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memorandum

TO	Selwyn District Council	FROM	Chris Bender
		DATE	15 October 2021
RE	Plan Change 69 – Odour Assessment Review		

Background

1. Rolleston Industrial Developments Limited has lodged a private plan change request (Plan Change 69) with Selwyn District Council (SDC) to rezone approximately 190 hectares of Rural Outer Plains zoned land to Living X, Living Z and Business 1 zones in Lincoln. A Section 32 evaluation under the Resource Management Act, in support of the application, has been prepared by Novo Group Limited, which was lodged with the plan change application on 29 October 2020 (the application).
2. The proposed plan change area is directly to the south of the Lincoln Sewage Treatment Plant (STP), referred to in the application as the Allendale Pump Station. This sewage treatment plant area is designated (SDC-153) and Rule C4.9.32 of the operative Selwyn District Plan requires that any dwelling shall be setback not less than 150 m from the boundary of the designated area. This setback is designed to manage the potential for reverse sensitivity effects on the wastewater infrastructure from future developments.
3. On 16 December 2020, SDC issued a request for further information, that included a request for the applicant to demonstrate how compliance with the setback limit will be achieved, and to address any other reverse sensitivity effects that may arise from the location of residential activity in proximity to the designated area.
4. An updated application was issued by Novo Group Limited in April 2021, which included an odour assessment prepared by Golder Associates to address the potential reverse sensitivity effects on the designation from the proposed plan change.
5. This memorandum summarises the findings of my review of the available information.

Odour Assessment

6. The Lincoln STP includes three Sequential Batch Reactor (SBR) tanks with storage capacity of around 200 m^3 each and an oxidation pond for treatment of wastewater. The Lincoln STP has been replaced by the Pines wastewater treatment plant (WWTP), and as of December 2012 wastewater is no longer treated at the Lincoln site. An aerial image of the Lincoln site is provided in Figure 1.

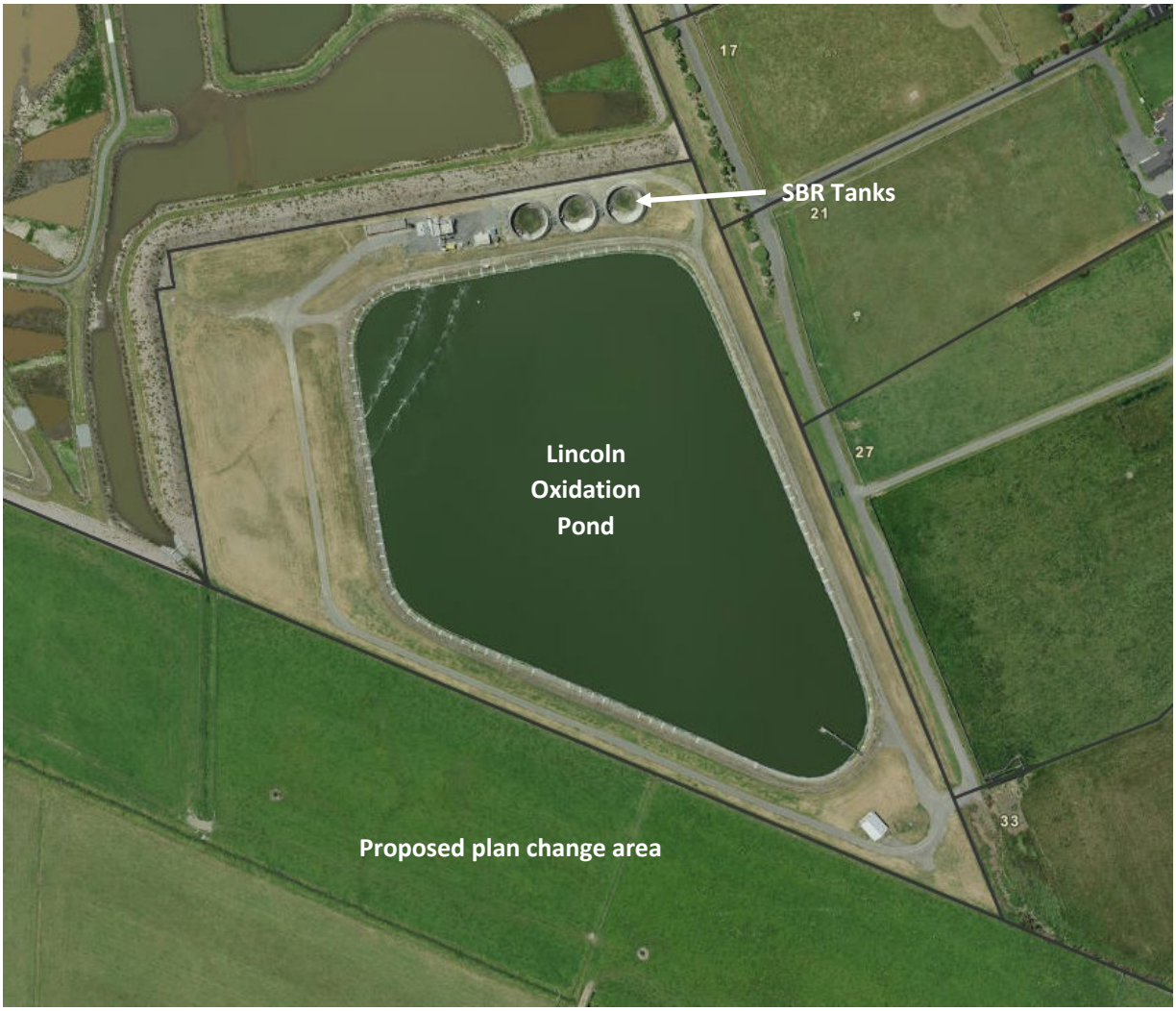

Figure 1: Lincoln Wastewater Treatment Pond

7. The Lincoln STP site is currently used as buffer storage in emergency situations where wastewater cannot be transferred to the Pines WWTP. The SBR tanks provide a combined 600 m^3 of storage capacity for peak wastewater events, after which the wastewater overflows into the oxidation pond. The use of the site for emergency overflow storage are addressed in the Eastern Selwyn Sewerage Scheme Resilience Planning report[1], and include the following scenarios:

   - High flows during wet weather;
   - Pump failure at the terminal Lincoln pump station;
   - Pump failure at the Selwyn Road pump station in Rolleston
   - Maintenance or failure at the Pines WWTP; and,
   - Any pipe breakages or maintenance on the pressure mains between Lincoln and the Pines WWTP.

8. The Golder odour assessment has assessed the effects of the high flow during wet weather scenario as being the primary condition under which the storage provided by the SBR tanks and

[1] WSP Opus/Stantec, *Eastern Selwyn Sewerage Scheme Resilience Planning – Prepared for Selwyn District Council*, 16 September 2019.

oxidation pond would be used to store wastewater. Golder has determined that the potential for adverse odour effects from this scenario is low, given that:

- The frequency of overflow incidents will be low (Golder assumes a one in five-year occurrence);
- The duration of the storage will be relatively short;
- The wastewater will preferentially be stored in the SBR tanks which are around 190 metres from the proposed plan change area, providing additional separation from potential residential development;
- The wastewater overflow will be diluted with fresh rainwater, and therefore will be unlikely to become anaerobic;
- Any overflows of diluted wastewater to the oxidation pond will be further diluted by mixing with fresh water contained in the pond.

9. Based on this assessment Golder has concluded that the 150 metre setback distance is not needed to protect against reverse sensitivity effects on the site from the proposed plan change.

10. PDP agrees with the Golder assessment that the temporary storage of diluted wastewater in the SBR tanks and in the oxidation pond are unlikely to result in adverse odour effects beyond the site boundary. PDP notes, however, that the other potential scenarios resulting from pump failures or other infrastructure failures have not been considered. In these scenarios the wastewater would not be diluted with rainwater, and the time to repair the issues could potentially be greater. Consequently, the wastewater may become septic before such time as the failed infrastructure can be repaired and the wastewater disposed to the Pines WWTP for treatment.

11. PDP concludes therefore, that the failure of wastewater infrastructure that would necessitate the use of the SBR tanks and oxidation pond for storage of untreated wastewater has the potential to result in adverse odour effects. Odours of an offensive nature could be experienced beyond the site boundary if the wastewater is stored for an extended duration. However, PDP assumes such events would be an infrequent occurrence.

12. I further note that maintaining the 150 metre setback distance from the STP site provides SDC with the option to re-instate a wastewater treatment plant should it be required to accommodate future growth in Lincoln and/or primary treatment prior to pumping to the Pines WWTP. If the 150 metre setback is removed, it would be more difficult to re-establish a dedicated WWTP at the site.

Conclusion

13. I have reviewed the application and associated documentation for the proposed Plan Change 69, with particular focus on the potential for odour discharges from the Lincoln STP. I agree with Golder's assessment that the effects of wastewater overflow events during periods of high rainfall are unlikely to result in adverse odour effects beyond the site boundary. I consider, however, that the effects of using the Lincoln site for temporary storage of untreated wastewater from other scenarios in which the wastewater is unable to be transported to the Pines WWTP for treatment have not been assessed and would have the potential to generate adverse odour beyond the site boundary.

Limitations

This memorandum has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by the Selwyn District Council. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the memorandum. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This memorandum has been prepared by PDP on the specific instructions of the Selwyn District Council for the limited purposes described in the memorandum. PDP accepts no liability if the memorandum is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

Prepared by

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