



Our ref: 3-C2503.00-AQL-LTR-003 RevA.docx

13 December 2023

Public

Catherine Stuart
Southern Parallel Campus Limited

Dear Catherine

Odour Assessment for the proposed Southern Parallel Equine Centre (SPEC) Limited Equine Stud

Introduction

WSP has previously completed an assessment of the potential odour effects from a proposed BioGill wastewater treatment plant at the proposed Southern Parallel Campus Limited (SPC) life skills and education facility located at Stranges Road, Lake Hood, Ashburton, Canterbury (WSP 2022)¹. Southern Parallel Equine Centre Limited (SPEC, also known as SPC) proposes to establish an equine stud instead of a recreational facility at the same location.

This letter provides an assessment of odour effects associated the proposed equine stud in response to the Section 92 request for further information (RFI).

Description of odour generating activities

The main discharge to air associated with the proposed equine stud is odour. The primary odour source is expected to be the manure generated from the indoor intensive farming facilities, which include the following:

- Six stable blocks with 100 stables per block. These stables will have a total footprint of approximately 21,400 m², with 9.54 m high ventilation shafts which facilitate a natural form of ventilation in stables. It is assumed that each stable will accommodate up to one horse and foal.
- An equine veterinary clinic and breeding centre with 58 stables. The veterinary clinic and breeding centre will have a total floor area of 3,070 m², with 11.8 m high ventilation shafts which facilitate a natural form of ventilation in stables. It is assumed that each stable will accommodate one horse and foal.

¹ WSP 2022. Assessment of Potential Odour Effects for a Community Wastewater Treatment Plant. November 2022. WSP report reference number: 3-C2503.00-AQL-RPT-002-RevA.

Additionally, a stud selling centre will be used for annual sales event and small auction events. During the annual sales event, a maximum of 50 horses will be present in the selling centre. Odour associated with the selling centre has been also considered in this assessment.

A site plan is presented in Attachment A. This odour assessment is based on the assumption that a maximum of 100 horses are expected to be on the site at any one time, with 600 horses in the stables for 25 days of the year.

Assessment Methodology

The assessment has been undertaken in a manner consistent with the Ministry for the Environment's (MfE) guide for the assessment of industrial odour discharges². Due to the scale, location and nature of the equine stud operation, a desktop-based Tier 1 type assessment has been undertaken. This involves consideration of separation distance criteria for a stabling or comparable saleyard operation, local terrain and meteorology and experience with other intensive farming operation in New Zealand.

Assessment of Odour Effects

Review of separation distance

The following published buffer criteria have been considered in this assessment to establish appropriate criteria for separation distance between the equine stud's operation and sensitive land uses:

- Western Australia EPA (WA EPA): Separation distances between industrial and sensitive land use, June 2005 (WA EPA 2005) and Draft environmental assessment guideline for Separation distances between industrial and sensitive land use. September 2015 (WA EPA 2015).
- South Australia EPA (SA EPA): Evaluation distances for effective air quality and noise management, August 2016. (SA EPA 2016).
- Victoria EPA (Vic EPA). Recommended separation distances for industrial residual air emissions. March 2013 (Vic EPA 2014).

For potential odour effects associated with the stabling operation, only WA EPA provides useful guidance, while SA EPA and Vic EPA provide separation distances for stock saleyard.

The recommended separation distances are summarised in Table 1. The WA EPA separation distance of 500 m has been applied for the stables. The Vic EPA separation distance for saleyards primarily focuses on pigs and cattle, particularly those exceeding 600 head. Therefore, this criterion is not directly applicable to the equine stud's stabling operation, and it is not further considered in this assessment.

SA EPA separation distance for saleyards considers the amount of stock in sheep-equivalent units per year. As the number of horses in the selling centre will not exceed 50 in a year, which is equivalent to 600 sheep equivalent units³, based on a 'stock unit' calculation method used within the sheep/beef industry. This number is considered appropriate to account for the relative size and odour potential of yearlings compared to ewes. Given the annual throughput is less than 50,000 sheep equivalent units, the SA EPA recommended buffer of 200 m is expected to be appropriate for assessing the odour effects from the selling centre.

² MfE 2016. Good Practice Guide for Assessing and Managing Odour. Ministry for the Environment, Wellington. Publication number ME 1278. November 2016.

³ 1 Yearling thoroughbred = 12 Sheep equivalent units. Source: <https://www.lifestyleblock.co.nz/lifestyle-file/livestock-a-pets/the-basics/livestock-units>.

Table 1 Summary of recommended separation distances.

Guidelines	Recommended separation distance (m)	Description of activities and notes
WA EPA	100 to 500 m to horse stables	Horse stables for keeping horses. Separation distance depending on size.
SA EPA	200 m to saleyards	Throughput >25,000 but <50,000 sheep equivalent units per year Saleyards are where sheep, cattle, pigs or other animals are gathered or confined for commercial sale, auction or exchange, and includes the associated transport loading facilities.
Vic EPA	500 m to saleyards	> 500 head, where pigs, cattle or other stock are temporarily confined for sale, transport or processing

Attachment B depicts the separation distance of 500 m adopted for the stable blocks and veterinary clinic & breeding centre, and 200 m for the selling centre. It shows that none of the existing or future dwellings would be within these distances.

WSP considers these separation distances are conservative relative to scale of the proposed SPEC operation based on our experience in other intensive farming operation in New Zealand.

Local terrain and meteorology

The local terrain and meteorology have been discussed in Section 3.3 of the WSP (2022) report¹. There is a low frequency of southerly and south-westerly light winds. No existing or future dwellings would be downwind of the equine stud during drainage flow conditions⁴. There is one isolated residence located 540 m to the south of the stable blocks. This dwelling will be downwind of the stable blocks during light wind condition less than 2 m/s) for approximately 7% of the time in a year.

Given the infrequent light winds blowing from the equine stud towards the dwellings, and relatively flat local terrain, WSP consider the above separation distances derived from the Australian guidance to be conservative for this site.

Management and mitigation procedures

Based on the land use consent application and WSP's understanding of the stabling operation, the key odour management and mitigation procedures include the following:

- The floor of the stables will be an impervious concrete surface. The purpose of this is to help keep the bedding material/manure dry by insulating it from the ground and creating a barrier to any ground moisture.
- All horse manure and soiled bedding will be cleaned out from the stable area/saleyards and disposed offsite daily.

⁴ Drainage flow refers to cold air drainage flows from high to low terrain and towards the local coastline. Light north-westerly winds are likely to be associated with the drainage flow.

- No manure will be stored outside the stables.
- Ventilation within the stables will be maintained via roof shafts, opening doors and windows.

Discussion and Conclusion

WSP has identified that the potential odour sources from the proposed equine centre include the horse manure from the stables, veterinary/breeding centre, and the selling centre.

Based on a review of published separation distance guidelines, local meteorology, and terrain, and WSP's experience with other intensive farming operations, it is considered conservative to assess the odour effects based on a separation distance of 500 m from the stables and veterinary/breeding centre, and 200 m from the selling centre.

Given that no existing or future dwellings would be within these distances, it is concluded that there are unlikely to be adverse odour effects beyond the site boundary, provided the management and mitigation measures described above are followed.

Limitations

This report ('Report') has been prepared by WSP New Zealand Limited ('WSP') exclusively for Southern Parallel Equine Centre Limited ('Client') in relation to an odour assessment associated with a proposed equine stud at Stranges Road, Lake Hood, Ashburton, Canterbury ('Purpose'). The findings in this Report are based on and are subject to the assumptions specified in the Report. WSP accepts no liability whatsoever for any use or reliance on this Report, in whole or in part, for any purpose other than the Purpose or for any use or reliance on this Report by any third party.

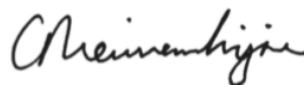
Closure

We trust the above information fulfils SPEC's requirements. If you have any queries regarding this letter, please contact the undersigned.

Yours sincerely



Iris Xu
Air Quality Consultant



Cathy Nieuwenhuijsen
Principal Air Quality Consultant

Attachment A

Site Plan

LEGEND

- A Main Entry
- B Stables
- C Selling Centre
- D Sand Arena
- E Excercise / Grazing
- F Training / Grazing
- G Grazing
- H Informal Parking
- I Horse Walker
- J Polo Field
- K Vet / Research
- L Existing House (Staff Accomodation)
- M 10m Landscape Strip to be planted along Stranges Road and Huntingdon Avenue frontages and southern boundary
- N Paved formal parking (45 spaces including 2 accessible spaces)
- - - Site Boundary



A. MASTER PLAN

client / project name: SOUTHERN PARALLEL EQUINE CENTRE - MASTER PLAN
drawing name: **MASTER PLAN**
designed by: DAVID COMPTON-MOEN | ANCA BELU
drawn by: ANCA BELU
original issue date: 25 SEPTEMBER 2023
scale: 1:5000

revision no:	amendment:
A	Issue for Comment
B	Design Refinement
C	Alignment Change
D	Minor Changes
E	Road Type Changes
F	Carpark Details
G	Minor Changes
H	Road Alignment Change

approved	date
DCM	25/09/2023
DCM	28/09/2023
DCM	11/10/2023
DCM	12/10/2023
DCM	31/10/2023
DCM	31/10/2023
DCM	31/10/2023
DCM	2/11/2023



REGISTERED
LANDSCAPE
ARCHITECT



DCM URBAN DESIGN LIMITED
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project no / drawing no: 2023_146/001

N

revision: H

Attachment B
Receiving Environment and Buffer
Distance



Legend

- Aquatic Park Existing Residential
- Future Low/Medium Residential
- 500 m Buffer
- 200 m Buffer
- Sensitive Receptor

CLIENT

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PREPARED

IX

FIGURE NUMBER

F1

APPROVED

CN

SCALE

1:17,098

PROJECT

Southern Parallel Equine Cantre Limited
Odour Assessment for the proposed Equine Stud

FIGURE

Receiving Environment and Buffer Distance

PROJECT NUMBER

3-C2503.00

REVISION DATE

07/12/2023

REVISION

RevA