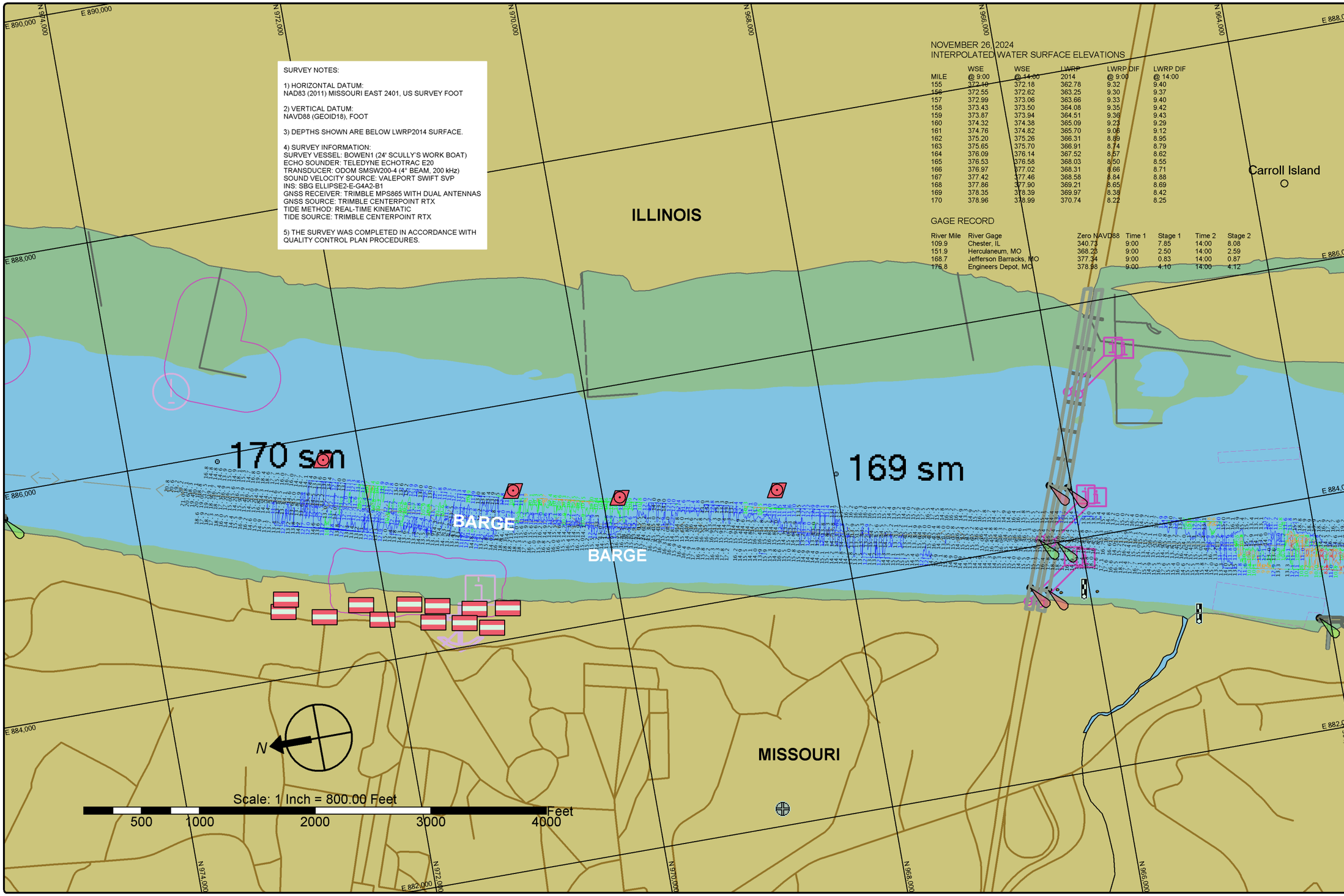



SURVEY NOTES:

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 26, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 14:00 |
|---|---|---|---|---|---|
| 155 | 372.10 | 372.18 | 362.78 | 9.32 | 9.40 |
| 156 | 372.55 | 372.62 | 363.25 | 9.30 | 9.37 |
| 157 | 372.99 | 373.06 | 363.66 | 9.33 | 9.40 |
| 158 | 373.43 | 373.50 | 364.08 | 9.35 | 9.42 |
| 159 | 373.87 | 373.94 | 364.51 | 9.36 | 9.43 |
| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
| 161 | 374.76 | 374.82 | 365.70 | 9.06 | 9.12 |
| 162 | 375.20 | 375.26 | 366.31 | 8.89 | 8.95 |
| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |
| 166 | 376.97 | 377.02 | 368.31 | 8.66 | 8.71 |
| 167 | 377.42 | 377.46 | 368.58 | 8.84 | 8.88 |
| 168 | 377.86 | 377.90 | 369.21 | 8.65 | 8.69 |
| 169 | 378.35 | 378.39 | 369.97 | 8.38 | 8.42 |
| 170 | 378.96 | 378.99 | 370.74 | 8.22 | 8.25 |

GAGE RECORD

| River Mile | River Gage | Zero NAVD88 | Time 1 | Stage 1 | Time 2 | Stage 2 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
| 151.9 | Herculaneum, MO | 368.23 | 9:00 | 2.50 | 14:00 | 2.59 |
| 168.7 | Jefferson Barracks, MO | 377.34 | 9:00 | 0.83 | 14:00 | 0.87 |
| 176.8 | Engineers Depot, MO | 378.98 | 9:00 | 4.10 | 14:00 | 4.12 |

St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

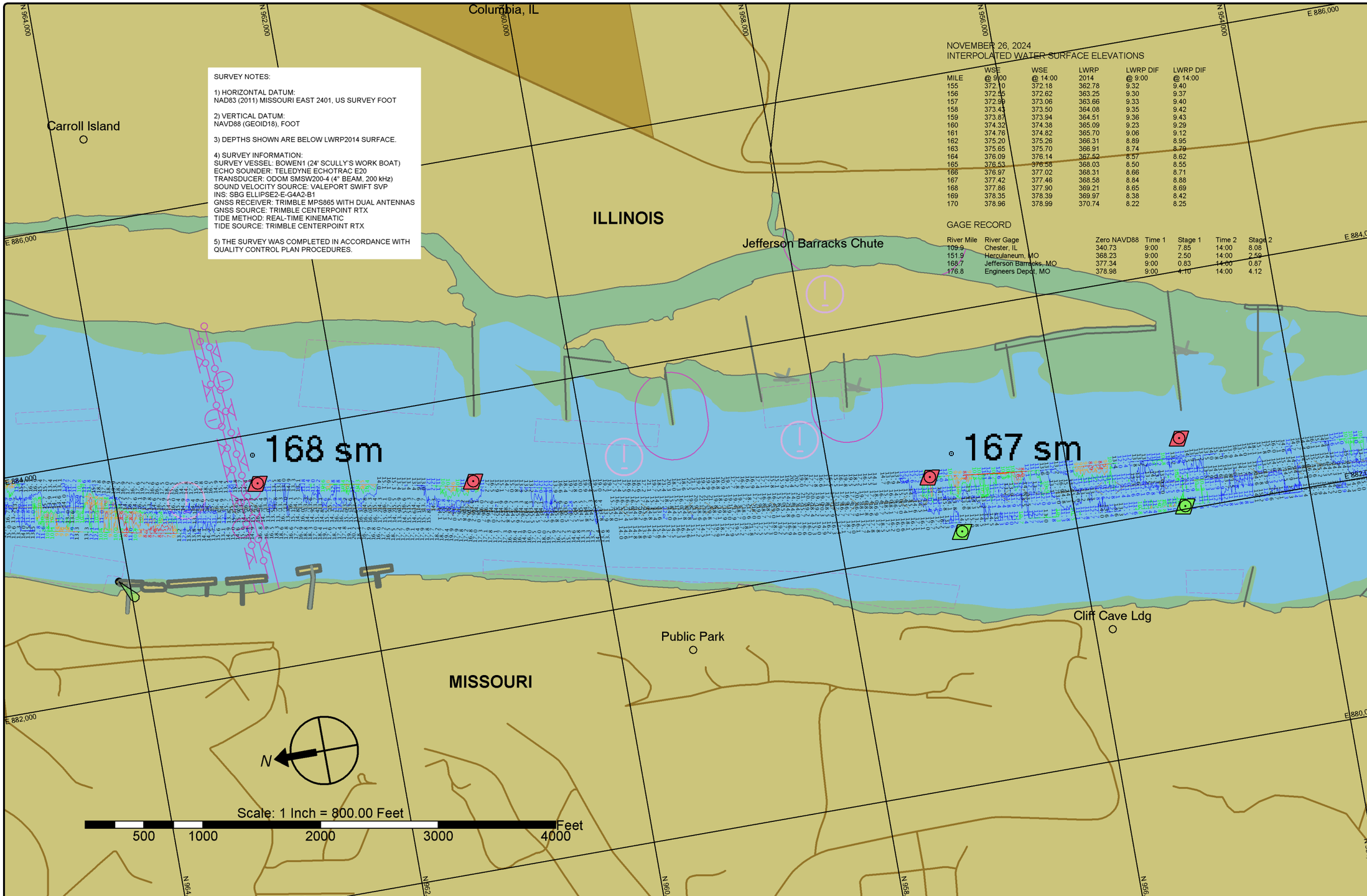
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 168.2 - 170.1

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.

NOVEMBER 26, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 14:00 |
|---|---|---|---|---|---|
| 155 | 372.10 | 372.18 | 362.78 | 9.32 | 9.40 |
| 156 | 372.45 | 372.62 | 363.25 | 9.30 | 9.37 |
| 157 | 372.99 | 373.06 | 363.66 | 9.33 | 9.40 |
| 158 | 373.43 | 373.50 | 364.08 | 9.35 | 9.42 |
| 159 | 373.87 | 373.94 | 364.51 | 9.36 | 9.43 |
| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
| 161 | 374.76 | 374.82 | 365.70 | 9.06 | 9.12 |
| 162 | 375.20 | 375.26 | 366.31 | 8.89 | 8.95 |
| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |
| 166 | 376.97 | 377.02 | 368.31 | 8.66 | 8.71 |
| 167 | 377.42 | 377.46 | 368.58 | 8.84 | 8.88 |
| 168 | 377.86 | 377.90 | 369.21 | 8.65 | 8.69 |
| 169 | 378.35 | 378.39 | 369.97 | 8.38 | 8.42 |
| 170 | 378.96 | 378.99 | 370.74 | 8.22 | 8.25 |

GAGE RECORD

| River Mile | River Gage | Zero NAVD88 | Time 1 | Stage 1 | Time 2 | Stage 2 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
| 151.9 | Herculaneum, MO | 368.23 | 9:00 | 2.50 | 14:00 | 2.59 |
| 168.7 | Jefferson Barracks, MO | 377.34 | 9:00 | 0.83 | 14:00 | 0.87 |
| 176.8 | Engineers Depot, MO | 378.98 | 9:00 | 4.10 | 14:00 | 4.12 |

St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

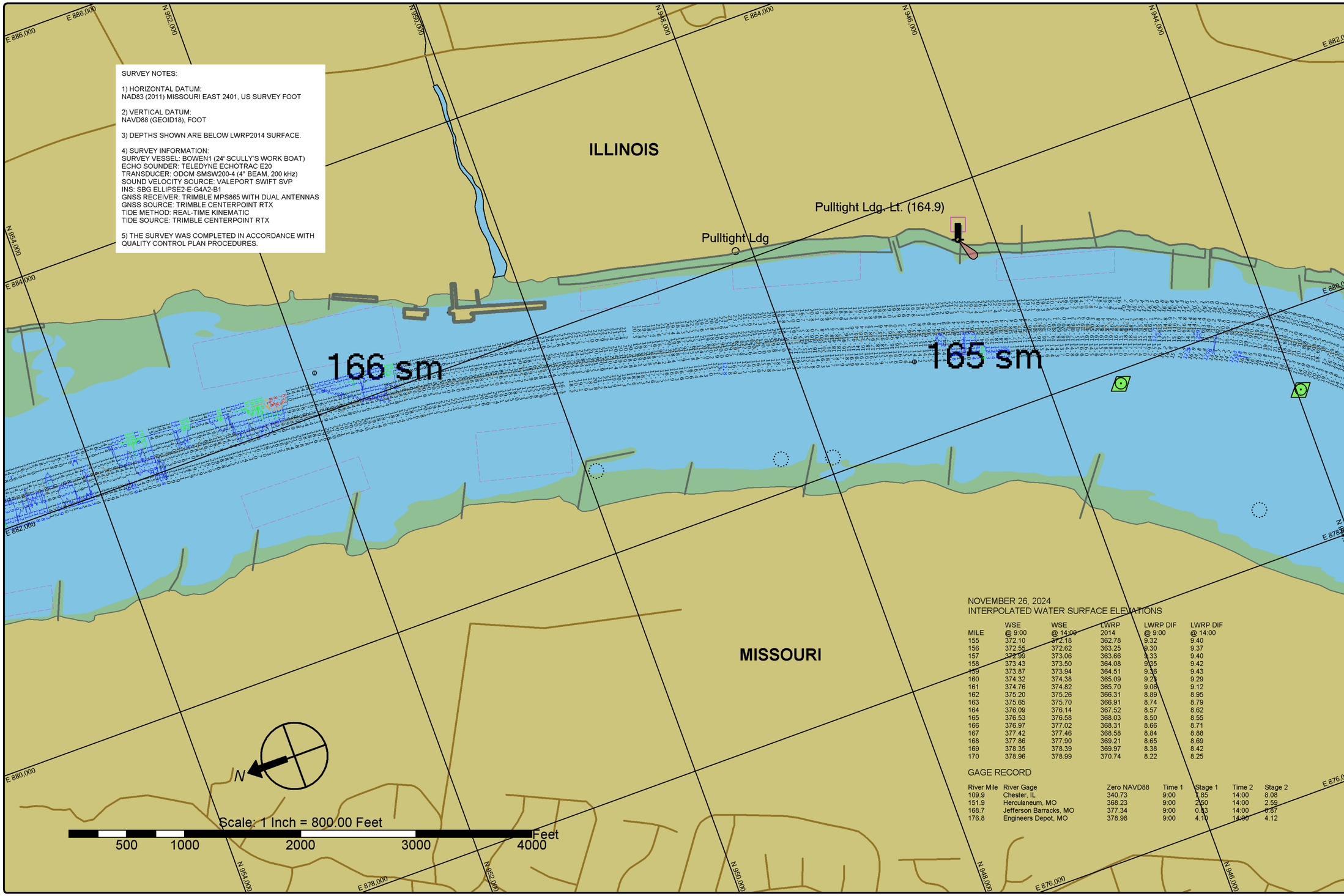
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 166.3 - 168.2

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 26, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 14:00 |
|---|---|---|---|---|---|
| 155 | 372.10 | 372.18 | 362.78 | 9.32 | 9.40 |
| 156 | 372.55 | 372.62 | 363.25 | 9.30 | 9.37 |
| 157 | 372.99 | 373.06 | 363.66 | 9.33 | 9.40 |
| 158 | 373.43 | 373.50 | 364.08 | 9.35 | 9.42 |
| 159 | 373.87 | 373.94 | 364.51 | 9.36 | 9.43 |
| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
| 161 | 374.76 | 374.82 | 365.70 | 9.06 | 9.12 |
| 162 | 375.20 | 375.26 | 366.31 | 8.89 | 8.95 |
| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |
| 166 | 376.97 | 377.02 | 368.31 | 8.66 | 8.71 |
| 167 | 377.42 | 377.46 | 368.58 | 8.84 | 8.88 |
| 168 | 377.86 | 377.90 | 369.21 | 8.65 | 8.69 |
| 169 | 378.35 | 378.39 | 369.97 | 8.38 | 8.42 |
| 170 | 378.96 | 378.99 | 370.74 | 8.22 | 8.25 |

GAGE RECORD

| River Mile | River Gage | Zero NAVD88 | Time 1 | Stage 1 | Time 2 | Stage 2 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
| 151.9 | Herculaneum, MO | 368.23 | 9:00 | 2.50 | 14:00 | 2.59 |
| 168.7 | Jefferson Barracks, MO | 377.34 | 9:00 | 0.83 | 14:00 | 0.87 |
| 176.8 | Engineers Depot, MO | 378.98 | 9:00 | 4.10 | 14:00 | 4.12 |

St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

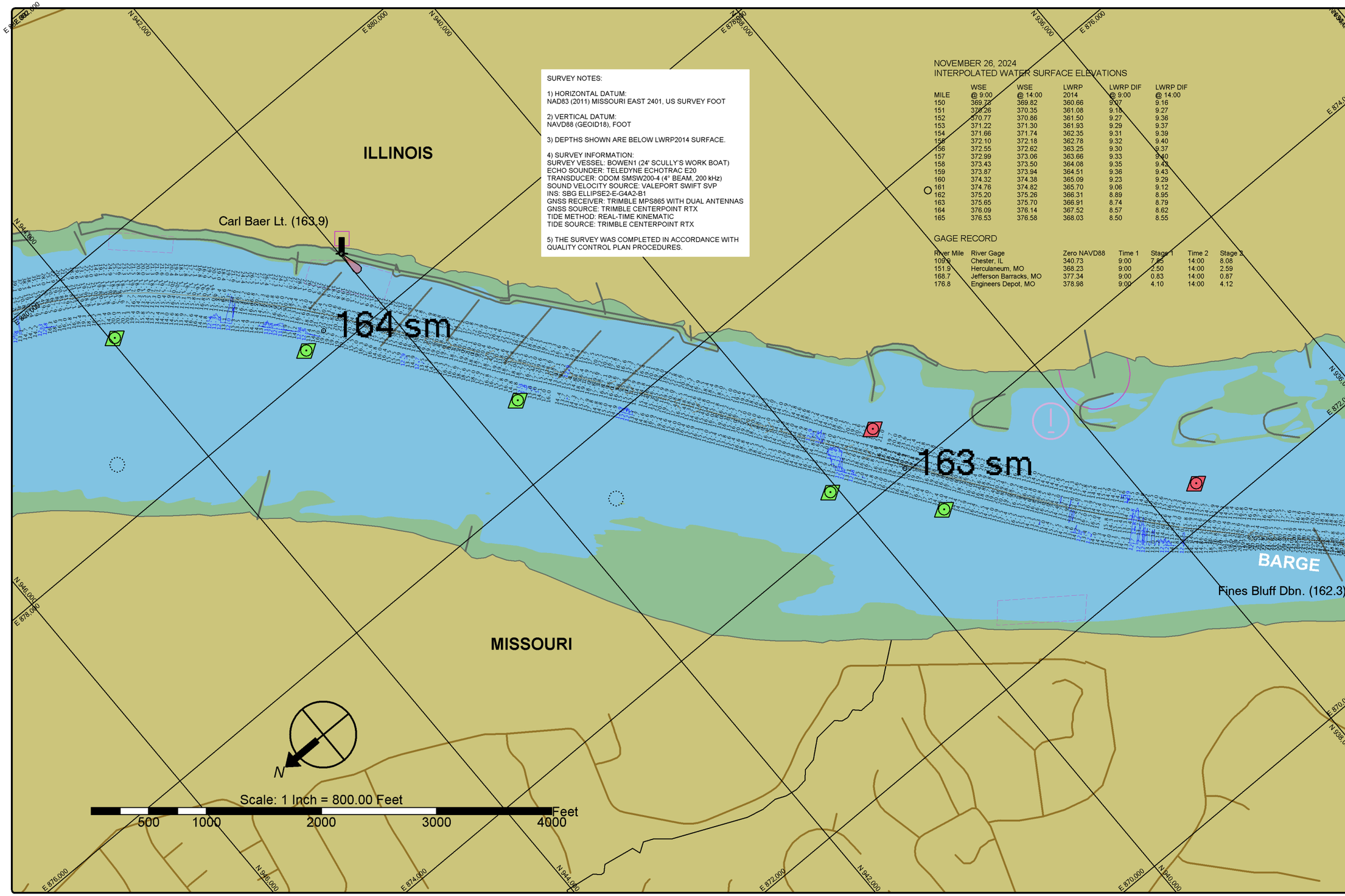
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 164.3 - 166.3

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 26, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 14:00 |
|---|---|---|---|---|---|
| 150 | 369.73 | 369.82 | 360.66 | 9.07 | 9.16 |
| 151 | 370.26 | 370.35 | 361.08 | 9.18 | 9.27 |
| 152 | 370.77 | 370.86 | 361.50 | 9.27 | 9.36 |
| 153 | 371.22 | 371.30 | 361.93 | 9.29 | 9.37 |
| 154 | 371.66 | 371.74 | 362.35 | 9.31 | 9.39 |
| 155 | 372.10 | 372.18 | 362.78 | 9.32 | 9.40 |
| 156 | 372.55 | 372.62 | 363.25 | 9.30 | 9.37 |
| 157 | 372.99 | 373.06 | 363.66 | 9.33 | 9.40 |
| 158 | 373.43 | 373.50 | 364.08 | 9.35 | 9.42 |
| 159 | 373.87 | 373.94 | 364.51 | 9.36 | 9.43 |
| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
| 161 | 374.76 | 374.82 | 365.70 | 9.06 | 9.12 |
| 162 | 375.20 | 375.26 | 366.31 | 8.89 | 8.95 |
| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |

GAGE RECORD

| River Mile | River Gage | Zero NAVD88 | Time 1 | Stage 1 | Time 2 | Stage 2 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
| 151.9 | Herculaneum, MO | 368.23 | 9:00 | 2.50 | 14:00 | 2.59 |
| 168.7 | Jefferson Barracks, MO | 377.34 | 9:00 | 0.83 | 14:00 | 0.87 |
| 176.8 | Engineers Depot, MO | 378.98 | 9:00 | 4.10 | 14:00 | 4.12 |

St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

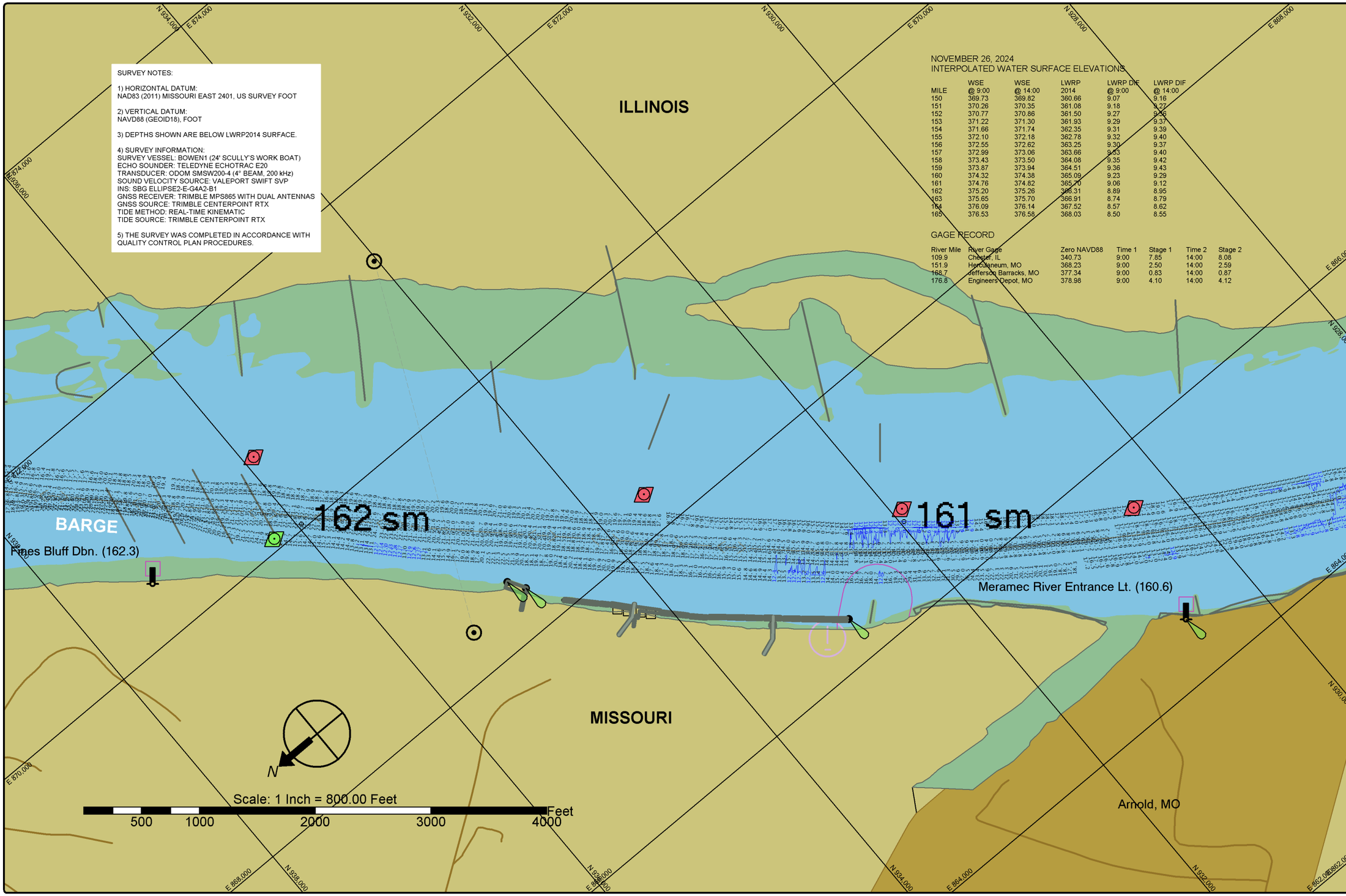
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 162.3 - 164.3

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 26, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 14:00 |
|---|---|---|---|---|---|
| 150 | 369.73 | 369.82 | 360.66 | 9.07 | 9.16 |
| 151 | 370.26 | 370.35 | 361.08 | 9.18 | 9.27 |
| 152 | 370.77 | 370.86 | 361.50 | 9.27 | 9.36 |
| 153 | 371.22 | 371.30 | 361.93 | 9.29 | 9.37 |
| 154 | 371.66 | 371.74 | 362.35 | 9.31 | 9.39 |
| 155 | 372.10 | 372.18 | 362.78 | 9.32 | 9.40 |
| 156 | 372.55 | 372.62 | 363.25 | 9.30 | 9.37 |
| 157 | 372.99 | 373.06 | 363.66 | 9.33 | 9.40 |
| 158 | 373.43 | 373.50 | 364.08 | 9.35 | 9.42 |
| 159 | 373.87 | 373.94 | 364.51 | 9.36 | 9.43 |
| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
| 161 | 374.76 | 374.82 | 365.70 | 9.06 | 9.12 |
| 162 | 375.20 | 375.26 | 366.31 | 8.89 | 8.95 |
| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |

GAGE RECORD

| River Mile | River Gage | Zero NAVD88 | Time 1 | Stage 1 | Time 2 | Stage 2 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
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| 168.7 | Jefferson Barracks, MO | 377.34 | 9:00 | 0.83 | 14:00 | 0.87 |
| 176.8 | Engineers Depot, MO | 378.98 | 9:00 | 4.10 | 14:00 | 4.12 |

St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
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 160.3 - 162.3

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 RECEIVER: TRIMBLE MPS865 WITH DUAL ANTENNAS
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TIDE METHOD: REAL-TIME KINEMATIC
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NOVEMBER 26, 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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| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
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| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |

GAGE RECORD

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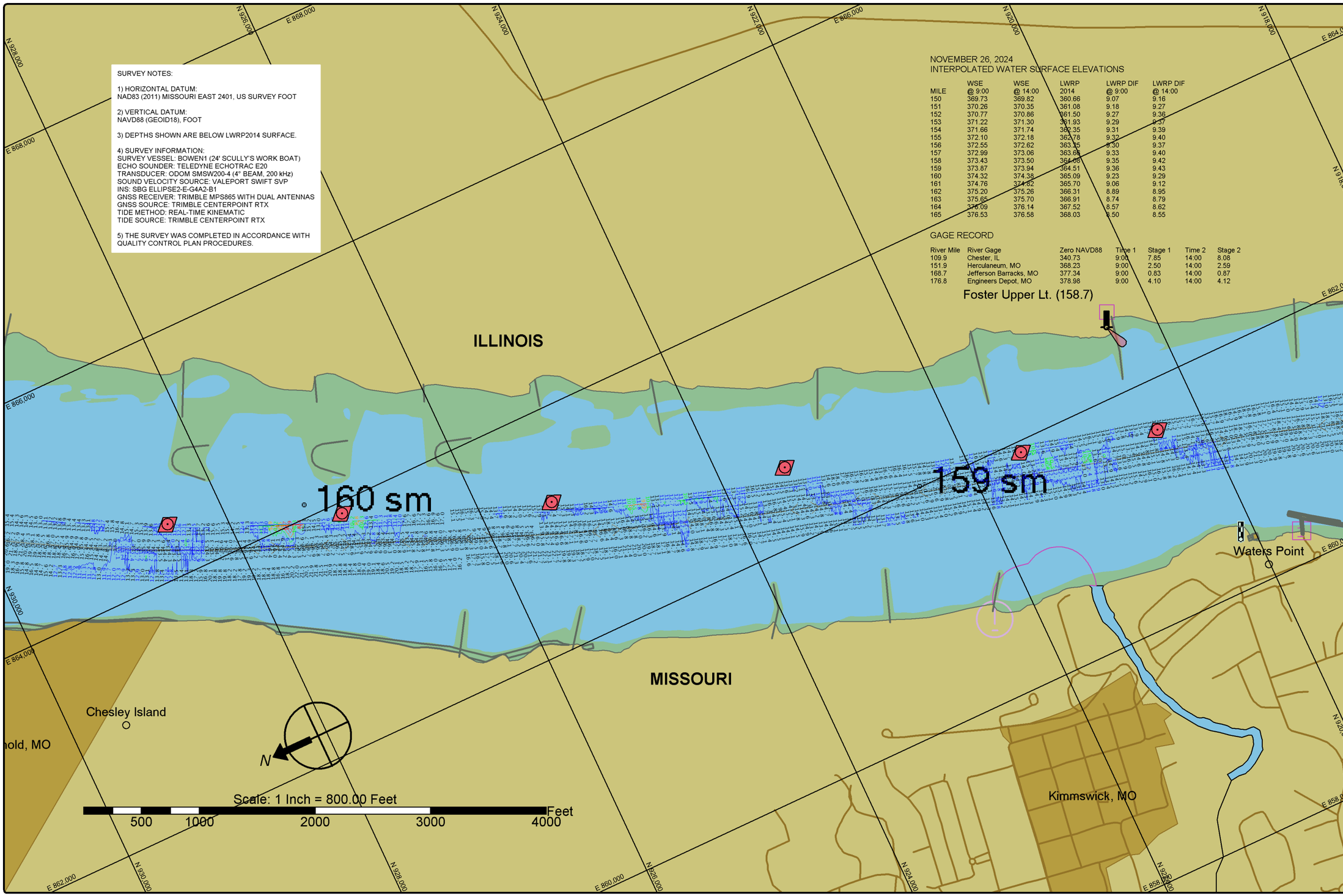



St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

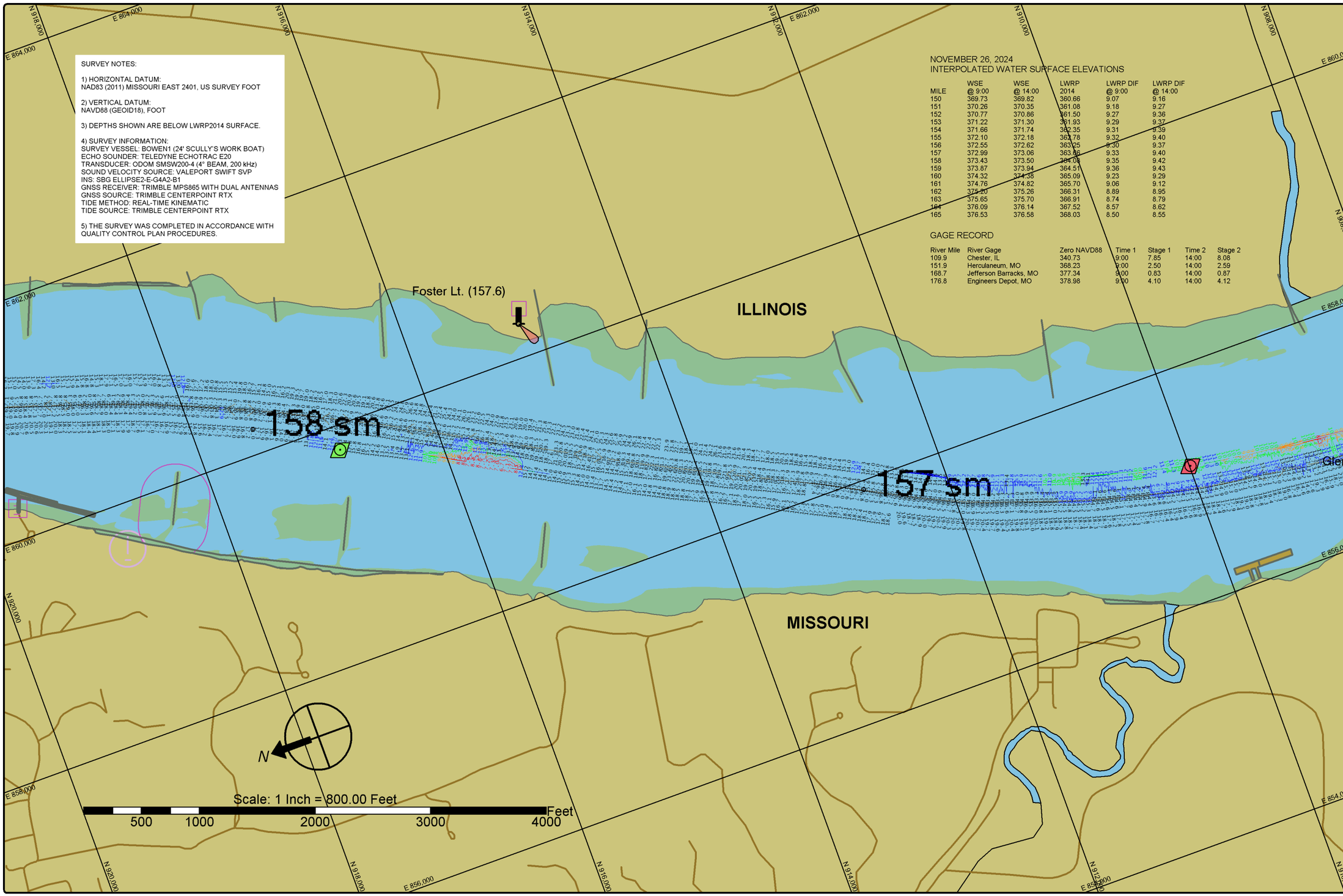
Approved: FIELD CARTOGRAPHER
Approved: CIVIL ENGINEERING TECHNICIAN
Approved: ASST. CHIEF OF SURVEY
Approved: CHIEF OF SURVEY
Date:

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 158.3 - 160.3

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 26, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 14:00 |
|---|---|---|---|---|---|
| 150 | 369.73 | 369.82 | 360.66 | 9.07 | 9.16 |
| 151 | 370.26 | 370.35 | 361.08 | 9.18 | 9.27 |
| 152 | 370.77 | 370.86 | 361.50 | 9.27 | 9.36 |
| 153 | 371.22 | 371.30 | 361.93 | 9.29 | 9.37 |
| 154 | 371.66 | 371.74 | 362.35 | 9.31 | 9.39 |
| 155 | 372.10 | 372.18 | 362.78 | 9.32 | 9.40 |
| 156 | 372.55 | 372.62 | 363.25 | 9.30 | 9.37 |
| 157 | 372.99 | 373.06 | 363.66 | 9.33 | 9.40 |
| 158 | 373.43 | 373.50 | 364.08 | 9.35 | 9.42 |
| 159 | 373.87 | 373.94 | 364.51 | 9.36 | 9.43 |
| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
| 161 | 374.76 | 374.82 | 365.70 | 9.06 | 9.12 |
| 162 | 375.20 | 375.26 | 366.31 | 8.89 | 8.95 |
| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |

GAGE RECORD

| River Mile | River Gage | Zero NAVD88 | Time 1 | Stage 1 | Time 2 | Stage 2 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
| 151.9 | Herculaneum, MO | 368.23 | 9:00 | 2.50 | 14:00 | 2.59 |
| 168.7 | Jefferson Barracks, MO | 377.34 | 9:00 | 0.83 | 14:00 | 0.87 |
| 176.8 | Engineers Depot, MO | 378.98 | 9:00 | 4.10 | 14:00 | 4.12 |

St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
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 156.2 - 158.3

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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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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NOVEMBER 26, 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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| 151 | 370.26 | 370.35 | 361.08 | 9.18 | 9.27 |
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| 155 | 372.10 | 372.18 | 362.78 | 9.32 | 9.40 |
| 156 | 372.55 | 372.62 | 363.25 | 9.30 | 9.37 |
| 157 | 372.99 | 373.06 | 363.66 | 9.33 | 9.40 |
| 158 | 373.43 | 373.50 | 364.08 | 9.35 | 9.42 |
| 159 | 373.87 | 373.94 | 364.51 | 9.36 | 9.43 |
| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
| 161 | 374.76 | 374.82 | 365.70 | 9.06 | 9.12 |
| 162 | 375.20 | 375.26 | 366.31 | 8.89 | 8.95 |
| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |

GAGE RECORD

| River Mile | River Gage | Zero NAVD88 | Time 1 | Stage 1 | Time 2 | Stage 2 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
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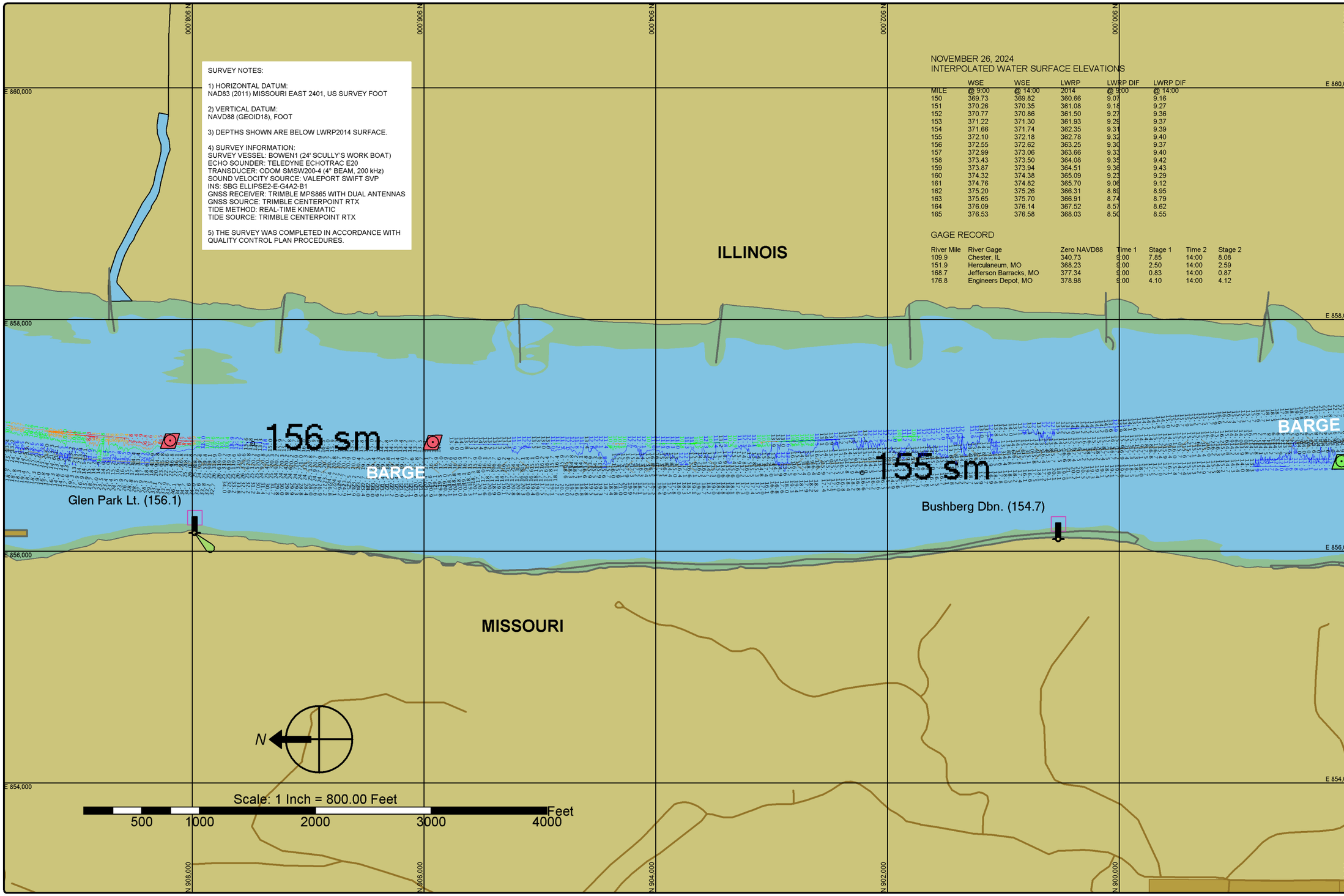


St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
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 154.2 - 156.2

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 26, 2024
INTERPOLATED WATER SURFACE ELEVATIONS

| MILE | WSE @ 9:00 | WSE @ 14:00 | LWRP 2014 | LWRP DIF @ 9:00 | LWRP DIF @ 14:00 |
|---|---|---|---|---|---|
| 150 | 369.73 | 369.82 | 360.66 | 9.07 | 9.16 |
| 151 | 370.26 | 370.35 | 361.08 | 9.18 | 9.27 |
| 152 | 370.77 | 370.86 | 361.50 | 9.27 | 9.36 |
| 153 | 371.22 | 371.30 | 361.93 | 9.29 | 9.37 |
| 154 | 371.66 | 371.74 | 362.35 | 9.31 | 9.39 |
| 155 | 372.10 | 372.18 | 362.78 | 9.32 | 9.40 |
| 156 | 372.55 | 372.62 | 363.25 | 9.30 | 9.37 |
| 157 | 372.99 | 373.06 | 363.66 | 9.33 | 9.40 |
| 158 | 373.43 | 373.50 | 364.08 | 9.35 | 9.42 |
| 159 | 373.87 | 373.94 | 364.51 | 9.36 | 9.43 |
| 160 | 374.32 | 374.38 | 365.09 | 9.23 | 9.29 |
| 161 | 374.76 | 374.82 | 365.70 | 9.06 | 9.12 |
| 162 | 375.20 | 375.26 | 366.31 | 8.89 | 8.95 |
| 163 | 375.65 | 375.70 | 366.91 | 8.74 | 8.79 |
| 164 | 376.09 | 376.14 | 367.52 | 8.57 | 8.62 |
| 165 | 376.53 | 376.58 | 368.03 | 8.50 | 8.55 |

GAGE RECORD

| River Mile | River Gage | Zero NAVD88 | Time 1 | Stage 1 | Time 2 | Stage 2 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
| 151.9 | Herculaneum, MO | 368.23 | 9:00 | 2.50 | 14:00 | 2.59 |
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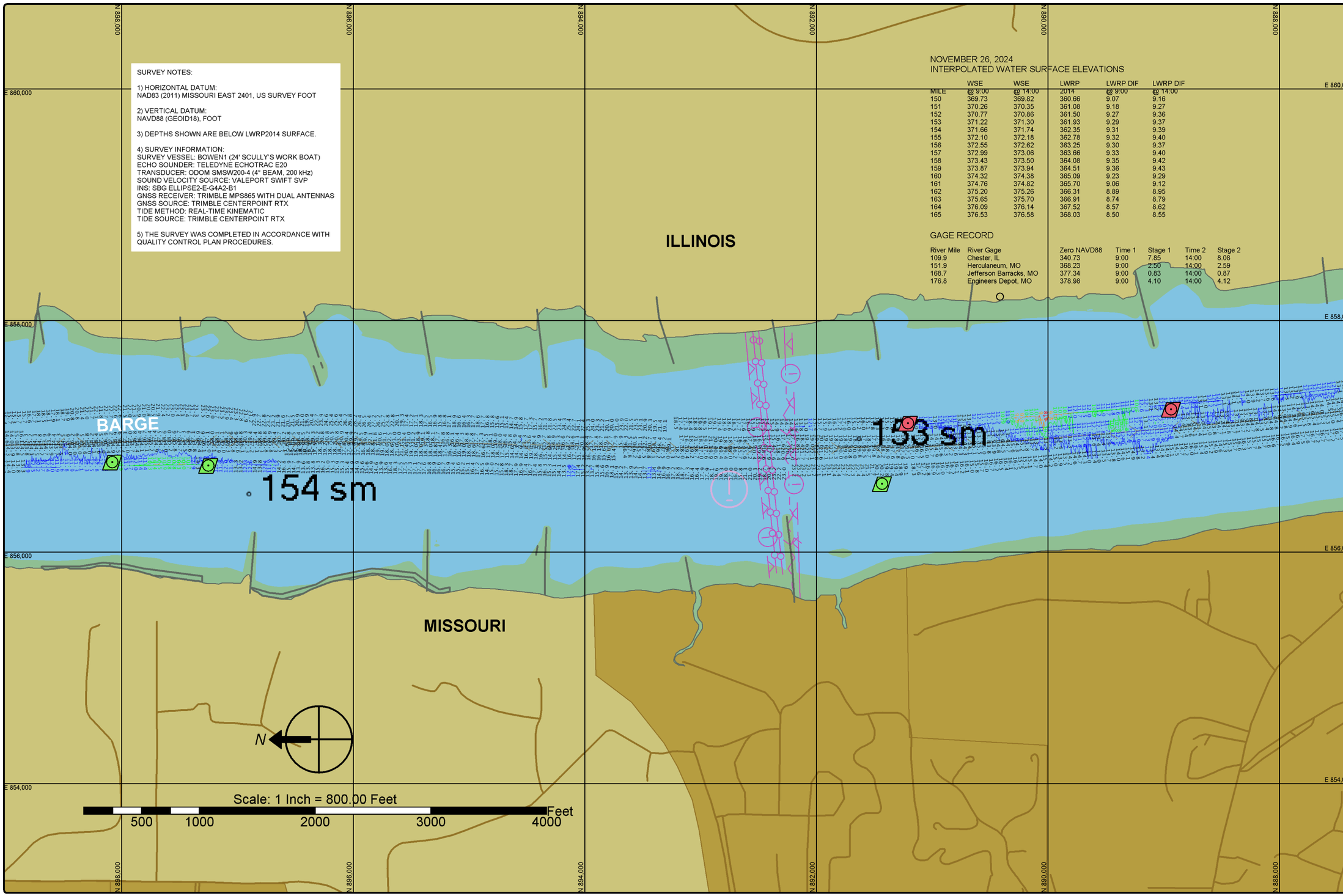


St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
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 152.2 - 154.2

SHEET NO.
1 OF 1

SURVEY NOTES:

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

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NOVEMBER 26, 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 |
|---|---|---|---|---|---|---|
| 109.9 | Chester, IL | 340.73 | 9:00 | 7.85 | 14:00 | 8.08 |
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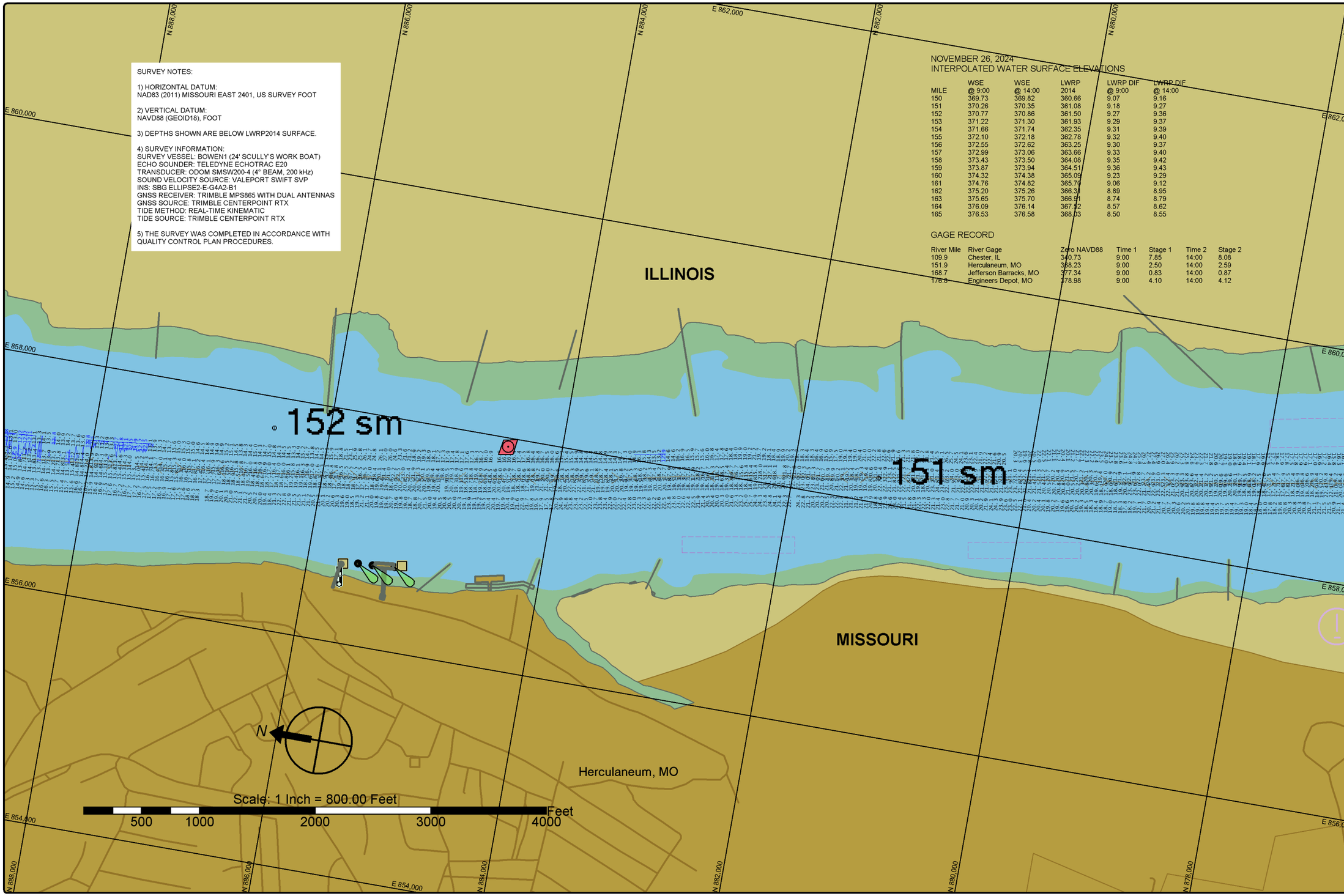


St. Louis District

DATES OF SURVEY:
NOVEMBER 26, 2024

FILE NO.: 170_150K2624
REQUEST NO.: W912P924F0029

SCALE:
1" = 800' (ANSI B)

FIELD BOOKS:

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Approved: CIVIL ENGINEERING TECHNICIAN
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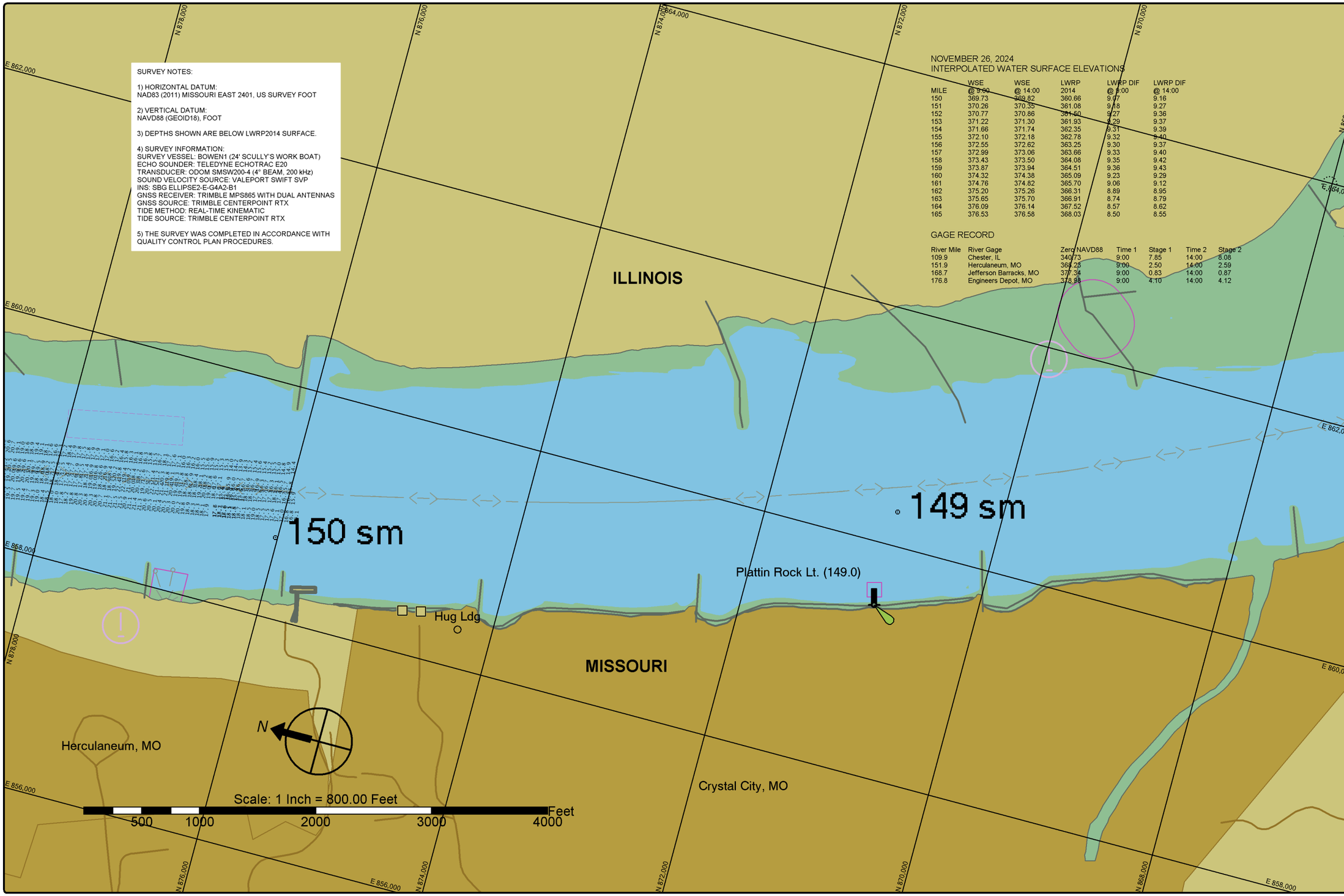
Date:

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

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

UPPER MISSISSIPPI RIVER BASIN
MISSISSIPPI RIVER
CHANNEL PATROL
RIVER MILES 150.2 - 152.2

SHEET NO.
1 OF 1




SURVEY NOTES:

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NOVEMBER 26, 2024
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GAGE RECORD

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St. Louis District

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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 148.3 - 150.3

SHEET NO.
1 OF 1