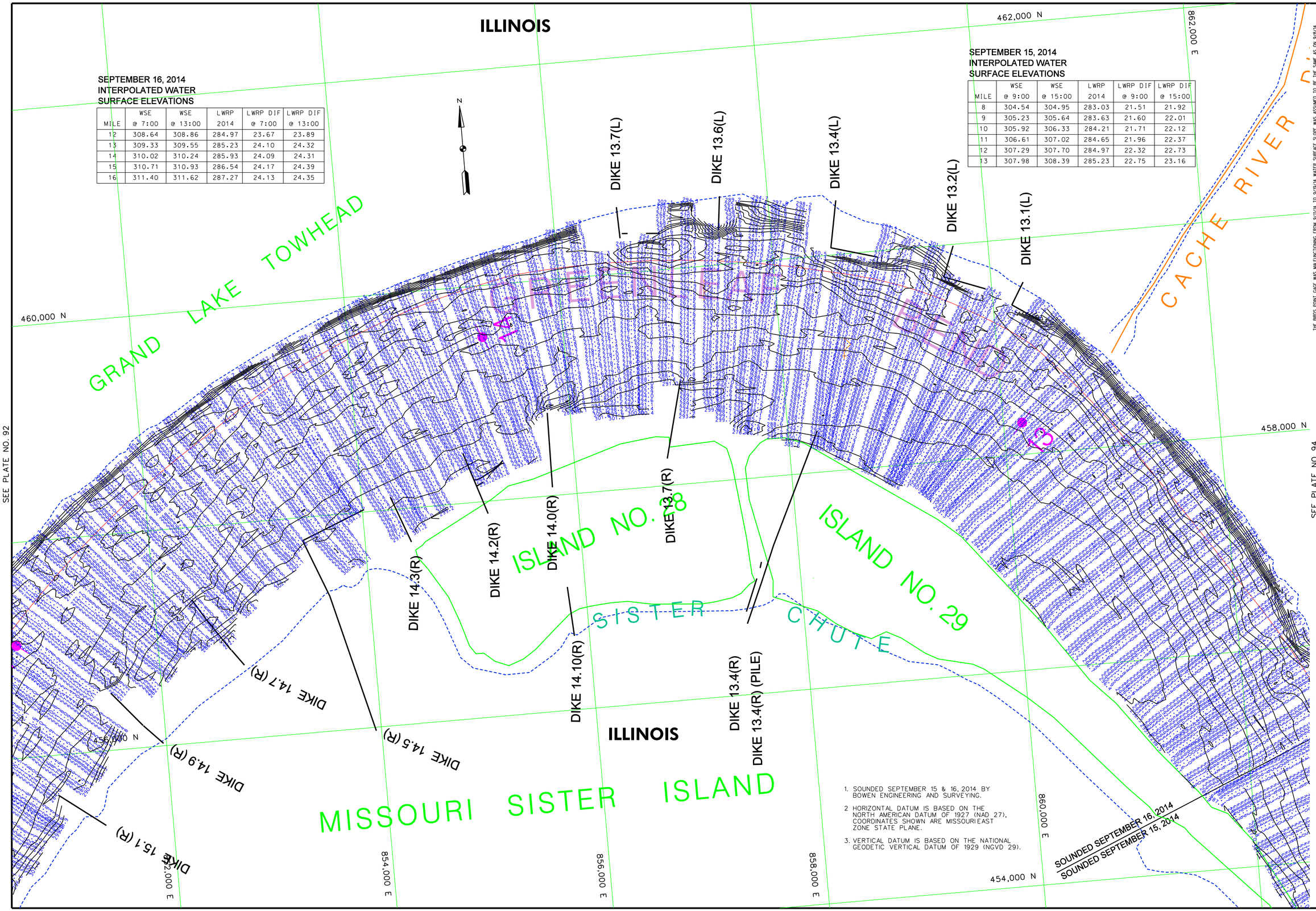
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS 120 0 120
800 FEET 400 0 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ST. LOUIS DISTRICT, CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 14.7 – 16.4

PLATE NUMBER
92



SEPTEMBER 16, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
12	308.64	308.86	284.97	23.67	23.89
13	309.33	309.55	285.23	24.10	24.32
14	310.02	310.24	285.93	24.09	24.31
15	310.71	310.93	286.54	24.17	24.39
16	311.40	311.62	287.27	24.13	24.35

SEPTEMBER 15, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
8	304.54	304.95	283.03	21.51	21.92
9	305.23	305.64	283.63	21.60	22.01
10	305.92	306.33	284.21	21.71	22.12
11	306.61	307.02	284.65	21.96	22.37
12	307.29	307.70	284.97	22.32	22.73
13	307.98	308.39	285.23	22.75	23.16

1. SOUNDED SEPTEMBER 15 & 16, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
15 SEP 2014	x	32.949(00) 33.35(45:00)	x	x
16 SEP 2014	x	34.297(00) 34.51(33:00)	x	x

US Army Corps of Engineers
St. Louis District

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

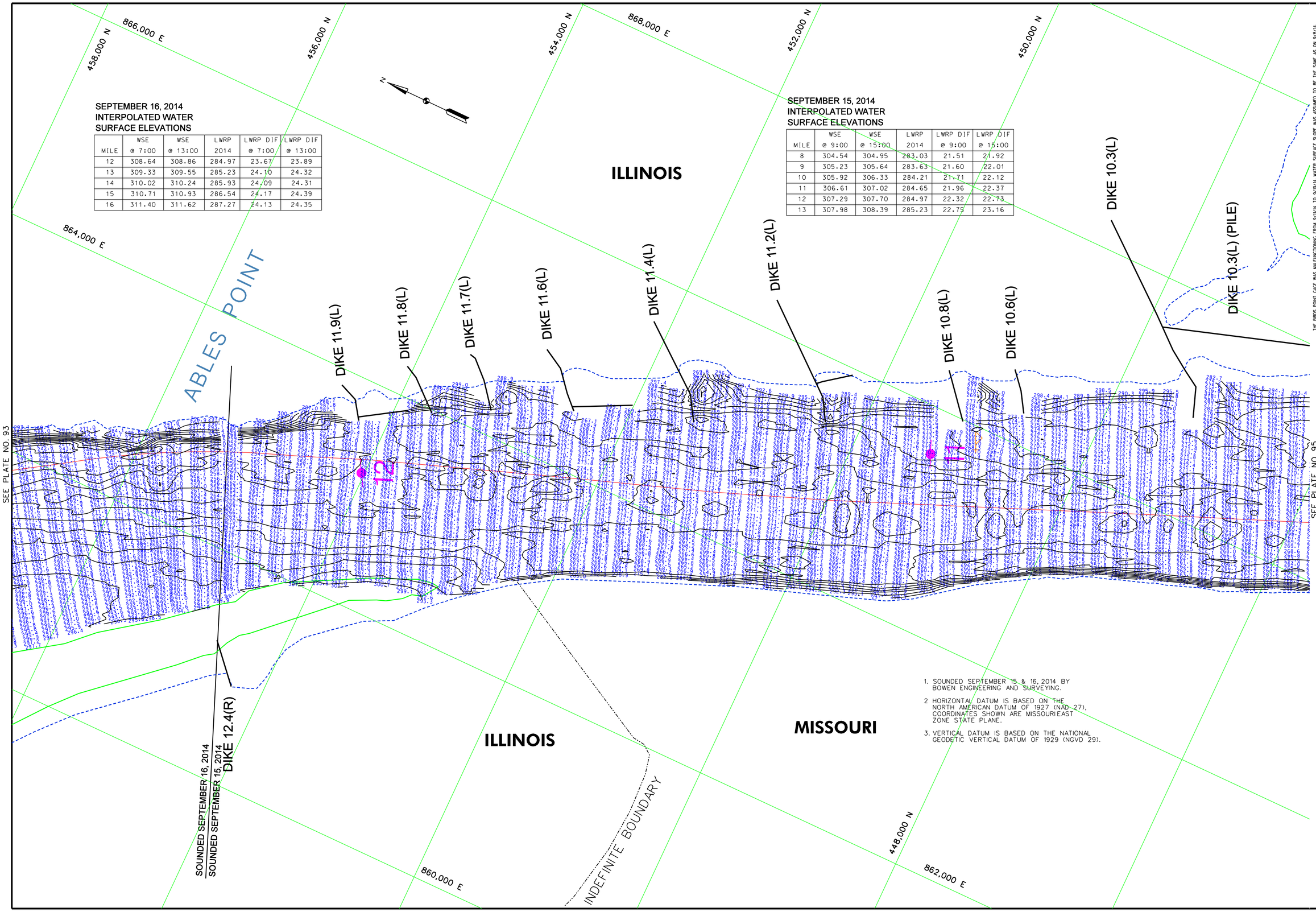
Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 15 & 16, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE-TIME####
File name: ####DESIGNFILEREFERENCE####

240 METERS 120 0 120
800 FEET 400 0 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY BOWEN ENGINEERING AND ARE BELIEVED TO BE CORRECT AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 12.5 – 14.7

PLATE NUMBER
93



SEPTEMBER 16, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 7:00	WSE @ 13:00	LWRP 2014	LWRP DIF @ 7:00	LWRP DIF @ 13:00
12	308.64	308.86	284.97	23.67	23.89
13	309.33	309.55	285.23	24.10	24.32
14	310.02	310.24	285.93	24.09	24.31
15	310.71	310.93	286.54	24.17	24.39
16	311.40	311.62	287.27	24.13	24.35

SEPTEMBER 15, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
8	304.54	304.95	283.03	21.51	21.92
9	305.23	305.64	283.63	21.60	22.01
10	305.92	306.33	284.21	21.71	22.12
11	306.61	307.02	284.65	21.96	22.37
12	307.29	307.70	284.97	22.32	22.73
13	307.98	308.39	285.23	22.75	23.16

1. SOUNDED SEPTEMBER 15 & 16, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURIEAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
15 SEP 2014	x	32.949(00) 33.35(45:00)	x	x
16 SEP 2014	x	34.297(00) 34.51(13:00)	x	x

US Army Corps of Engineers
St. Louis District

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 15 & 16, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE-TIME####
File name: ####DESIGN#FILE#SPECIFICATION####

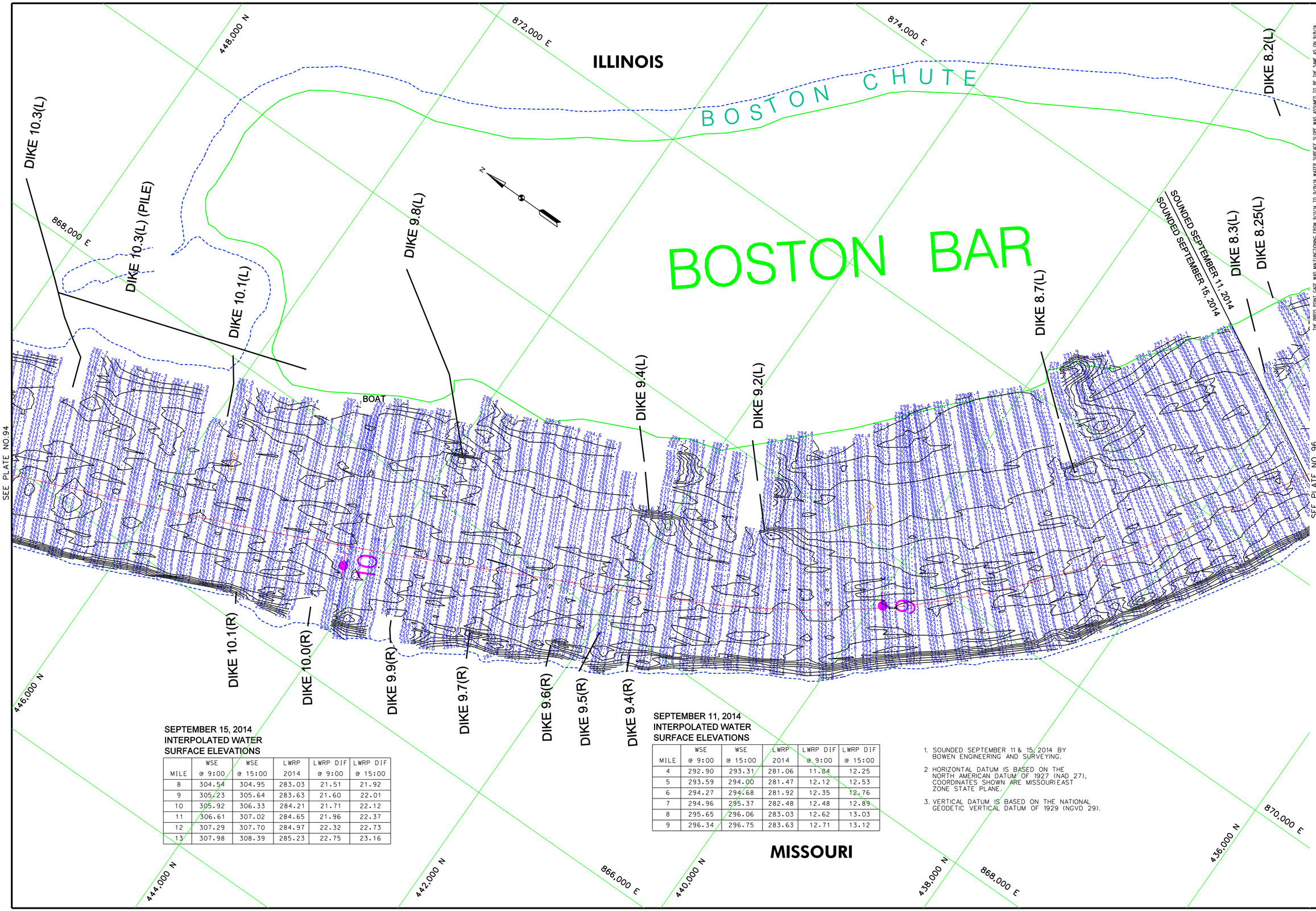
240 METERS
120 0 120
400 0 400
800 FEET

THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE AT THE TIME INDICATED AND MAY NOT BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 10.5 – 12.5

PLATE NUMBER
94



SEPTEMBER 15, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
8	304.54	304.95	283.03	21.51	21.92
9	305.23	305.64	283.63	21.60	22.01
10	305.92	306.33	284.21	21.71	22.12
11	306.61	307.02	284.65	21.96	22.37
12	307.29	307.70	284.97	22.32	22.73
13	307.98	308.39	285.23	22.75	23.16

SEPTEMBER 11, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
4	292.90	293.31	281.06	11.84	12.25
5	293.59	294.00	281.47	12.12	12.53
6	294.27	294.68	281.92	12.35	12.76
7	294.96	295.37	282.48	12.48	12.89
8	295.65	296.06	283.03	12.62	13.03
9	296.34	296.75	283.63	12.71	13.12

1. SOUNDED SEPTEMBER 11 & 15, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
11 SEP 2014	x	24.059(00) 24.46(15:00)	x	x
15 SEP 2014	x	32.949(00) 33.35(15:00)	x	x

US Army Corps of Engineers
St. Louis District

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

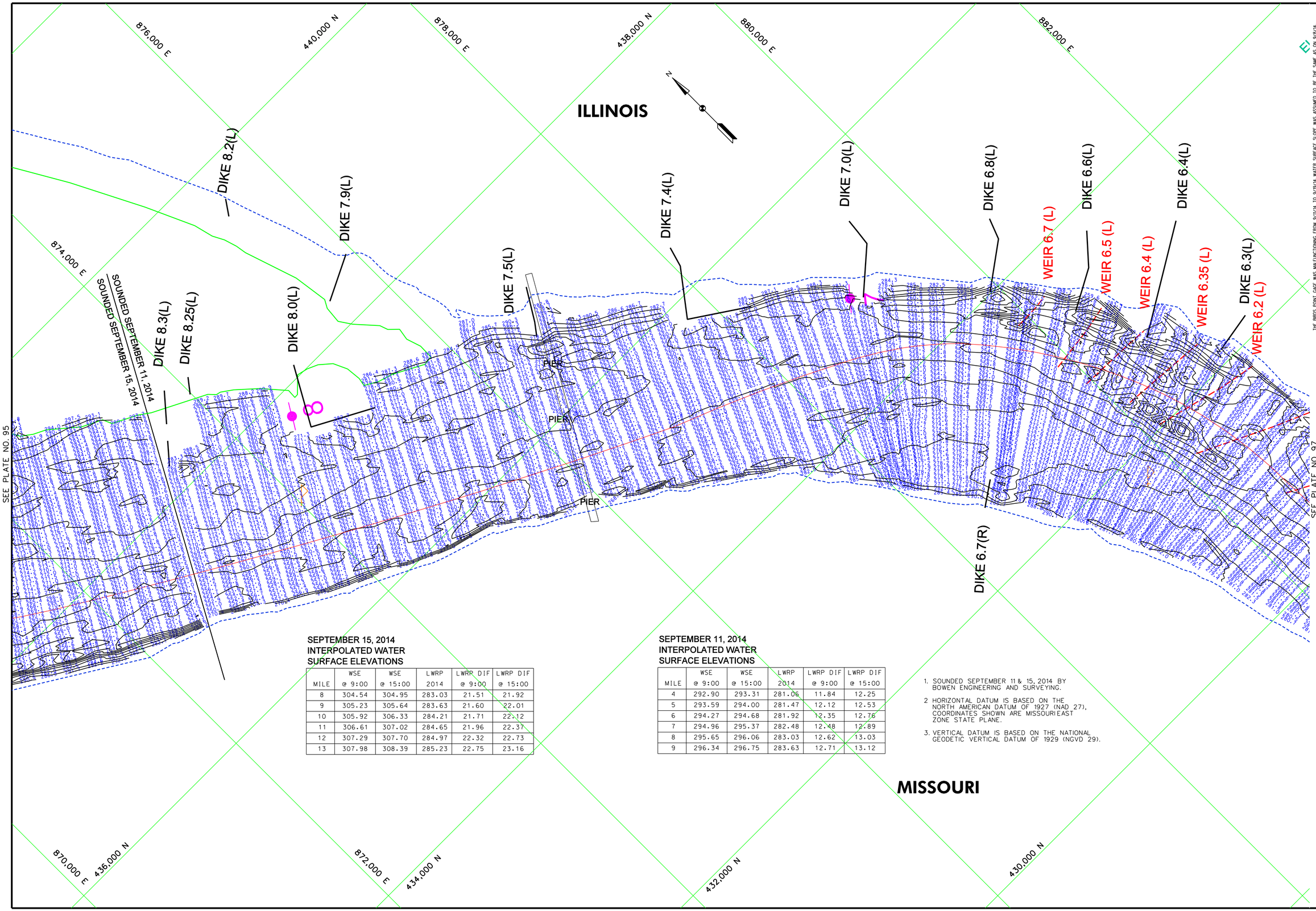
Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 11 & 15, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ##########
File name: ##########

240 METERS 120 0 120 240
800 FEET 400 0 400 800

THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE POSITIONS OF THE RIVER BANK AND WATER SURFACE AS OBSERVED AT THE TIME OF SURVEY AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

HYDROGRAPHIC SURVEYS
RIVER MILES 8.3 – 10.5

PLATE NUMBER
95



SEPTEMBER 15, 2014
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
8	304.54	304.95	283.03	21.51	21.92
9	305.23	305.64	283.63	21.60	22.01
10	305.92	306.33	284.21	21.71	22.12
11	306.61	307.02	284.65	21.96	22.37
12	307.29	307.70	284.97	22.32	22.73
13	307.98	308.39	285.23	22.75	23.16

SEPTEMBER 11, 2014
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
4	292.90	293.31	281.06	11.84	12.25
5	293.59	294.00	281.47	12.12	12.53
6	294.27	294.68	281.92	12.35	12.76
7	294.96	295.37	282.48	12.48	12.89
8	295.65	296.06	283.03	12.62	13.03
9	296.34	296.75	283.63	12.71	13.12

1. SOUNDED SEPTEMBER 11 & 15, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27). COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
11 SEP 2014	x	24.059(00) 24.46(05:00)	x	x
15 SEP 2014	x	32.949(00) 33.35(05:00)	x	x

US Army Corps of Engineers
St. Louis District

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 11 & 15, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ##########
File name: ##########

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

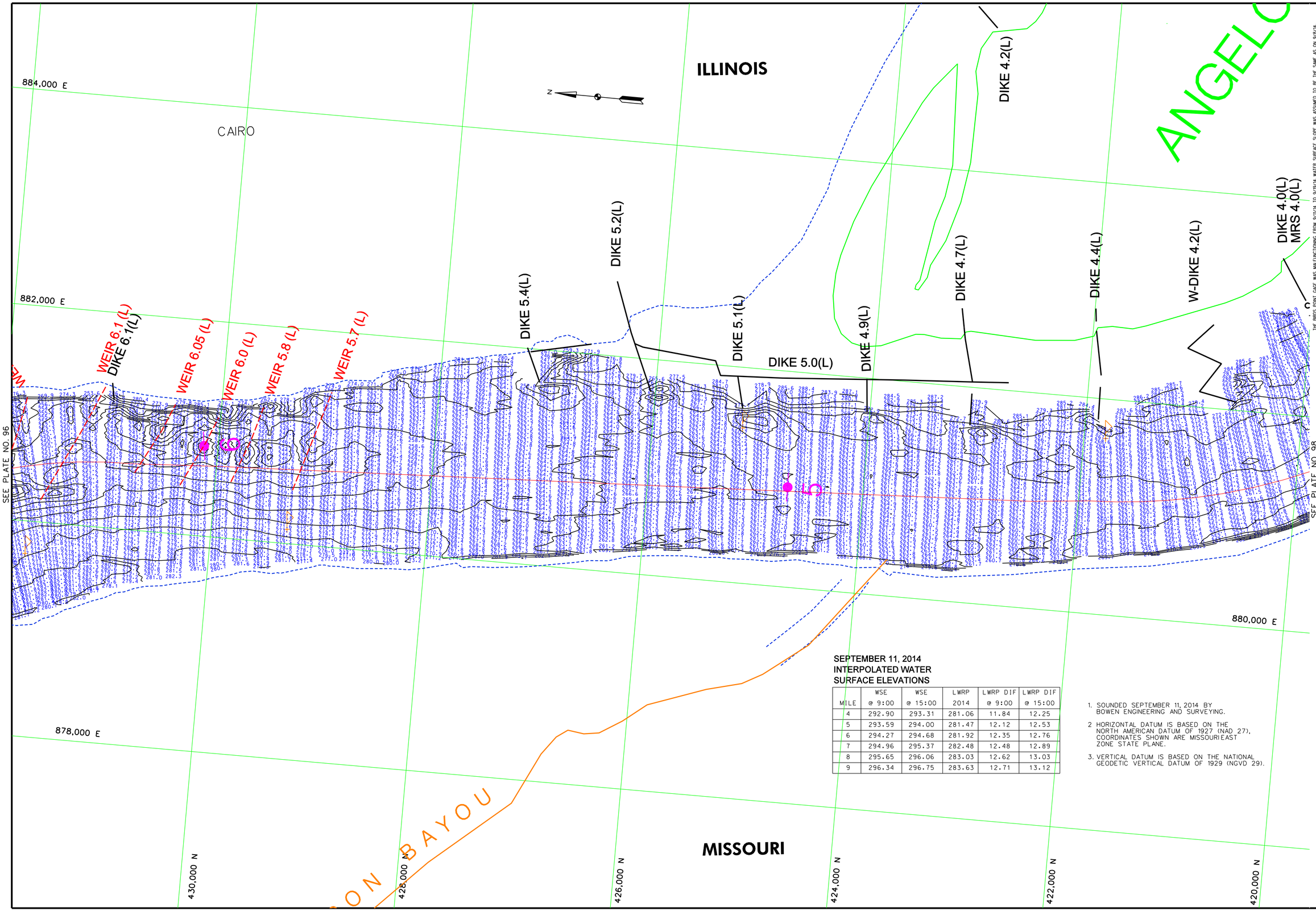
240 METERS 120 0 120
800 FEET 400 0 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED. THEY ARE PRESENTED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 6.2 – 8.3

PLATE NUMBER
96



SEPTEMBER 11, 2014
INTERPOLATED WATER SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
4	292.90	293.31	281.06	11.84	12.25
5	293.59	294.00	281.47	12.12	12.53
6	294.27	294.68	281.92	12.35	12.76
7	294.96	295.37	282.48	12.48	12.89
8	295.65	296.06	283.03	12.62	13.03
9	296.34	296.75	283.63	12.71	13.12

1. SOUNDED SEPTEMBER 11, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS ON 9/8/14.

GAGE RECORD

	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING	COMMERCE, MO
ZERO N.G.V.D.	274.53	280.00	299.75	301.83
MILE	2.0	20.2	28.2	39.5
LWRP 2014	280.06	289.90	294.74	301.48
11 SEP 2014	x	24.059(00:24.46(5:00)	x	x

US Army Corps of Engineers
St. Louis District

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

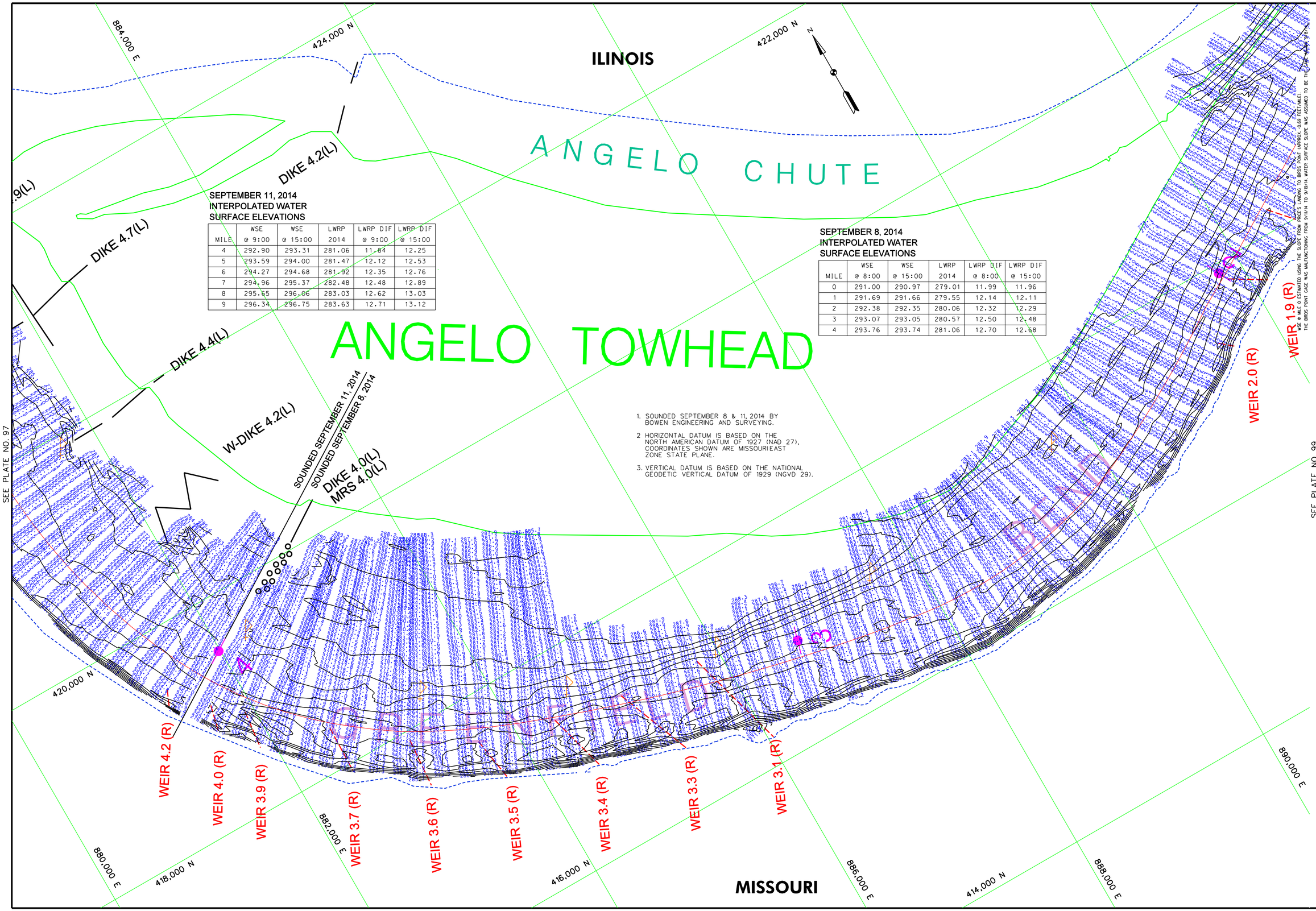
UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 11, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ##########DATE-TIME##########
File name: ##########DESIGNFILEBRTCFICATION##########

120 0 120 240 METERS
400 0 400 800 FEET
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE AT THE TIME INDICATED AND MAY NOT BE REPRESENTATIVE OF SUBSEQUENT CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS
RIVER MILES 4.2 – 6.2

PLATE NUMBER
97



SEPTEMBER 11, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 9:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 9:00	LWRP DIF @ 15:00
4	292.90	293.31	281.06	11.84	12.25
5	293.59	294.00	281.47	12.12	12.53
6	294.27	294.68	281.92	12.35	12.76
7	294.96	295.37	282.48	12.48	12.89
8	295.65	296.06	283.03	12.62	13.03
9	296.34	296.75	283.63	12.71	13.12

SEPTEMBER 8, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
0	291.00	290.97	279.01	11.99	11.96
1	291.69	291.66	279.55	12.14	12.11
2	292.38	292.35	280.06	12.32	12.29
3	293.07	293.05	280.57	12.50	12.48
4	293.76	293.74	281.06	12.70	12.68

1. SOUNDED SEPTEMBER 8 & 11, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	OHIO RIVER (EST)	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING
ZERO N.G.V.D.	0	274.53	280.00	299.75
MILE	0.0	2.0	20.2	28.2
LWRP 2014	279.01	280.06	289.90	294.74
08 SEP 2014	291.00(8:00)	17.85(8:00) 17.82(15:00)	24.91(8:00) 25.00(15:00)	x
11 SEP 2014	290.97(15:00)	x	24.05(9:00) 24.46(15:00)	x

WSE @ MILE 0 ESTIMATED USING THE SLOPE FROM PRICE'S LANDING TO BIRDS POINT (APPROX. -0.69 FEET/MILE).
THE BIRDS POINT GAGE WAS MALFUNCTIONING FROM 9/11/14 TO 9/19/14. WATER SURFACE SLOPE WAS ASSUMED TO BE THE SAME AS 9/8/14.

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 8 & 11, 2014
Drawn by: x
Ckd by: x
Reviewed by: x
SUBMITTED: x
APPROVED: x
Plot date: ####DATE/TIME####
File name: ####DESIGNAPPLEDEPICATION####

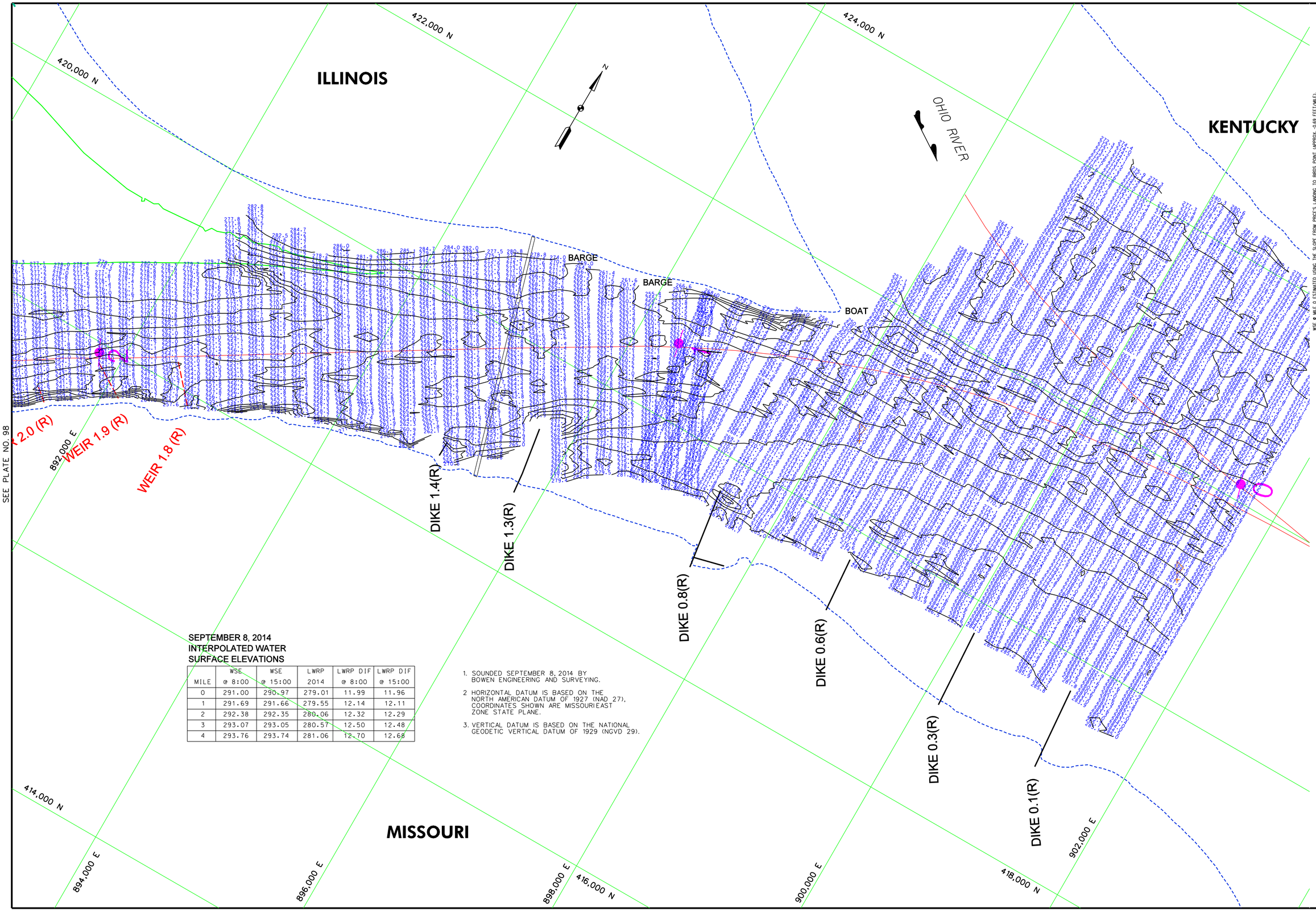
U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS
800 FEET
THE INFORMATION REPORTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED. THE DATA IS PRESENTED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

HYDROGRAPHIC SURVEYS
RIVER MILES 2.0 - 4.2

PLATE NUMBER
98



SEPTEMBER 8, 2014
INTERPOLATED WATER
SURFACE ELEVATIONS

MILE	WSE @ 8:00	WSE @ 15:00	LWRP 2014	LWRP DIF @ 8:00	LWRP DIF @ 15:00
0	291.00	290.97	279.01	11.99	11.96
1	291.69	291.66	279.55	12.14	12.11
2	292.38	292.35	280.06	12.32	12.29
3	293.07	293.05	280.57	12.50	12.48
4	293.76	293.74	281.06	12.70	12.68

1. SOUNDED SEPTEMBER 8, 2014 BY BOWEN ENGINEERING AND SURVEYING.
2. HORIZONTAL DATUM IS BASED ON THE NORTH AMERICAN DATUM OF 1927 (NAD 27), COORDINATES SHOWN ARE MISSOURI EAST ZONE STATE PLANE.
3. VERTICAL DATUM IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

US Army Corps of Engineers
St. Louis District

GAGE RECORD

	OHIO RIVER (EST)	BIRD'S POINT	THOMPSON LANDING	PRICE'S LANDING
ZERO N.G.V.D.	0	274.53	280.00	299.75
MILE	0.0	2.0	20.2	28.2
LWRP 2014	279.01	280.06	289.90	294.74
08 SEP 2014	291.00±0.00	17.85±0.00	17.82±0.05	24.91±0.00	25.00±0.05	x
	290.97±0.00			

WSE @ MILE 0 ESTIMATED USING THE SLOPE FROM PRICE'S LANDING TO BIRDS POINT (APPROX. -0.69 FEET/MILE).

Surveyed by: BOWEN ENGINEERING
Survey Date: SEPTEMBER 8, 2014
Drawn by: X
Ckd by: X
Reviewed by: X
SUBMITTED: X
APPROVED: X
Plot date: ####DATE-TIME####
File name: ####DESIGNFILEBASEFOPLOCATION####

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER

240 METERS
800 FEET
120 0 120 400 0 400

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY THE ST. LOUIS DISTRICT, CORPS OF ENGINEERS AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

HYDROGRAPHIC SURVEYS

RIVER MILES 0 – 2.0

PLATE NUMBER
99