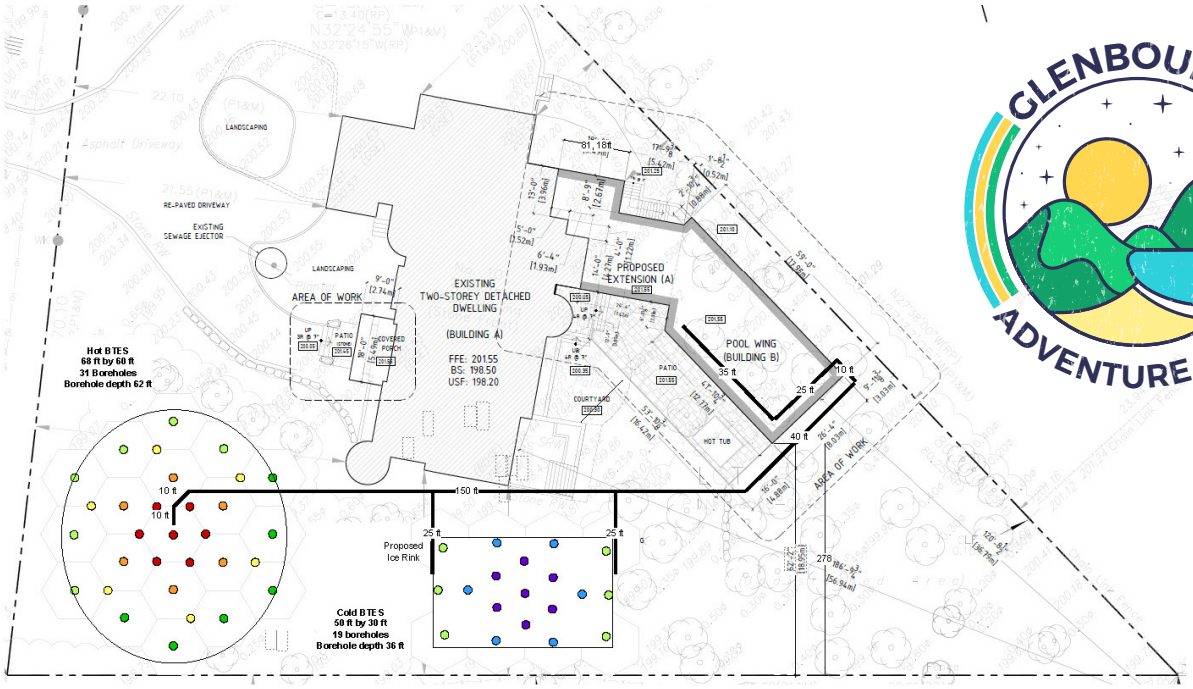
TYPE OF WORK: GEOSTORAGE

PAST PROJECT

Recreation Centre

TORONTO ONTARIO



PROJECT INSIGHT: Early integration of thermal design with recreational programming allowed the team to balance simultaneous heating and cooling loads more effectively. Careful load profiling and sequencing of heat pump operation were key to achieving a high system COP and reliable year-round performance.

Year built	**2025**
Client	**Confidential**
Building size	**16,000 SQ. FT.**
Contract size	**$70,000 CAD**
Project size	**$550,000 CAD**
System size	**800 m of boreholes, 61 kW GSHP, 22 kW ASHP, 15 kW PVT**

ThermaStor team served as the lead engineering consultants for the integration of Geostorage (BTES) at the Glenbourne Park Recreation Centre, a multi-use facility. The project included an indoor pool, seasonal outdoor ice rink, snow melt system, and year-round outdoor hot tub, creating a highly variable thermal load profile and an ideal application for seasonal energy storage.

The system design featured a hybrid of photovoltaic-thermal (PVT), ground-source, and air-source heat pump technologies, all tied to a centralized BTES field for long-term thermal storage and dispatch. The design team used advanced simulation tools to optimize seasonal heat balancing, load shifting, and component selection, achieving **a projected 86% reduction in natural gas and an impressive seasonal coefficient of performance (COP) of 8.5. With 65% reduction in peak electricity demands.**

By enabling significant thermal flexibility and year-round renewable energy utilization, the system offers both environmental and economic benefits for the facility and its users. The integration of waste heat from the snow melt and refrigeration systems into the Geostorage field maximizes system efficiency and provides passive redundancy during high-demand periods.