Quakers Hill to Vineyard Duplication
Assessment of Impacts from the Relocation of a Sewer Main

Introduction

The Quakers Hill to Vineyard Duplication as described in the Environmental Assessment and Submissions Report requires the relocation of a number of utilities including sewer mains. In order to construct the project a sewer main currently located adjacent to the Rail line within Commonwealth land needs to be relocated. The Department of Defence (DoD) has recently advised that the sewer main must be relocated to avoid Commonwealth land. The Richmond Line Alliance has since proposed an option that avoids DoD land. This paper outlines the environmental impacts of this proposed change compared to the proposal outlined in the Submissions Report.

Description of Proposed Sewer Main relocation

It is proposed to relocate 2 PVC sewer pipes (110mm & 160mm in diameter) within a 1m deep trench approximately 1m wide and 670m long. The sewer pipes would connect into the existing sewer located on TAFE NSW land in the north to the proposed sewer main as described in the Submissions Report to the south. The total area of impact is 670m^2 which is reduced from the 1650m^2 as previously outlined in the Submissions Report. The reduction in impact is partly due to the easement required for the sewer main on TAFE NSW land (being 1m wide) compared to the easement required on DoD land (being 3m wide).

The location of the sewer main is proposed to be located wholly within land owned by the Nirimba Education Precinct (TAFE NSW) (see Figure 1).

Consultation

The revised proposal for the sewer main was developed in conjunction with DoD, TAFE NSW and Sydney Water.

Description of the Existing Environment

The proposed alignment of the sewer main occurs within an existing cleared roadway/track (approximately 8m wide) located within the Nirimba Education Precinct. The track passes through cleared paddocks and vegetation.

Key Environmental Issues

A risk assessment to identify the key issues for the proposed relocated sewer main was conducted in accordance with the same methodology as described in section 10.2 of the Environmental Assessment. Where impacts could potentially have a moderate to high impact further detailed assessment was completed. Where key impacts are likely to have a low impact the applicable standard mitigation measures as described in the Environmental Assessment, Submissions Report and Statement of Commitments would be applied.

Table 1 Key Issues Risk Assessment

Issue	Potential Key Impacts	Assessed Risk *(Based on Specialist Studies)*
Noise and Vibration	Low	Low
Traffic	Low	Low
Visual Amenity	Low	Low
Soil and Water	Low	Low
Non-Indigenous Heritage	Low	Low
Indigenous	Medium – high	Low
Flora and Fauna	Medium – high	Low

Both an Indigenous Heritage and Flora and Fauna Assessment were completed for the proposed sewer main as a result of the risk assessment.

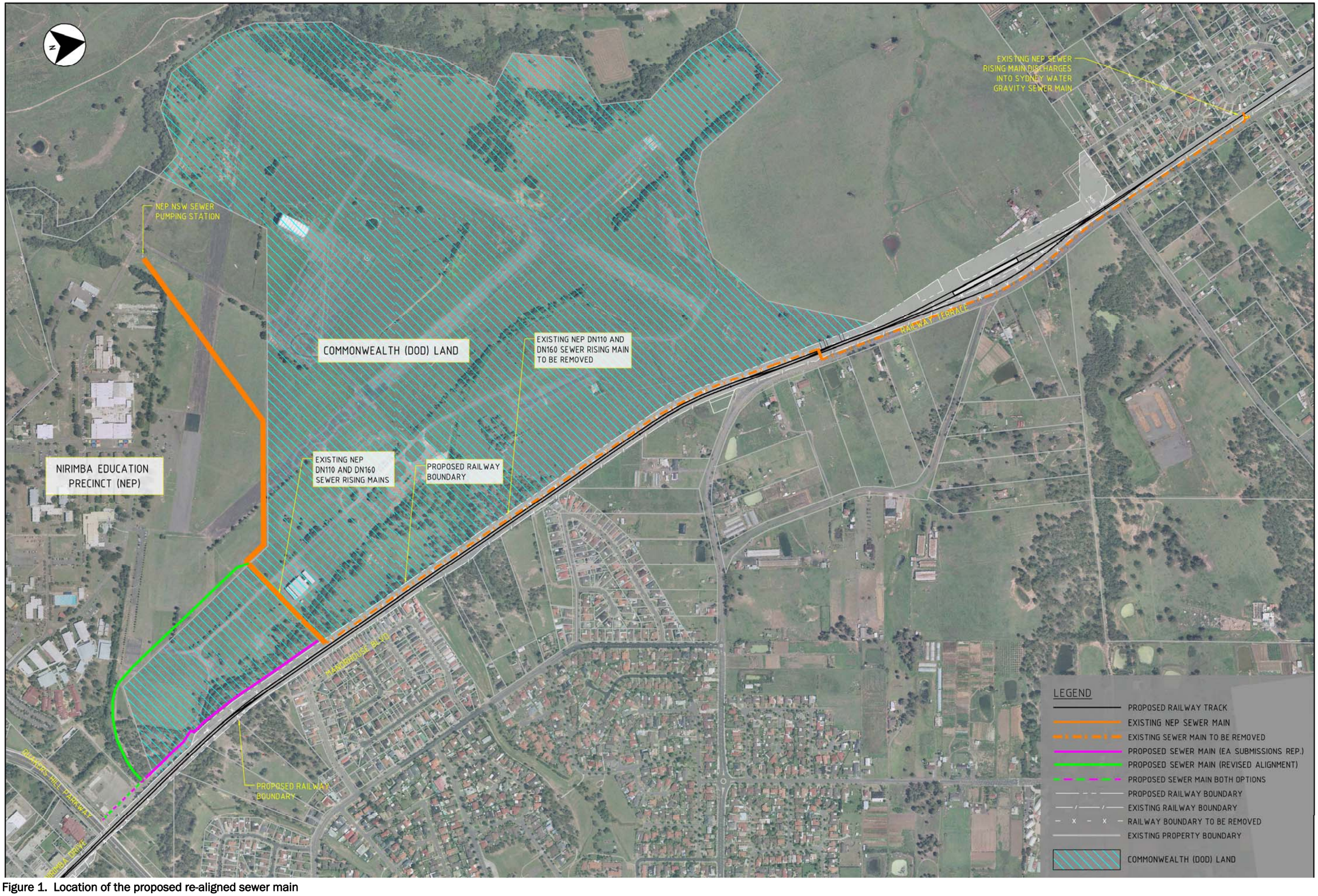

Figure 1. Location of the proposed re-aligned sewer main

Flora and Fauna

A site visit of the proposed area to be impacted by the sewer main was completed on the 14th August 2009. This site visit concluded that the proposed realigned sewer main would not involve vegetation removal as it would be located within the existing cleared areas.

The proposed sewer realignment reduces the impact to River-Flat Eucalypt Forest on Coastal Flood Plains by approximately 0.77Ha compared with the proposal presented in the Submissions Report.

The flora and fauna report however, notes that due to a high abundance of invasive weed species, the potential exists for indirect impacts to the adjacent Endangered Ecological Communities during the construction period unless appropriately managed. (Refer to Appendix A).

Indigenous Heritage

A site visit of the proposed area to be impacted by the sewer main was done on the 14th August 2009. This site visit concluded that no Aboriginal objects and very little archaeological potential were identified within the study area and that Aboriginal archaeological heritage was not a constraint for the proposed sewer alignment.

The proposed re-alignment of the sewer main reduces the impact to the previously identified PAD Q1. However, PAD Q1 is still impacted by other aspects of the Quakers Hill to Vineyard Duplication.

Comparison of Impacts

Table 2 provides a summary of the impacts as described in the Submissions Report to that of this Proposal.

Table 2 Summary of Impacts in the Submissions Report and this Proposal

Impact	Submissions Report	This Proposal
Land use and Property	The proposed corridor impact was approximately 550m long x 3m wide impacting approximately 1650m^2 of Commonwealth land.	Reduced overall proposed corridor impact to approximately 670m long x 1m wide impacting 670m^2 of land owned by TAFE NSW.
Indigenous Heritage	Impact to PAD Q1 from the Proposed sewer main corridor.	No impact to Aboriginal objects predicted. Reduced impact to PAD Q1. PAD Q1 is still however, impacted by other aspects of the Quakers Hill to Vineyard Project.

Impact	Submissions Report	This Proposal
Water Quality and Hydrology	Sewer line alignment includes a crossing of a creek line.	No impact to creek line proposed sewer line alignment avoids crossing the creek line.
Noise and Vibration	Noise from the relocation of the sewer main. Closest receivers are residential properties located on Manorhouse Boulevard. No operational noise or vibration impacts.	Noise from the relocation of the sewer main. Closest receiver is a TAFE building. No operational noise or vibration impacts.
Flora and Fauna	Direct impacts to River-Flat Eucalypt Forest on Coastal Flood Plains.	No Direct impacts from the sewer main. The potential for indirect impacts during construction from weed invasion.

Flora and Fauna impacts for the Quakers Hill to Vineyard Duplication Project

	Previously Proposed Impact	New Proposed Impact
River-Flat Eucalypt Forest on Coastal Flood Plains	1.39 Ha	0.6183 Ha
Cumberland Plain Woodland	1.15 Ha	No change
Shale Gravel Transition Forest	1.71 Ha	No change
Derived Grassland (previously Shale Gravel Transition Forest)	0.08 Ha	No change
Total*	**4.33 Ha**	**3.56 ha**

* Total impact refers to the total impact of the Quakers Hill to Vineyard Duplication not just the impact from the sewer main.

Mitigation Measures

The mitigation measures in the Environmental Assessment would be applied to the installation of the proposed sewer main. No changes are proposed to either the mitigation measures or Statement of Commitments already included in the EA and as amended in the Submissions Report.

Mitigation measures that would be applied, where applicable, to the realignment of the sewer main include:

Flora and Fauna:
SoC 32. The proponent would prepare flora and fauna management measures as part of the CEMP. These would include:

a) *a procedure for identifying vegetation to be retained, protected*
b) *a procedure for clearing and reusing vegetation where possible*
c) *a procedure for progressively revegetating and reinstating disturbed areas*
d) *using locally endemic native plants for revegetation*
e) *measures to control noxious weeds*
f) *measures to minimise impacts to native animals (eg. Covering any excavations)*

Aboriginal Heritage
SoC 41. An Aboriginal Heritage Management Plan would be prepared in consultation with the registered Aboriginal Stakeholders and describe the measures to be implemented to:

a) *Protect Aboriginal objects/sites outside the disturbance area as identified in the specialist Aboriginal archaeological and cultural heritage assessment and Statement of Heritage Impact*
b) *Salvage and/or conserve any Aboriginal objects in the disturbance area*
c) *Respond to the discovery of any new Aboriginal objects or artefacts during construction.*
d) *Consult with and involve the Aboriginal Stakeholders who have registered their interest in the Project in the salvage, conservation and management of Aboriginal cultural heritage on the site.*
e) *Induct site staff of the presence of Aboriginal heritage objects/sites within and outside the area of disturbance.*
f) *Liaise with all Aboriginal Stakeholders who have registered their interest n the Project.*

Conclusion

The realignment of the sewer main is unlikely to have a significant impact on the environment and results in a reduced overall impact to flora and fauna, Aboriginal heritage and Water Quality compared to the previous proposal in the Submissions Report. The implementation of the standard mitigation measures and the Statement of Commitments would be applied to the realigned sewer as appropriate to manage impacts during construction.

Appendix A – Flora and Fauna Letter Report

Parsons Brinckerhoff Australia Pty Limited

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NCSI Certified Quality System ISO 9001

Our reference: 2116724B/LT_0651/LC/fr

17 August 2009

Angelique Easton
Senior Environmental Scientist
Parsons Brinckerhoff
680 George Street
Sydney NSW 2001

Dear Angelique

Site inspection of the altered sewer pipeline route at the Nirimba Education Precinct

A site inspection of land in the Nirimba Education Precinct was conducted by a PB Ecologist on 14 August 2009 to examine the potential ecological constraints and impacts associated with the proposed realignment of a sewerage pipeline route.

The sewerage pipeline forms part of the utility corridor for the Quakers Hill to Vineyard Duplication Project, and the proposed location of the pipeline was modified following feedback received post public exhibition and after the Submission Report (July 2009) was lodged with Department of Planning.

The proposed realignment for the sewerage pipeline route occurs within a cleared roadway/track (approximately 8 metres wide) that cuts through the vegetation and into the cleared paddocks of the Nirimba Education Precinct (refer Photographs in Appendix A). This letter outlines the potential impacts on biodiversity associated with the construction of the proposed realignment of the pipeline route.

The biodiversity assessment involved a walk over site inspection of the proposed pipeline route during which the type and condition of vegetation, fauna habitats, and the possible presence of Threatened species was assessed. During the inspection, opportunistic recordings of fauna species were made through incidental sightings, aural recognition of calls, and observing indirect evidence of species' presence. Detailed surveys were not completed during the site visit.

The Nirimba Education Precinct is located within the range of broad scale (1:100,000) vegetation mapping, namely the *Native Vegetation of Southeast NSW: A Revised Classification and Map for the Coast and Eastern Tablelands. Version 1.0* (Tozer et al. 2006). Two vegetation communities are mapped as present:

- Shale Plains Woodland
- Cumberland River Flat Forest (a specific community of the River Flat Eucalypt Forest of Coastal Floodplains).

Shale Plains Woodland is included within Cumberland Plain Woodland which is listed as an Endangered Ecological Community under the *Threatened Species Conservation Act 1995* (TSC Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A preliminary determination has also been made to list Cumberland Plain Woodland as a Critically Endangered Ecological Community under the both Acts.

Cumberland River Flat Forest is listed as River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions which is listed as an Endangered Ecological Community under the TSC Act.

The site inspection confirmed the presence of these two vegetation communities adjacent to the proposed of the pipeline realignment route. Both vegetation communities appear in moderate condition as the vegetation generally still retains its structural integrity, but has been disturbed in the past and has lost some components of the original species complement. Weed invasion is also significant.

A row of planted *Eucalyptus tereticornis* trees are present in the cleared paddock along the proposed pipeline route, however they are not scheduled for removal as the pipeline route will be aligned to avoid direct impacts to these trees.

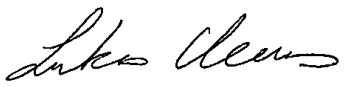
Fauna habitats were in moderate condition as reflected by the condition of the vegetation communities. The fauna habitats have good structural integrity, including the presence of upper, mid and groundcover layers. This provides habitat for a number of small, common bird species including the Superb Fairy-wren which was observed during the site visit. Fallen timber is also present, along with a good leaf litter layer that would be suitable sheltering refuge for common reptiles such as the Garden Skink. The drainage lines are likely to provide habitat for a range of common amphibian species such as the Common Eastern Froglet, although this species was not heard calling during the site inspection.

No Threatened flora or fauna species were recorded during the site inspection. Although Migratory species of bird may potentially utilise resources in the study area, the study area is not considered 'important habitat' as defined under the *EPBC Act Policy Statement 1.1 Principal Significant Impact Guidelines* (Department of the Environment and Heritage 2005) in that it does not contain:

- habitat used by a Migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species
- habitat used by a Migratory species that is at the limit of the species range
- habitat within an area where the species is declining.

In conclusion, the construction of the proposed realigned sewerage pipeline will adhere to the cleared areas of the existing roadway/track through the vegetation and will not involve vegetation removal. Consequently, the pipeline construction will not directly impact on the two Endangered Ecological Communities that are present. However, due to the high abundance of invasive weed species, the potential exists for indirect impacts to occur to these Endangered Ecological Communities in the form of increased weed invasion during construction unless appropriately managed.

Yours Sincerely



Lukas Clews

Botanist
Parsons Brinckerhoff Australia Pty Limited

References

Department of the Environment and Heritage 2005, *EPBC Act - Principal Significant Impact Guidelines 1.1. Matters of National Environmental Significance*, Department of the Environment and Heritage, Canberra.

Tozer, M, Turner, K, Simpson, C, Keith, D, Beukers, P, MacKenzie, B, Tindall, D & Pennay, C 2006, *Native Vegetation of Southeast NSW: A Revised Classification and Map for the Coast and Eastern Tablelands. Version 1.0*, Department of Environment and Climate Change, Hurstville.

Appendix A- Photographs

Photograph A-1 **Looking east along the pipeline route towards Nirimba Drive**

Photograph A-2 **Looking west along the pipeline route**

Photograph A-3 **Cumberland Plain Woodland adjacent to the pipeline route**

Photograph A-4 **River-Flat Eucalypt Forest adjacent to the pipeline route**

Photograph A-5 **The planted *Eucalyptus tereticornis* that will be retained in the pipeline route**

Photograph A-6 **The cleared paddock in the pipeline route**

Appendix B – Archaeological Letter Report

Kelleher Nightingale Consulting Pty Ltd
Archaeological and Heritage Management
ABN 26 120 187 671

18 August 2009

Belinda Scott
Environment and Planning Manager
Transport Infrastructure Development Corporation
Level 5, Tower A, Zenith Centre
821 Pacific Highway
CHATSWOOD, NSW 2067

Dear Belinda,

Re. Proposed Sewer Main Option 2
Aboriginal Archaeological Heritage Assessment

Transport Infrastructure Development Corporation requested Kelleher Nightingale Consulting Pty Ltd (KNC) undertake an Aboriginal archaeological heritage inspection of the proposed sewer main option 2 which traverses the Nirimba Education Precinct (TAFE) land. The survey area is shown in the attached figure. Senior archaeologist Mark Rawson (KNC) surveyed the proposed sewer option on 14th August 2009.

No Aboriginal objects and very little archaeological potential was identified within the survey area. The proposed sewer main alignment intersects mostly disturbed lands associated with the former airfield (Schofields Aerodrome) exhibiting regrowth trees, evident fill and graded surfaces.

Based on the survey results, Aboriginal archaeological heritage should not be seen as a constraint to the proposed alignment of the sewer main option 2.

If you have any questions or would like to discuss this further, please do not hesitate to contact me. My contact details are:

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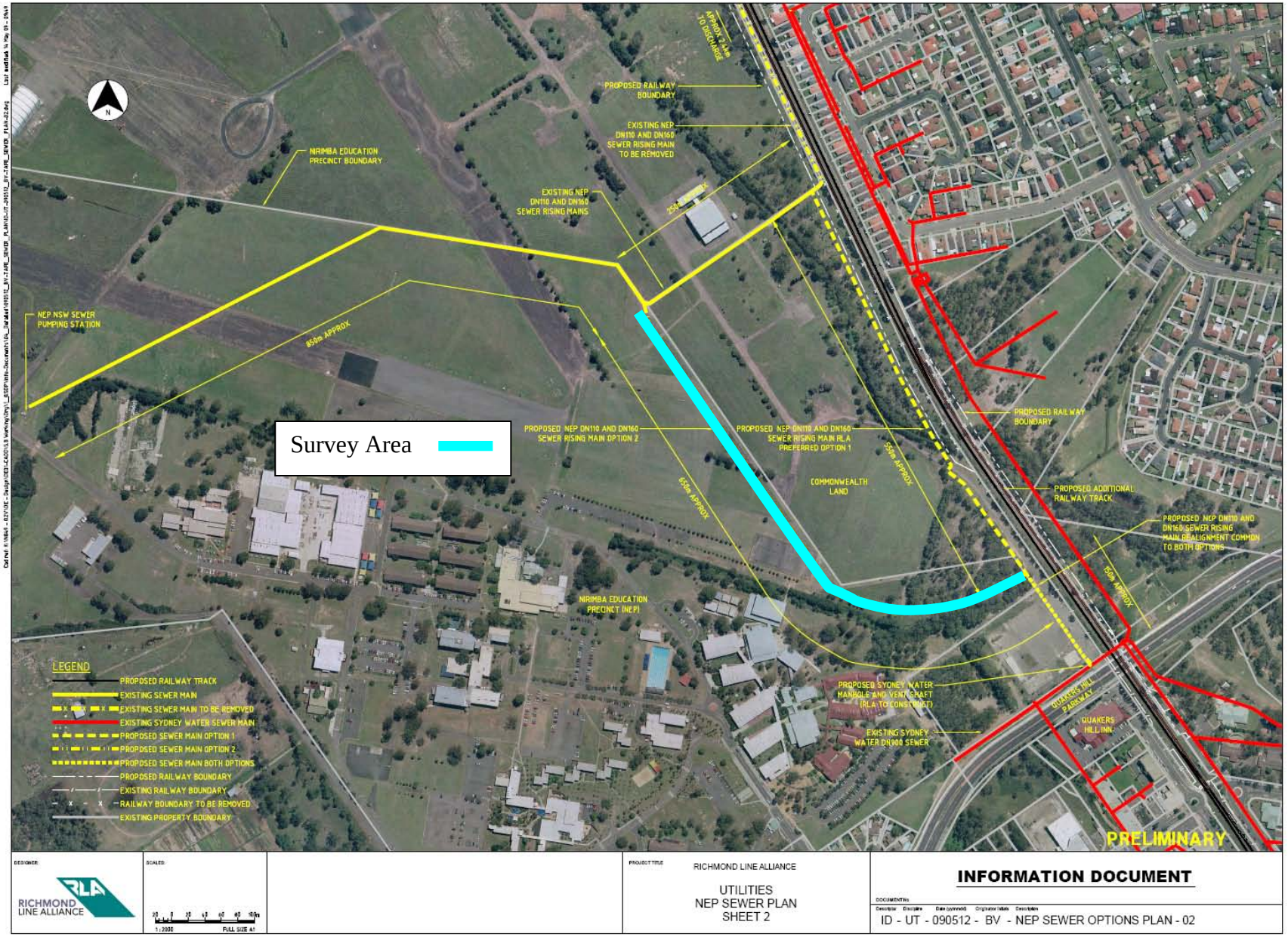
Email: Matthew.Kelleher@knconsult.com.au

Yours sincerely

Dr Matthew Kelleher
Director/Archaeologist
Kelleher Nightingale Consulting Pty Ltd


PROPOSED RAILWAY BOUNDARY
EXISTING NEP DN110 AND DN160 SEWER RISING MAIN TO BE REMOVED
NIRIMBA EDUCATION PRECINCT BOUNDARY
EXISTING NEP DN110 AND DN160 SEWER RISING MAINS
NEP NSW SEWER PUMPING STATION
850m APPROX
Survey Area
PROPOSED NEP DN110 AND DN160 SEWER RISING MAIN OPTION 2
PROPOSED NEP DN110 AND DN160 SEWER RISING MAIN RLA PREFERRED OPTION 1
650m APPROX
550m APPROX
COMMONWEALTH LAND
PROPOSED RAILWAY BOUNDARY
PROPOSED ADDITIONAL RAILWAY TRACK
PROPOSED NEP DN110 AND DN160 SEWER RISING MAIN REALIGNMENT COMMON TO BOTH OPTIONS
150m APPROX
NIRIMBA EDUCATION PRECINCT (NEP)
LEGEND
PROPOSED RAILWAY TRACK
EXISTING SEWER MAIN
EXISTING SEWER MAIN TO BE REMOVED
EXISTING SYDNEY WATER SEWER MAIN
PROPOSED SEWER MAIN OPTION 1
PROPOSED SEWER MAIN OPTION 2
PROPOSED SEWER MAIN BOTH OPTIONS
PROPOSED RAILWAY BOUNDARY
EXISTING RAILWAY BOUNDARY
RAILWAY BOUNDARY TO BE REMOVED
EXISTING PROPERTY BOUNDARY
PROPOSED SYDNEY WATER MANHOLE AND VENT SHAFT (RLA TO CONSTRUCT)
EXISTING SYDNEY WATER DN900 SEWER
QUAKERS HILL PARKWAY
QUAKERS HILL LINK
PRELIMINARY
DESIGNER:
RICHMOND LINE ALLIANCE
SCALED:
1:2000
FULL SIZE A1
PROJECT TITLE
RICHMOND LINE ALLIANCE
UTILITIES
NEP SEWER PLAN
SHEET 2
INFORMATION DOCUMENT
DOCUMENT No.
ID - UT - 090512 - BV - NEP SEWER OPTIONS PLAN - 02