

PORTABLE BATHYMETRIC SURVEY SYSTEM

The Oklahoma-Texas WSC has a requirement for a portable, survey-grade, self-contained, bathymetric survey system including a single-beam echosounder, GNSS receiver, field controller, field software, and pole mount kit.

1 EA, Echosounder:

1. Shall consist of a portable, compact, single-beam, survey-grade, hydrographic echosounder including transducer, cable(s), battery charger, and mounting hardware.
2. Shall be capable of operating over a depth range from 0.30 m to at least 75.0 m.
3. Shall have a measurement accuracy of ± 0.025 m or better.
4. Shall include a 235 kHz active transducer.
5. Shall have a beam spread angle of 8-10°.
6. Shall include a “smart” depth transducer (with 5m cable), designed for survey applications. Transducer shall have a hydrodynamic shaped body design.
7. Shall include integrated Bluetooth communications.
8. Shall operate over a temperature range from at least 0 to 45° C.
9. Shall be powered from an internal, rechargeable battery.
10. Shall include LED status indicators for Bluetooth, power, and data transmission.
11. Shall include RS-232 and USB communication interfaces.
12. Shall include 3 ea. 2 ft. extension poles for deployment of the transducer from a vessel.
13. Shall include all required accessories including, but not limited to, Bluetooth antenna, battery charger, serial data cable, transducer boat clamp and adapter, and transit case.

1 EA, GNSS Receiver:

14. Shall be functionally compatible with the echosounder described above.
15. Shall consist of a compact integrated GNSS (Global Navigation Satellite System) for surveying and mapping applications.
16. Shall include Universal Tracking Channels Technology for tracking all currently available satellites and constellations such as GPS, GLONASS, Galileo, BEIDOU, QZSS, and SBAS.
17. Shall be capable of tracking at least 226 channels.
18. Shall have a RTK accuracy of 5 mm + 0.5 ppm (horizontal) and 10 mm + 0.8 ppm (vertical) or better.
19. Shall include an integrated GNSS and Bluetooth antennas.
20. Shall include QLL (Quartz Locked Loop) technology for high vibration applications.
21. Shall include 9-axis Inertial Measurement Unit (IMU) and 3-axis eCompass integrated leveling technology.
22. Shall include L-Band ready technology.
23. Shall include features that “filter-out” multipath (confused) signal errors in order to improve positioning accuracy.
24. Shall have integrated Bluetooth capability.
25. Shall have at least 8 GB internal memory.
26. Shall include USB and RS-232 serial data ports.
27. Shall have an LED display panel for updates on: battery power, Bluetooth activity, datalogging, and satellite tracking status.
28. Shall **not** include a radio or modem.
29. Shall have an Ingress Protection rating of IP67 or better.
30. Shall operate from an internal rechargeable Li-Ion battery pack.
31. Shall operate over a range of temperature from at least -40 to 65° C.

- 32. Shall be capable of withstanding a 1 m drop on to a concrete surface.
- 33. Shall weigh no more than 3 lbs.
- 34. Shall include a hard carrying case.
- 35. Shall include all required accessories including, but not limited to, power cable, power supply and charger cable, serial cable, USB cable, 2 m fixed height pole, reference guide, manual, etc.

1 EA, Field Controller for GNSS Receiver:

- 36. Shall be compatible with the Receiver described above.
- 37. Shall include a 7" color, touchscreen display. Display shall be readable in sunlight.
- 38. Shall operate on rechargeable batteries.
- 39. Shall be capable of operating for at least 12 hrs. on battery power.
- 40. Shall include USB and audio ports.
- 41. Shall have rear-facing and front-facing cameras capable of 8 MP and 2 MP resolution respectively, or better.
- 42. Shall have at least 8 GB of internal memory.
- 43. Shall be capable of operating Windows 10 operating system.
- 44. Shall include u-blox NEO M8M GNSS module capable of concurrent reception of up to 3 GNSS satellites.
- 45. Shall be capable of withstanding a drop from 4 ft. onto a hard surface such as concrete.
- 46. Shall be capable of operating over a range of temperatures from at least -25 to 50° C.
- 47. Shall have Wi-Fi and Bluetooth communications.
- 48. Shall include integrated 4G LTE cellular module.
- 49. Shall have an Ingress Protection environmental rating of IP68, or better against dust and humidity.
- 50. Shall include a removable battery pack and battery charger.
- 51. Shall include an ultra-screen protector.
- 52. Shall include a stylus.

1 EA, Field Software:

- 53. Shall be compatible with the GNSS Receiver described above.
- 54. Shall consist of an intuitive graphical field applications software to support workflows/operations with the GNSS Receiver described above.
- 55. Shall be capable of collecting survey mapping data and provide support for 3D viewing and filtering.
- 56. Shall be capable of performing topographic and layout operations using Microsoft Real-time Bing Map satellite images.
- 57. Shall be capable of performing survey (topo, x-section), stake (points, lines, surface, curve), and calculation (inverse, intersections, curves, area) operations.
- 58. Shall include a library of import/export file formats.
- 59. Shall provide graphical routines for calculating, contouring, and comparing surface features.
- 60. Shall allow user to collect, share, and deliver data and information in the field.
- 61. Shall include a 1-year subscription.

1 EA, Ram Clip Mount Kit:

- 62. Shall be compatible with the Field Controller described above.
- 63. Shall consist of a ram clip and mounting bracket with pushbutton quick release mechanism.
- 64. Ram clip shall be ball/socket style for easy angle adjustment.
- 65. Shall fit poles sizes up to 1.25" in diameter.
- 66. Shall be made of corrosion resistant materials.

1 EA, RTK Network Correction Subscription:

- 67. Shall be compatible with the GNSS Receiver described above.
- 68. Shall consist of a GNSS RTK Network Correction Service.
- 69. Shall include continuous monitoring and provide high-precision, high-availability RTK network corrections.
- 70. Shall allow the GNSS Receiver to receive RTK corrections with out the need for a base station.
- 71. Shall provide coverage for the state of Texas, at a minimum.
- 72. Shall include a 1-year subscription.