Threatened Species

Threatened Flora

Three threatened flora species are known to occur in the area of the proposed STP and Pipeline. All of these are vulnerable and listed under Schedule 2 of the TSC Act. These species are: *Caladenia tessellata*, *Syzygium paniculatum* and *Tetratheca juncea*.. These three threatened flora species are discussed in SISs which were prepared and exhibited as part of the EIS. Both SISs conclude that SISs are not required for these species.

The Department has reviewed the 8-Part tests undertaken for these species and it is accpeted that *Syzygium paniculatum* has been afforded suitable survey and has not been found on the sites proposed for development and therefore accepts the conclusion that there is unlikely to be a significant effect on this species. *Tetratheca juncea* was not detected during the surveys and it is accepted that there is unlikely to be a significant effect on this species.

The information for *Calledenia tessellata* was not as clear. The habitat description for this species is very broad and the claim that the habitats within the study area are not suitable for this species, is not supported. This species is an orchid and as the surveys were not conducted during the flowering period of this species, the species could be present on the Peninsula but might not have been detected by the flora surveys. Nevertheless the pipeline site would be progressively backfilled with the stocked soil material as the pipeline is installed and if any individuals of this species did occur in the area affected, the reinstatement of soil material will ensure that the species is retained on-site. Also, given that almost all of Kurnell Peninsula is likely to provide suitable habitat for this species (ie sandy soils), the area of impact is relatively minimal compared with the area of habitat available for this species on the Peninsula. Suitable habitat also exists in Botany Bay National Park and Lucas Reserve. It is therfore accepted that there is unlikely to be a significant effect on this species should it actually occur in the study area.

The Representations Report states that the pipeline route will be reinspected for the presence of *Caladenia tessellata* and *Tetratheca juncea*. This approcah is endorsed and it is recommended that the proposed Flora and Fauna Management Plan make provision for relocation of this species to the nearest adjacent suitable habitat should it be found along the pipeline route.

Threatened Fauna

The main potential direct impact on terrestrial fauna would be the loss of habitat caused by the construction of the pipeline and the STP. Potential indirect impacts could also arise with the pipeline trench acting as a pitfall trap for the fauna. The most important fauna species affecting the site of the proposed Sewerage Treatment Upgrade, pipeline and construction and access sites are the Tinkling Frog and the Green and Golden Bell Frog. In addition there was aconcern that there was no assessment of the potential impact on the Swift Parrot.

- Tinkling Frog (*Crinia tinnula*)

The Cronulla STP site is located away from the known population of the Tinkling Frog. The main development of contention is the pipeline and its associated works. It appears that the pipeline is not directly impacting on known locations of the Tinkling Frog or what is

considered by the Australian Museum to be core habitat, although the pipeline separates a southern occurrence of the species from what appears to be the main population concentration in the vicinity of work site 1 discussed below. This separation will only be a temporary phenomena since it is proposed to revegetate the site of the pipeline once the pipeline has been installed.

The Lesryk February 1997 report entitled 'Proposed Location of Stockpile Material, Construction Sites and Access Tracks in relation to the proposed upgrade of the Cronulla Sewerage Treatment Plant and Effluent Pipeline Kurnell' provides an 8-Part test for the Tinkling Frog (Wallum Froglet). This 8-Part test indicates that suitable habitat for the species occurs at Site 1 (Continental Carbon 150m X 250m - essential to the project). The 8-Part test provided by the Australian Museum in the Appendix B to the Representations Report (May 1997) notes that the pipeline will isolate one swamp from the other six for a relatively short period of time but no Wallum Froglet habitat will be affected. This 8-Part test also notes that the pipeline will not impact on any of the various breeding sites in the area and is unlikely to affect dispersing frogs during construction as these frogs do not appear to move far from sedgeland areas. The Australian Museum concludes that a Species Impact Statement for this species is not needed. This is supported by subsequent correspondence to Sydney Water from the Australian Museum. The Department is satisfied that the Australian Museum's conclusions are correct and that there is unlikely to be a significant effect on this threatened species.

- Green and Golden Bell Frog (*Littoria aura*)

Overall the assessment of the impacts on the Green and Golden Bell Frog is confusing. The SIS which accompanied the EIS indicates that the impact would be significant and therefore concurrence from NPWS would be required. However Appendix B of the Representations Report provides an 8-Part test for the Green and Golden Bell Frog. This 8-Part test concludes that an SIS is required. Subsequent correspondence from the Australian Museum to Sydney Water (dated 22 and 23 April 1997) indicates that if the amelioration measures are undertaken as stated in the earlier SISs, then no further action is required under the relevant legislation.

Sydney Water (pages 82-83) of the Representations Report considers that, based on the amelioration measures incorporated into the proposal and the April 1997 correspondence from the Australian Museum, the proposal is unlikely to have a short term or long term significant impact on the Green and Golden Bell Frog based on the following:

- the area disturbed is mainly dispersal area, not breeding habitat.
- for the dispersal habitat, any frogs disturbed would be likely to be those in transition between breeding and sheltering habitat;
- any frogs disturbed could be considered to be part of a larger population;
- the breeding habitat (Keegans Lake) area will be minimally disturbed; no individuals have been recorded from the area of proposed disturbance (ie the northern rim of the lake).
- the breeding habitats along the pipeline route would be minimally disturbed;
- the area of proposed disturbance (ie the pipeline route itself) contains no known records of the Green and Golden Bell Frog;

- the Green and Golden Bell Frog is known from numerous other locations in the Kurnell Peninsula;
- suitable habitat occurs in Kurnell (eg Lucas Reserve) and Botany Bay National Park where the species has also been recorded.
- the area of proposed disturbance affects only dispersing individuals which can be considered to be part of a wider population

It is considered that activity as now proposed by Sydney Water including the mitigation strategies identified in Section ? of the Representations Report (particularly the establishment of a new breeding pond) is not likely to have a significant effect on the Green and Golden Bell Frog. This conclusion is supported by recent correspondence from the Australian Museum (refer Appendix ?).

In addition to the mitigation measures proposed it is also recommended that the Flora and Fauna Management Plan provide for monitoring of the pipeline trench for fallen fauna trapped by the trench.

- Swift Parrot (*Lathamus discolor*)

Sydney Water has not undertaken an 8-Part test for the Swift Parrot even though this species is known to overwinter in the Kurnell Peninsula area. The Swift Parrot breeds only in Tasmania and migrates across Bass Strait to overwinter in the southeastern mainland of Australia. It primarily feeds from flowering eucalypts although is known to frequent flowering banksias. It is recorded in winter from the Kurnell Peninsula with some frequency, however most records are from Captain Cook's Landing Place, some 6 km away from the STP and pipeline sites. No individuals were detected in the winter 1995 fauna survey which would have been the optimal time for observing this species at Kurnell. Some banksia species might be affected by the proposal however this is not nesting habitat for the species on the Australian mainland. It is also noted that other banksia scrub exists on Kurnell Peninsula and on the northern side of Botany Bay in Botany Bay National Park. In this regard it is considered that there is unlikely to be a significant effect on this threatened species even if it should be found to overwinter on the proposed STP or pipeline sites.

- Other Species

Apart from the two threatened frog species discussed below, the other threatened fauna species are either coastal or wetland bird species (highly mobile) or bat species (highly mobile). 8-Part tests for these species contained in the Lesryk (1997) report have been reviewed and the conclusion that there is unlikely to be a significant effect on any of these threatened species is accepted.

Conclusion

It is concluded that proposal (the STP, pipeline and construction sites) incorporating the mitigation strategies as identified in the Representations Report is not likely to have a significant effect on threatened species, populations, ecological communities or their habitats. This overall conclusion is also supported by recent correspondence from the Australian Museum (refer Appendix ?).