

Wisconsin DNR – Lake Level Monitoring
Staff Gauge Survey Data Sheet

Lake Information
 Lake Name BIG TWIN LAKE County LANGCAOG

Data Collectors
 Primary Data Collector DOUG TOMANY Email dtomany@frontier.com Phone No. (715) 484-2851
 Additional Data Collector(s) _____

Reference Mark and Staff Gauge Information

Reference Mark #1 (RM1) Reference Mark Type: _____
 Latitude: _____ Longitude: _____ Mean Sea Level Yes No Elevation: _____ Photograph
 Location Description: _____

Reference Mark #2 (RM2) Reference Mark Type: _____
 Latitude: _____ Longitude: _____ Mean Sea Level Yes No Elevation: _____ Photograph
 Location Description: _____

Reference Mark #3 (RM3) Reference Mark Type: _____
 Latitude: _____ Longitude: _____ Mean Sea Level Yes No Elevation: _____ Photograph
 Location Description: _____

Staff Gauge
 Latitude: 45°21'10.6" Longitude: -89°54'46.9" Mean Sea Level Yes No Elevation: _____ Photograph
 Location Description: 2016 GAUGE LOCATION IS VERY CLOSE TO THE 2015 GAUGE LOCATION SHOWN ON NEXT SHEET

Date: 7/14/16 Time: 12:45 AM PM D.T. AL. 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>100.00</u>			Survey Equations: HI1 = GE _{RM1} + BS1 CE1 = HI1 - FS1
Back sight 1 (BS1)	<u>+ 5.24</u>			
Height of Instrument (HI1)	<u>105.24</u>	<u>7.27</u>	<u>97.97</u>	
	HI1 - Staff Gauge	<u>3.87</u>	<u>101.37</u>	
	HI1 - Ref Mark 2	<u>4.83 ±</u>	<u>100.41 ±</u>	

Survey Stage 2 – Reset instrument at different height

	Staff Gauge	Fore sight (FS2)	Calculated Elevation (CE2)	
Calculated Elevation1	<u>97.97</u> ←			Survey Equations: HI2 = CE _{SG1} + BS2 CE2 = HI2 - FS2
Back sight 2 (BS2)	<u>+ 7.05</u>			
Height of Instrument (HI2)	<u>105.02</u>	<u>5.01</u>	<u>100.01</u>	
	HI2 - Ref Mark 1	<u>3.65</u>	<u>101.37</u>	
	HI2 - Ref Mark 2	<u>4.61</u>	<u>100.41</u>	

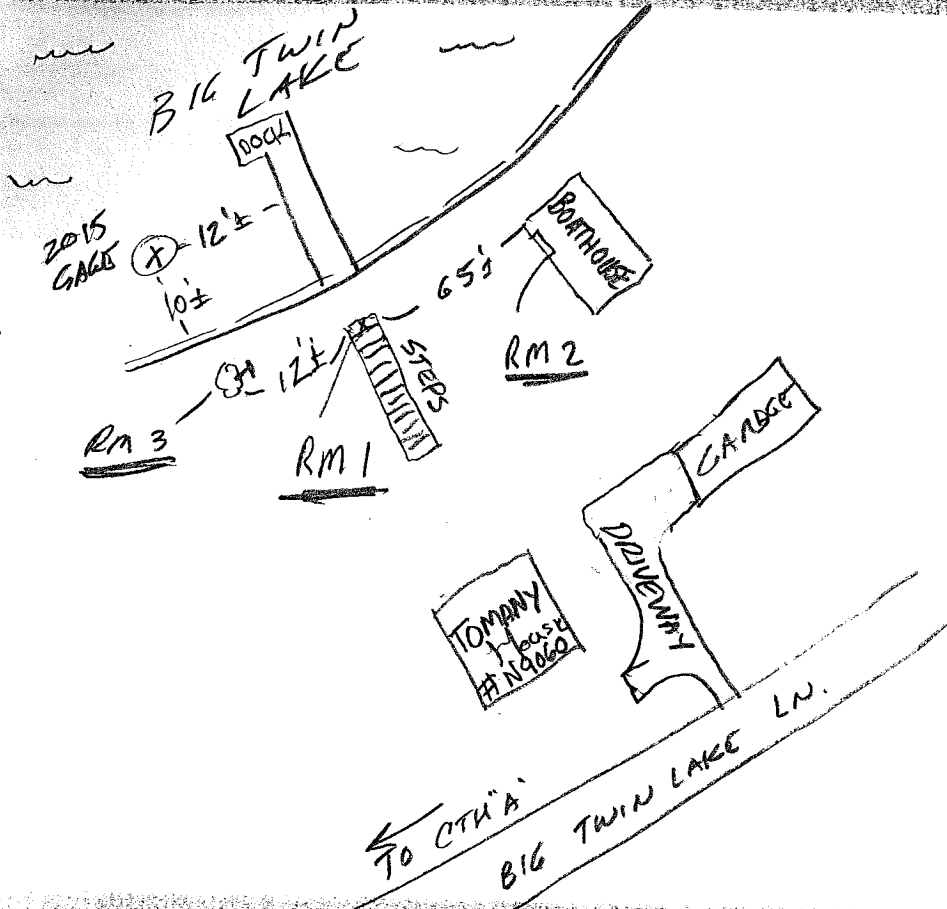
Quality Assurance Checks:

Reference Mark 1: BS1 5.24 FS1 7.27 QA Equations:
 GE = CE2 BS2 + 7.05 FS2 + 5.01 BS1 + BS2 = FS1_{SG} + FS2_{RM1}
12.29 ✓ = 12.28 ✓ GE_{RM1} = CE2_{RM1}

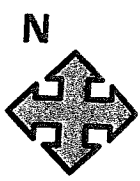
*Accept Survey Stage 1 if QA checks within 0.01 ft. Use calculated elevations 1 for the rest of the season unless the gauge moves.

Wisconsin DNR - Lake Level Monitoring
Staff Gage Calibration Data Sheet

Site Diagram including Staff Gage and Reference Marks



5.24
 2.37
 7.97



Notes

RM 1 CTR CONCRETE STEP (ONLY CONCRETE STEP) @ BOTTOM END OF WOOD TIMBER STEPS

RM 2 SOUTH END ALUMINUM DOOR SIDE PLATE ON BOATHOUSE DOOR SILL

RM 3 60d SPIKE IN NE BASE OF 4" W. BIRCH IN STUMP

7/12/16 ALL RM'S GOOD & OK TO USE. GAGE LOCATION IS VERY CLOSE TO 2015 LOCATION. WATER UP CONSIDERABLY SINCE LAST YEAR. D. TRUSTY.

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 gage? Yes No Date: _____ Name: _____
 Replace gage plate on staff gage? Yes No Date: _____ Name: _____
 Replace post or wooden board? Yes No Date: _____ Name: _____