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**APPEAL GROUNDS FOR UBC APPEAL: EPA API ASSESSMENT REPORT 1592: BALANNUP
WASTEWATER PRESSURE MAIN
PROPONENT: WATER CORPORATION**

GROUND OF APPEAL

Ground 1: Clearing and construction footprint and impact will be much greater

Concerns: Disturbance of the whole 1.5km x 4m track width (=6000 sq m) will mean that clearing and surface soil disturbance will be much greater than the 0.1ha described. Much of the track is not 4m wide so vegetation will be removed. Also surface soil disturbance will impact the adjacent vegetation.

Root systems of the adjacent vegetation will be present under the (already) cleared tracks and they will be cut by the tunnelling and therefore there will be significant disturbance of the adjacent Groundwater Dependent Ecosystems (GDE) in a significant band. It only takes one action of soil disturbance for vegetation to be significantly impacted.

Outcome sought: A 4metre wide track is far too wide and should not be permitted. Remove the pipeline from the Bush Forever Area so that the inevitable impacts are all avoided. The Pipeline could go around the site on cleared road reserves well away from the Bush Forever Area *BUT the best option is:*

Alternatively completely review the proposal by upgrading the Pump Station at Harrisdale and then re-routing the pipeline direct to the Wastewater Treatment Plant.

Ground 2: Impact of machinery to install 1.5km of pipe in 1 piece with no joins

Concerns: There will inevitably be much large vehicle presence and turning and passage through the area as the soil removed by tunneling will have to be removed from the site by heavy vehicles. Notably the EPA report does not state how this soil removed will be treated or where it will go. There will undoubtedly be major soil disturbance all along the 1.5km.

How can 1.5km of pipe in 1 piece without joins be transported and installed underground? This seems unrealistic.

Outcome sought: It would be better to have a pipeline above ground. BUT we recommend that no pipeline be located in the Bush Forever site at all. The site is too sensitive with GDE and is of very high conservation value.

Ground 3: Flora and Vegetation impacts will be much greater than described

Concerns: Impacts on TEC's significantly under-estimated. Impacts on PEC 21c and on CE TEC SCP 10a will be made by the pipeline under cleared tracks as roots of these TEC's under cleared patches will be cut. Thus effective

clearing or degradation may be quite extensive each side of the track to be cut. The EPA seems to ignore the fact that TEC SCP 10a is critically endangered and we disagree that only 0.04ha will be impacted. Thus fragmentation of existing vegetation will be significant as the likely clearing and degradation impact will be many ha.

Outcome sought: Tunnelling is not acceptable through the 1.5km and should not be permitted.

Ground 4: Weeds & Dieback infestations will increase causing ongoing degradation

Concerns: The EPA's environmental conditions aimed to prevent or minimise weed and dieback incursions into Area A will not stop their inevitable incursions over time. This is an inevitable risk. They are already in Area B so vehicle movement into Area A will in time facilitate invasion. This will result in degradation of a critical asset and its flora and vegetation and ecosystem function.

Outcome sought: Do not allow the pipeline to be located in this sensitive Bush Forever Area. Remove the pipeline from Area A.

The EPA should have invoked the precautionary principle so that this unacceptable risk is avoided.

Ground 5 title: Fatal flaw in minimising impacts: Construction method that avoids trenching activities

Concerns: The EPA's Environmental Factor Guideline (EFG) for Flora and Vegetation (EPA 2016 b) states: *'utilising a construction method that avoids trenching activities'*.

This is the very significant factor that the proponent has not avoided. And the EPA has not justified in its assessment this lack of avoidance as specified in the above EFG.

The environment in Area A is highly sensitive to disturbance with the likely presence of Acid Sulfate Soils (ASS), extremely complex and variable stratigraphy, and consequently complex groundwater hydrology. The EPA admits that the stratigraphy is highly complex and that it is not completely understood.

Any soil disturbance will disturb and change the hydrology and consequently disturb and likely change the vegetation structure as this is a Groundwater Dependent Ecosystem (GDE). The impacts will extend under the adjacent vegetation and beyond and will be much greater than just under the track.

Therefore we submit that the EPA's failure to enact the precautionary principle and the principle of prevention to ensure that their guideline to avoid trenching activities is enacted is a fatal flaw in their assessment.

Outcome sought: *The Minister remits the EPA's advice back to the EPA for revision so that: trenching activities in Area A are not permitted.*

There would be much less impact if the pipeline were installed above ground. Any pipeline leaks would be visible and cameras could be installed for security. However such installation would still introduce unacceptable surface soil disturbance and facilitate future weed and dieback invasion. Thus the Bush Forever Area should be avoided completely by installing the pipeline along cleared road reserves and the best option is complete avoidance as stated in our ground no. 1.

Please note that the UBC strongly encouraged this best option when meeting with the Water Corporation before the proposal was referred to the EPA. The advice given by our team of experts *was completely ignored* (including experienced botanist B. J Keighery, experienced groundwater hydrologist Dr Vic Semeniuk, Environmental Scientists Catherine Cooper, Mary Gray and knowledgeable citizen scientists from the Friends of Forrestdale - David James, Bryony Fremlin).

Ground 6: Minimising impacts: Construction and Environmental Management Plan will not avoid permanent impacts.

Concerns: The EPA recommends that the proponent prepares a Construction and Environmental Management Plan in order to prevent weed incursion, follow up weed control, ensure dieback is not introduced during construction and so on. While this seems good, words on paper cannot prevent weed and dieback or other disease entry *per se*. Monitoring and auditing of these measures are needed.

The reality is that the EPA's audit of conditions set for other projects has a poor record. There is a lack of staff and resources to properly monitor and audit project construction and ongoing management. Therefore we submit this is a fundamental weakness and indeed a fatal flaw in the EPA assessment which cannot guarantee the avoidance of permanent significant impacts.

Outcome sought: *The Minister sends back the EPA's advice and recommendations to the EPA for revision so that:* The precautionary principle is invoked by the EPA so that the risk of weeds and dieback and other diseases is completely avoided by locating the pipeline outside and away from the margins of the Anstey-Keane Bush Forever Area. It must be recognised that once plant diseases such as dieback invade, permanent degradation occurs. The Anstey Keane Damplands are of the highest conservation value and are thus 'critical assets' for the EPA to ensure their protection.

Ground 7: Hydrological processes are highly significant

Concerns: The EPA objective is to '*maintain hydrological regimes of groundwater and surface water so that environmental factors are protected.*' (EFG Hydrological Processes, EPA 2016 c). The EPA recognises that the Anstey Keane Damplands includes CCW's, is a Groundwater Dependent Ecosystem (GDE), and includes the critically endangered perched wetlands TEC SCP 10a: 'shrublands on dry clay flats'. It is recognised that these TEC wetlands are filled by rain water and are not connected to groundwater. However it is a fact that their clay base must not be disturbed or punctured for this ecosystem to remain intact.

On page 13 the EPA states: '*The EPA notes that the hydrological processes that operate at the local scale are not fully understood because of the complex stratigraphy in the area.*' We agree with this statement. The complexity of the stratigraphy at the shallow levels (under 2m depth) where the pipeline is proposed to be located means that disturbance will inevitably alter it. The pipeline installation could easily cut through and break a clay layer so that water flows are changed, *ie* the hydrology is altered and the associated plant growth and ecosystem processes could be altered and degraded. This would be contrary to the EPA's objective above.

Therefore the precautionary principle and principle of prevention should apply so that the above risks are avoided.

Outcome sought: *The Minister applies the precautionary principle and directs the EPA to revise its advice accordingly in line with EFG Hydrological Processes EPA 2016 (c) so that the risks above are avoided completely and no tunnelling is permitted.*

Ground 8: Presence of the pipeline has the potential to change the soil profile

Concerns: The EPA admits that the physical presence of the pipeline has the potential to change the soil layers of varying clay and sand mixes as the groundwater levels are variable between 0 and 4m below ground level. This small scale complexity of the soil layers means that a pipeline would cut through varying layers and inevitably change the pattern of ground water flows and storage. The perched claypans are very shallow with the clay base at varying levels below ground and at ground level on their perimeter.

The proponent proposes the pipeline will be at a maximum depth of 1.2m below ground level '*to avoid perched layers.*' But it is impossible to avoid the edges of a perched wetland as it comes to the ground surface. Thus

perched wetlands cannot be completely avoided so the proposal will change layers and hydrological flows – which in turn will have the capacity to have an impact on the 1.5km adjacent Groundwater Dependent Ecosystems (GDE), not just the TEC SCP 10a.

Outcomes sought: *The Minister directs the EPA to revise their advice so that below ground disturbance of the GDE and TEC SCP 10a is not permitted. The Minister decides that a below ground pipeline is not permitted through Area A.*

Ground 9: Flawed logic by EPA that ‘excavation not required’ leads to incorrect conclusion

Concerns: The EPA states that the proposal will not require ‘excavation’. But the placement of the pipeline will require *excavation and removal* of the soil to be occupied by insertion of the 450mm diameter pipe. The 1.5km x 450mm area of soil is to be excavated and removed. The EPA’s reasoning on page 14 is not logical and is incorrect. The barrier of the pipeline will change the pattern of groundwater flows in these critical shallow layers where perched clay levels exist.

Therefore the EPA conclusion that the proposal is unlikely to interrupt the hydrological regime is not logical and indeed is incorrect. The near surface hydrology will inevitably change. This will have an impact on the vegetation (GDE) adjacent to the tracks and indeed under the tracks where root systems exist.

We emphasise again that the GDE occur all along the 1.5km track in Area A so all will be impacted, not just TEC SCP 10a.

Outcome sought: *The Minister remits the EPA advice to the EPA to address their flawed logic and revise it so that their recommendations state that no excavation including tunnelling is permitted.*

Ground 10: Unacceptable practice of dewatering for Area B

Concerns: For Area B, dewatering in the Harrisdale area and on the east of Area A in Haynes, Armadale is in an area of palusplain wetlands with ground water levels near the surface in many places. Dewatering affects the groundwater level of surrounding areas as a cone of groundwater level depression occurs.

Also the area contains Acid Sulfate Soils (ASS) which must not ever be dewatered as acidification and release of heavy metals occurs and they become local pollutants.

Dewatering in Area B is likely to affect the groundwater levels and flows and water quality in the nearby Anstey-Keane Damplands and in other nearby native vegetation.

Avoidance of all dewatering in all ASS areas should be standard practice for all infrastructure agencies including the Water Corporation. It is somewhat disturbing that the proposal includes dewatering in Area B and that the EPA has overlooked this fact.

Outcome sought: *The Minister makes it a condition that all dewatering is not permitted in Area B (as well as Area A). The greatest risk is that ASS will be acidified if there is any dewatering.*

Ground 11: Fatal flaw: Unacceptable inherent risk to inland waters environmental quality

Concerns: With a pipeline conveying raw sewage through the Anstey Keane Damplands, there will always be a risk of leakage, burst pipe and spill of raw sewage into the surface or groundwater or vegetation of this unique conservation site. Raw sewage is very high in nutrients and pollutants that cannot be removed from a wetland ecosystem that is characterised by very low nutrient and pollutant levels. So if there is a spill, damage will be done and water quality will suffer enrichment and pollution. This is an unacceptable risk for such a high value conservation area.

The proponent claims to reduce the risk of spill by installing a thickened pipeline with no joins over the 1.5km length of Area A. This means a single pipe of 450mm diameter and a length of 1.5km is to be installed. This is not practical and probably not feasible. How could a 1.5km x 450mm pipe be constructed and transported in one piece? How could it be installed without huge machinery on site causing further destruction of vegetation? It is beyond belief that the EPA has completely overlooked the impractical reality of such a suggestion. We believe that this preposterous suggestion designed to avoid contamination of water quality in the Anstey Keane Damplands is not feasible and is thus a fatal flaw in the EPA's assessment which accepts it.

Outcome sought: *The Minister realises that, as it is not possible to avoid completely the risk of a raw sewage spill or seepage especially from a pressure main, the objective to maintain inland water quality cannot be realised.*

The Minister declares the construction of the Balannup Wastewater Pressure Main through any part, whether underground or on the surface of the Anstey Keane Damplands, to be environmentally unacceptable and therefore is not permitted.

Further comment

It is a matter of grave concern that the EPA has recommended this proposal be approved as it is inconsistent with the EPA's advice and recommendations and the Minister's decision to declare environmentally unacceptable the local road proposed by the City of Armadale along the same route.