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Culvert Replacement along P449 Road: Response to external review query

The external reviewer for this project questioned the choice of tools used to report on baseline conditions against which construction impacts will be monitored. An extract from this correspondence is provided below:

"In terms of their assessment, we do not believe that the IHI is a suitable assessment tool, as this is a long term tool utilised to show change over time (long term). As this is a construction project and short term, a SASS assessment should have been done to determine the baseline against which construction impacts will be monitored. The impacts as alluded to in the assessment will be of a short duration and there is a need to be able to determine the impacts that are imparted as a result thereof. We would further recommend that a Seicchi depth test (clarity tube) be utilised as this will illustrate the sediment that may be transported in the water during construction and will impact significantly on the biota in the river system. The sediment will be deposited on downstream habitat, such as stones in current biotope, where faunal species are usually diverse and where the most sensitive species usually occur.

In our opinion, the lack of a SASS assessment, is a shortfall, and will not allow for biomonitoring to be undertaken during the construction phase, where the most significant impacts will be imparted."

In response, I would first like to raise a concern that the review was undertaken by a practitioner registered in the field of "Biological Science" rather than in Aquatic or Ecological Science which would be more appropriate for a review of this nature. Having said this, it is also important to note that we follow a **risk-based approach** in selecting the most appropriate assessment tools for each assessment we undertake. The choice of tools is considered for each proposal that we prepare and are selected with due consideration of expected project risks and costs for collecting and reporting on the assessments.

As pointed out by the reviewer, we agree that the IHI assessment tool is a rapid assessment tool and is not designed to monitor short-term changes in aquatic conditions. It does however provide a useful framework for assessing existing impacts and documenting the PES of rivers and streams where a rapid assessment is appropriate. We therefore apply the IHI tool routinely to river assessments undertaken for developments that we regard as "low risk", such as the case or minor road upgrades, re-alignments and culvert upgrades (as per this project).

Whilst we do agree that SASS (and the use of other more detailed assessments) can be a useful tool for assessing baseline conditions, it adds cost to the assessment and we therefore apply this approach selectively to projects where we believe it would add significantly to the assessment and/or is likely to be recommended as an approach for monitoring project impacts. We would therefore typically apply SASS to moderate to high risk activities, and particularly in instances where planned activities pose a real risk to water quality. There are occasional instances in which a SASS assessment may not be undertaken as part of the baseline assessment but will be recommended for

inclusion in a monitoring programme. It is worth noting however that SASS is not an appropriate tool for assessing the watercourses in this instance, given that this method is unsuitable for wetlands and ephemeral river systems.

In the case of this particular project, we recognised the possibility of both construction and operational-phase water quality impacts when defining our scope of work, but expected these to be a low risk based on numerous other similar projects that we have undertaken. We therefore opted for IHI rather than the use of more detailed assessment tools. These expectations were borne out during our assessment as reflected in the following comments which were raised in our report¹:

- Construction phase: “While water quality impacts are possible and may have a measurable effect of water resource quality and aquatic biota sensitive to water quality modifications, these impacts are unlikely and in the event that they do occur will probably be short-lived.”
- Operational Phase: “Operation phase water quality impacts are therefore likely to be of very low intensity or significance for a project of this nature and are unlikely to have a negative biotic response within the receiving river habitat.”

The significance of water quality impacts was assessed as being of “Low” significance, even under a standard mitigation scenario. This is reflected in the impact statement (p31) which reads: “Water quality impacts during both the construction and operational phases are unlikely to be significant and can be easily mitigated and reduced to negligible significance levels with onsite mitigation and potential pollution source-directed controls.”

In terms of managing and monitoring construction activities, we believe that oversight of the project by an ECO, with appropriate emphasis on the pollution prevention measures outlined in our report (p40) is adequate for a project of this nature. Recommended construction phase monitoring recommendations have therefore been limited to on-site visual monitoring by the ECO, with appropriate corrective action in case any concerns are noted. Having said this, we have included the conditions of the GA for which compliance requirements are more onerous and includes a requirement for instream water quality to be measured on a weekly basis during construction (includes pH, EC/TDS, TSS/Turbidity, DO) both upstream and downstream of the works. This will already add an additional cost to this project, that we do not feel is appropriate to the water quality risks associated with this project. The suggestion to include biomonitoring during the construction phase would add further costs to the project and we regard this as unnecessary for a project of this nature.

We note that the suggestion of using a water clarity tube could add some value to the ecological monitoring of turbidity impacts / sedimentation that we suggested be monitored. A rapid visual inspection upstream and downstream of the construction zone would however be sufficient to pick up any major concerns if they were evident at the site.

A further question raised in your Email indicated that the reviewer stated that *“the Phongola River is a FEPA system and therefore it is a requirement that a SASS assessment be undertaken.”*

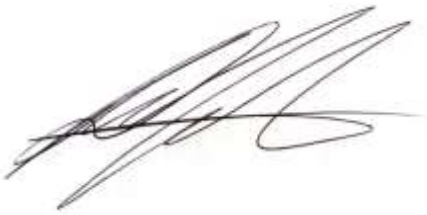
Firstly, it is important to note that activities will not impact directly on the Phongola River or associated wetlands but are located on ephemeral drainage lines that lead into this important floodplain system. Whilst wetlands associated with the Phongola River are classified as Wetland FEPAs, the river itself is not a FEPA. The sub-quaternary catchment in which development activities are taking place therefore does not qualify as a FEPA catchment but is recognised as a Fish Support Area due to the importance on the Phongola River for providing habitat for an important and diverse fish population.

¹Extracts come directly from p29 & p30 of the report.

Secondly, whilst we agree that FEPAs provide an important input into the EIA process, there are no standard recommendations that require SASS to be applied to all FEPA rivers. Guidance is however provided on how FEPAs can be integrated into environmental impact assessments in the Implementation Manual for Freshwater Ecosystem Priority Areas². This guidance is quite broad but does encourage the assessor to pay particular attention to FEPAs and associated catchments due to their conservation value. Due consideration is given to these guidelines when undertaking freshwater assessments.

I trust that this answers your concerns.

Regards,

A handwritten signature in black ink, appearing to read 'DM', with a horizontal line drawn through it.

Douglas Macfarlane
Director & Principal Scientist
Eco-Pulse Environmental Consulting Services

² Driver *et.al.*, 2011. Implementation Manual for Freshwater Ecosystem Priority Areas.