# Coordinator-General's Change Report

## Airport Link Project—Wooloowin Worksite Modification

**October 2009**

**Under part 4 of the *State Development and Public Works Organisation Act 1971***

# Coordinator-General's Change Report

## Contents

# Synopsis

The Airport Link Project is a key part of the Queensland Government's strategy to improve the efficiency of Brisbane's road network. Once complete, the project will help alleviate critical emerging congestion problems within northern Brisbane.

The changes proposed in the proponent's Request for Project Change – Wooloowin Worksite Modification relate to a change to the construction delivery method for the project. The proposed changes, described in a Request for Project Change (RFPC) Report dated June 2009, are focused on establishing a new worksite at Rose St, Wooloowin, to excavate a shaft to allow access for ramp and cavern construction for the project. The change is proposed in order to mitigate the delays caused by the adverse ground conditions discovered during the early detailed design and construction phase of the project.

This change report has been prepared pursuant to section 35I of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and provides an evaluation of the environmental effects of proposed changes to the Airport Link Project (the project), which has previously been the subject of evaluations in the Coordinator-General's report of May 2007 and the Coordinator-General's change report of July 2008. The Wooloowin Worksite Modification Project Change, incorporating the proposed changes to the project, is referred to in this report as the Wooloowin project change.

After reviewing the material provided by the proponent and seeking the advice of an independent expert that I commissioned to assist me in my evaluation, I am satisfied that there is no reasonable alternative to the proposed change that would satisfactorily address the construction delays that will otherwise occur due to the adverse ground conditions discovered during the early detailed design and construction phase of the project. The delays would extend the time required for the operation of existing worksites and hence adversely impact on communities in close proximity to these worksites as well as delay the transport benefits that will be provided to the broader community by the project.

Whilst I have determined that the Wooloowin project change represents the best available option to addressing this issue, I am also very aware of the impacts the proposed change will have on the Wooloowin community and the need for these impacts to be appropriately mitigated and managed.

Potential impacts include the following:

- construction impacts such as noise, dust and vibration associated with tunnel works at the Wooloowin worksite (site establishment, shaft excavation and tunnelling)
- spoil haulage and construction traffic accessing the Wooloowin worksite
- adverse visual amenity for local residents from construction activities including the acoustic shed.

I have evaluated the nature and environmental effects of the proposed Wooloowin project change and its effect on the project, as detailed in section 4 of this report (Evaluation of environmental effects). I have also considered all of the properly made submissions about the proposed Wooloowin project change. After evaluating all of these matters, I recommend that the Wooloowin project change, as described in the Request for Project Change (RFPC) of June 2009 and the Response to Submissions Report of August 2009, proceeds subject to compliance with the existing project conditions, contained in the Coordinator-General's change report of July 2008, and the additional conditions I have imposed specifically to the Wooloowin project change as set out in Appendix 1 of this report.

I have adopted a precautionary approach to setting conditions and I consider that the conditions I have imposed for the Wooloowin project change, as set out in Appendix 1 will mitigate and manage the environmental impacts of the Wooloowin project change. The conditions I have imposed include requirements for the proponent to:

- use its best endeavours to minimise the time the worksite is required
- extend the project's existing community engagement process to the Wooloowin community, including the formation of a community consultation committee specifically for the Wooloowin worksite
- ensure the timely completion of work at the Wooloowin worksite and immediate rehabilitation of the site to occur after works have been completed
- develop, in consultation with the Wooloowin community, and fund the implementation of an Urban Mitigation and Community Development Plan to provide offsetting and enduring benefits to the Wooloowin community
- develop a comprehensive Construction Environmental Management Plan to effectively minimise, mitigate and manage environmental impacts
- implement a process for resolving complaints from the community
- have independent audits undertaken to assess compliance with conditions on a six-monthly basis.

I have also set other conditions in Appendix 1 to respond to particular environmental issues raised in the RFPC and submissions following public consultation. These are further discussed in sections 3 and 4 of this report. Through these conditions I am endeavouring to ensure that the use of the Wooloowin worksite is undertaken to a high standard whilst allowing the substantial benefits of on-time Project completion to be delivered to the wider community.

It is also important to note that under the SDPWO Act there are a number of compliance and enforcement options available to me to respond to contraventions of conditions. Section 157B of the SDPWO Act empowers the Coordinator-General to issue enforcement notices in response to contraventions of imposed conditions, which includes, amongst other things, the power to stop an activity indefinitely.

In accordance with section 35J of the SDPWO Act, a copy of this report will be provided to the proponent. This report will also be made publicly available on the Department of Infrastructure and Planning website www.dip.qld.gov.au

Signed

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**Colin Jensen**
**Coordinator-General**
Date: 8 October 2009

# 1. Introduction

## 1.1 Purpose

This Coordinator-General Change Report for the Airport Link Project (the project) has been prepared in accordance with section 35I of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). The purpose of this report is to provide the Coordinator-General's evaluation of the environmental effects of proposed changes to the project. The currently approved details for the project are described in the Coordinator-General's change report of July 2008. The proposed changes, described in a Request for Project Change (RFPC) Report dated June 2009, are focused on establishing a new worksite at Rose St, Wooloowin, to excavate a shaft to allow access for ramp and cavern construction. This is required because ground conditions for tunnelling in the Kedron area have proved more difficult than anticipated, both in terms of support required and progress made.

## 1.2 The proponent

The proponent for the project is the State of Queensland. The state issued a Request for Proposals (RFP) in June 2007 to finance, construct, own, maintain and operate the project for a 45 year concession period and to construct and deliver the Windsor to Kedron section of the Northern Busway Project. Proposals were received in December 2007.

The state established City North Infrastructure Pty Ltd (CNI) in 2006 as a 100 per cent Queensland Government-owned special purpose vehicle for the purpose of managing the procurement, and administering the contracts for the delivery, of both the Airport Link and the Northern Busway (Windsor to Kedron) Projects. The Board of CNI comprises representatives of the Department of Infrastructure and Planning (DIP), Queensland Treasury and the Department of Transport and Main Roads (DTMR).

In May 2008, following a competitive tendering process and evaluation, the state identified BrisConnections Pty Ltd as the contractor to finance, own, maintain and operate the project, as well as the Northern Busway (Windsor to Kedron) and the Airport Roundabout Upgrade Project. BrisConnections is a consortium of the Macquarie Capital Group, Thiess and John Holland (the latter two entities being independent subsidiaries of Leighton Holdings Group). Thiess and John Holland are jointly responsible for the provision of project design and construction services to BrisConnections.

## 1.3 Project background

The project involves a system of road tunnels connecting the Inner City Bypass (ICB) and Clem Jones Tunnel at Bowen Hills in the south, with Gympie Road and Stafford Road at Lutwyche and Kedron in the north-west, and with Sandgate Road and the East West Arterial at Clayfield in the north-east. The project includes:

- two separate parallel north-south tunnels each carrying three lanes of traffic in each direction between Bowen Hills and Kedron
- two separate east-west tunnels each carrying two lanes of traffic in each direction between Kedron and Clayfield
- tunnel portals at Bowen Hills, Kedron and Clayfield, with cut and cover and transition sections at each to connect with the surface road network
- elevated structures across Enoggera Creek linking the mainline tunnels in Windsor with the ICB and the surface road network in Bowen Hills
- elevated structures across Kedron Brook linking Lutwyche Road, Kedron Park Road and the mainline tunnels from the south with Gympie Road and Stafford Road to the north
- safety systems including safety exits, fire protection and monitoring systems

- a ventilation system to manage air quality in the tunnels and near portals, including an elevated ventilation outlet near each of the connections in Bowen Hills, Kedron and Clayfield
- surface road improvements at local intersections and around the connections to the tunnels
- allowances in the design for concurrent or subsequent implementation of the Northern Busway Project.

On 31 October 2005, the project was declared a 'significant project' for which an environmental impact statement (EIS) is required in accordance with Part 4 of the SDPWO Act.

The EIS for the project (based on a reference design for the project) was released for public comment on 11 October 2006, with the supplementary EIS report subsequently prepared by the proponent in response to approximately 300 written submissions on the EIS on the Project (Reference Design), raising more than 2,000 individual matters including concerns over construction-related disruptions to various community activities and in relation to increased traffic on connecting roads.

Both the EIS and the supplementary EIS reports for the project (reference design) were assessed by the Coordinator-General, who completed his evaluation in May 2007 (Coordinator-General Report May 2007), recommending that the Airport Link project proceed, subject to a number of conditions.

On 28 May 2008, the proponent requested that the Coordinator-General consider the changes to the reference design. The changes provided innovative approaches towards mitigating the risk of potential visual, noise, air quality and private property impacts of proposed construction activities and associated worksites. Innovation was demonstrated in the changed project's further mitigation of potential visual and private property impacts of ventilation stations and outlets.

The Coordinator-General completed the evaluation of the May 2008 Request for Project Change in July 2008, recommending that the changed project for Airport Link proceed subject to new and additional conditions.

Subsequently the proponent has sought further changes to the project.

## 1.4 Request for project change

### 1.4.1 Statutory process

Division 3A of Part 4 of the SDPWO Act describes the statutory process for the consideration of changes to a declared significant project for which a Coordinator-General's report has been prepared under section 35(5) of that Act.

On 17 June 2009, the proponent requested that the Coordinator-General consider changes to the project as described in its Request for Project Change – Wooloowin Worksite Modification, in accordance with section 35C and 35E of the SDPWO Act. This Wooloowin Worksite Modification is referred to in this report as the Wooloowin project change. The Request for Project Change Report of June 2009 is referred to as the RFPC Report.

Section 2 of this report describes the proposed changes comprising the Wooloowin project change and section 4 details the evaluation of the environmental effects of the proposed project change, particularly the development and operation of a new project worksite at Rose Street, Wooloowin (the Wooloowin worksite).

# 2. Overview of the proposed change

## 2.1 Description of the proposed change

The proponent is requesting a change to part of the delivery methodology for the project (i.e. Airport Link). The proponent advises that a previously unforeseen constraint with potential to delay the completion of the project has been identified as detailed design and construction progressed during 2009. The constraint has arisen from unexpectedly difficult ground conditions in the vicinity of the Kedron underground ramps which would delay the construction program, and consequently delivery of the project, if not addressed.

The construction program would be delayed as the requirement for more substantive tunnel excavation support types which have been increased in extent and complexity, resulting in slower excavation rates compared to those originally anticipated.

While the design for the project remains unaffected, the proponent's proposed changes, as described in the RFPC Report, present significant alterations to the project delivery methodology in the vicinity of the Kedron underground ramps and Rose Street Wooloowin.

The Wooloowin project change as described, would include establishment and use of an additional worksite at Rose Street for 29 months and the construction of a shaft and access passage from that worksite to access the mainline tunnels being constructed from Clayfield. The Wooloowin project change is intended to provide access to the mainline tunnel alignment for construction of the caverns necessary to accommodate the Kedron ramps ahead of the tunnel boring machine (TBM) advancing from the existing worksite in Kalinga Park, Clayfield. The proposed worksite will also be used to access the tunnel for civil and electrical fit-out of the tunnels once they have been constructed.

In summary, the Wooloowin project change involves:

- the establishment of a new and additional worksite on vacant land at the corner of Rose Street, Kent Road and Park Road, Wooloowin
- the construction of an access shaft and access tunnel (adit) from the worksite to the caverns to be constructed on the mainline tunnel alignments to accommodate the ramps to and from the Kedron surface connections
- the construction of the mainline caverns from the new worksite rather than from the existing Kedron worksite
- the delivery of construction materials for the construction and fit-out of the caverns and the mainline tunnels from the Wooloowin worksite in addition to such works from the Kedron worksite
- introduction of a new truck haulage route moving spoil from the Wooloowin worksite with ingress to the worksite off Kent Road (left turn in only) and egress from the worksite onto Park Road (left turn only)
- the haulage of shaft and cavern spoil from the Wooloowin worksite, with empty spoil trucks approaching via Gympie Road and Park Road and loaded spoil trucks leaving the site down Rose Street and Junction Road
- the decommissioning and rehabilitation of the Wooloowin worksite.

While the caverns beneath Wooloowin would remain unchanged in their location, design and general construction from the approved delivery methodology, their construction from the Wooloowin worksite would represent a change in the delivery methodology.

The Wooloowin worksite would provide access for personnel, plant and equipment in the construction of the east and westbound galleries and ramp drives. Two roadheaders would operate from the Wooloowin worksite to excavate the caverns.

Access to the mainline tunnels from the Wooloowin worksite would be via a shaft 12 m wide located on the western end of the site, adjacent to Park Road. The shaft would be approximately 42 m deep and would have a short drive to excavate an access tunnel (that is, an adit), approximately 15 m in length, at its base to access the mainline tunnels. The shaft and access tunnel are temporary works and would be backfilled on completion of the works occurring at the Wooloowin worksite.

## 2.2 Alternatives considered

The problem that the proponent is seeking to resolve by applying for approval for the Wooloowin project change is the identified delay to the project outlined above in section 2.1. The proponent has examined a number of alternatives to the Wooloowin project change including:

These alternatives include:

- changes to tunnel alignments
- changes to planning and construction sequencing at the current worksites
- additional resources in the form of machinery and personnel
- new shafts in other locations including the Kedron worksite and Melrose Park.

I consider that these alternatives have been adequately investigated and presented in the RFPC Report. The proponent advises that neither changes to tunnel alignments nor construction sequencing provide feasible solutions to avoid delays to the project. Table 3-4 in the RFPC Report shows that practical solutions to prevent delays to the project require additional work fronts utilising additional resources and a new access point to allow effective utilisation of additional resources.

In evaluating the Wooloowin project change I have sought advice from an independent expert, Mr Graeme Peck, of G.M. Peck and Associates Pty Ltd. Mr Peck has advised me in his report that the Wooloowin project change provides the only available option that has a reasonable chance of achieving the original completion of June 2012.

> *"The major positive aspect of the Rose Street option is that it appears to be the only option which presents a reasonable probability that the project will be able to complete within the original time frame.*
> *This means that the benefits of the project to the Brisbane traffic network and hence the community as a whole will be available when expected.*
> *Additional local benefits will accrue to those areas where worksites have already been approved and established. Without the Rose Street option, all these work sites will need to continue in operation for the added length of time required to complete the project."*

I note that although the alternative shaft locations will reduce the delay to the project to approximately eight months, these locations will have a similar impact on the community as the Rose Street shaft but for a longer period. Consequently I am satisfied the Wooloowin project change is the only available technical option worth further consideration. A copy of Mr Peck's report is available on the Department of Infrastructure and Planning website www.dip.qld.gov.au

## 2.3 Justification for the proposed change

The rationale for the Wooloowin project change is explained in section 3.1 of the RFPC Report and is summarised above in sections 2.1 and 2.2 of this report, particularly the comments relating to the delay to the project that will occur should the Wooloowin project change not proceed. The rationale for the change stems from the requirement that the tunnel excavation works associated with the Kedron ramps and caverns are critical to both the completion of the overall project works and individual components. Owing to the geological conditions encountered, access to the caverns for cavern excavation prior to the tunnel boring machine (TBM) passage, the primary power feed form the Kedron substation and access for concrete lining operations cannot proceed as planned. Delays to completion of these activities will affect progress of the TBM, the ability to progress and finish tunnel fit out, tunnel commissioning and worksite rehabilitation at Chalk Street and Kalinga Park.

In evaluating whether the Wooloowin project change is justified, it is possible to identify three questions to consider. First, is there a better alternative? Second, will the Wooloowin project change result in overall benefits that off set the costs and impacts to the Wooloowin community? Third, if the benefits are worthwhile pursuing, can the adverse impacts of the Wooloowin project change be suitably mitigated and managed?

In relation to the first question, I consider that after having regard to the independent expert advice and other relevant information, there is no better feasible alternative as outlined in section 2.1 and section 2.2 of this report.

In relation to the second question, the benefits are detailed in a qualitative assessment contained in section 3.4 and section 3.5 of the RFPC Report, which outline that congestion and traffic flow improvements would result, employment would be created, as well as the benefit to communities surrounding the existing worksites, would not be further impacted by a delay to the completion of the project. The proponent additionally highlights that the Wooloowin project change would result in the timely completion and availability of the roads to be created by the project.

The proponent has advised that the decrease in quantifiable economic benefit, largely affecting road users in northern Brisbane, would be substantial if the Wooloowin project change did not proceed and the project was therefore delayed by six months. This accords with the qualitative assessment provided in the RFPC Report and the readily observable adverse effects (particularly in relation to travel time durations and vehicle operating costs) of traffic congestion in urban areas. According to the proponent, the impacts at the metropolitan level would include delays in realising the predicted project benefits such as:

- reduced congestion and improved traffic flows on key routes in the inner northern suburbs
- greater access to public transport for the northern suburbs
- a safer road network
- improvements in the general amenity of the road corridor
- flow-on economic savings through reductions in congestion, travel time and motor vehicle operating costs, as well as environmental benefits.

While the proponent does not specify the full direct costs of implementing the Wooloowin project change, it does provide a partial specification, on pages 46 and 47 of the RFPC Report. The proponent indicates that the costs of the new worksite costs will include:

- additional hire/purchase of equipment and power–$5 million
- additional materials–$3 million
- additional jobs–approximately $27 million (i.e. 220 workers for two years at an average annual average earnings for construction workers (according to the Australian Bureau of Statistics to be approximately $63 000)).

The above mentioned costs total approximately $35 million, but do not include various unspecified additional costs (e.g. supervising engineers, consumables from small local business, impact mitigation works).

It is reasonable to assume that the financial benefit to the proponent of the Wooloowin project change would be greater than the total of the abovementioned costs or there would be no commercial incentive for the proponent to pursue the Wooloowin project change.

While not specifically quantifying any proposed financial benefit, the proponent has advised that in line with industry standard, the contract between BrisConnections and its construction contractor, Thiess John Holland provides for penalties for late delivery and bonuses for early delivery. In putting forward the proposal for project change, the proponent has argued that the addition of a worksite at Wooloowin is designed to help keep the project on-track to meet its published completion date of June 2012. The proponent further advises that the actual date of completion for the project will be subject to a variety of factors, of which the additional worksite is just one element.

In considering all matters, including the public interest, I conclude that the change is necessary on the basis of the benefits generated, primary in ensuring the disruption and negative impacts on communities near the project's current worksites will not be extended beyond its expected completion date. The financial benefit to road users of the availability of the project once completed is also acknowledged.

Having established that the benefits are worthwhile pursuing, in my view, the remaining threshold question is – Can the adverse impacts of the Wooloowin project change be suitably mitigated?

In section 4 of this report I have detailed some of the environmental effects of the Wooloowin project change and provided an analysis of these issues as well as the submissions received on these issues. I consider that these effects can be suitably mitigated and managed and I have taken a precautionary approach in conditioning to ensure the Wooloowin project change is delivered with minimal impact on the Wooloowin community. I have also imposed a number of other conditions in Appendix 1 to respond to particular traffic, environmental and social issues raised in the RFPC and submissions following public consultation as further discussed in Sections 3 and 4 of this report. The conditions I have imposed on the Wooloowin project change relate to the following matters:

- community engagement
- worksite use and rehabilitation
- urban mitigation and community development
- environmental management
- traffic management
- spoil handling
- general construction
- air quality
- noise and vibration
- groundwater and surface water
- hazard and risk
- waste
- acid sulphate soils
- audit reports

These conditions are set out in Appendix 1 to the change report.

In conclusion, I accept that the proposed Wooloowin project change is the only available option that has a reasonable chance of achieving the expected completion date for the project. I understand that the timely completion of the project will have broad benefits to community in both minimising the adverse impacts to persons affected by the construction of the project and the benefit of the availability of the project to address congestion issues.

Nevertheless, I recognise that the Wooloowin project change will impact on the Wooloowin community and consider that these impacts need to be appropriately mitigated and managed and accordingly I have imposed conditions on the Wooloowin project change that the proponent is required to comply with in undertaking the activities at the Wooloowin worksite.

# 3. Public notification and consultation

## 3.1 Public notification

In accordance with section 35G of the SDPWO Act, the Coordinator-General requested public comment on the Request for Project Change – Wooloowin Worksite Modification in the *Northside Chronicle* and *City North News* on 23 and 24 June 2009 and invited public submissions on the proposed changes to be received by Friday, 17 July 2009.

Material supporting the public notification included:

- notification of the RFPC Report
- RFPC Report and supporting documentation
- CD-Rom containing copies of the RFPC Report, supporting information and technical reports
- Airport Link EIS October 2006 and Supplementary EIS Report April 2007
- RFPC Report (May 2008) and Coordinator-General's Change Report (July 2008)
- display material describing the Wooloowin project change assessment process, and submission requirements.

The RFPC Report and the above supporting information were also on display and available for review from 24 June until 17 July 2009 at the following locations:

- Brisbane Square Library, Ground Floor, 266 George Street, Brisbane
- Nundah Library, 1 Bage Street, Nundah
- Hamilton Library, Corner Racecourse Road and Rossiter Parade, Hamilton
- Airport Link Visitor Information Centre at Lutwyche Centro Shopping Centre, Lutwyche Road, Lutwyche.

Copies of the RFPC Report and the above supporting information were also available:

- via the CNI website at www.citynorthinfrastructure.com.au
- via the Coordinator-General's website at www.dip.qld.gov.au
- via the BrisConnections website at www.brisconnections.com.au
- at community information sessions.

## 3.2 Analysis of submissions received

A total of 162 submissions was received. For the purposes of this report, these submissions have been organised into four source categories:

1. residents
2. advisory agencies
3. community organisations
4. businesses.

I received a number of submissions raising concerns about the construction impacts of the Clem Jones Tunnel as well as the Northern Busway and Airport Roundabout Upgrade projects. These projects have been assessed and are being delivered through separate and distinct approval and delivery arrangements. The issues raised regarding these projects are not directly pertinent to the Airport Link Project or the Wooloowin project change, though I have in a broad sense, considered the nature of the issues raised as part of my evaluation of the Wooloowin project change.

I consider that the proponent's Response to Submissions Report of August 2009, particularly Appendix A, provides an adequate and comprehensive listing and summary of the issues raised by submitters in submissions.

A considerable proportion of the submissions received raised concerns regarding the proponent's performance to date in terms of complying with the existing conditions for the project. This relates particularly to performance in relation to traffic, noise and dust conditions. These issues are not directly pertinent to my consideration of the Wooloowin project change though I have, in a broad sense, considered the nature of the issues raised as part of my evaluation of the Project Change. I have adopted a precautionary approach to setting conditions for the Wooloowin project change as detailed in Schedule 3 of Appendix 1. The specific precautionary nature of various relevant conditions is discussed in section 4 of this report.

Some submissions expressed dissatisfaction with the level of consultation, availability of supporting information and the duration of the submission period. To ensure appropriate consultation occurs on the implementation of the Wooloowin project change, I have included community engagement conditions (Condition 1, Schedule 3 in Appendix 1) to require the formation of a community consultative committee for the Wooloowin area as well as additional mechanisms to ensure the local community is consulted on the progress of the Wooloowin worksite.

### 3.2.1 Submissions from residents

Submissions were received from 133 residents. The major themes of the issues raised in the residents' submissions related to concerns about the potential for adverse noise, air quality (dust), vibration, traffic (including car parking), visual and general health and safety implications of the Wooloowin project change. Many resident submitters were concerned about the consultation (or lack thereof) by the proponent in the lead up to lodgement of the RFPC Report and generally about the process associated with any potential approval of the Wooloowin project change.

I acknowledge these concerns and consider that they arise from people who are genuinely and understandably concerned by the proposed expansion of the existing project into their neighbourhood. I further acknowledge that the works associated with the Wooloowin project change tend to be accompanied by temporary impacts on amenity and, as indicated above, I have adopted a precautionary approach to setting conditions designed to mitigate and constrain the impacts, in accordance with the SDPWO Act.

It should be noted that there were some submissions from residents in the vicinity of the project generally that offered support for the approval of works at the proposed Wooloowin worksite. These submitters indicated that they were keen to see the Airport Link Project delivered on time and avoid the delays as such delays would extend the impacts upon the local communities surrounding the existing worksites.

### 3.2.2 Submissions from advisory agencies

Submissions were received from 10 advisory agencies. Agencies generally focussed their comments on their area of expertise and jurisdiction. For the most part, the agencies were largely supportive of the proposed Wooloowin project change subject to further information being provided and additional conditions imposed upon the proponent.

Advisory agencies that raised issues arising from the RFPC were the Department of Education and Training (DET), the Department of Transport and Main Roads (DTMR), the Department of Environment and Resource Management (DERM), Queensland Health, the Department of Community Safety, Department of Communities, Queensland Treasury, Department of Public Works, Department of Employment, Industry Development and Innovation, Department of Communities and the Brisbane City Council.

The major themes of the submissions included:

- impact of and potential mitigation strategies for noise, vibration and air quality on buildings, residents' health and students
- transport network impacts
- water management
- student safety and learning conditions
- reporting requirements for general construction
- environmental management.

### 3.2.3 Submissions from community groups

Six community organisations provided submissions. These submissions were on behalf of groups representing the interests of the Kedron State High School community, Wooloowin residents and a community action group for sustainable transport.

The matters raised in these submissions related to several issues including:

- the learning environment at the Kedron State High School
- student health and safety
- the amount of community consultation
- residents' health and safety
- the general approval process
- transport network impacts
- noise and vibration impacts
- the ability of the proponent to achieve the prescribed air quality goals.

### 3.2.4 Submissions from businesses

Submissions from 13 private businesses raised concerns about the impact of the Wooloowin project change on their premises and their business operations. Specifically, many of these submissions, from businesses located in close proximity to the worksite, expressed concerns regarding the viability of their businesses and the ability to maintain their current levels of patronage and income with the expected impacts caused by the Wooloowin project change.

In particular, a number of submissions identified that the businesses' ambiance and customer comfort would be affected by increased dust, noise and vibration from the Wooloowin worksite as well as diminished visual amenity resulting from the construction of the acoustic shed. Another frequent concern arising from the business submissions was the impact of increased traffic volumes and reduced parking availability that would result in customers experiencing greater difficulty in accessing businesses.

Other themes prevalent throughout the submissions from businesses included additional business costs to relocate or lessen the impacts from the Wooloowin worksite, reduced property values for the life of the worksite, as well as a number of concerns regarding the justification and process associated with the proposed Wooloowin project change and inadequate length of time for consultation.

# 4. Evaluation of environmental effects

## 4.1 Transport system

### 4.1.1 General matters

The Wooloowin project change will have several effects on the transport system during the construction phase of the project. The proposed Wooloowin worksite will result in increased demand on the local transport system as a consequence of transporting plant, equipment and materials to establish the site, as well as the removal of the excavated spoil material from the construction of the access shaft, access tunnel and the Kedron underground ramps and caverns.

Section 5.2 of the RFPC Report describes the expected impacts of the proposed change on the transport system, as discussed further below, particularly in section 4.1.2 of this report.

The submissions from DTMR and BCC included requests for further information or further commitments from the proponent.

In its submission, DTMR requested:

- upgrades to the intersections and pavement affected by the new spoil haulage route to allow for safe movements of heavy vehicles including, but not limited to, the following locations:
    - worksite access from Kent Road
    - worksite egress onto Park Road
    - Park Road and Rose Street
    - Kent Road and Rose Street
    - Junction Road and Sandgate Road
    - Kedron Park Road and Park Road
    - Sandgate Road and East West Arterial Road
- analysis of peak period impacts on intersections directly affected by this spoil haulage route to be assessed and any improvements to maintain capacity to be made
- clarification to be made regarding spoil haulage, modelling on particular intersections, number of expected truck/vehicle movements.

In its submission, BCC:

- suggested that haulage be prohibited during school drop-off and pick-up times
- identified discrepancies/omissions regarding the proposed spoil route
- requested further information on queuing of haulage vehicles
- suggested that parking requirements for ancillary construction vehicles were not addressed
- requested further information on how to prevent construction employees from parking in local streets
- requested that a contribution be stipulated as part of the conditions to go towards maintenance of pavements.

In addition, the submission from DET requested:

- the imposition of speed control limits for all empty haulage vehicles travelling on Park Road past the Kedron State High School
- the upgrading and improvement of the section of Park Road adjoining the school to eliminate any rough, undulating or uneven road surfaces.

These matters were generally consistent with the traffic related issues and concerns raised by submitters from the general community. These matters are addressed below.

### 4.1.2 Transport network impacts

Table 5-1 of the RFPC Report shows the construction traffic anticipated to be generated by the Wooloowin worksite. The additional traffic generated by the Wooloowin worksite is considered to be negligible in terms of daily traffic flows along Junction Road and Rose Street and at relevant intersections. During the peak periods, the additional construction traffic represents 1-3 per cent of the daily traffic volumes. I note that the DTMR guidelines suggest that an increase in traffic of this magnitude for a specific development project is not significant in terms of damage risks to state-controlled roads.

The construction traffic route detailed in section 5.2.1 of the RFPC Report utilises the same route as detailed in the previous Request for Project Change (July 2008) except for additional state-controlled or arterial roads–Kedron Park Road, Park Road, Rose Street, Kent Road and Junction Road. It is particularly noteworthy that spoil haulage on Junction Road, Clayfield was prohibited in the conditions associated with the project to date, although I am satisfied that it is warranted in the context of the Wooloowin project change.

I have mandated a one-way construction traffic route for the Wooloowin project change (Condition 5(c), Schedule 3, Appendix 1) to minimise the impacts of spoil and materials haulage. The construction traffic route is turning left out of the Wooloowin worksite into Rose Street and travelling east along Rose Street and Junction Road to Sandgate Road and then on motorways and arterial roads between the designated spoil haulage route and spoil placement sites at the Port of Brisbane and Brisbane Airport, returning via Rode Road, Gympie Road, Kedron Park Road, Park Road, Rose Street to Kent Road. General construction traffic is encouraged to use the same roads but not necessarily in a one-way direction.

Exclusive of the ingress and egress points on Kent Road and Park Road, the construction haulage route uses state-controlled roads and arterial roads only. Land uses along this route vary from residential to commercial, including the Eagle Junction Railway Station and shopping centre. The route would allow access to both north and south spoil placement sites.

The intersection of Sandgate Road and Junction Road is congested during the morning peak period. To minimise the impact on this intersection operation, construction vehicles during that peak period are to be directed north, using the existing left-turn slip lane onto Sandgate Road. Vehicles returning to site are to be directed to access from the intersection of Kedron Park Road / Lutwyche Road, via the approved route of Sandgate Road, Rode Road and Gympie Road. To minimise impacts along the identified route, the spoil haulage route in Condition 5(c) Schedule 3, Appendix 1 only permits the eastbound movement on Junction Road between Kent Road and Sandgate Road, thus minimising the impact of the haulage operation on Junction Road residents and businesses. It would also minimise impacts on the Eagle Junction Shopping Centre parking area and Eagle Junction Railway Station commuter parking area–both being located on the southern side of Junction Road.

To be clear, spoil haulage vehicles during the morning peak period must be directed to turn left onto Sandgate Road. The return route from the spoil placement sites would be via Rode Road, Gympie Road, Kedron Park Road and Rose Street to turn left into Kent Road and left into the Wooloowin worksite. By adopting this haul route circuit, any potential impact on the already congested right-turn from Sandgate Road from the north approach into Junction Road is avoided.

I consider that the proponent has suitably responded to the matters raised in relation to transport network impacts, particularly in sections 5.4 and 5.5 of the Response to Submissions Report. However, in line with my precautionary approach to requiring effective mitigation measures, I have required additional safeguards in Conditions 5 and 6 of Schedule

3, Appendix 1. The additional requirements I have conditioned, include more constrained spoil haulage time durations to minimise impacts during school drop-off and pick-up times and other measures including a new school crossing and the provision of traffic controllers and other traffic controls in the vicinity of the Wooloowin worksite and the Kedron State High School when spoil haulage is occurring during school drop off and pick up times. These additional requirements are specifically designed to ensure safe movement of pedestrian, cyclists and local traffic.

I have also conditioned that there must be no haulage vehicle queuing in proximity to a 'sensitive place', which includes residences. In addition, I have required that construction vehicle monitoring must occur to ensure that the construction route for the Wooloowin project change is the only route used by project-related spoil trucks directly engaged with the Wooloowin project change works.

I am not requiring additional pavement treatment works to be undertaken by the proponent as suggested in the DTMR and BCC submissions, given the marginal increases in overall traffic on these arterial roads that will result from the Wooloowin project change. In addition, the modelling undertaken for the RFPC Report indicates that the noise levels on Park Road as a result of the Wooloowin project change will not be perceptible.

The proponent has committed to, and I have conditioned (Condition 5(q) Schedule 3, Appendix 1), that all workers at the Wooloowin worksite must be transported by shuttle buses operating from the existing Kedron worksite. Other vehicles must only load and/or reload from within the worksite. I acknowledge and accept the proponent's commitment that it will engage parking monitors and erect signage as required to ensure these conditions are enforced.

I am satisfied that the analysis associated with Figure 5-1 of the Response to Submissions Report suitably demonstrates that a left-turning manoeuvre from Rose Street into Kent Street is acceptable and is the best possible and safest outcome to access the Wooloowin work site. An exception to this is the need to have shotcrete delivered to the site as required to facilitate safe tunnelling support construction. These deliveries have been conditioned to enter and exit the worksite via Kent Road, be limited to four deliveries only from 6.30pm to 6.30am, be fitted with 'residential mufflers' and proceed immediately to within the acoustic shed on arrival to the Wooloowin worksite to minimise the potential noise impacts.

### 4.1.3 Public transport, pedestrians and cycling

It is expected the Wooloowin worksite, as detailed in section 5.2.2 of the RFPC, should have a minimal impact on public transport operations; however, it has the potential to negatively impact upon pedestrian and cyclist movements and safety. Numerous submissions were received regarding safety issues, in particular concerning school students.

The main concern of submitters regarding public transport operations related to the bus stop located adjacent to the north-east corner of the Wooloowin worksite, on the western side of Kent Road, north of Rose Street. The RFPC states that this bus stop does not need to be relocated. One business owner raised a concern regarding the proximity of the Kent Road bus stop to site access. In addition, the submission on behalf of the Kedron State High School student body suggested reducing or relocating the number of bus stops along Park Road. After consideration of the submissions from the BCC, as the operator of public transport buses, and Department of Education and Training, as well my imposed Condition 5 Schedule 3, Appendix 1, I am satisfied that the additional mitigation strategies proposed to ensure the physical safety of pedestrians and cyclists are adequate and do not require the relocation of any of the bus stops.

### 4.1.4 Conclusion

I have imposed conditions relating to Wooloowin project change related transport issues which introduce additional mitigation measures as stipulated in Conditions 5 and 6, Schedule 3, Appendix 1. I am satisfied that, subject to meeting these conditions and the undertaking of the commitments from the proponent, suitable consultation, monitoring, reporting and mitigation measures will be implemented to achieve acceptable outcomes in relation to managing the transport-related impacts of the Wooloowin project change.

## 4.2 Noise

### 4.2.1 RFPC findings, Coordinator-General's analysis and considerations

The noise assessment within the RFPC is based on an investigation and analysis of the existing acoustic environment and the likely impacts of the construction and operation of the Wooloowin worksite, as presented in detail in Appendix A.3 of the RFPC.

The land use in the locality of the proposed worksite is predominantly residential. Some small-scale commercial businesses are located to the east on Kent Road and to the south at the corner of Rose Street and Kent Road. Most housing is either raised or two-storey. The nearest sensitive places are located adjacent to the northern boundary of the proposed worksite.

A substantial proportion of submitters on the Wooloowin project change have raised concern that noise associated with project activities would impact on their quality of life and lifestyles. In particular, noise associated with generators, blower fans, reversing signals, whistles, horns, blasting, drilling and night works was a source of concern. Submissions stated that noise impacts would be particularly severe during construction of the noise barrier and the acoustic shed. Also, as works are proposed to be undertaken within the acoustic shed at night, submitters expressed concern that noise associated with the movement of workers to and from the site would be experienced at night.

Some submissions emphasised that households and businesses are already experiencing noise impacts from works at other project sites and that the impact of the proposed Wooloowin site would be more severe. The long-term nature of the impacts (i.e. 29 months as outlined in the RFPC) was also a source of concern, as was the potential effect of noise emissions on the viability and functionality of local businesses.

Numerous submissions expressed concern that noise impacts could be far-reaching, considering the flat topography of the area and the low rise nature of development in the area. The possibility of Kent Road acting as a 'tunnel' and channelling the noise was also mentioned.

The proponent identifies that there is a legislative based framework for the project and the management of the acoustic environment, particularly based around standards set out by the *Environment Protection Act 1994* and the *Environment Protection (Noise) Policy 2008*.

The DERM advise that the noise assessment undertaken by the proponent has been appropriately prepared and the major noise aspects have been considered. The DERM also consider that the modelling has been properly carried out and the proposed mitigation measures are appropriate.

I further note the advice of Queensland Health that the management strategies and mitigation measures as originally proposed for the project (i.e. under the existing conditions) were

considered sufficient to ensure that the potential adverse health impacts of any exceedence of acoustic goals.

However, given the potential impacts of construction noise and in accordance with my precautionary approach to impact mitigation, I require that the proponent consult closely with the people occupying 'near premises' as identified in Condition 1, Schedule 3, Appendix 1) and that if the required predictive modelling identifies that noise goals for sleep disturbance may be exceeded, then direct consultation and mitigation measures must be implemented prior to the commencement of relevant construction works (Condition 9, Schedule 3, Appendix 1).

To ensure the predictive modelling accurately reflects the actual impacts I have included a condition requiring regular verification of noise monitoring against predicted levels be undertaken and the model to be re-calibrated where the predicted and actual levels are significantly different to ensure the model provides an accurate prediction of the future impacts throughout the Project Change.

Noise mitigation, modelling and monitoring results, as identified in the RFPC Report, would be reported as part of the Project Monthly Environmental Report. Any exceedences of noise goals, complaints, responses to complaints and corrective actions would be included as part of this monthly report and tabled for discussion at the Wooloowin Community Consultative Committee (WCCC).

Furthermore, I have also required that the acoustic barrier must be designed to achieve the environmental objectives outlined in the Construction EMP, and constructed around the perimeter of the Wooloowin worksite prior to commencing any works other than site establishment works on the site.

In accordance with condition 7(f), Schedule 3, the acoustic barrier for the Wooloowin worksite must:

- be at least 5 m in height
- be constructed around the whole perimeter of the site with gate openings only for access points, with the gates to have the same acoustic performance as the acoustic barrier
- be constructed of materials with a minimum mass density of 20 kg/$m^2$ and be continuous subject to access requirements.

I have specified that the acoustic barrier must be constructed of materials with a minimum mass density of 20 kg/m2, which is double the mass density proposed in the RFPC Report, which will ensure an even higher level of noise mitigation.

I have also imposed a condition relating to the acoustic shed in order to manage construction noise, vibration and air quality at the Wooloowin worksite effectively (Condition 7).

In relation to the acoustic shed that will contain the shaft and spoil loading activities, I have imposed conditions that require that it:

- be completed prior to the commencement of roadheader excavation for the adit be designed to achieve the environmental objectives and performance criteria, and constructed (including by use of appropriate materials) to achieve compliance with these conditions
- remain entirely enclosed other than to allow access and egress and ventilation
- to manage construction noise, the proponent is to use its best endeavours to construct the perimeter walls prior to rock hammering commencing in the shaft.

I have also imposed a condition requiring that all generators, filtration equipment and non-mobile plant within the Wooloowin worksite must be contained within enclosures that are acoustically lined, to achieve the environmental objectives for noise and stated goals.

I note that since the RFPC was prepared, the proponent has committed that power will be sourced from a connection to the mains supply, therefore the proposed on-site generators will now not be required. I note that there will however be on-site generation of power required during the acoustic shed construction and this will only be used during day-time hours. It is considered that this change to the proposed construction method will minimise noise impacts on the receiving environment. Additionally, as a result of refinements to the internal design of the acoustic shed, the proponent has also committed to locate the air compressor inside the shed.

I note that detailed noise modelling incorporating these changes to the proposed worksite operation will be undertaken in the near future and these will be available via the project website.

The proponent's contractor has also committed that during the initial period of establishing the site and installing the acoustic barrier, operations will be limited to industrial level construction works (i.e. machine works) to the hours of 9.00am to 5.00pm, with residential level construction works (i.e. hand tools) between the hours of 7.00am and 6.00pm. It is therefore proposed that machines such as backhoes, bobcats or small excavators will start work at 9am and will stop work at 5.00pm, with finish off and clean up between 5.00pm and 6.00pm. This commitment will help to minimise noise impacts associated with early site establishment prior to the erection of the noise barrier.

Notwithstanding the above commitment, consultation must be undertaken with owners and occupants of potentially affected premises where predictive modelling predicts that the construction noise goals as set out in Condition 9, Schedule 3, Appendix 1, of this report are likely to be exceeded by the construction or operation of the Wooloowin worksite.

Consultation must inform the development and implementation of effective mitigation measures to address the predicted or reasonably foreseeable exceedance of the noise goals.

Possible mitigation measures include treatments to residential dwellings and sensitive commercial buildings (e.g. window treatments, door treatments, air conditioning) in order to mitigate predicted noise impacts. Mitigation measures must be implemented prior to the commencement of works which are predicted to result in an exceedance of the noise goals (Condition 9(s)).

Additional noise mitigation measures in condition 9 include:

- all mobile plant and equipment must be fitted with less tonal 'broadband', 'quacker' or similar type reversing alarms
- all mobile plant and equipment must be fitted with suitable noise reducing devices, e.g. mufflers
- all plant and equipment must be installed, maintained and operated in a proper and efficient manner
- the ventilation fans on the acoustic shed must be fitted with silencers to achieve 12 dBA noise reductions
- all loading and unloading of the workforce shuttle bus must occur within the Wooloowin worksite.

Some submissions expressed concern about the level of noise that would be generated by the movement of vehicles through the area, particularly spoil haulage vehicles. Specifically, two submissions suggest K Block and the (yet to be constructed) Language Centre at Kedron State High School will require upgrade works (air-conditioning and double glazing) to mitigate noise.

I note the modelling results presented in the Table 5-14 of the RFPC Report indicate an increase of 0.4 dB(A) to the $L_{A10\ 1hr}$ noise levels on Park Road. These modelling results indicate the increase in noise is not likely to be perceptible either inside or outside the school buildings.

As part of the management of traffic impacts from the Wooloowin worksite, Condition 5, Schedule 3, Appendix 1 stipulates all spoil haulage movements are to occur only on the designated construction haulage route and during the designated hours of 6:30 am to 6:30 pm Monday to Saturday except varied as per items listed below and restrictions nominated during hours of student movement as per Condition 6, Schedule 3, Appendix 1.

Two exceptions to the designated hours, specifically to allow:

- shotcrete deliveries to the worksite, up to four deliveries per night between 6:30 pm and 6:30 pm
- oversized vehicle movements between 6:30 pm and 6:30 am, if required by the relevant road authorities or the Queensland Police Service.

I note that the RFPC outlines that up to four shotcrete deliveries will be undertaken between 6.30pm and 10.30pm and my conditions allow that shotcrete may be delivered, up to four times between 6.30pm and 6.30am nightly. This is due to additional information supplied by the proponent that advises that further technical analysis of the use of retardant in the shotcrete will not provide an adequate level of safety in its use. I have therefore accepted the additional time for shotcrete deliveries, though stipulate that no more than four deliveries can be made in any one night and that these deliveries are to enter and exit the site via Kent Road to minimise noise impacts to residences in Park Road.

### 4.2.2 Conclusion

The proposed Wooloowin worksite will be subject to the same stringent noise goals as required by the existing conditions for the Project. Furthermore, the proponent must adhere to the conditions for noise monitoring and mitigation stipulated in Condition 9, Schedule 3, Appendix 1.

I am satisfied that with the imposition of conditions, suitable consultation, monitoring, reporting and mitigation measures are in place to achieve satisfactory outcomes in relation to managing the noise impacts of the Wooloowin project change.

## 4.3 Vibration

### 4.3.1 RFPC findings, Coordinator-General's analysis and considerations

The proposed Wooloowin worksite will expose the community and premises in the vicinity to the worksite to the impacts of vibration from the construction and delivery of the Wooloowin project change. The goals for vibration to guide the construction planning and delivery were set in the Coordinator-General's report of May 2007 and remained in the Change Report of July 2008.

The sources of potential vibration from construction activities at the Wooloowin worksite include surface works, general construction works (including use of hydraulic hammers, drilling and any potential blasting) and tunnelling. The potential vibration and blasting overpressure impacts from the Wooloowin worksite are detailed in section 5.4.2 of the RFPC.

The RFPC indicates that the vibration goals can be achieved in most cases. It has been proposed that where modelling indicates the goals are likely to be exceeded, mitigation measures will be implemented to minimise the adverse impacts.

A number of submissions expressed concern regarding the impact from vibrations, particularly with regard to damage to properties and other assets, sleep disturbance, and business operations.

The DERM advise that the vibration assessment undertaken by the proponent has been appropriately prepared and the major vibration aspects have been considered and the proposed mitigation measures are appropriate.

The advice from my commissioned expert adviser, Mr Graeme Peck, provides confidence that the acoustic shed and the existing conditions for the project will result in minimal vibration impacts on the surrounding residences.

Specific advice from Mr Graeme Peck I have received in relation to piling operations for the shaft and any potential blasting operations includes:

> *"The perimeter of the shaft is proposed to be constructed with overlapping bored piles (otherwise called secant piles). This operation is little different to the foundation piling required for any significant residential apartment block. The RFPC notes that this activity is not expected to cause either noise or vibration difficulties, and the reviewer is of the same view."*
>
> *"The peak particle velocity regime (ppv) already included in the existing project approval requirements is considered conservative, but advance trials (of blasting - sic) would ensure that any initial production blasts that may be required will meet the prescribed standard."*

In summary, the expert advice I have received concludes*:*

> *"... the studies have confirmed that with a few exceptions, all of the original EIS conditions relating to noise and vibration can be met".*

However, given the location of the worksite within a low-density residential and small-scale commercial area and the reasonable concern of submitters and adopting a precautionary approach, I have imposed conditions to ensure the proponent mitigates and appropriately manages vibration impacts from the worksite.

In circumstances where the goals are likely to be exceeded, I have stipulated that ongoing monitoring is undertaken and that early consultation with occupants of potentially affected premises is required to ensure appropriate mitigation strategies are implemented.

I have also stipulated, at Condition 9, Schedule 3, Appendix 1, that comparative building condition assessments are undertaken prior to and after construction and that all reasonable and practical measures are undertaken to ensure that measures to make good damage identified as a result of the project are completed within three months of the comparative survey.

### 4.3.2 Conclusion

The proposed Wooloowin worksite will be subject to the same vibration limits, and will generate similar minimal expected vibration impacts, as the project. Furthermore, the proponent must adhere to the new conditions for vibration monitoring and mitigation stipulated in Condition 9, Schedule 3, Appendix 1.

I am satisfied that, subject to the adoption of these new and existing conditions, suitable consultation, monitoring, reporting and mitigation measures are in place to achieve satisfactory outcomes in relation to managing the vibration impacts of the Wooloowin project change.

## 4.4 Air quality

### 4.4.1 RFPC findings, Coordinator-General's analysis and considerations

The proposed Wooloowin worksite has the potential to adversely impact on air quality through the release of dust in addition to emissions from motor vehicles and diesel-powered plant and equipment.

The potential for air quality impacts were a common issue of concern by submitters with air quality concerns present in nearly half of the submissions received. The submissions received in relation to air quality impacts raised issues regarding:

- impacts on residential amenity
- impacts on business amenity
- health impacts
- air quality modelling, exceedances and management.

The assessment of the air quality impacts for the RFPC involved air dispersion modelling and a review of air quality data for the region of relevance to the proposed worksite. The predictive modelling results were assessed against the existing air quality goals imposed for the project.

The dispersion modelling undertaken for the RFPC indicated that;

- the air quality as a result of the additional haul route vehicles' operation is well below the established goals
- the air quality goals for site establishment and construction of the site, and for emissions from shaft excavation and site diesel generators, can be achieved with the implementation of site environmental management and mitigation measures.

I note the modelling results for dust generation indicated that, for the 'no mitigation' scenario, non-compliances with the air quality goals are predicted. These results highlight the importance of ensuring the appropriate mitigation strategies and monitoring are enacted prior to commencing relevant works at the site.

I note the Response to Submissions Report that the air quality goals for the project and the RFPC are based on the *Environment Protection Policy (Air )1997*, however the objectives in these conditions relevant to the Wooloowin worksite are based on the more recent *Environment Protection Policy (Air) 2008*, which are more stringent than the World Health Organisation's published *Air Quality Guidelines.* Moreover, Queensland Health has maintained its support for the conditions that apply to the project and advises that the management strategies and mitigation measures proposed in the RFPC adequately address concerns.

The DERM considered the RFPC Report and recommended the establishment of an air quality monitoring station of a type and in a location to capture the impacts of the proposed worksite prior to the commencement of works at the site. Accordingly, I have imposed a requirement for two air quality monitoring stations appropriately located in the vicinity of the Wooloowin worksite in Condition 8, Schedule 3, Appendix 1.

In relation to air quality I have also imposed conditions on the Wooloowin worksite including:

- dustfall limits and ambient air quality objectives for the receiving environment that must be achieved
- dust suppression measures must be developed to ensure dust nuisance does not occur
- exhaust emissions from stationary, diesel powered plan and equipment must be captured and released via the high level ventilation outlet on the acoustic shed
- vehicles exiting the site must not track soil or other material onto the road.

I consider that the proposed mitigation measures in the RFPC Report together with the specific conditions I have imposed should sufficiently address air quality impacts from the operation of the Wooloowin worksite. The Construction EMP will be required to provide effective mitigation measures addressing the specific and reasonable concerns raised by nearby residents. In particular, the conditions stipulate measures to reduce the air quality impacts of the worksite and compel the proponent to implement additional mitigation measures on a case-by-case basis in consultation with those affected.

### 4.4.2 Conclusions

I concur that the additional spoil haulage vehicles should not result in pollutant concentrations in excess of the established goals for the project or the environmental values established in the *Environment Protection Policy (Air)* 2008.

However I am of the view that conditions to address the air quality impacts are necessary at the Wooloowin worksite. This will require implementation of the mitigation and management measures as detailed in section 5.5.10 of the RFPC Report, together with the conditions in Condition 8 Schedule 3, Appendix 1. These will provide appropriate mitigation and management of the air quality impacts from the Wooloowin worksite.

## 4.5 Groundwater and surface water

### 4.5.1 RFPC Findings, Coordinator-General's analysis and considerations

The establishment and operation of the Wooloowin worksite is expected to impact upon the surface water and groundwater systems in the vicinity of the worksite. These impacts are outlined in sections 5.6.2 (surface water impacts) and 5.7.3 (groundwater construction impacts) of the RFPC Report.

Indirect impacts on surface water could arise from water contamination due to sedimentation, erosion, changes to the quality of road runoff and potential pollutants from leaks and spills. The greatest potential for impacts on surface water from the Wooloowin worksite would be from indirect impacts during the clearing and site establishment phase. The removal of sparse tree cover and groundcover from the proposed location contributes to the potential for soil erosion and sedimentation.

In relation to groundwater, the potential impacts specific to the proposed Wooloowin worksite include aquifer drawdown, exposure of groundwater to oxygen and interaction of groundwater with concrete. There is also the potential for groundwater to impact on the sequence and methods of shaft construction.

In its submission, the DERM requested the development of a Construction Groundwater and Surface Water EMP Sub-Plan prior to releasing any water off-site. I have imposed a condition requiring this Sub-Plan to be developed in consultation with the DERM (Condition 10(f), Schedule 3, Appendix 1).

Several submissions raised concerns regarding impacts on groundwater, particularly from construction operations. I am satisfied the issues raised have been adequately addressed in the RFPC Report the proponent's Response to Submissions Report and the EIS for the project.

### 4.5.2 Conclusion

I am satisfied that through the implementation of the site specific measures contained in the RFPC and my imposed conditions contained within Condition 10, Schedule 3, Appendix 1, the surface water and groundwater impacts of the Wooloowin worksite will be appropriately mitigated.

## 4.6 Contaminated lands and acid sulphate soils

### 4.6.1 RFPC findings, Coordinator-General's analysis and considerations

The RFPC indicates there is a low probability of encountering acid sulphate soils (ASS) or contaminated soil or groundwater at the site. Contaminated land was an issue raised in a few submissions, with particular regard to the former Dalkeith Hospital, which was located on the site.

In these circumstances I consider the outlined mitigation measures in Section 5.8.2 of the RFPC and the conditions I have imposed for the Wooloowin worksite are considered appropriate to ensure the risks of impact of contaminated land and ASS are addressed. The RFPC also outlines the actions the proponent will undertake to further assess the potential risks associated with contaminated land and ASS at the worksite, including:

- completing additional rounds of groundwater sampling in the vicinity of the site, with particular reference to the former service station site adjacent to the work site
- complete a detailed historical review to determine the historical use of the site
- Given the site is not listed on the Environmental Management Register, the historical activities are unclear at present and may warrant preliminary assessment of the shallow soil profile. It may be required to complete a series of shallow test pits (six in total) in the areas of the large historical buildings located on the site to assess the potential for shallow contaminated soils.

### 4.6.2 Conclusion

I am satisfied that through the implementation of the site specific measures contained in the RFPC Report and imposed conditions contained in condition 13 of Schedule 3, Appendix 1, that the impacts related to contaminated land and ASS associated with the Wooloowin project change will be appropriately mitigated and managed.

## 4.7 Flora and fauna

### 4.7.1 RFPC findings, Coordinator-General's analysis and considerations

The primary flora and fauna related issue for the proposed Wooloowin worksite is the removal of all vegetation from the site during site establishment.

There are no mapped or listed local, state or Commonwealth vegetation or habitat of conservation significance located on the proposed Wooloowin worksite. Additionally, the RFPC Report indicates that no fauna were observed to be present on site nor did any of the trees have any significant habitat value.

Some of the existing vegetation will be retained to assist with the mitigation of the visual amenity impacts during the operation of the site.

Some submissions suggested that a full environmental impact statement should be undertaken in order to properly determine the effects on the flora and fauna in the vicinity of the worksite. I also note that a submitter raised the issue of historically significant plantings on the site. Given the generally poor health of the mature trees on the site, the urbanised locality of the site and the previously proposed future use of the site as a road corridor (prior to the Wooloowin project change), I consider that neither of these issues require further investigation.

However, I note that the proponent in the RFPC has proposed mitigation strategies to ensure no fauna impacts result from the project works, including:

- engaging a fauna spotter prior to removal of tree species
- checking trees for the presence of fauna prior to clearing
- relocation of fauna, if retrieved, to a suitable habitat and in accordance with permit requirements.

Further, in order to ensure the rehabilitation of the site consistent with the character of the area I have an imposed a condition (Condition 2) requiring the proponent, upon completion of the use of the Wooloowin worksite, to give priority to the planting and landscaping of the site using native species endemic to the Brisbane area. Further, the proponent must maintain, and ensure the survival of the native vegetation that is established.

### 4.7.2 Conclusion

I am satisfied that there will be no significant ecological impacts given the existing mitigation measures and conditions relating to site clearing and rehabilitation for the Wooloowin project change.

## 4.8 Social environment

### 4.8.1 Overview of social environment issues raised

The expected impacts of the Wooloowin project change on the surrounding social environment are discussed in section 5.11 of the RFPC. This section describes the existing social environment as being characterised by low density residential land uses, quiet neighbourhoods and good connectivity to the city and community facilities.

The potential impacts of the worksite and their proposed mitigation measures, broadly categorised into impacts on motorists, impacts on pedestrians/cyclists, impact on public transport users and local amenity impacts, are discussed in section 5.11.3 of the RFPC Report. The specific impacts and mitigation measures for these issues are discussed in sections 4.1 (transport system) 4.9 (visual amenity) of this report. The implementation of the monitoring requirements and conditions for the management of noise, vibration, air quality, visual amenity and spoil haulage as addressed in other parts of this change report would mitigate these effects on the local social environment.

Approximately half of all submissions received included comments regarding impacts of the Wooloowin project change on the social environment. Whilst the majority of these submissions pertained to the secondary social environment impacts of noise and vibration, air quality and spoil haulage, numerous submissions articulated concerns of additional social environment impacts. These issues included impacts on the local character and amenity, property values, local businesses and income, access and connectivity, community health and well-being, the school learning environment, and school access and safety. These are discussed below.

### 4.8.2 Local character and amenity

A large number of submissions expressed concerns about having a worksite located in a quiet suburb that was described as having a distinct and well-established pre-1946 character. Concerns regarding the impact of the worksite on community cohesion, lifestyle and a loss of public open space were also raised.

In particular, impacts associated with increased traffic as well as noise, dust and visual pollution would impact on the amenity of the general area, while also compromising residents' enjoyment of their property.

I consider many of these impacts have been identified and addressed through the mitigation strategies developed by the proponent and the amended conditions discussed in the relevant sections of this report.

I note the proponent's recognition of the importance of the character of the locality and their ongoing consultation with owners and occupants of potentially affected premises to develop the mitigation strategies to achieve the optimal outcome for the community. I recommend the proponent to continue with this approach.

Existing conditions for the project are in place to ensure ongoing community consultation as well as to mitigate the effects of the project from impacts of noise, vibration, air quality, spoil haulage traffic, and the visual amenity of the locality.

In considering whether to approve the Wooloowin project change, I have considered the impacts of the temporary worksite on the local community and have confidence that the conditions imposed on the Wooloowin project change combined with the urban mitigation and community development plan discussed below, will mitigate the potential impacts while at the same time enabling the wider community to benefit from the on-time delivery of the project.

### 4.8.3 Property values and local businesses

A number of submissions from members of the public expressed concern regarding the impact of the proposed worksite on the market value of the properties in close proximity. It was advanced that the diminished property values could impact upon residents' ability to relocate or impact the value of their property investments.

In particular, the potential impacts of noise, vibration, air quality, access and parking upon local business operations and income have been raised in several submissions.

I note that under the *Acquisition of Land Act 1967* compensation is not payable to persons and business in close proximity to the worksite. However, to ameliorate the impacts of the Wooloowin worksite on local property owners and businesses I have imposed a range of conditions in Schedule 3 to require the proponent to develop general mitigation strategies at the Wooloowin worksite to minimise the impacts and for specific mitigation strategies to be developed in consultation with owners and occupants of affected premises where the air, noise or vibration goals are likely to be exceeded.

### 4.8.4 Impact on schools and students

There were a number of submissions received with concerns about the impact of the Wooloowin project change on the learning environment within the nearby school and on the safety of students accessing local schools.

The increased noise, dust and pollution expected from the project were considered to have the potential to impact on the learning environment at Kedron State High School which is located on the construction haulage route.

I note the results from the air quality modelling indicate there is no technical basis for such concerns about the air quality impacts from construction vehicles.

The issue of noise impacts on the learning environment is suitably addressed by the requirements for ongoing consultation with Kedron State High School in order to determine reasonable and practicable mitigation measures for any unforeseen impacts that may arise despite the expected effective mitigation strategies identified in section 5.3.9 of the RFPC Report.

Numerous submissions expressed significant concerns about the heightened safety risk to pedestrians and cyclists, in particular school children, as a result of the increased truck movement and perceived traffic congestion. Notably, concerns regarding this issue were expressed in submissions received from the Kedron State High School Parents and Citizens Association, the Kedron State High School Student Body, Queensland Teacher's Union and the Department of Education and Training.

I note the proponent's Response to Submissions Report has provided further detail as well as more effective mitigation strategies to address these concerns.

In addition, I have required traffic management and spoil handling conditions (Condition 5 and Condition 6, Schedule 3, Appendix 1) to specifically address student, as well as general pedestrian and cyclist, safety, including:

- provision of a school crossing adjacent to the Kedron Park State High School
- traffic controls including footpath treatments and barriers in Kent Road and Park Road
- traffic controllers to manage the safe movement of vehicles into and out of the worksite, and in the vicinity of Kedron State High School
- limits on spoil removal from the worksite during the peak hours of student movement.

I consider these conditions are necessary to minimise the risk to the safety of pedestrians, cyclists and students and also recommend the proponent, in developing its Construction Traffic EMP Sub-Plan, to collaborate with the Kedron State High School and Parents and Citizens Association to avoid potential conflict between school children and construction vehicle movements.

### 4.8.5 Urban mitigation and community development

Numerous submissions on the RFPC Report raised the issue of the cost-benefit of the Wooloowin project change including:

- request for quantification of the private benefits accruing to the proponent if the Wooloowin project change were to proceed
- acknowledgement of the amenity costs to the local community of the Wooloowin project change proceeding
- consideration of 'legacy' or lasting community benefits if approval of the Wooloowin project change was to be given –focussed particularly on the post-project use of the worksite.

The proponent acknowledged within the RFPC Report a commitment to a 'community benefits program' but did not provide a level of certainty regards the nature or scale of the commitment. This omission was itself an issue of concern for submitters.

As mentioned in section 4.8.2 above, in considering whether to approve the Wooloowin project change, I have considered the impacts of allowing a temporary worksite in an area not included in the original project area on the basis of benefits accruing largely to the wider Brisbane community.

My conditions require the proponent to prepare and submit an Urban Mitigation and Community Development Plan for the Wooloowin project change for my approval within twelve months of the date of this change report. This plan is to be in addition to the

completion of the sealing and rehabilitation of the shaft and associated land (including suitable landscaping) at the Wooloowin worksite.

The plan must be developed in consultation with the Wooloowin CCC, relevant community groups (for example Kalinga Wooloowin Residents Group), DTMR and BCC, and should include identification of and the location of the urban mitigations proposed for the Wooloowin area that are not inconsistent with those urban mitigations described in Chapter 20, section 20.6 of the EIS.

The plan must also describe the design specifications, timing and cost estimates and implementation plans for the measures arising from the commitment of the proponent to provide funding for this plan as per page 9 of the RFPC Report.

The plan must be submitted to the Coordinator-General for approval within 12 months of the date of this change report. The submission of the plan must be accompanied by documentation explaining the consultation undertaken and the views of the groups identified in Condition 3, Schedule 3, Appendix 1 arising from consultation. The options to be assessed during consultation on the plan which are designed to directly benefit the Wooloowin community must include:

- extensions of bikeways within the local area consistent with existing/proposed BCC bikeway plans
- the implementation of a Suburban Centre Improvement Project (SCIP) in the general environs of the Wooloowin worksite in accordance with BCC guidelines
- amenity improvements to the local area
- additional footpaths in Wooloowin
- public hall facilities
- urban design enhancements at or near the Eagle Junction station shopping facilities
- other options identified through consultation.

While it is envisaged that these initiatives are progressed substantially post construction and use of the proposed worksite, I encourage the proponent to also consider opportunities to engage with the local community during the construction phase to facilitate community activities, such as arts projects, place making initiatives and training / presentations for the community (i.e. arts project to beautify the exterior of the acoustic shed and/or perimeter sound barrier and school-based training / presentations on engineering / construction).

I envisage that consultation regarding the community benefits program will be independently facilitated and involve a broad range of community members and community groups, as well as relevant stakeholders, including Kedron State High School, DTMR and the BCC.

To facilitate the development of the agreed and approved initiatives as part of this Urban Mitigation and Community Development Plan, I note that the proponent has committed $3M. All costs associated with the consultation program and preparation of the plan shall be borne by the proponent.

## 4.9 Visual amenity

### 4.9.1 RFPC findings, Coordinator-General's analysis and considerations

Visual amenity of the Wooloowin area will be impacted by the Wooloowin worksite, fundamentally as a result of the construction and operation of the acoustic shed and barrier. It has been determined that in order to achieve the noise goals to be met by the construction operations required at the Wooloowin worksite, it will be necessary to construct a large acoustic shed.

The advice I received from my independent advisor, Mr Graeme Peck, makes it clear that the acoustic shed is a necessary requirement to effectively mitigate the noise and dust impacts of the project worksite and similar acoustic sheds have proved effective on other projects. Mr Peck notes the obvious trade-off involved: "*The size of the shed means of course that it has a very obvious presence in the area where it is to be located*."

The worksite is located in a predominately low-density residential area. The acoustic shed proposed for the worksite is approximately 25 m x 53 m with a stepped roof profile, 17.5 m above ground level at its highest.

Consequently the acoustic shed would have a moderate to high visible impact to residents, business-owners, pedestrians, cyclists, commuters and motorists, particularly given the local low rise setting.

Additional potential visual amenity impacts of the worksite include daylight glare from the shed, adverse shadow effects and light spill. The RFPC Report also indicates that the adjacent properties on the northern boundary should not lose sun because of the shed. Section 5.12.3 outlines the possible mitigation measures for these impacts, including use of camouflage principles, consultation with stakeholders and lighting design.

Concerns regarding the visual impact of the shed and the additional visual amenity impacts were raised in approximately 20 per cent of the submissions received. This includes comments regarding the lack of proposed vegetation screening, glare and lighting impacts on businesses, community safety, disruption of residents' sleeping patterns, effects on local fauna, potential for graffiti and vandalism; and safety hazard associated with disruption of lines of sight.

In the Change Report (July 2008), I expressed my expectation of the proponent to be committed to seek improved urban design and visual environment outcomes. It is inevitable there will be negative visual amenity impacts associated with the proposed Wooloowin worksite. However, my expectation remains for the proponent to seek to minimise the negative visual amenity impacts wherever possible.

I note within the Response to Submissions Report, the proponent has adopted suggestions from the submissions for daily inspections for graffiti, an urban design response to include vegetation screening and consultation regarding shop awnings and visual design of the noise barrier and acoustic shed. Specifically, I have amended the conditions to include a requirement that the light spill at common property boundaries does not exceed 8 Lux.

In noting in its submission that the proposed shed structure will be 'completely out of scale in the locality', BCC proposes the proponent engage with local community groups and schools in a public art exercise. I recommend this approach to the proponent.

Given the above discussion, I have included relevant conditions in various places within Schedule 3, Appendix 1 of this report to ensure that these suggested mitigations are undertaken.

## 4.10 Other matters

### 4.10.1 Hazard and risk management

The RFPC Report presents in section 6, the potential hazards, the results of the risk assessment undertaken and the hazard mitigation measures during construction. It identifies the environmental values that are subject to potentially hazardous events including:

- residential communities and other sensitive land uses adjacent to the work site
- motorists, pedestrians and cyclists who would use the road network identified for spoil haulage routes
- motorists, pedestrians and cyclists who would use the road network and footpaths near the worksite.

Several submissions were received concerning the hazard and risk assessment results in the RFPC Report. The key issues raised regarding hazard and risk management included assertions the level of consultation was inadequate, the risks relating to ground water drawdown and pedestrian safety were understated and the risk from explosives was overlooked as well as concern over storage of hazardous chemicals.

Although the use of explosives for blasting is not likely for the worksite, any use, storage or transport of explosives must be in accordance with the requirements of the *Explosives Act 1999*. I have subsequently included this stipulation in Schedule 2 Recommended Conditions for Other Approvals, Appendix 1.

The following points raised by my expert advisor Mr Peck (in relation to the potential use of explosives for blasting activity are worthy of elaboration here:

> *"The peak particle velocity regime (ppv) already included in the existing project approval requirements is considered conservative, but advance trials would ensure that any initial production blasts that may be required will meet the prescribed standard. If blasting should be required, explosives should be stored in an offsite magazine and the amount kept on site at any time limited to day use only. If not used, the excess should be returned to the off-site storage magazine. Discussion of this subject with BC/TJH indicates that this is their intention which is why explosives is not mentioned in their list of 'hazardous materials' to be stored on site"*

I am satisfied with the assessment of the risks and hazards in the RFPC and Response to Submissions Report. To ensure hazards and risk are appropriately addressed I have imposed conditions requiring the development and implementation of a Construction Hazard and Risk EMP Sub-Plan. This Plan is to prepared and implemented in consultation with the relevant emergency services organisations (Condition 11, Schedule 3, Appendix 1). I have also included a condition to prohibit the over night storage of explosives on the Wooloowin worksite (Condition 7(j)).

### 4.10.2 Decommissioning and rehabilitation

The proponent proposed within the RFPC Report that the Wooloowin worksite will be decommissioned and rehabilitated promptly following the completion of construction activities. Decommissioning will require removal of the installations, filling the shaft and reinstating the site to its current use (unless otherwise determined by the Urban Mitigation Community Development Plan). The decommissioning procedure in section 7 of the RFPC incorporates mitigation measures to ensure the environmental objectives established in the conditions for the worksite are maintained.

Several submissions were received on the decommissioning and rehabilitation of the worksite. In particular, there was a concern within the community about the site becoming a permanent site for the project. Additional submissions sought further information on the final land use and the timeline for site rehabilitation.

It is acknowledged that the worksite will need to be rehabilitated to a state suitable for an agreed future use following the completion of decommissioning. This would include as a minimum reinstating appropriate drainage and extensive landscaping. I have imposed conditions setting the rehabilitation requirements for the site (Condition 2(d), Schedule 3, Appendix 1).

I have included a condition (Condition 2, Schedule 2, Appendix 1) to ensure the decommissioning and rehabilitation of the site is completed within the 29-month period that the Wooloowin worksite may be used for the project. I have also imposed a condition requiring the proponent to use its best endeavours to minimise the amount of time the Wooloowin worksite is required for the project (Condition 2(b), Schedule 3, Appendix 1).

I consider that the aforementioned conditions to establish an Urban Mitigation and Community Development Plan and the consultation process to be undertaken regarding the site redevelopment offers assurance to the Wooloowin community that the worksite will be suitably rehabilitated for an appropriate final land use. I note references in the Ministerial Media Statement dated 22 June 2009 issued by the Minister for Infrastructure and Planning, the Honourable Stirling Hinchliffe, MP and the Minister for Main Roads, the Honourable Craig Wallace, MP advising that the site will be given back to the community as a park or other appropriate recreational facility.

### 4.10.3 Reporting requirements

To ensure that I am adequately informed of activities at the site I have imposed conditions requiring reporting in relation to activities at the Wooloowin worksite. Table 1 within Condition 4, Schedule 3, Appendix 1 sets requirements for both regular reporting as well as in the event of an incident.

I have included Condition 14, Schedule 3, Appendix 1 requiring the submission of independent audit reports to me every six months. This condition requires the proponent to have an independent and suitably qualified person (auditor) undertake an audit of the activities at the Wooloowin worksite every six months to determine whether the conditions specified in Schedule 3, Appendix 1 are being complied with. I will review the audit reports prepared and may take any action I consider necessary. Under the SDPWO Act there are a number of compliance and enforcement options available to the Coordinator-General to respond to contraventions of conditions. I may also provide copies of the report to relevant agencies for their review and advice.

# 5. Project conditions

Appendix 1 contains the conditions that are to apply specifically to the Wooloowin project change. Pursuant to section 35K of the SDPWO Act, the conditions that apply to the project (Airport Link) detailed in Appendix 1 of the Coordinator General's Change Report July 2008 apply to the Project Change (Wooloowin Worksite). If the Coordinator-General's change reports (including conditions) conflict, then this Coordinator-General's Change Report (including conditions) prevails to the extent of the inconsistency.

# 6. Conclusion

The Airport Link Project is a key part of the Queensland Government's strategy to improve the efficiency of Brisbane's road network. Once complete, the project will help alleviate critical emerging congestion problems within northern Brisbane.

The changes proposed in the proponent's Request for Project Change–Wooloowin Worksite Modification relate to a change to the construction delivery method for the project. The proposed Wooloowin worksite provides the only practical solution to mitigate the delays caused by the adverse ground condition discovered during the early detailed design and construction phase.

Having regard to the documentation and information provided during the change process, including submissions and other information, I am satisfied that the requirements of Part 4 Division 3A of the SDPWO Act have been satisfactorily fulfilled. Sufficient information has been provided to me to finalise the required evaluation of the potential impacts attributable to the Wooloowin project change.

I recognise the various impacts on the Wooloowin community that were identified in the RFPC, and taking all matters into account, including the overall public interest, I consider that the project change is necessary on the basis of the benefits generated which primarily include ensuring the disruption and negative impacts on communities near the project worksites will not be extended beyond the published completion date.

As a result of my consideration of the RFPC, I have attached conditions specific to this project change. Conditions were established for the Reference Project in the Coordinator-General's Report of May 2007 and amended for the changed project in the Coordinator-General's Change Report of July 2008. The conditions applicable to the Wooloowin project change are necessary to ensure suitable mitigation of the potential environmental effects and other impacts arising from the Wooloowin project change.

On the basis of the information provided, including advice from the advisory agencies, I am satisfied that the adverse environmental and social impacts associated with the proposed worksite are able to be suitably addressed though the:

- implementation of the commitments in the EIS, the Request for Project Change (July 2008), the Request for Project Change – Wooloowin Worksite Modification (June 2009) and the associated Response to Submission documents
- implementation of conditions I have set in Appendix 1.

The proponent must implement the conditions contained in this change report.

A copy of this report will be given to the proponent, pursuant to s35J(a) of the SDPWO Act.

A copy of this report will be provided to the key advisory agencies and will be made publicly available, pursuant to s35J(b) on the Department of Infrastructure and Planning website at: http://www.dip.qld.gov.au/projects

## Appendix 1—Conditions to apply to the Project Change (Wooloowin Worksite Modification) (the Wooloowin project change)

**Pursuant to section 35K of the *State Development and Public Works Organisation Act 1971* (SDPWO Act), the conditions that apply to the Airport Link Project detailed in the Coordinator-General's Change Report July 2008 Appendix 1, apply to the Wooloowin project change. If the Coordinator-General's change reports (including conditions) conflict, this Coordinator-General's report (including conditions) prevails to the extent of the inconsistency.**

## Schedule 1—Stated conditions for *Integrated Planning Act 1997* (IPA) approvals

**1. Material change of use of premises if all or part of the land is on the Environmental Management Register or Contaminated Land Register**

(a) Undertake investigations in locations where earthworks may potentially encounter contaminated soils (i.e. land that is listed on the Environmental Management Register (EMR) or identified areas from a site history and observations analysis). The *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland 1998* must be adhered to in these investigations. Any land identified as having contaminated soil must be notified to the DERM Contaminated Land Unit.

(b) Contaminated soil can only be removed from land listed on the EMR or Contaminated Land Register (CLR) with prior DERM Contaminated Land Unit approval and under a disposal permit in accordance with the *Environmental Protection Act 1994.*

(c ) Prepare and implement a Site Management Plan for contaminated land on the tunnel alignment where that land is not being removed from the EMR or CLR prior to any surface disturbance of the soil on that land, in accordance with:

(i) *Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council - Guidelines for Assessment and Management of Contaminated Sites*

(ii) *Environmental Protection Act 1994*.

(d) If spills occur during the transportation of contaminated soil, the area affected will be remediated and the relevant authorities advised.

(e) For both managed sites and sites without a Site Management Plan that are listed on the EMR or CLR, validation sampling and appropriate analysis will need to be conducted following remediation or covering. Analysis must be undertaken by a suitably qualified person in accordance with the *Environmental Protection Act 1994*.

## Schedule 2—Recommended conditions for other approvals

### 1. Road closures

Any road closures required must follow the procedure set out in the relevant legislation.

### 2. Aboriginal cultural heritage

The proponent must develop and have approved under the *Aboriginal Cultural Heritage Act 2003*, a Cultural Heritage Management Plan (CHMP) prior to any excavation, construction or other activity that may cause harm to Aboriginal cultural heritage.

### 3. Explosives

Any use, storage and transport of explosives required for the Wooloowin project change must be approved in accordance with the *Explosives Act 1999.*

## Schedule 3—Imposed conditions

These conditions are imposed by the Coordinator-General on the Wooloowin project change under section 54B of the *State Development and Public Works Organisation Act 1971.*
These conditions do not relieve the proponent of the obligation to obtain all other approvals and licences from all relevant authorities required under any other Act.
In accordance with section 54B (3) I have nominated entities to have jurisdiction for a number of conditions in this Schedule. Schedule 4 describes which entity has jurisdiction for the conditions and the entities that should be consulted by the proponent in regards to each condition.

**General condition**
The Wooloowin project change must be carried out in accordance with the Airport Link Wooloowin Worksite Modification Request for Project Change (June 2009) (RFPC), the Airport Link Wooloowin Worksite Modification Request for Project Change Request for Submissions (August 2009) (Response to Submissions) and all mitigation measures proposed and recommendations and commitments made in these documents must be implemented except to the extent those mitigation measures, recommendations and commitments are modified by the condition imposed by the Coordinator-General contained in this Appendix.

**1. Community engagement**

(a) To keep the community informed during the implementation of the Wooloowin project change the existing community engagement process relating to the project must be extended to address the areas affected by the Wooloowin worksite. This extended community engagement must include, but is not limited to:

(i) prior to the commencement of the shaft excavation phase of the Wooloowin project change as described in the first column of Table 4-1 and section 4.5.1 of the RFPC, the formation of a Wooloowin Community Consultative Committee (CCC) for the Wooloowin worksite. The purpose of the CCC is to provide timely advice to the proponent and the local community about construction issues. Invitations to join the CCC should be extended to local residents, the Kedron State High School and the business community adjacent to the Rose Street worksite. The CCC will be 'decommissioned' upon completion of construction works at the Wooloowin worksite

(ii) within 10 business days of the date of this Coordinator-General's change report, the establishment of mechanisms to provide information to the community relating to the Wooloowin worksite, which may include, but are not limited to, the existing Airport Link toll-free 24 hour, 7 day telephone service, project website, email service and newsletter

(iii) ensuring that the regular project newsletter includes information regarding the Wooloowin worksite

(iv) conducting six monthly information sessions or 'open days' for the Wooloowin worksite

(v) ensuring that the project website includes information regarding the Wooloowin worksite generally and in response to specific inquiries about environmental performance

(vi) ongoing engagement about the works with owners and occupants of 'near premises'[1] and premises immediately adjacent to the 'spoil haulage route'[2] from Lutwyche Road, along Junction Road to the intersection at Sandgate Road

(vii) early (i.e. no later than within 10 business days of the date of this Coordinator-General's change report) notification to the owners and occupants of 'near premises' and premises immediately adjacent to the 'spoil haulage route' from Lutwyche Road, along Junction Road to the intersection at Sandgate Road of the Coordinator-General's decision and the timing for the commencement of works associated with the Wooloowin project change. This notification must include an attempt or offer to brief at least one owner, and one occupier when the owner does not occupy, of each such premises in person

(viii) update the existing complaints process to include the Wooloowin worksite, which delivers a prompt response to community concerns with relevant information, action where required, and reporting of incidents to appropriate authorities and the Wooloowin CCC

(ix) specific procedures to respond to complaints, issues or incidents, as set out in condition 4(g)(v)

(x) notification to the owners and occupants of 'near premises' in the following circumstances:

- at least seven days prior to the commencement of night works at the Wooloowin worksite
- at least 48 hours prior to any oversize vehicle deliveries undertaken in accordance with condition 5(c)(v).

## 2. Worksite use and rehabilitation

(a) The Wooloowin worksite may be used for the project for a period of 29 months from the date of commencement of site establishment[3].

(b) Notwithstanding condition 2(a), the proponent must use its best endeavours to minimise the amount of time the Wooloowin worksite is required for the project. Best endeavours includes:

- project planning including the investigation and implementation of any efficiencies in work methods to minimise the length of time the site is required

[1] 'near premises' defined in Schedule 5 Glossary
[2] 'spoil haulage route' defined in condition 5 (c)
[3] 'site establishment' defined in Schedule 5 Glossary

- scheduling of site activities to minimise the length of time the site is required

(c ) Following completion of tunnel works at the Wooloowin worksite, the site must be rehabilitated as quickly as reasonable and practicable, but within the 29-month period established for the usage of the Wooloowin worksite.

(d) Rehabilitation of the Wooloowin worksite must include the following:

(i) backfilling and reinstatement of the shaft, which is to be undertaken within the acoustic shed.

(ii) rehabilitation or reinstatement of other infrastructure on the site impacted by the project including footpaths, driveways etc.

(iii) removal of the acoustic shed and all other buildings and equipment associated with the Wooloowin worksite. This is to be undertaken prior to the removal of the perimeter acoustic barrier.

(iv) subject to the outcomes proposed for the Wooloowin worksite in the Urban Mitigation and Community Development Plan for the Wooloowin worksite and surrounding area required by condition 3, planting and landscaping of the site. Such planting and landscaping must give priority to the use of native species endemic to the Brisbane area and must include the use of mature trees, where appropriate.

(v) subject to the outcomes proposed for the Wooloowin worksite in the Urban Mitigation and Community Development Plan, ongoing maintenance (including any necessary remedial action) to ensure the survival of vegetation planted at the site for a period of at least 12 months from the date of planting.

## 3. Urban mitigation and community development

(a) The proponent must implement an independently facilitated consultation process with the following entities: BCC, DTMR, the Wooloowin CCC and the broader Wooloowin community to establish an Urban Mitigation and Community Development (UMCD) Plan for the Wooloowin worksite and surrounding area. The consultation must be directed at achieving consensus of the preferred measures to urban mitigation and community development and the UMCD Plan must include details of the consultation undertaken and the views of the entities and persons consulted.

(b) Within 12 months of the date of this Coordinator-General's change report the proponent must submit the UMCD Plan to the Coordinator-General for approval.

(c ) The UMCD Plan must include descriptions and design specifications, timing details, cost estimates and implementation plans for the urban mitigation and community development measures to be undertaken by the proponent after the completion of use of the Wooloowin worksite. The options to be considered during consultation on the UMCD Plan include:

(i) extensions of bikeways and establishment of a velloway within the local area consistent with existing BCC and DTMR plans

(ii) the implementation of a Suburban Centre Improvement Project (SCIP) in the general environs of the Wooloowin worksite in accordance with BCC guidelines

(iii) amenity improvements to the local area

(iv) additional footpaths in Wooloowin

(v) urban design enhancements at or near the Eagle Junction station shopping facilities

(vi) other options identified through consultation.

(d) The development and implementation of the UMCD Plan must be funded by the proponent.

(e) The proponent must implement, or cause to be implemented, the approved UMCD Plan.

(f) On completion of all actions in the UMCD Plan, the proponent must provide a final report to the Coordinator-General that demonstrates how the UMCD Plan has been implemented, the outcomes achieved and an audit of the expenditure under the UMCD Plan.

(g) In the absence of a consensus decision in condition 3(a), based on the advice of the independent facilitator, the Coordinator-General may direct the proponent to undertake stated measures in relation to urban mitigation and community development within stated timeframes. The proponent must take, or cause to be taken, the stated measures within the stated timeframes and fund the measures.

## 4. Environmental management

(a) A comprehensive Construction EMP must be prepared and implemented. The Construction EMP may be developed in stages to address each relevant phase of construction. It should be developed generally in accordance with the Draft Outline Construction EMP in Chapter 19 of the EIS and the mitigation measures provided in RFPC, except where the matter is addressed by these conditions and then to the extent required by these conditions.

(b) The Construction EMP, Sub-plans and all associated plans and updates must be submitted for comment to the Coordinator-General and each of the relevant consultative bodies nominated for this condition (see Schedule 4) and their comments taken into account in finalising the plans. If comments are not provided within 10 business days from the date of receipt, the consultative body is deemed to have no comment. Prior to site establishment works and 30 days prior to the commencement of each of the two subsequent phases of construction works (i.e. as per column 1 of Table 4-1 of the RFPC), the relevant update of the Construction EMP for those works must be submitted to the

Coordinator-General. Where the plans do not reflect the comments received from the relevant consultative bodies, justification must be provided to the Coordinator-General.

(c ) A Wooloowin site management plan (WSMP) must be prepared for the Wooloowin worksite. The WSMP must include the environmental objectives and performance criteria covered by the Construction EMP and detail the predicted environmental impacts of the works at the Wooloowin worksite together with the specific mitigation measures to be applied, in accordance with these conditions and the Construction EMP and associated plans. The WSMP must also include details of monitoring and the process for reviewing mitigation measures in response to monitoring results. The WSMP must be updated to reflect the different construction phases of the Wooloowin worksite and any changes to the predicted environmental impacts and mitigation measures to be applied.

(d) From the commencement of site establishment, the WSMP required for condition 4(c) for the Wooloowin worksite must be made publicly available on the Project's website and at the project visitor information centre. Copies must also be available for meetings of the Wooloowin CCC.

(e) For the elements of the Construction EMP relating to groundwater management and to potential noise impacts associated with shotcrete deliveries during the tunnel construction phase, the predictive studies upon which the mitigation measures are based, must be separately identified and provided to the Coordinator-General with the relevant component of the Construction EMP.

(f) The Construction EMP must accord generally with the following framework:

**(i)** **Environmental objectives and performance criteria**–The Construction EMP must adopt and incorporate the environmental objectives and performance criteria set out in the EIS Chapter 19, Draft Outline EMP (Construction).

**(ii)** **EMP Sub-Plans**–The Construction EMP is to incorporate sub-plans as required by these conditions to address in detail specific environmental impacts of the construction works. EMP Sub-Plans must include measures designed to comply with the relevant industry standards for environmental management set out in Schedule 6 to these conditions.

(g) The Construction EMP and EMP Sub-Plans must be based on predictive studies which have regard to the scale, intensity, extent, location and duration of construction works. Properties which would be adversely affected should be identified within the following framework:

(i) **Design of mitigation measures**–Mitigation measures must be designed in response to the predicted impacts, with detailed design measures to address impacts on particular properties where necessary.

Mitigation measures may include a wide range of measures such as, but not limited to, changes in work procedures and practices, physical interventions to separate or buffer places from predicted

construction impacts, relocation of affected parties for agreed periods of time. Such measures must be directed to achieving the environmental objectives and performance criteria set out in the EIS Chapter 19, Draft Outline EMP (Construction), the RFPC, the statutory requirements, and must be consistent with these conditions. They may include the mitigation measures contained in the EIS Chapter 19, Draft Outline EMP (Construction), the measures provided in the RFPC or may include other measures, provided those other measures achieve the environmental objectives and performance criteria, the statutory requirements and these conditions.

(ii) **Monitoring**–On-going monitoring must be conducted to identify the effectiveness of the mitigation measures, having regard for the environmental requirements established in the Construction EMP. Monitoring must include a range of activities such as but not limited to scientifically-conducted measurements of specified parameters, visual inspections, recordings of events, and communications with affected property owners and occupants. Monitoring results must be reported in the form required by the Construction EMP.

(iii) **Consultation**–Consultation procedures must at least include the community engagement measures described in Condition 1 of this Schedule and must meet the following requirements:

A. Consultation with potentially affected property owners and occupants identified through predictive modelling, as well as the wider community, must be conducted for the duration of the construction period.

B. Consultation with potentially affected property owners and occupants must be conducted with confidentiality where requested by the owners or occupiers of premises and at a level of detail sufficient to address specific construction impacts and mitigation requirements.

(iv) **Review, response and modify**–There must be a regular review of the Construction EMP and EMP Sub-Plans and associated plans relating to required mitigations. A process for review of mitigation measures must be outlined in the Construction EMP and EMP Sub-Plans. The process should provide for further mitigation measures or review of mitigation measures to be implemented as soon as practical in response to monitoring results (where non-compliance is identified) and the outcomes of community consultation or in response to issues identified by relevant agencies.

(v) **Complaints**–There must be a formal process for receiving and dealing quickly and effectively with complaints about construction issues. This process must be established before the commencement of construction works and should adopt a consultative and negotiated basis rather than an adversarial basis. The complaints procedure must be easy to use, with information about its implementation

provided on the project website and through the visitors' information service.

As a minimum, the complaints process must include the following elements:

A. Extension of the existing 24-hour toll free complaints contact telephone number to include the Wooloowin worksite and a protocol establishing the responsibility for receiving and addressing complaints, and the means of notifying the community of this protocol (e.g. publication of a complaints telephone service, website advice, and address for notices and other correspondence)

B. identification of the complainant, the identity of the person who received the complaint, the manner in which the complaint was made, the time and date on which the complaint was made, and the matter to which the complaint relates

C. an attempt to provide a verbal response on the action(s) to be taken is to be provided to the complainant within two hours during all times construction activities occur (unless the complainant agrees otherwise). Relevant authorities, if any, must also be notified of such actions.

D. unless further investigation is required, a statement provided to all complainants within seven days of the complaint explaining how the complaint was investigated and resolved, including any changes to construction or work practices

E. where further investigation is required, advice to the complainant of this within seven days of the complaint, with written updates provided periodically until the issue is resolved

F. presentation of a monthly summary of complaints received and corrective actions taken at each Wooloowin CCC meeting

G. a database for tracking complaints, issues, the subject of complaints, responses and corrective actions taken. A means of reporting each complaint, such as a complaints register, must include identification of the entity responsible for addressing the complaint, the time and date on which the complaint was addressed and closed out, a brief summary of any action taken to address the complaint, and a notation as to the satisfaction or dissatisfaction of the complainant with the outcome.

H. monthly reporting of complaints as part of an overall performance and compliance report posted on the project website.

(vi) **Non-Conformance**–A process for dealing with circumstances where thresholds are exceeded during critical construction activities must be established prior to the commencement of construction works. This process must establish a mechanism for reporting, taking corrective action where required, and indicating responsibilities and timing for such action.

(vii) **Reporting**–A mechanism for reporting on compliance must be established in the Construction EMP, consistent with Table 1.

**Table 1: Reporting on compliance and performance for the Wooloowin project change**

| Report | Frequency and scope |
|---|---|
| Audit Report | Audit to be undertaken in accordance with the requirements of Condition 14. |
| Construction Incidents and Exceedance Report (except as covered by water discharge incident report, below) | Interim report:<br>• within two days of incident or an exceedence or non-compliance with a condition, goal or requirement; and<br>• details of incident and initial response.<br>Full report:<br>• within 14 days of incident or an exceedence or non-compliance with a condition, goal or requirement; and<br>• details of incident, response, corrective action, responsibility and timing. |
| Water Discharge Incident Report | Immediate report:<br>• As soon as practical via the DERM Hotline (1300 130 372) incident or an exceedance or non-compliance with a condition, goal or requirement resulting in a discharge to water being identified<br>• Details of incident and initial response. |
| All reporting must be to the Coordinator-General and must be available to relevant agencies on request. The reports may be distributed at the discretion of the Coordinator-General. This includes publication of information about complaints and the resolution of complaints. | |

## 5. Traffic management

(a) Undertake the Wooloowin project change in accordance with the Construction EMP and Construction Traffic EMP Sub-Plan and the construction vehicle EMP Sub-Plan for the Wooloowin project change.

(b) Prior to Site Establishment, a Construction Traffic EMP Sub-Plan must be prepared to implement measures that avoid, where practicable, or minimise and mitigate, traffic problems arising during construction. Such measures must achieve the environmental objectives and performance criteria set out in the EIS Chapter 19 Draft Outline EMP (Construction), the mitigation measures set out in the RFPC and must address the city-wide and local implications of surface construction works for traffic flows, public transport, pedestrian and cyclist safety, property access, the requirement to use the spoil haulage route identified in these conditions and parking. Construction traffic management measures must include the mitigation measures for traffic and transport described in the Draft Outline EMP (Construction) in Chapter 19 of the Project's EIS or other measures in accordance with Conditions 5 (c) to 5 (t).

(c ) All haulage of spoil and haulage of materials, fill, plant and equipment on Class 4[4] or above vehicles (per AUSTROADS Vehicle Classification System), to and from the Wooloowin worksite must occur:

(i) only on the designated construction traffic route, including Rose Street, Junction Road, Sandgate Road, Rode Road, Gympie Road, Kedron Park Road, Park Road, Rose Street and Kent Road and on motorways and arterial roads between the designated construction traffic route and spoil placement sites. The haulage of spoil may only occur on the designated construction traffic route in one direction, being east-bound along Rose Street, Junction Road, left onto Sandgate Road, with the return route being via Rode Road, Gympie Road, Kedron Park Road, Park Road, Rose Street and Kent Road as shown on Figure 6-1 of the Response to Submissions (August 2009) and on motorways and arterial roads between the designated construction traffic route and spoil placement sites;

(ii) only between the hours of 6:30 am to 6.30pm Monday to Saturday, except as permitted under 5(c)(iii)-(v) and (for haulage of spoil) per Table 2 of Condition 6 below;

(iii) despite clause (ii), shotcrete may be delivered to the Wooloowin worksite between 6:30 pm and 6.30 am with a maximum of 4 deliveries in any one night and only for the purpose of delivering shotcrete that is required to make the underground areas safe for workers. Trucks making shotcrete deliveries between 6.30pm and 6.30am:

- must enter and exit (in a forward direction) the Wooloowin site from Kent Road
- Must operate with 'residential mufflers'

[4] Class 4 vehicles refers three axle truck or bus under the AUSTROADS Vehicle Classification System

- Must proceed immediately to within the acoustic shed on arrival at the Wooloowin worksite

(iv) Limited occurrences of oversized vehicle movements to and from site to deliver and remove plant and equipment (e.g. roadheaders) may also occur between 6.30 pm and 6.30 am, subject to specific requirement by BCC and DTMR for local and state controlled roads respectively;

(v) Worker shuttle buses for drop off and pick up within the Wooloowin worksite at any time.

(d) Traffic controls including footpath treatments and barriers designed for the safe movement of pedestrians and cyclists in Kent Road and Park Road near the Wooloowin worksite must be prepared and implemented prior to the commencement of any works (other than to enable the initial occupation and securing of the site) and maintained for the duration of activities at the Wooloowin Worksite. Existing crossings will be maintained and used with appropriate traffic controllers in place until any new vehicle crossovers are completed.

(e) A school crossing must be provided in Park Road adjacent to the Kedron State High School, consistent in detail with the conceptual design presented in Figure 5-2, Section 5.15 of the Response to Submissions (August 2009). The pedestrian crossing must comply with DTMR standards and must incorporate an appropriate range of traffic controls including flashing lights in the 40 km/h zone, coloured band marking on the roadway, and electronically variable speed signs in the school zone.

(f) During the establishment, operation and decommissioning of the Wooloowin worksite, traffic controllers are to be provided to manage the safe movement of construction vehicles into and out of the worksite.

(g) Traffic controllers are to be provided to manage the safe movement of spoil haulage vehicles along Park Road at the school crossing in front of Kedron State High School during 7:30am to 9:00am and 2:30pm to 4:00pm Monday to Friday on school days when spoil haulage is occurring.

(h) Real-time monitoring must be implemented to ensure compliance with condition 6. Such monitoring must be of the flow of spoil haulage vehicles on Park Road, Rose Street and Junction Road for comparison with predicted traffic flows for the worksite, and must also manage truck position, speed, route and performance in relation of traffic conditions and schedule requirements.

(i) Where monitoring undertaken pursuant to 5(c) and 5(h) shows any exceedance of construction traffic forecasts contained in the RFPC, the proponent must provide notification to the Coordinator-General.

(j) The community and emergency services must be notified in advance about proposed local traffic management measures. The community in this regard must include Near Residents, Business Operators and the two schools in the vicinity of the Wooloowin worksite.

(k) Clear signage of changed traffic conditions arising from construction activities must be provided and other measures implemented as necessary to ensure safe traffic movement (e.g. traffic controllers, traffic signal operational).

(l) Measures must be implemented to avoid construction vehicles of Class 4 or above (per AUSTROADS Vehicle Classification System), associated with the Wooloowin Worksite using local streets in the vicinity of the worksite other than the route identified in condition 5(c).

(m) Access to properties must be maintained at all times.

(n) For spoil haulage, the Construction Vehicle EMP Sub-Plan should include as a minimum the following:

(i) the proposed method of haulage vehicle fleet management to:

A. avoid, or minimise and mitigate, disruption to local traffic movements generally and particularly during peak traffic periods including school drop-off and pick-up times;

B. avoid haulage vehicles queuing in proximity to residential premises, schools or health care facilities;

C. avoid generation of dust in and beyond the worksites;

D. minimise and mitigate potential impacts from vehicle emissions upon adjoining premises and sensitive places situated nearby construction worksites;

E. avoid excessive noise from haulage vehicle operations within and at the immediate entries and exits of the worksites; and

F. any other measures necessary to minimise and mitigate the adverse environmental and community impacts of construction vehicle operations.

(ii) Specific measures for the spoil haulage fleet to:

A. only include vehicles and equipment, with consistent payloads and bin sizes and

B. minimise the emissions of both noise and exhaust emissions, complying with ADR28/01.

(iii) Spoil haulage trucks to be fitted with measures to facilitate:

A. real time management of trucks and traffic conditions to avoid traffic congestion, particularly in peak times, and real time scheduling to avoid queuing and the use of local roads; and

B. investigation of complaints and to assist with management of spoil haulage fleet performance.

(iv) Spoil haulage fleet systems to address:

A. safety including accident & incident reporting and a Hazard Register, Risk Analysis and Safe Operating Procedures;

B. routine and preventative vehicle maintenance; and

C. OH&S Tri Safe Audit (Qld Government self insurance audit) to assess the suitability of operators.

(o) The Construction Traffic EMP Sub-Plan for the Project Change and the Construction Vehicle EMP Sub-Plan for the Project Change must be subject to periodic review and be updated to address construction program requirements and construction sequencing. The Construction Traffic EMP Sub-Plan for the Project Change must be provided to DTMR and BCC prior to its implementation.

(p) The transport and movement of heavy plant, machinery and other equipment, must not occur on minor roads except where such transport or movement is in accordance with relevant local laws, or as otherwise approved by the Brisbane City Council or other relevant authorities and following consultation with residents in such roads.

(q) The workforce must be transported between the Kedron worksite and the Wooloowin worksite by a dedicated shuttle bus service with workforce drop-off and pick-up occurring within the Wooloowin worksite.

(r ) The construction vehicle fleet for the Wooloowin worksite must be managed so that there is no queuing in proximity to a sensitive place.

(s) Construction vehicles required to queue or stand stationary on entering the worksite must not have their engines at idle for periods exceeding three minutes, unless standing within the acoustic shed.

(t) Where construction vehicle queuing is required for the Wooloowin worksite, this must occur only in commercial or industrial areas identified in the Construction Traffic Management Sub-plan or within other construction sites.

## 6. Spoil Handling

(a) Spoil, including surface material to be handled, stockpiled or loaded into haulage trucks on site must be:

(i) prior to the installation of the acoustic-lined shed, managed to prevent dust nuisance for nearby properties; otherwise

(ii) fully contained within the acoustic-lined shed or the underground construction area prior to loading.

(b) No spoil is to be removed from the Wooloowin worksite outside the hours of 6:30 am to 6:30 pm Monday to Saturday and must not be removed at any times on Sunday or Public Holidays. Spoil haulage removal must occur within the times shown in Table 2: Permitted times for removal of spoil from the Wooloowin worksite.

(c ) No spoil is to be removed from the Wooloowin worksite unless within a haulage vehicle equipped in accordance with the Coordinator-General's Conditions for the Project, with a fully-covered load and travelling only in the approved direction on the designated haul route for the Wooloowin project change.

**Table 2: Permitted times for removal of spoil from the Wooloowin worksite**

| Milestone | Time periods |
|---|---|
| Commencement of establishment | 0900 – 1430 |
| Launch 1st roadheader | 0900 – 1430 |
| Launch 2nd roadheader | 0630 – 1430 |
| Commence Benching | 0630 – 1830 |

## 7. General construction

(a) Undertake the Wooloowin project change in accordance with the Construction EMP and Construction EMP Sub-Plans for the Wooloowin project change.

(b) Install all measures, plant and equipment to ensure compliance with these conditions. Maintain such measures, plant and equipment in a proper condition and operate such measures, plant and equipment in a proper manner.

(c ) Prior to the completion of the acoustic shed, work may only be undertaken at the Wooloowin worksite between 6:30am to 6:30pm daily on Monday – Saturday, and at no time on Sundays or public holidays. After the completion of the acoustic shed work may occur within the acoustic shed at any time, subject to compliance with these conditions.

(d) The Wooloowin project change must be designed and constructed to provide for the management and mitigation of construction impacts by:

(i) incorporating acoustic screening, ventilation and dust suppression or filtration equipment to achieve the environmental objectives and performance criteria set out in the EIS Chapter 19 Draft Outline EMP (Construction), the measures provided in the RFPC and all requirements of these Conditions

(ii) installing and positioning night lighting, including security lighting, to avoid light spill onto adjoining premises, at intensities exceeding 8 lux

measured at the common boundary, and minimising light spill beyond site boundaries

(iii) design and siting of construction buildings and facilities to minimise overshadowing of private properties between 9am and 3pm on 21 June

(iv) siting access points for pedestrian and vehicular traffic according to the *Transport, Access, Parking and Servicing Planning Scheme Policy* in City Plan 2000

(v) achieving compliance with the requirements of the *Hazard and Risk Assessment Planning Scheme Policy* in *City Plan 2000*.

(e) An acoustic barrier must be designed and constructed to achieve the relevant environmental objectives and performance criteria set out in the EIS Chapter 19, Draft Outline EMP (Construction), the measures provided in the RFPC and these conditions. The barrier is to be constructed around the perimeter of the Wooloowin worksite prior to commencing any works other than site establishment works.

(f) The acoustic barrier for the Wooloowin worksite must be:

(i) at least 5 m in height

(ii) constructed around the whole perimeter of the site with gate openings only for access points, with the gates to have the same acoustic performance as the acoustic barrier

(ii) constructed of materials with a minimum mass density of 20kg/$m^2$ and be continuous subject to access requirements.

(g) To manage construction noise, vibration and air quality for the Wooloowin project change effectively, an acoustic shed must be completed prior to the commencement of roadheader excavation for the adit.

(h) The acoustic shed must:

(i) be designed to achieve the environmental objectives and performance criteria, and constructed (including by use of appropriate materials) to achieve compliance with these conditions

(ii) remain entirely enclosed other than to allow access and egress and ventilation except where the number of vehicles per hour scheduled to enter the acoustic shed exceeds six. In this circumstance the shed's vehicle doors may remain open, however the doors must not remain open for more than ten minutes at any one time except to allow the immediate entry or exit of a vehicle.

(i) Any water supply or other infrastructure services required to be extended to the Wooloowin worksite to support construction activities, must be designed and constructed to achieve the environmental objectives and performance criteria set out in the EIS Chapter 19, Draft Outline EMP (Construction), the measures provided in the RFPC and comply with these conditions.

(j) All construction blasting at the Wooloowin worksite must be undertaken in accordance with the Construction Hazard and Risk EMP Sub-Plan, which must include procedures for the use of blast mats to prevent any fly rock external to the worksite and prohibit the overnight storage of explosives on the Wooloowin worksite.

(k) The visual amenity of the Wooloowin worksite must be maintained. Measures to be undertaken include, but are not limited to:

(i) landscaping around the worksite using mature trees and shrubs where possible

(ii) daily inspections of the acoustic barrier and other visible surfaces for graffiti which is to be removed within 24 hours

(iii) consultation with the Wooloowin CCC to discuss additional solutions to mitigating the visual impact of the acoustic shed.

## 8. Air Quality

(a) Undertake the Wooloowin project change in accordance with the Construction EMP and the Construction Air Quality EMP Sub-Plan for the Wooloowin project change.

(b) Prior to site establishment, prepare and implement a Construction Air Quality EMP Sub-Plan incorporating measures that will avoid, or mitigate and manage the potential adverse environmental impacts of diminished air quality arising from construction activities including, but not limited to:

(i) surface construction works (e.g. roadworks, site establishment, worksite activities)

(ii) movement of construction vehicles with diesel-powered motors adjacent to sensitive activities such as residential, schools, child care centres, hospitals

(iii) operation of diesel-powered plant and equipment at worksites

(iv) venting air from the tunnel construction areas

(v) removal and transport of spoil from worksites to placement sites

(vi) placement of tunnel construction spoil at placement sites.

(c ) Consultation must inform the development and implementation of effective mitigation measures to address the predicted exceedance of the dustfall limits or goal for ambient air ($PM_{10}$) and air quality objectives set out in Tables 3 and 4 in the receiving environment. Possible mitigation measures include treatments to residential dwellings and sensitive commercial buildings (e.g. window treatments, door treatments, air conditioning) in order to mitigate predicted impacts. Mitigation measures must be implemented prior to the

commencement of works which are predicted to or which will result in an exceedance of the limits, goal or objectives.

(d) Works at the Wooloowin worksite must not cause the exceedence of the dustfall limits or goal for ambient air ($PM_{10}$) set out in Table 3 in the receiving environment**.**

**Table 3: Receiving environment dustfall limits and health-based goal**

| **Existing dustfall level (g/m$^2$/mth)** | **Maximum acceptable increase over existing background dustfall levels (g/m$^2$/mth)** | |
|---|---|---|
| | Residential area | Commercial area |
| 2 | 2 | 2 |
| 3 | 1 | 2 |
| 4 | 0 | 1 |
| ≥ 5 | 0 | 0 |
| **Health-based goal for ambient air ($PM_{10}$)** | | |
| 24 hr average (exceedances no more than 5 times / year) | 50 µg/m$^3$ | |

(e) Ventilate the adit and tunnel during tunnel excavation works and treat ventilated air for the removal of dust prior to release from the acoustic shed.

(f) Conduct regular monitoring of air quality to determine whether environmental requirements of the Construction EMP and these conditions are being met. Monitoring must commence prior to site establishment works. The monitoring program, including the frequency of monitoring and the locations of monitoring stations, are to be established in the Construction EMP. The Construction EMP and the Construction Air Quality EMP Sub-Plan must include a monitoring station:

(i) in one of the following streets: Rose Street, Wooloowin, Park Road, Wooloowin or Kent Road, Wooloowin

(ii) in a sensitive place that is representative of the predicted 'worst case' receiving environment in relation to air quality impacts from the Wooloowin worksite.

(g) Monitoring for construction impacts on ambient air quality must include representative sampling of baseline air quality.

(h) Results of monitoring of construction air quality impacts must be reported in the Construction Compliance Report in accordance with Condition 0 of these conditions. Records of monitoring results are to be maintained by the proponent at all times during the construction program and must be available for inspection by the relevant agency at any time.

(i) Dust suppression measures to achieve these conditions must be devised and implemented to ensure dust nuisance does not occur during the use of the Wooloowin worksite.

(j) The ventilation outlet for the Wooloowin worksite acoustic shed must be designed and operated to ensure the ambient air quality objectives set out in Table 4 are achieved as a result of the project.

**Table 4: Ambient air quality objectives (from the *Environmental Protection Policy (Air) 2008*)**

| Pollutant | Objective | Unit | Averaging period |
|---|---|---|---|
| Carbon monoxide (CO) | 11 | $mg/m^3$ | 8 hours |
| Nitrogen dioxide ($NO_2$) | 250 | $\mu g/m^3$ | 1 hour |
| Particulate matter less than 10 µm in diameter ($PM_{10}$) | 50 | $\mu g/m^3$ | 24 hours |
| Particulate matter less than 2.5 µm in diameter ($PM_{2.5}$) | 25 | $\mu g/m^3$ | 24 hours |
| | 8 | $\mu g/m^3$ | 1 year |
| Total suspended particulates (TSP) | 90 | $\mu g/m^3$ | 1 year |

(k) The ventilation outlet for the Wooloowin worksite must be at least the highest of 22.5 m above ground level or 5 m higher than the highest point of the acoustic shed and designed and operated so that vitiated air is effectively dispersed.

(l) The exhaust emissions from stationary, diesel-powered plant and equipment must be captured and released to the ambient environment via the high-level ventilation outlet attached to the acoustic shed.

(m) Construction vehicles leaving the Wooloowin worksite must not track soil or other material onto the road.

## 9. Noise and vibration

(a) Undertake the Wooloowin project change in accordance with the Construction EMP and the Construction Noise and Vibration EMP Sub-Plan for the Wooloowin project change.

(b) Prior to site establishment, prepare and implement a Construction Noise and Vibration EMP Sub-Plan for the Wooloowin project change addressing the environmental objectives and performance criteria for noise and vibration management, providing measures to mitigate and manage the adverse environmental impacts from noise and vibration, and to establish early consultation with the owners and occupants of potentially affected sensitive places. The Construction Noise and Vibration EMP Sub-Plan should be based on predictive modelling of the potential construction noise and vibration impacts having regard to the proposed construction methods, the proximity of sensitive places.

(c ) The Construction Noise and Vibration EMP Sub-Plan must include:

(i) measures for mitigation of predicted impacts on sensitive places (e.g. installation of acoustic screens, enclosure of worksites) identified in the predictive modelling. Measures may include those contained in the Draft Outline EMP (Construction) in Chapter 19 of the EIS, measures provided in the RFPC or other measures in accordance with these conditions.

(ii) programming of activities to avoid, minimise and mitigate noise impacts (e.g. hours of work for particular circumstances or locations)

(iii) operational techniques to avoid, minimise and mitigate noise impacts (e.g. use of particular construction techniques to suit circumstances)

(iv) for sensitive places identified in the predictive modelling referred to in (b) above, conduct on-going monitoring of construction noise and vibration levels relative to environmental requirements established in the Construction EMP

(v) within three days of the commencement of each phase of construction, and at least monthly thereafter, noise monitoring is to be undertaken at representative locations (including the most potentially affected sensitive place) during day time (6:30am – 6:30pm), evening (6:30pm -10:30pm) and night time (10:30pm – 6:30am) for the purposes of comparing the measured noise levels to predictive modelling results. Where the actual measured noise levels vary by more than 2db(A) from the predicted noise levels the model must be re-calibrated to ensure the model accurately predicts the impacts and the higher of the two levels used.

(vi) consultative measures (e.g. early, on-going and effective consultation, including advanced notification to owners and occupants of potentially affected properties)

(vii) prior to site establishment, building condition surveys must be conducted of properties identified in the predictive modelling above as likely to be adversely affected.

(d) The proponent must use its best endeavours to complete the construction of the acoustic shed walls to a height of at least 5m prior to the use of use of a hydraulic hammer (rock breaker) at the Wooloowin worksite. If construction works require the use of a hydraulic hammer prior to the completion of the acoustic shed then the hydraulic hammer may only be used:

- Between 8am – 5pm daily Monday to Friday (not including public holidays)
- Between 8am – 12 noon on Saturdays
- If the acoustic barrier is sealed, i.e. all doors and access gates are closed

(e) Where the predictive modelling predicts that noise goals set out below are likely to be exceeded by construction works, then consultation and reasonable and practicable mitigation and management measures must be implemented prior to

the commencement of relevant works and a monitoring program, sufficient to assess the impacts of the works, must be adopted. These measures must be developed in consultation with owners and occupants of potentially-affected premises. The noise goals are:

(i) for intermittent construction noise, the internal noise goals (sleeping areas) to avoid sleep disturbance during night hours (i.e. 6.30 pm to 6.30 am) are:

A. 45 dBA $L_{Amax}$ (i.e. for residences within R1 – R3 categories as described in NIAPSP).

B. 50 dBA $L_{Amax}$ (i.e. for residences within R4 – R6 categories as described in NIAPSP);

(ii) for steady construction noise, the internal noise goals (sleeping areas) to avoid sleep disturbance during night hours (i.e. 6.30 pm to 6.30 am) are:

A. 35 dBA $L_{Aeq,adj\ (15\ minutes)}$ for temporary noise and 30 dBA $L_{Aeq,adj\ (15\ minutes)}$ for long-term noise (i.e. for residences within R1 – R3 categories as described in NIAPSP[2]).

B. 40 dBA $L_{Aeq,adj\ (15\ minutes)}$ for temporary noise and 35 dBA $L_{Aeq,adj\ (15\ minutes)}$ for long-term noise (i.e. for residences within R4 – R6 categories as described in NIAPSP[2]);

(iii) for sensitive places other than sleeping areas and commercial premises the noise goals for occupied areas during night hours (i.e. 6.30 pm to 6.30 am) is:

A. 50 dB(A) $L_{Aeq,(adj)\ (15\ minutes)}$

(f) Where the predictive modelling predicts that noise goals for day-time construction works are likely to be exceeded by the construction works, then consultation and reasonable and practicable mitigation and management measures must be implemented prior to the commencement of works, and a monitoring program, sufficient to assess the impacts of the works must be adopted. These measures must be developed in consultation with owners and occupants of potentially-affected premises.

(g) For day time construction works, the noise goals for internal construction noise levels at affected premises, are derived from levels in AS/NZS 2107:2000. Day time construction noise must be assessed by a $L_{Aeq(15minute)}$ parameter for steady noise sources and a $L_{A10(15minute)}$ parameter for non-steady noise sources. The goals for day time construction internal noise are set out in Table 5.

**Table 5: Daytime construction internal noise goals (derived from AS/NZS 2107:2000).**

| Type of building occupancy | Maximum construction internal noise goals (dBA) | |
|---|---|---|
| | **Steady** $L_{Aeq(adj)(15minute)}$ **(dBA)** | **Non-steady** $L_{A10(adj)(15minute)}$ |
| Residential buildings (living areas) | 45 (near major roads)<br>40 (near minor roads) | 55 (near major roads)<br>50 (near minor roads) |
| Place of worship | 40 (with speech amplification) | 50 (with speech amplification) |
| School music rooms | 45 | 55 |
| School teaching area | 45 | 55 |
| School library | 50 | 60 |
| School gymnasium | 55 | 65 |
| Commercial buildings – office space | 45 | 55 |
| Commercial buildings – retail space | 50 | 60 |

Note - Additional 'Building Occupancies' to those documented in Table 5 above may apply throughout the construction period. The 'maximum' levels provided in AS/NZS 2107:2000 should be utilised in these instances for steady noises, with the non-steady levels set 10 dBA higher.

(h) Predictive modelling for vibration must be undertaken prior to the commencement of each phase of construction works, as outlined in Table 4.1 of the RFPC. Results from such predictive modelling must be reviewed as construction proceeds, having regard to the potential for impact on human comfort, the risk of cosmetic damage to buildings and the contents of sensitive buildings.

(i) Due to the range of human perceptions and sensitivity to vibration from construction works, early and on-going consultation with occupants of potentially-affected premises where predictive modelling predicts the goals will be exceeded must be undertaken. Such consultation must:

(i) be consistent with the consultation procedures established in accordance with these conditions

(ii) precede rock hammering and other works likely to cause vibration in the vicinity of the Wooloowin worksite

(iii) where modelling predicts the goals would be exceeded, notify occupants of premises of the range of works proposed, their planned duration, the possible effects and predicted levels of vibration, and what measures would be taken to permit normal daily business to continue.

(j) Where the predicted level of vibration within sleeping areas during continuous night-time tunnelling works by road header is likely to exceed 0.5 mm/s peak particle velocity based on a 'low probability of reaction' (Ref: AS2670.2:1990),

all reasonable and practical mitigation and management measures must be developed and implemented in consultation with occupants of potentially-affected sensitive places prior to the commencement of the relevant works.

(k) Monitoring must be undertaken in representative locations where predictive modelling for vibration indicates the potential for impacts on sensitive building contents or risk of cosmetic damage. Monitoring locations must be determined in consultation with property owners and occupants following building-specific and contents-specific vibration sensitivity investigations. Monitoring locations must be established after the establishment of base-line condition descriptions of the buildings at the sensitive receptor locations shown on Figure 5-2 of the RFPC and prior to the commencement of rock hammering activities at the Wooloowin site.

**Table 6: Guide for satisfactory vibration levels - sensitive building contents**

| Sensitive building contents | Vibration levels |
|---|---|
| Precision balances | 0.5 – 2.0 mm/s |
| Some optical microscopes | 0.5 mm/s |
| Large computer disk drives<br>Sensitive electronic instrumentation | 1.0 – 5.0 mm/s |

**Table 7: Guide to vibration levels for minimal risk of cosmetic damage**

| Vibration type | Peak particle velocity (mm/s) | | |
|---|---|---|---|
| | Heritage listed | Residential | Sensitive commercial |
| Transient vibration [1] (e.g. blasting ) | 2 | 10 | 10 |
| Continuous vibration [2] (e.g. roadheader, rockhammer) | 2 | 5 | 5 |

Note [1] - Measured in the ground directly adjacent to the building of concern

Note [2] - Measured on the building foundations

(l) Mitigation and management combined with advanced notification and other consultation must be adopted for predicted vibration impacts where the guide values in Table 6 or 7 are likely to be exceeded.

(m) The impacts of transient blast noise and vibration must be assessed, monitored, and if necessary, mitigated and managed in accordance with the *Environmental Protection Regulation 2008* and Brisbane City Council's Local Law 5. Transient airblast overpressure must not exceed 130 dB (lin) at a sensitive place. Notwithstanding this requirement, all reasonable and practicable measures to

prevent or minimise the impacts of blasting must be taken. This includes, but is not limited to:

(i) providing adequate advanced notification, including on the day of each blast, of all blasting activities to persons that may be adversely affected

(ii) blasting only during the hours of 7.30 am to 4.30 pm Monday to Saturday

(iii) coverage of the blast pattern with appropriate overburden material and/or matting to minimise the generation of overpressure and fly-rock

(iv) designing the blast to minimise impacts, including maximising the stemming length and minimising the amount of explosive used to the extent practicable and considering weather conditions.

(n) Monitoring of construction noise and vibration must be undertaken in accordance with accredited procedures and must be readily and publicly available. In circumstances where the goals or guide values are not met, the reporting must describe the corrective actions taken to mitigate and manage the impacts. Monitoring results must be reported in accordance with the requirements of these conditions. Monitoring results and management actions regarding construction noise and vibration must be included in the required reporting.

(o) The proponent is to ensure comparative building condition surveys are also undertaken on all the buildings mentioned in 9 (c)(vii) within one month of the completion of construction activities at the Wooloowin worksite.

(p) All reasonable and practical measures must be undertaken to ensure that any works required to make good damage identified in the surveys mentioned in 9(n) above as a result of the Wooloowin project change are completed within three months of the comparative condition survey.

(q) All generators, filtration equipment and non-mobile plant within the Wooloowin worksite must be contained within enclosures that are acoustically lined, to achieve the environmental objectives for noise and stated goals for continuous noise sources; including Rw 30 dB acoustic enclosures for the generators and compressors.

(r ) Consultation must be undertaken with owners and occupants of potentially affected premises where predictive modelling predicts or it is reasonably foreseeable that the construction noise goals or vibration guide levels, as set out in these conditions are likely to be exceeded by the construction or operation of the Wooloowin worksite.

(s) All mobile plant and equipment must be fitted with less tonal ‘broadband’, ‘quacker’ or similar type reversing alarms.

(t) All mobile plant and equipment must be fitted with suitable noise reducing devices (e.g. mufflers).

(u) All plant and equipment must be installed, maintained and operated in a proper and efficient manner.

(v) The ventilation fans on the acoustic shed must be fitted with silencers to achieve 12dBA noise reduction.

## 10. Groundwater and surface water

(a) Undertake the Wooloowin project change in accordance with the Construction EMP and the Construction Groundwater and Surface Water (CGSW) EMP Sub-Plan for the Wooloowin project change.

(b) The CGSW EMP Sub-Plan for the Wooloowin project change must:

(i) be based on predictive modelling designed to identify where construction works are likely to intercept groundwater or cause the movement of groundwater

(ii) contain measures to avoid, or mitigate and manage impacts on groundwater and surface water quality by construction works

(iii) contain measures for the interception, treatment (if required) and disposal of groundwater entering the Wooloowin construction site and associated tunnel works

(iv) contain measures for the interception, treatment (if required) and disposal of contaminated surface water on the Wooloowin construction site and associated tunnel works.

(c ) Where there is an identified potential risk of groundwater movement to the shaft or other construction works, reasonable and practicable measures must be taken in project design and construction to monitor and manage groundwater entering the tunnel or other construction works.

(d) Where there is an identified potential risk of groundwater movement (including drawdown) as a result of the Wooloowin project change impacting on any property all reasonable and practicable measures must be taken to avoid, or mitigate and manage the impacts. These measures must be developed in consultation with owners and occupants of potentially-affected property.

(e) The design and construction of the project must provide suitable measures to intercept, treat if required and dispose of groundwater, liquid wastes, such as fire retardants, wash-down water, and contaminated stormwater, to avoid contamination of surface waters.

(f) Monitoring of groundwater resources must be undertaken in accordance with the Construction EMP and specifically in locations where predictive modelling suggests there is a potential for groundwater draw-down.

(g) The proponent must develop and finalise the CGSW EMP Sub-Plan for the Wooloowin project change and consult with the DERM, prior to releasing any

water off-site. The CGSW EMP Sub-Plan must include procedures to enable the identification of:

(i) the quality of groundwater being intercepted

(ii) options to reduce the volume of groundwater to be treated and released

(iii) the volumes of groundwater to be treated and released

(iv) the groundwater treatment process

(v) re-use methods that will be used in priority relative to methods involving releases to the environment

(vi) the quality and environmental values (where it is proposed to discharge to the stormwater system, this assessment relates to the discharge point of the stormwater system) of receiving waters

(vii) the impacts of the volume and the quality of predicted discharges on the receiving environment

(viii) measures to mitigate the impacts of the discharge and protect the environmental values of the receiving environment.

## 11. Hazard and Risk

(a) Undertake the Wooloowin project change in accordance with the Construction EMP and Construction Hazard and Risk (CHR) EMP Sub-Plan for the Wooloowin project change and AS 4360:2004 Risk Management.

(b) The CHR EMP Sub-Plan must address the potential risks associated with construction including, among other things, inundation, flood inundation, tunnel collapse, subsidence, fire and chemical hazard, traffic hazards associated with construction traffic, accessibility for emergency services vehicles to the road network and construction sites, maintenance of essential urban services (water, power), transport and the use and storage of dangerous goods in construction sites, and communications during incidents.

(c ) The CHR EMP Sub-Plan may also include the measures for managing construction hazard and risk set out in the Draft Outline EMP (Construction) in Chapter 19 of the EIS, the measures provided in the RFPC or other measures in accordance with these conditions.

(d) The CHR EMP Sub-Plan must be prepared and implemented in consultation with the relevant emergency services organisations for risk minimisation and incident management during construction.

## 12. Waste

(a) Undertake the Wooloowin project change in accordance with the Construction EMP and Construction Waste Sub-Plan for the Wooloowin project change.

(b) The Construction Waste EMP Sub-Plan:

(i) must adopt and reflect the principles of 'reduce, re-use, recycle'

(ii) must identify the type, source and estimated quantities of waste

(iii) must identify the procedures and responsibilities for dealing with an incident in which waste material with the potential for causing environmental harm, is released to the environment

(iv) may include the waste management measures contained in the Draft Outline EMP (Construction) in Chapter 19 of the EIS, RFPC and other measures designed to meet the environmental objectives and performance criteria in EIS Chapter 19 Draft Outline EMP (Construction).

(c) Notwithstanding any other condition of this Schedule, in circumstances where waste material is released to the environment, the incident must be reported immediately to the relevant authorities and such corrective or remedial action as required to render the area safe and to avoid environmental harm must be taken forthwith.

(d) All regulated waste must be transported by a licensed operator and disposed of at a facility licensed to accept such waste.

## 13. Acid sulphate soils

(a) Prior to the commencement of site establishment works at the Wooloowin worksite, undertake detailed investigations to identify the risk of intercepting acid sulphate soils or potential acid sulphate soils, or causing the oxidation of such soils leading to impacts on the environment.

(b) Where such investigations identify a potential risk, prepare an Acid Sulphate Soils (ASS) EMP Sub-Plan, prior to the commencement of construction works (beyond site establishment works), describing the current groundwater regimes and impacts on groundwater during construction and post construction. The ASS EMP Sub-Plan is to detail site specific prevention, minimisation, mitigation and monitoring strategies and must be prepared in accordance with:

(i) *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulphate Soils, the SPP 2/02 Guideline: Acid Sulphate Soil* and with reference to the *Guidelines for Sampling and Analysis of Lowland Acid Sulphate Soils in Queensland 1998*, the *Soil Management Guidelines*, and the *Acid Sulphate Soils Laboratory Methods Guidelines*;

(ii) a detailed risk assessment of potential dewatering providing an estimate of the extent of the cone of depression and quantities of acid that could be generated from oxidation of in-situ potential ASS.

## 14. Audit reports

(a) The proponent must procure the following:

(i) audits to be undertaken on a six monthly basis during the audit period (subject to the timing amendment options outlined in table 1 of Condition 4) by an independent and suitably qualified expert (auditor), engaged by and at the expense of the Proponent, to determine whether the proponent has complied with the conditions in Appendix 1 of this report

(ii) submission by the proponent to the Coordinator-General of the auditor(s)' written report of the audit (Audit Report) together with an audit certification statement (Audit Certification Statement), not later than 42 days after the end of the relevant six month period.

(b) The audit period will:

(i) commence on the commencement of construction works at the Wooloowin worksite

(ii) end once all conditions or recommendations have been complied with to the satisfaction of the Coordinator-General and a final Audit Report together with an Audit Certification Statement has been submitted by the proponent confirming that all conditions or recommendations in
Appendix 1, Schedule 3 have been satisfactorily complied with.

(c ) The auditor must be a reputable expert with not less than 10 years experience practising in the discipline which is the subject of the relevant condition or recommendation and who is otherwise acceptable to the Coordinator-General, acting reasonably. Where the audit of conditions or recommendations needs to be undertaken by experts in different disciplines it is expected that, in order to satisfy this condition, the proponent will engage several experts for these purposes to undertake the audits and provide the Audit Report together with an Audit Certification Statement in respect of the relevant condition or recommendation.

(d) The proponent must promptly provide the auditor(s) with all such information and site access as may be reasonably required to enable the auditor(s) to undertake the audit and prepare the Audit Report.

(e) The audit report must include:

(i) details of the project including the name and location of the project, members of the audit team (including brief details of each member's qualifications and years of experience), and employees of the proponent interviewed for the audit

(ii) a summary of what conditions or recommendations were activated during the reporting period

(iii) a summary of any non-compliances identified during the current audit period with conditions or recommendations at the front end of the report, with reference to where further information can be found in the body of the report

(iv) a summary of any non-compliances that were identified during the previous audit period with details of site remediation activities, corrective actions taken or to be taken and revised practices implemented or to be implemented (as relevant)

(v) a compliance evaluation table detailing the relevant condition in Appendix 1, Schedule 3 of this report, whether compliance with this condition was achieved and how compliance was evaluated (for example the lists of documents, site inspection or employee interview relied upon by the auditor to evaluate the condition)

(vi) a site plan showing the project activities (for example work areas, road infrastructure and any significant features such as waterways etc)

(vii) a list of the evidence used to support the findings of the audit. The list should detail the title, date and holder of any documents reviewed, the date and locations of any site inspections conducted and the name and position details of any person interviewed for the purpose of conducting an audit (the Coordinator-General may request copies of documents used as evidence at a later date, if required).

(viii) any further attachments which the auditor(s) consider are relevant to the audit report.

(f) The audit report must otherwise be in such form as may be required by the Coordinator-General and notified to the proponent.

(g) A suggested format for the audit report can be found at www.dip.qld.gov.au (note that this is not a prescribed form).

(h) The audit report must be accompanied by an Audit Certification Statement which is to be completed and signed by the auditor(s). The Audit Certification Statement must be attached to the audit report and include:

(i) name of project, project proponent and details of Coordinator-General's report(s) or approval to which the audit relates

(ii) date, place, methods and evidence used to assess compliance

(iii) summary of any non-compliances identified

(iv) auditor's details:

A. auditor's name, position, company and contact details

B. auditor's qualifications and/or experience.

(v) auditor's declaration whereby the auditor:

A. certifies the conditions contained in Appendix 1, Schedule 3 of this report have been satisfactorily complied with, subject to any qualifications which the auditor has outlined in the Audit Certification Statement;

B. certifies that to the best of the auditor's knowledge, all information provided in the audit report is true, correct and complete;

C. certifies that the auditor and to the best of the auditor's knowledge all members of the audit team are independent from the proponent to the extent that the outcome of the audit will not be influenced by any relationship with the proponent or potential benefits to the auditor or members of the audit team;

D. acknowledges that it is an offence under section 157O of the *State Development and Public Works Organisation Act 1971*, to give the Coordinator-General a document containing information that the auditor knows is false or misleading in any material particular.

(vi) A suggested format for the Audit Certification Statement is available on the Department of Infrastructure and Planning's website found at www.dip.qld.gov.au (note that this is not a prescribed form).

(vii) The proponent must promptly provide (and must procure that the auditor(s) also promptly provide at the cost of the Proponent) the Coordinator-General with such further information and/ or site access as may be required by the Coordinator-General in respect of any audit report or concerning compliance with the conditions and recommendations in this schedule.

## Schedule 4—Jurisdiction for conditions

| Condition reference | Proponent responsibility / task | Entity with jurisdiction | Consultative bodies |
|---|---|---|---|
| **Construction** | | | |
| Schedule 3, Condition 1 | Community engagement | Coordinator-General | Department of Environment and Resource Management, Brisbane City Council, Community Consultative Committees |
| Schedule 3, Condition 2 | Worksite use and rehabilitation | Coordinator-General | Brisbane City Council, Department of Transport and Main Roads |
| Schedule 3, Condition 3 | Urban mitigation and community development | Coordinator-General | Brisbane City Council, Department of Transport and Main Roads, Community Consultative Committees |
| Schedule 3, Condition 4 | Environmental management | Coordinator-General | Department of Environment and Resource Management, Department of Transport and Main Roads, Queensland Health, Brisbane City Council Department of Community Safety |
| Schedule 3, Condition 5 | Traffic management | Department of Transport and Main Roads (for State Controlled Roads)<br>Brisbane City Council (for Local Roads) | Department of Transport and Main Roads, Education Queensland, Department of Community Safety |
| Schedule 3, Condition 6 | Spoil handling | Coordinator-General | Brisbane City Council, Department of Transport and Main Roads, Department of Environment and Resource Management<br>Port of Brisbane for spoil to be placed at the Port;<br>Brisbane Airport Corporation for spoil to be placed on Airport Land, |
| Schedule 3, Condition 7 | General construction | Coordinator-General | Brisbane City Council, Department of Environment and Resource Management, Department of Transport and Main Roads |
| Schedule 3, Condition 8 | Air quality | Department of Environment and Resource Management | Department of Transport and Main Roads, Queensland Health |

| | | | |
|---|---|---|---|
| Schedule 3, Condition 9 | Noise and vibration | Department of Environment and Resource Management | Department of Transport and Main Roads, Brisbane City Council |
| Schedule 3, Condition 10 | Groundwater and surface water | Department of Environment and Resource Management | Brisbane City Council, Department of Employment, Economic Development and Innovation |
| Schedule 3, Condition 11 | Hazard and risk | Department of Community Safety | Department of Environment and Resource Management; Brisbane City Council, Department of Transport and Main Roads |
| Schedule 3, Condition 12 | Waste | Department of Environment and Resource Management | Brisbane City Council |
| Schedule 3, Condition 13 | Acid sulphate soils | Department of Environment and Resource Management | |
| Schedule 3, Condition 14 | Audit reports | Coordinator-General | Brisbane City Council, , Department of Transport and Main Roads. Department of Environment and Resource Management, Department of Employment, Economic Development and Innovation, Department of Community Safety |

## Schedule 5—Glossary of terms

**"adit"** for the purpose of this change report means an access tunnel, approximately 15 m in length, at the base of the shaft to access the mainline tunnels

**"Business operators"** means the business owners of those businesses premises located immediately adjacent to Kent Road between Rawson Street and Melrose Lane and the construction haulage route between Gorman Street and Roseleigh Street.

**"CCC"** means the Community Consultative Committee

**"City Plan"** means *Brisbane City Plan 2000*

**"construction haulage route"** means the route defined in Figure 5.1 of the Request for Project Change (June 2009) document.

**"the Construction EMP"** means an environmental management plan or plans, including any sub-plans, for the design and construction phase of the project.

**"DERM"** means the Department of Environment and Resource Management.

**"DTMR"** means the Department of Transport and Main Roads

**"EIS"** means the environmental impact statement for the Airport Link Project dated October 2006.

**"EMP"** means an environmental management plan

**"near premises"** means all residential and business premises within the shaded area in Figure A of this Change Report bounded by the polygon formed by Gorman Street, the south side of Judge Street and Lodge Road, the west side of Roseleigh Street, Rose Street between Roseleigh and Dawson Streets, the north side of Dickson Street between Dawson Street and Price Street, the north side of Price Street, the north side of Ramona Street, and the east side of Eveleigh Street between Ramona and Gorman Streets.

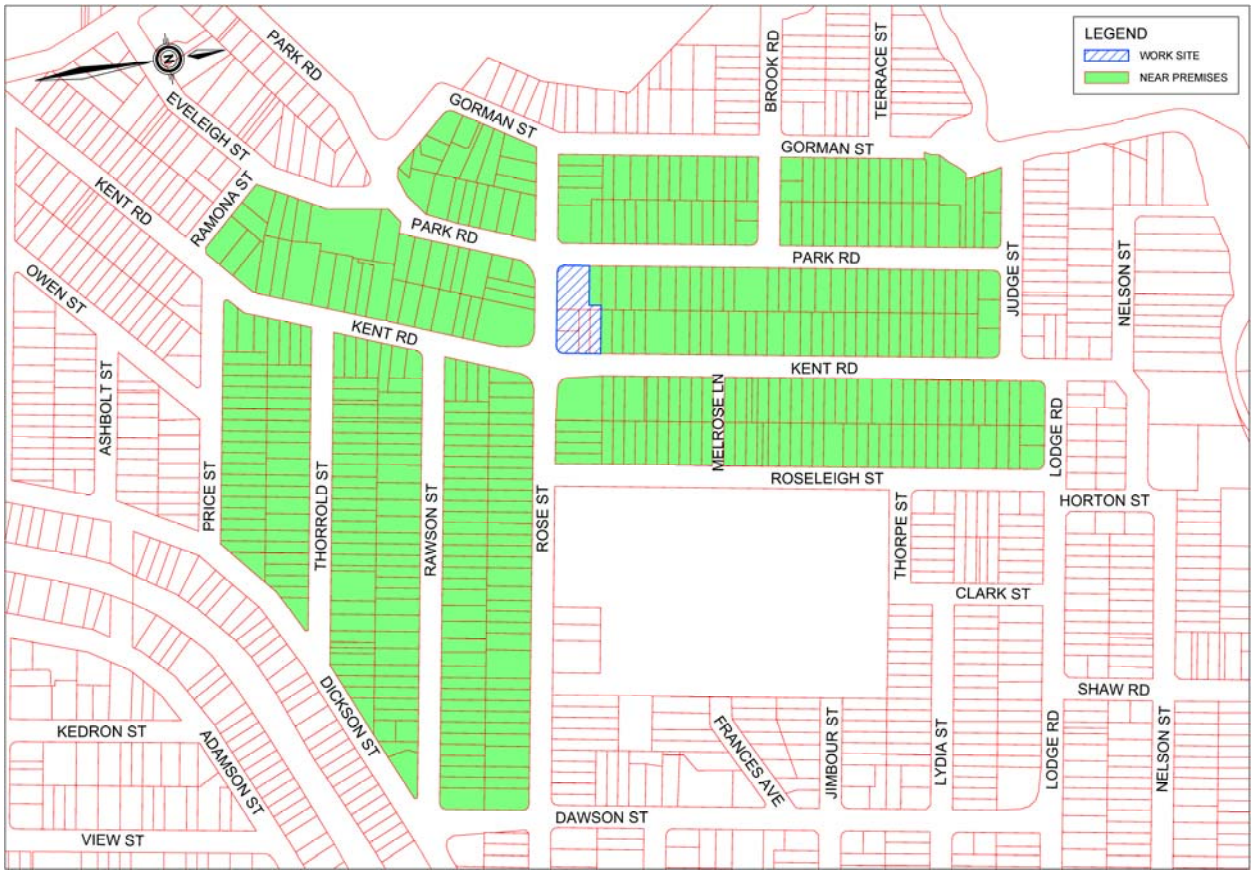


**Figure A: Near premises**

**"NEPM"** means National Environment Protection Measures made under the *National Environment Protection Council Act 1994* (Cwlth)

**"NIAPSP"** means the *Noise Impact Assessment Planning Scheme Policy* under *Brisbane City Plan 2000*

**"nuisance"** means an unreasonable interference with amenity

**"$PM_{2.5}$"** means particulate matter with equivalent aerodynamic diameter less than 2.5 μm

**"$PM_{10}$"** means particulate matter with equivalent aerodynamic diameter less than 10 μm

**"project"** means the Airport Link Project.

**"RFPC"** means the Wooloowin Worksite Modification Request for Project Change (June 2009) submitted to the Coordinator-General and available through the DIP website.

**"Sensitive place"** means any of the following places:

(a) a dwelling

(b) a library, child-care centre, kindergarten, school, college, university or other educational institution

(c) a hospital, surgery or other medical institution; or

(d) a commercial premises relying on calibrated equipment or computers sensitive to vibration greater than the guide values set out in Table 6 of Schedule 3 of these conditions.

**"site establishment"** means the following activities on the Wooloowin worksite: surveying, test drilling, road condition surveys, clearing and grubbing and the establishment of a temporary security office and amenity facilities (not including the acoustic shed). The initial securing of the site through fencing or other means is not included as "site establishment" and may be conducted prior to site establishment.

**"TBM"** means Tunnel boring machine

**"TSP"** means Total suspended particulates

**"Wooloowin worksite"** means the construction site and associated facilities as identified in Figure 4.1 of the Request for Project Change (June 2009) document, bounded to the west, south and east by Park Road, Rose Street and Kent Road respectively.

## Schedule 6—Standards and guidelines for environmental management

| | |
|---|---|
| **Air quality** | AS 3580 : 2003 Methods of Sampling and Analysis of Ambient Air |
| | Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW - DRAFT February 2005 (NSW EPA) |
| | Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW - August 2001 (NSW EPA) |
| | Queensland *Environmental Protection (Air) Policy 1997* |
| **Blasting and use of explosives** | Brisbane City Council Local Laws – Chapter 5, Part 6 – Blasting<br>*Environmental Protection Regulation 1998* |
| **Dangerous goods** | AS 1216 : 1995 Classification, Labels for Dangerous Goods |
| | AS 1678 : 2003 Emergency Procedure Guides – Transport |
| | AS 1940 : 2004 Storage and Handling of Flammable and Combustible Liquids |
| | AS 2508.2.007 : 2001 Safe Storage and Handling Information Cards for Liquefied Petroleum Gas |
| | AS 2809 : 1999 Road Tank Vehicles for Dangerous Goods |
| | AS 3780 – 1994 The Storage and Handling of Corrosive Substances |
| | AS 2931 : 1999 Selection and Use of Emergency Procedure Guides for Transport of Dangerous Goods. |
| **Flora and fauna** | DPI&F Fish Habitat Guideline FHG 002 - “Restoration of Fish Habitats, Guidelines for Marine Areas (1998)” |
| **Noise and vibration** | Noise measurement manual : for use in testing for compliance with the Environmental Protection Act 1994, Third edition, 2000 |
| | AS 1055.1 : 1997 Acoustics – Description and Management of Environmental Noise : General procedures |
| | AS 1055.2 : 1997 Acoustics – Description and Management of Environmental Noise : application of specific situations |
| | AS 1259.2 - 1990 Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors - Stationary test condition Part 1: determination of compliance with limits for exterior noise |
| | AS/NZS 2107:2000 Acoustics - Recommended design sound levels and reverberation times for building interiors |
| | AS 2187 : 1993 Explosives – Storage Transport and Use : use of explosives |
| | AS 2436 : 1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites |

| | |
|---|---|
| | AS 2670.1:2001 Evaluation of human exposure to whole-body vibration Part 1: General Requirements |
| | AS 2670.2:1990 Evaluation of human exposure to whole-body vibration Part 2: Continuous and shock-induced vibration in buildings (1 to 80 Hz) |
| | AS 2702 : 1984 Acoustics – Methods for Measurement of Road Traffic Noise. |
| | Australian Design Rule 28/01 |
| | National Road Transport Commission - Stationary Exhaust Noise Test Procedures for In-Service Motor Vehicles |
| | British Standard 7385: Part 1 - 1990 Evaluation and Measurement for Vibration in Buildings - Guide for measurement of vibrations and evaluation of their effects on buildings |
| | *Environmental Protection (Noise) Policy 1997* |
| | *Environmental Protection Regulation 1998* |
| | Queensland Main Roads - Road Traffic Noise Management: Code of Practice 2000 |
| | Queensland Main Roads Standard Specification MRS11.15 Noise Barriers, December 1999 |
| | Queensland Main Roads Standard Specification 11.51 Environmental Management, December 1999 |
| | Brisbane City Council - Noise Impact Assessment Planning Scheme Policy |
| **Risk** | AS 4360 : 2004 Risk Management |

Unless described or specified otherwise in these Conditions, the standards and guidelines for environmental management set out in the table below, must be adopted and implemented in the construction and operation of the project.

| | |
|---|---|
| **Soils Erosion Management** | Australian and New Zealand Environment and Conservation Council (ANZECC)/National Health and Medical Research Council (NHMRC) – Guidelines for the Assessment and Management of Contaminated Sites |
| | Queensland Government Chemical Laboratory – Guidelines for Soil Sampling |
| | Queensland Acid Sulfate Soils Investigation Team (QASSIT) "Sampling and Analysis Procedure for Lowland Acid Sulfate Soils (ASS) in Queensland" dated 1 October 1997. |
| | State Planning Policy 2/023: Planning and managing development involving Acid Sulfate Soils |
| | State Planning Policy 2/02 Guideline: Acid Sulfate Soils |
| | "Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland" (Department of Environment 1998) |
| | Soil Erosion and Sediment Control, Engineers Guidelines for Queensland Construction Sites, 1996 |
| **Waste Management** | AS 1216 Classification, Hazard identification and Information Systems for Dangerous Goods |
| | AS 1678 Emergency Procedure Guides - Transport |
| | AS 1940 Storage, and Handling of Flammable and Combustible Liquids |
| | AS 3780 The Storage and Handling of Corrosive Substances |
| | AS 2809 Road Tank Vehicles for Dangerous Goods |
| | AS 2931 Selection and Use of Emergency Procedure Guides for Transport of Dangerous Goods |
| | AS 2187 Explosives - Storage, Transport and Use |
| **Water Quality Management** | Water Quality Sampling Manual – For use in Testing for compliance with the *Environmental Protection Act 1994*. Second edition (Department of Environment Heritage 1995) |
| | Standard Methods of the Examination of Water and Wastewater – American Public Health Association (APHA)/Australian Waste Water Association (AWWA) |
| | AS 2031 : 2001 Selection of Containers and Preservation of Water Samples for Microbiological Analysis |

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