

In 1881 William Henry Green cleared and set aside half an acre of his land as a church site. The church building was constructed ten years later in 1891.

St. Paul's was consecrated that year on September 2.

In 1901, St. Paul's had installed seats of oiled ash with curly birch ends, crafted by Mr. E. Brooks. Renovations and improvements continued, and ten years later the church's exterior was bricked in 1919 through the generosity of the Ogle family. The interior lamps were purchased with the funds from a picnic, and lasted 59 years until electric heating and light was installed in 1963. The front doors were donated by the Women's Auxiliary of All Saints' in 1953. Next, on October 13, 1968 the window was dedicated. The church maintains its original interior wooden walls and pine log supports for the plank floor.

In 2019 the church was set to be deconsecrated by the Archdiocese of Algoma, the northern Ontario organizational body of the Anglican Church. As a result, someone needed to take over responsibility for the building, which was built in 1891. The Township of Lake of Bays had taken over the care of the cemetery that surrounded the small brick and wood constructed building however in late July 2019, it was determined the building should be demolished.