

PUBLIC HEARING RESPONSE – GROUNDWATER AND ENVIRONMENTAL CONCERNS

Regional District Central Kootenay

202 Lakeside Drive,
Nelson, BC, V1L 6B9

ATTENTION: Zachari Giacomazzo, Planner

REFERENCE: Rezoning for Spearhead Timberworks
4612, 4614-4616 Starlight Road
and 4643 Highway 3A, Nelson, BC

1 INTRODUCTION

Active Earth Engineering Ltd. (Active Earth) was asked to review and address the concerns raised during the public hearings held on January 9 and January 28, 2025, regarding the proposed rezoning application (Z2410F) for Spearhead Timberworks at 4655 Highway 3A, Nelson, BC, specifically relating to groundwater aquifers, wells, surface water, and broader environmental impacts. These hearings were held to discuss amendments to Zoning Bylaw No. 1675, 2004, and Electoral Area F Official Community Plan Bylaw No. 2214, 2011, as outlined in Bylaws No. 3002 and 3003. The comments below reflect the concerns of residents and stakeholders, alongside relevant context from the Groundwater Impact Assessment Report prepared by Active Earth, dated January 29, 2025 (Project Number 4397).

2 SUMMARY OF PUBLIC COMMENT AND CONCERNS

The following summarizes the documented public comments and concerns into categories that are later addressed in this response letter.

- **Groundwater and Wells:** Several residents expressed significant concerns about the potential contamination of local aquifers, particularly Aquifer #994, which is classified as highly vulnerable. The Groundwater Impact Assessment Report confirms that the site is underlain by Bedrock Aquifer #1018, which is likely hydraulically connected to Aquifer #994. The report indicates that the aquifer underlying the site is moderately vulnerable and productive enough to support the new developments. However, residents emphasized the importance of protecting their drinking water sources and requested more thorough studies and continuous monitoring to ensure the safety of their wells.

Linda Blair, a resident of Crescent Beach, highlighted that the groundwater assessment failed to provide monitoring recommendations. She questioned what measures Spearhead would take to monitor the aquifer to ensure that well water remains pristine, clear, and clean. The report mentions that the depth to groundwater could not be directly assessed at the site, and the depth to the water table is assumed to be deeper than 1.5 meters below grade. This uncertainty has raised concerns among residents about the potential risks to their water supply.

- **Water Usage and Quality:** Concerns were raised about the potential increase in water usage and its impact on the local water supply. The report estimates a septic system flow capacity of 5,780 L/day, which is approximately equivalent to three single-family homes. Residents questioned the sustainability of the proposed development's water consumption and its effects on the existing water resources. There were also worries about the potential for surface water contamination and the measures in place to prevent such occurrences.

Michel St-Germain, a resident of Crescent Road, emphasized the risk of contamination caused by the new chemicals that will be used in the manufacturing process. He pointed out that the proposed glulam manufacturing process would use hazardous chemicals with acute toxicity, such as Loctite polyurethane adhesives, which are classified as isocyanates. Research indicates that these chemicals should not be allowed to enter groundwater. St-Germain expressed concern that the environmental impact assessment did not address the risk of water contamination from these chemicals.

- **Environmental Impact:** The environmental impact of the proposed development was a major topic of discussion. Residents highlighted the need to preserve the natural habitat and protect local wildlife, particularly in the nearby Kokanee Creek Provincial Park. The Groundwater Impact Assessment Report notes that the proposed operations will include planing, cutting, and gluing of wood to produce finished glulam products, with all operations conducted inside an enclosed building with a continuous concrete floor. The report concludes that the proposed operations present a low risk to the environment, but residents remain concerned about potential air and water pollution from the proposed biomass boiler and other industrial activities.

Chauncy Blair, a resident of Crescent Beach, raised concerns about the potential health risks associated with exposure to industrial pollutants, including those from adhesives and other chemicals used in the manufacturing process. He pointed out that the polyurethane adhesives used in the glulam manufacturing process contain methylene diphenyl diisocyanate (MDI), which can cause serious health issues such as respiratory inflammation, asthma, and possibly lung cancer. Blair emphasized the need for stringent control systems to prevent these chemicals from entering the ecosystem.

- **Health and Safety:** Health and safety concerns were also prominent. Residents were worried about the potential health risks associated with exposure to industrial pollutants, including those from adhesives and other chemicals used in the manufacturing process. The report mentions that the glue and stain products will be delivered in sealed containers and applied mechanically, with no bulk storage of process chemicals on-site. Despite these measures, the community requested detailed information on the safety protocols to protect both residents and the environment.

Mariette St-Germain, a resident of Crescent Beach, highlighted the risks associated with the disposal of hazardous adhesives and the potential for accidental spills. She pointed out that the BC Hazardous Waste Regulations state that hazardous waste must not be deposited or discharged into any system of waste disposal operated by a municipality or other public

authority unless expressly authorized by a permit. St-Germain emphasized the need for strict compliance with these regulations to prevent environmental contamination.

In conclusion, the public comments and concerns highlight the community's strong desire to protect their water resources, preserve the environment, and maintain their quality of life. It is crucial that these concerns are thoroughly addressed and that appropriate measures are implemented to mitigate any potential risks associated with the proposed development.

3 RESPONSE TO CONCERNS

The following provides a response to the concerns described above.

- **Groundwater and Wells:** The overburden Aquifer #994 is comprised of alluvial sand and gravel deposits from Kokanee Creek and is located at lower elevation to the Site, essentially bounded along Highway 3A to the immediate south of the Site. This overburden aquifer is not present on the Site. The Site overlies bedrock Aquifer #1018, with a thin soil veneer that blankets the shallow bedrock.

The depth to water in the bedrock aquifer is not indicative of an unconfined water table but rather represents the water pressure encountered in discrete fracture zones that are intercepted by a given well. As such, there is significant variability observed in the existing wells surrounding the Site. The depth to water is noted to be 300ft deep in the closest adjacent water well (WTN 105588) located immediately west of the Site. In other wells to the north and west (WTN 79334 and 92888) it is about 80-100ft, and one well to the east of the Site (WTN 91664) it is reported as only 4ft. In general, the wells in the vicinity of the Site are quite deep (generally in the 300-700 ft range). The bedrock aquifer is comprised of discrete fracture networks that carry the majority of the groundwater flow and the wells must be drilled deep enough to encounter sufficient water bearing fractures. The recharge of water to these fractures occurs at higher elevations up the slope to the north of the Site. In some cases, this can result in water pressure in the deep fractures being quite high and water levels in the well can be close to or even above the ground surface (such as WTN 91664), but most wells are showing deeper static groundwater levels indicative of lower pressures in the fracture networks. The upper 35ft (10m) appears to be void of significant water-bearing fractures based on the surrounding wells – the wells simply would not have been drilled as deep if groundwater was encountered at shallower depth. The source of groundwater that recharges the groundwater flow in the fractures does not include the footprint of the planned excavation. Additionally, several test pits have been excavated at the proposed building site and no groundwater was encountered to 5m depth (max depth of test pits). Please refer to the table on page 6 of the Active Earth report and Figure 2.

The Kootenay River represents a groundwater discharge zone and as such, deeper groundwater flow within the fractured bedrock will upwell towards the surface in the area and discharge to the river. As such, there will be some component of the bedrock groundwater flow that will recharge the unconfined Aquifer #994. However, the majority of

groundwater recharge is inferred to be infiltration of precipitation directly into the overburden soils and leakage from Kokanee Creek. Shallow wells closer to the river are likely directly hydraulically connected to the river. The depth to groundwater is quite shallow in the overburden Aquifer #994 and there is no natural confining layer; as such, the aquifer is classified a highly vulnerable to surface sources of contamination. This pertains to activities in close proximity to the wells that have the potential to impact water quality by infiltrating directly from surface into the ground. This potential pathway is not directly operable from the Site, as the overburden aquifer sediments do not extend northward beneath the Site.

Spearhead plans to monitor water levels and water quality in their wells on-Site in addition to the closest neighbouring well (WTN 125918). Water quality samples will be collected prior to any construction activities and dataloggers will be installed to monitor water levels, pre-construction, during construction and post-construction.

Water Usage and Quality: The quantity of water (demand flow) required for the proposed development is approximately equal to the demand of three single-family lots and therefore no significant change is anticipated as a result. The impact to neighbouring wells is anticipated to be negligible and monitoring will be undertaken to confirm.

Active Earth has reviewed the proposed facility operations and procedures with respect to the import, handling, process and disposal of chemicals primarily glue products. Assessed from the perspective of the BC Contaminated Sites Regulation (CSR), the operations are considered to present a low risk to the environment. There is no handling or storage of large quantities of free liquids; glue and stain products are delivered and handled in discrete containers and the mechanical application occurs over a continuous concrete floor.

- **Environmental Impact:** The environmental impact of the proposed development is deemed to be low in terms of potential impacts to soil, groundwater and the terrestrial environment. Additional concerns related to air quality have been raised. The existing and proposed operations include robust air quality management systems to collect and treat emissions from the facility.
- **Health and Safety:** There will be no disposal of hazardous wastes on the Site. The chemicals (glues and stains) used in the processes are delivered in discrete containers and mechanically applied. The containers are then returned to the supplier. This handling and application of the chemicals greatly mitigates the potential for environmental and health and safety related impacts. There are stringent laws in BC that preclude any disposal of hazardous waste on the Site.

4 LIMITATIONS

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4. Active Earth Ltd. has agreed to conduct an assessment and prepare this report as requested by the client named in the report for the use specified by the client, which is stated in the report. The client has agreed that the performance of this work and the report format are appropriate for the intended use.
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5 CLOSURE

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Yours truly,

ACTIVE EARTH ENGINEERING LTD.

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