

Kimvar Enterprises Inc.
 Big Bay Point Resort Development – Proposed Monitoring Program Matrix for Phase 1 of Construction– 2nd Revision
 Groundwater Resources
 June 2010

Study/Report Reference	Component	Potential Impacts	Proposed Mitigation Action	Monitoring Protocol			Reporting Protocol		Response to Monitoring Outcome
				Methods	Frequency / Timing	Duration	Content	Reporting Period	
Groundwater Resources Monitoring Program	Pre-Construction Monitoring (Phase 1) (up to January 2011)	None	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Complete door-to-door survey for well owners within 150 m/ 500 m, as per accompanying letter dated June 30, 2010 	<ul style="list-style-type: none"> Pre-construction period 	<ul style="list-style-type: none"> Two workday afternoon/ evening visits per residence 	<ul style="list-style-type: none"> Confirm utilized aquifers, pre-existing private well conditions Document well owner permission to monitor well if needed in future Findings documented in pre-construction monitoring report 	<ul style="list-style-type: none"> Pre-Construction Monitoring Report (completed at end of pre-construction period) 	<ul style="list-style-type: none"> Document pre-construction conditions Refine recommendations for monitoring during and post-construction
				<ul style="list-style-type: none"> Install sentry monitoring wells around the perimeter of the site at 18 locations (10 with shallow <u>and</u> deep monitors, 8 with shallow monitors) Install automatic water level monitoring equipment Monitor baseline water levels 	<ul style="list-style-type: none"> Pre-construction period 	<ul style="list-style-type: none"> Once 	<ul style="list-style-type: none"> Borehole logs with monitoring well installation details and baseline data Provide refined recommendations on monitoring during and post construction, along with triggers, contingencies and mitigation strategies 		
				<ul style="list-style-type: none"> Monitor water levels in sentry wells 	<ul style="list-style-type: none"> Hourly, with quarterly data downloads 	<ul style="list-style-type: none"> Pre-Construction Period (up to January 2011) 	<ul style="list-style-type: none"> Document pre-construction data on seasonal fluctuations in aquifers UC, A1 and A2, and the aquitard between UC and A1; 		
				<ul style="list-style-type: none"> Monitor water quality in sentry wells 	<ul style="list-style-type: none"> Twice 	<ul style="list-style-type: none"> Pre-Construction Period (twice) 	<ul style="list-style-type: none"> Document pre-construction water quality 		

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Potable Groundwater Resources Monitoring Program	During Construction Monitoring (January 2011 for 2 years)	<ul style="list-style-type: none"> Reduction in available drawdown in private wells due to construction activities (e.g., temporary dewatering) Degradation of private well water quality due to construction activities 	<ul style="list-style-type: none"> <i>NOTE: The following to be confirmed upon results of further investigation and pre-construction monitoring.</i> Where possible, modify, alter or cease the identified activity Install a mitigation measure (e.g., barrier wall) If 25% reduction in available drawdown confirmed, put temporary water supplies on standby If 50% reduction in available drawdown confirmed and impairment reported by well owner, connect temporary water supplies If related to vibration from construction, allow vibratory activities to cease If degradation to water quality confirmed, provide alternative water supplies 	<ul style="list-style-type: none"> Monitor water levels in sentry wells and selected private wells Monitor water quality in sentry wells and selected private wells <i>NOTE: May be modified further to pending investigations and results of pre-construction monitoring</i> 	<ul style="list-style-type: none"> Hourly, with quarterly data downloads Frequency to be determined <i>NOTE: To be modified further to pending investigations and results of pre-construction monitoring</i> 	<ul style="list-style-type: none"> During Construction Period (approx. 2 years) 	<ul style="list-style-type: none"> Summary of findings of the monitoring program Document impacts to private water supplies and their resolution 	<ul style="list-style-type: none"> Semi-annual Interim Update Memorandum 	<ul style="list-style-type: none"> Evaluate influence of construction on groundwater levels in shallow and deep aquifers Obtain data on which to evaluate private well complaints Implement triggers, contingencies and mitigation measures where necessary Relate observed/ reported effect to a construction activity Increase monitoring frequency for sentry wells Expand monitoring in private well(s)

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Potable Groundwater Resources Monitoring Program	Post-Construction Monitoring (subsequent to end of 2012)	None	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Monitor water levels in sentry wells and selected private wells, as required 	<ul style="list-style-type: none"> Hourly, with a final data download 	<ul style="list-style-type: none"> Post-Construction Period (<i>duration to be confirmed</i>) 	<ul style="list-style-type: none"> Document water levels following construction 	<ul style="list-style-type: none"> Post-Construction Monitoring Report (completed at end of post-construction period) 	<ul style="list-style-type: none"> Document consistency/return to pre-construction conditions Document resolution of issues, if any
				<ul style="list-style-type: none"> Monitor water quality in sentry wells 	<ul style="list-style-type: none"> Once 	<ul style="list-style-type: none"> Post-Construction 	<ul style="list-style-type: none"> Document water quality following construction 		
	Private Well Owner Complaint Resolution	As per “During Construction”, if during this period	As per “During Construction”, if during this period”	<ul style="list-style-type: none"> Respond to private well owner complaints 	<ul style="list-style-type: none"> Upon receipt of complaint <i>NOTE: To be modified further to pending investigations and results of pre-construction monitoring</i> 	<ul style="list-style-type: none"> Pre-, During and Post-Construction Periods 	<ul style="list-style-type: none"> Document private well owner complaints, investigations and resolutions 	<ul style="list-style-type: none"> Pre-Construction Report, Interim Updates, and/or Post-Construction Report 	<ul style="list-style-type: none"> Document resolution of well complaints

Notes:

- This table to be read in conjunction with accompanying letter entitled “Monitoring Program For Potable Groundwater Resources – 2nd Revision, Proposed Big Bay Point Development, Innisfil, Ontario”, dated June 30, 2010.
- Some details of the program to be further refined upon findings of pending additional investigations, as discussed in the above-referenced letter.