

**Wisconsin DNR – Lake Level Monitoring
Staff Gauge Survey Data Sheet**

Lake Information
 Lake Name Des Moines County Burnett

Data Collectors
 Primary Data Collector Jason Towne Email jtowne@burnettcounty.org Phone No. (715) 349-2599
 Additional Data Collector(s) Luke Meier

Reference Mark and Staff Gauge Information
Reference Mark #1 (RM1) Reference Mark Type: Bronze Cap in Concrete
 Latitude: 45 59 54.2 Longitude: 92 07 38.5 Mean Sea Level Yes No Elevation: 990.04 Photograph
 Location Description: _____

Reference Mark #2 (RM2) Reference Mark Type: Nail in tree
 Latitude: 45 59 54.2 Longitude: 92 07 38.2 Mean Sea Level Yes No Elevation: 989.32 Photograph
 Location Description: _____

Reference Mark #3 (RM3) Reference Mark Type: Mag Nail in Q
 Latitude: 45 59 53.8 Longitude: 92 07 38.4 Mean Sea Level Yes No Elevation: 991.13 Photograph
 Location Description: _____

Staff Gauge
 Latitude: 45 59 55.1 Longitude: 92 07 38.4 Mean Sea Level Yes No Elevation: 981.97 Photograph
 Location Description: _____

Date: 4/12/17 Time: 2:30 AM PM Check one: Install Midseason Removal

Survey Stage 1 - Instrument at first height*

	Reference Mark 1	Fore sight (FS1)	Calculated Elevation (CE1)
Given Elevation (GE _{RM1})	<u>990.04</u>		
Back sight 1 (BS1)	+ <u>4.10</u>		
Height of Instrument (HI1)	<u>994.14</u>		
	- Staff Gauge	<u>12.17</u>	= <u>981.97</u>
	HI1 - Ref Mark 2	<u>4.82</u>	= <u>989.32</u>
	HI1 - Ref Mark 3	<u>3.01</u>	= <u>991.13</u>

Survey Equations:
 HI1 = GE_{RM1} + BS1
 CE1 = HI1 - FS1

Survey Stage 2 - Reset instrument at different height

	Staff Gauge	Fore sight (FS2)	Calculated Elevation (CE2)
Calculated Elevation1	<u>981.97</u> ←		
Back sight 2 (BS2)	+ <u>12.40</u>		
Height of Instrument (HI2)	<u>994.37</u>		
	- Ref Mark 1	<u>4.33</u>	= <u>990.04</u>
	HI2 - Ref Mark 2	<u>5.06</u>	= <u>989.31</u>
	HI2 - Ref Mark 3	<u>3.25</u>	= <u>991.12</u>

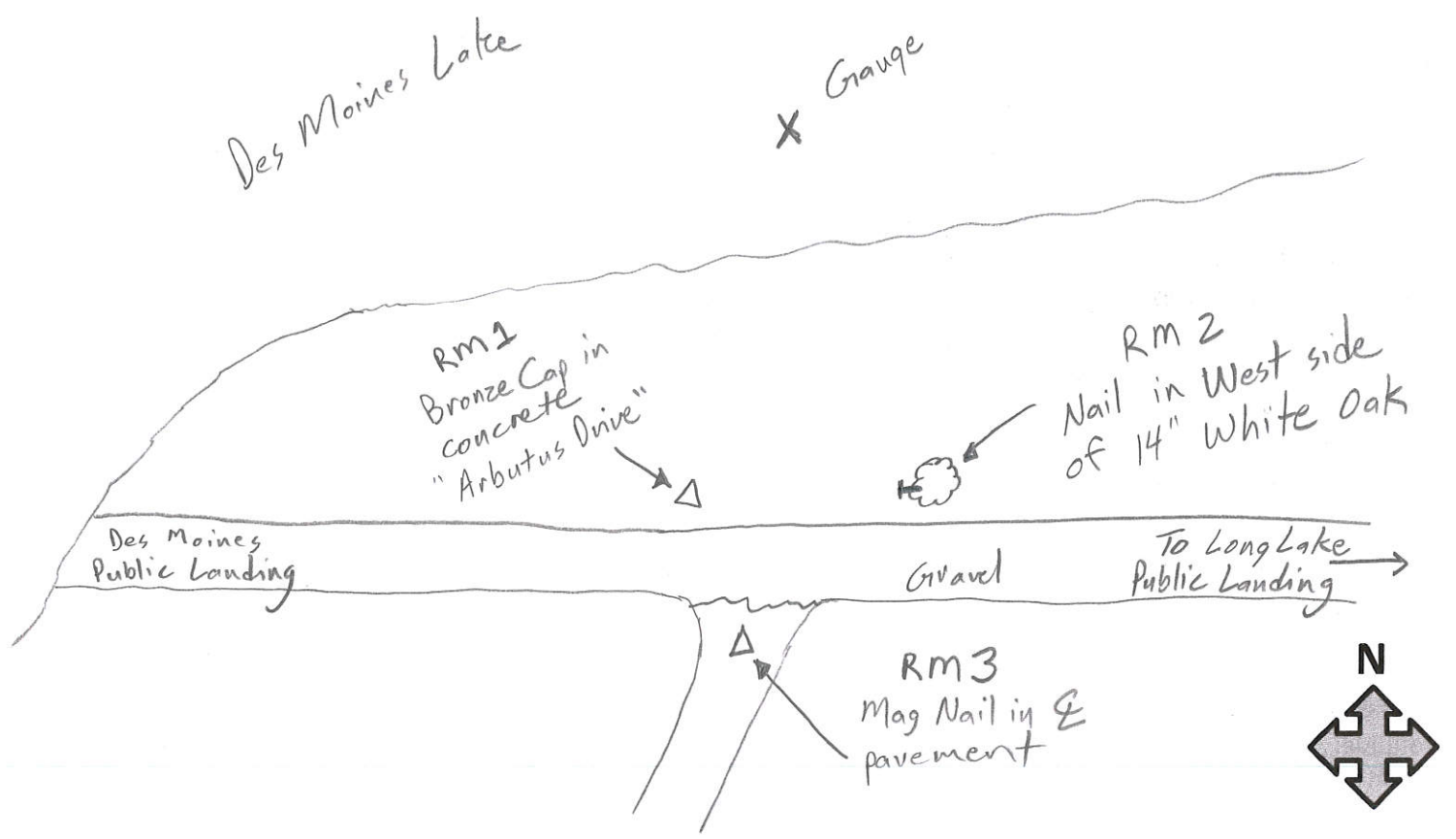
Survey Equations:
 HI2 = CE_{SG1} + BS2
 CE2 = HI2 - FS2

Quality Assurance Checks:
 Reference Mark 1: BS1 4.10 FS1 12.17
 GE = CE2 BS2 + 12.40 FS2 + 4.33
16.50 = 16.50
 QA Equations:
 BS1 + BS2 = FS1_{SG} + FS2_{RM1}
 GE_{RM1} = CE2_{RM1}

*Accept Survey Stage 1 if QA checks within 0.01 ft. Use calculated elevations 1 for the rest of the season unless the gauge moves.
Lake Level Reading: 984.20 ft Revised 2016

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Site Diagram (including Staff Gauge and Reference Marks)



Notes

NAVD 88 Datum Ortho Height in feet

RM1 is NGS Benchmark "Arbutus Drive" PID - D01037

Data Management

Survey Data uploaded to SWIMS? Yes No Date: _____ Name: _____

Photographs uploaded to SWIMS? Yes No Date: _____ Name: _____

Data Sheet scan uploaded to SWIMS? Yes No Date: _____ Name: _____

Equipment Maintenance

Replace bolts/screws on staff gauge? Yes No Date: _____ Name: _____

Replace gauge plate on staff gauge? Yes No Date: _____ Name: _____

Replace post or wooden board? Yes No Date: _____ Name: _____