

3.6.3 Phase 2 Seasonal and Inter-Annual Change in Flows and Levels

The transient simulations through 2015-2024 provide insight into the effects of Phase 2 during seasonal and inter-annual variation.

The groundwater levels at two key locations, GWP4 and GWP6 (location shown in Figure 2.11), have been selected to illustrate the seasonal variation. Groundwater drawdowns at other locations are minimal, and mounding effects are discussed in the feature-based water budgets. Figure 3.28 shows that the change in groundwater levels between Baseline and Phase 2 in the Guelph and Gasport formations at location GWP4 are generally varying with slightly higher drawdowns during periods of lower water levels. Specifically, water levels during the summer are predicted to be reduced by 1.0 (in Guelph) to 1.8 m (in Gasport), whereas the reduction during the winter will be limited to a range of 1.5 to 2.0 m.

Figure 3.29 shows that the change in groundwater variability between Baseline and Phase 2 in the Guelph and Gasport formations at location GWP6 are minimal. However, in the Gasport formation, slightly greater drawdowns of approximately 0.2 m are predicted during both the summer and the wet seasons.

Figure 3.30 shows the change in streamflow at STR9 between the Baseline and Phase 2 scenario (location shown in Figure 2.11). Peak flows in this small headwater tributary are slightly more affected than summer low flows. This tributary is only one small component of the water budget of Pond NAT-18, and the full water budget for that feature is discussed in the following section. However, similarly as in Phase 1, the very low flows in this stream are significantly affected with percent reductions of 40% to 50% during the dry and wet seasons, respectively.

Figure 3.31 shows the effect of Phase 2 on flows down stream of Pond NAT-18 at locations STR8 and STR7. The hydrograph indicates a reduction between Baseline and Phase 2 streamflows at location STR8 of approximately 30%. At location STR7 streamflow reductions are expected to be between 10% and 20%.

Peer Review Comments:

Page not updated from October 2024 version.

NAT-16 flow reductions assumed similar to NAT-18.



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EARTH SYSTEMS ANALYSIS

Strada Pit/Quarry

LEVEL 1 AND 2 HYDROGEOLOGICAL ASSESSMENT

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