

Moore Lake

Moore Lake is split into East Moore and West Moore lake. Combined the lake is a 95-acre lake lying within the City of Fridley in Anoka County. Discharge from the lake is controlled by a detention pond that has a 24-inch RCP outlet. The pond outlets to the city storm sewer and eventually to Rice Creek. The pond outlet is at an elevation of 875.39 (NAVD 88). The ordinary high water level, as recorded by the Minnesota DNR, is 877.5 feet (NGVD 29), 877.69 (NAVD 88).

The DNR Lake Finder website provided lake level data for a spotty period of record from 1981-2019 (see **Figure 7a**). Because only one lake level measurement exists for 1981, and the uncertainty that the measurement is the annual maximum level, this year was excluded from the analysis. The DNR Lake Finder website reports lake levels in NGVD 29. The VERTCON¹ conversion from NGVD 29 to NAVD 88 datum, for Moore Lake, is used (0.19 feet). All elevations for Moore Lake are reported in NAVD 88 unless otherwise noted.

East and West Moore Lake were mapped as FEMA Flood Zone A as part of the Anoka County Flood Insurance Study. The study was effective December 16, 2015. Flood Zone A is an approximate study which does not have published floodplain elevations.

The maximum annual series, consisting of 31 years, was plotted on probability paper. A polynomial line was fit to the data to determine the elevations for the various recurrence intervals (see **Figure 7b**). The estimated flood elevations are shown in **Table 7a**. The 100-year flood elevation was estimated using the polynomial equation. Insufficient lake level data and information on potential overflow elevations are available to provide a reliable estimate of the 500-year flood elevation.

Table 7a: Estimated Flood Elevations for Moore Lake

Return Period	Lake Level Data Source
	DNR (used in this study)
	(n = 31)
	(NAVD 88)*
2	878.0
5	878.4
10	878.6
50	880.0
100	881.5
500	--

* NAVD 88 – 0.19' = NGVD 29

¹ <http://www.ngs.noaa.gov/TOOLS/Vertcon/vertcon.html>

An additional component of this study consists of creating a non-exceedance frequency graph based on all daily measurements available (see **Figure 7c**). For Moore Lake, the period of record consists of the data found on the MnDNR Lake Finder website, which consists of 896 days of measurements, from 1981 to 2019 (see **Figure 7a**). The results are presented in **Table 7b**.

Table 7b: Daily Non-Exceedance Frequency of Lake Levels for Moore Lake

Non-Exceedance Frequency	Lake Level (NAVD 1988)
2.5%	876.8
10%	877.2
25%	877.4
50%	877.6
75%	877.9
90%	878.2
99.5%	878.8

Moore Lake Levels

♦ DNR Lake Finder ♦ Annual Max (Lake Finder)

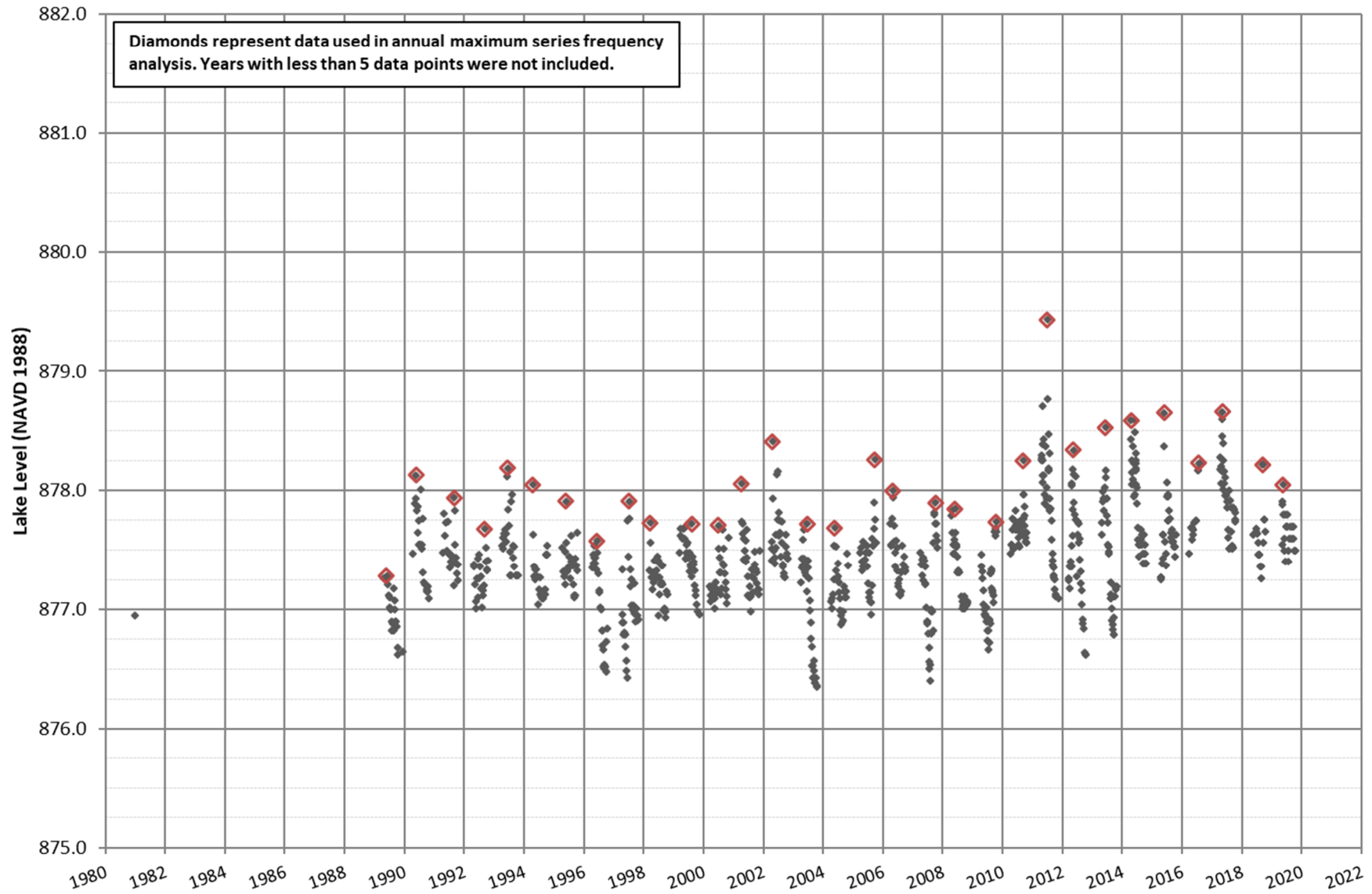
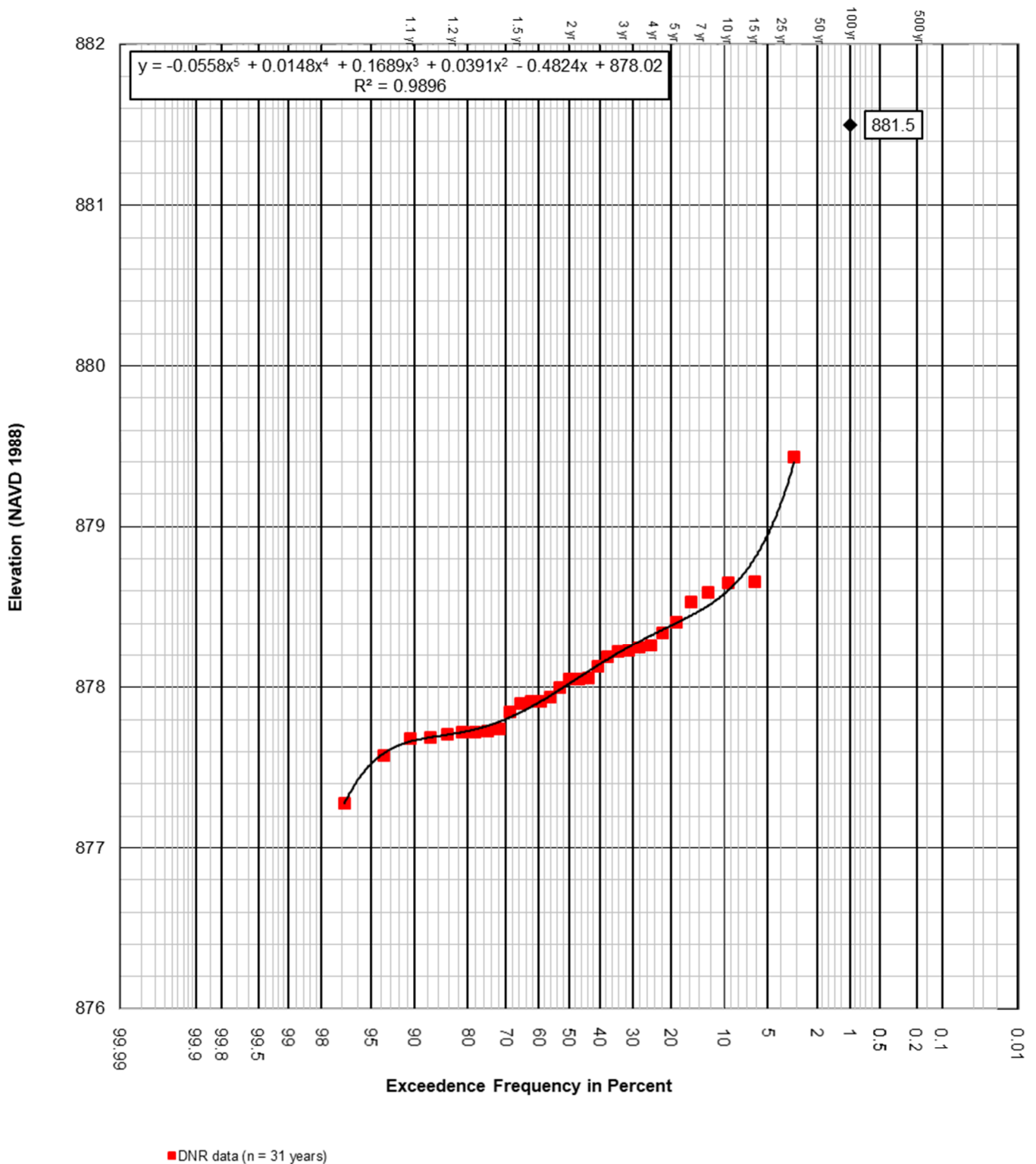


Figure 7a

Moore Lake Levels (NAVD 88) **Maximum Annual Series Frequency Curve** **(Weibull Plotting Positions)**



Outlet:

24-inch RCP @ 875.39 (NAVD 88)

Figure 7b

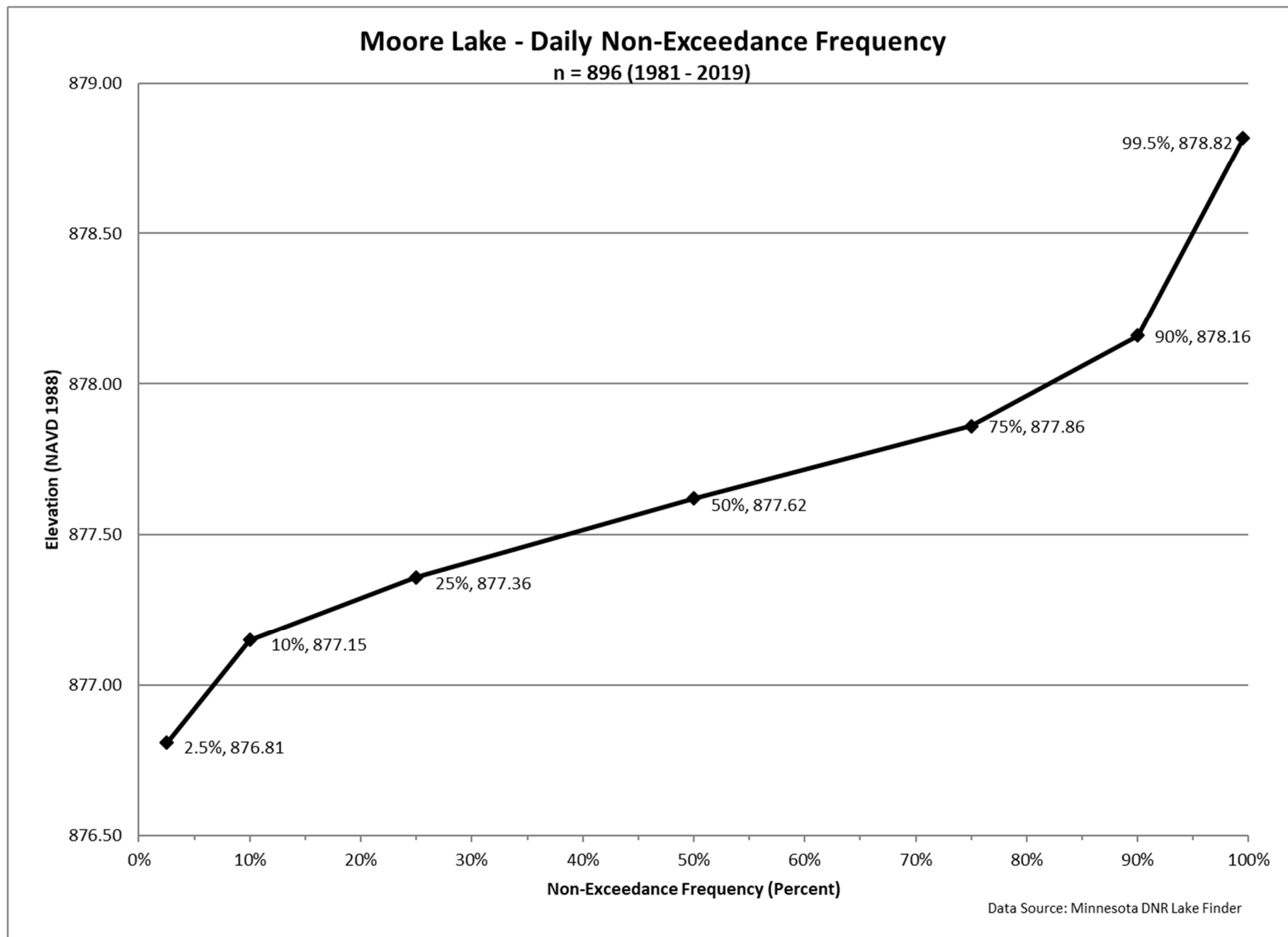


Figure 7c