

Comments and Concern with respect to Groundwater Quality and Quantity

The City of Kingston has reviewed the Draft Project Description Report and Draft Project Description and Draft Design and Operations Report to evaluate the potential for adverse impacts on groundwater and impacts to neighbours on private services.

There are a limited number of mechanisms that could impose a risk to groundwater quality or quantity.

On Groundwater Quantity

Groundwater taking by the project would pose the greatest risk to groundwater quantity. The proponent has stated that 'no water taking is anticipated for any project activities'. To our knowledge, there are no excavations of a scale that would cause a dewatering of the groundwater aquifer (such as a quarry). Hardening of the surface such that infiltration of precipitation is reduced could pose a risk to groundwater quantity if local sources relied upon the recharge supplied by the project lands. There is no indication that any significant amount of hardening (i.e. increasing of imperviousness to infiltration) will take place as a result of the solar project.

On groundwater quality

Risk to groundwater quality is most often presented by the introduction of contaminants such as bacterial (i.e. from septic systems) or chemical (i.e. from petroleum distribution, agricultural pesticide/fertilizer use, etc.) materials that may enter the groundwater. With the exception of transformer cooling oils (non-hydrocarbon based) and fuels from service vehicles and construction equipment, the project descriptions do not indicate that significant sources of potential contaminants to the groundwater would be present.

Risk to groundwater quality may be posed when physical conduits for rapid surface water infiltration into the aquifer are created by constructed features. The construction of thousands of mounting poles into the ground may provide such a conduit. Mitigation of this risk would be easily accomplished by proper grading around the bases of the mounting poles and should be considered as a requirement within any permits provided as part of the projects compliance with the Site Alteration Bylaw. The proponent has indicated that no pesticides or herbicides will be used during maintenance activities. The project information also indicates that stripped soil will be replaced and re-contoured in the construction areas and disturbed areas will be re-seeded, as appropriate which will continue to allow infiltration of surface water with benefits of filtration through soils and vegetation. Another risk to groundwater is the potential for drilling through a perched groundwater table during construction providing a conduit to a deeper confined aquifer. Information provided in the project description reports indicates that "wherever possible, piles will not be installed into bedrock" and "if piles are installed in bedrock

they will done so using industry best practice (grout, cement, bentonite, etc.) to prevent the migration of surface water into shallow groundwater bearing formations.” The proponent has not provided any detailed geotechnical or design details for such installations. **In order to ensure that contaminant pathways are not created we request that the Ministry of Environment (MOE) require a grouting and sealing record for any man made conduits in excess of 3 metres below grade as described in Ontario Regulation 903.**

Environmental Effects Monitoring Plan: The proponent has indicated that detailed post-construction monitoring plans will be developed if required. The proponent has not presented details on such plans or provided any assurances that they will be completed. **We request that the MOE require a specific groundwater monitoring plan that includes surveillance of groundwater quality and quantity adjacent the project site so that unanticipated effects on local groundwater may be detected and corrected if necessary.**

If the requested documentation and plans (grouting records and groundwater monitoring plan) are provided, we do not feel there are significant risks to groundwater quality or quantity posed by the proposed project as described above. We recognize that the MOE is a more senior authority on matters of protection of the groundwater resource and may provide additional opinion.