

PHO M2799



The Director-General  
Department of Planning  
PO Box 39  
SYDNEY NSW 2001



Attention: Michael Young

PACIFIC HIGHWAY UPGRADE – SAPPHIRE TO WOOLGOOLGA PROJECT – PROPOSED CONDITION OF APPROVAL MODIFICATION

Dear Michael,

The Roads and Traffic Authority (RTA) are requesting a modification to the conditions of approval for the Sapphire to Woolgoolga project to allow for private agreements to be entered into with property owners regarding blasting criteria.

Condition 2.22 and Condition 2.23 of the Project Approval provide the airblast overpressure and peak particle velocity criteria required to be met by blasting associated with the Sapphire to Woolgoolga project. The criteria provided is considered conservative by industry standards and is related to human comfort levels for blasting operations (AS 2187.2 – 2006). It is acknowledged that the criteria recommended for control of damage to structures is greater than that recommended for human comfort levels. Compliance with the criteria is required at the most affected residence or other sensitive receiver.

It is considered that allowing the Project to enter into private agreements relating to blast levels would result in best practice management measures being able to be applied to the Sapphire to Woolgoolga project which would benefit the broader community and road users and allow for streamlining of the regulatory approval process. The requested modification is consistent with the Environmental Protection Licence conditions (EPL # 13278 – Condition M10.1) and more in line with recent Part 3A approvals than those provided in the original Sapphire to Woolgoolga project approval.

This modification is considered consistent with current best practice management and would not result in a decrease in the environmental performance of the Sapphire to Woolgoolga project.

Details relating to the modification are attached along with the modification form.

Please contact Martin Mulhearn (02 6690 7115) should you require any additional information or require clarification on any of the above.

Yours sincerely

A handwritten signature in dark ink, appearing to read "Robert Higgins".

Robert (Bob) Higgins  
General Manager, Pacific Highway

23/11/10

Roads and Traffic Authority  
Encl.

For further information, please contact:  
Mr Martin Mulhearn, Project Manager  
www.rta.nsw.gov.au | 02 6690 7000

## Modification to Blasting Criteria, Sapphire to Woolgoolga project

### Private Agreements

The allowance to exceed blasting criteria, provided a negotiated agreement was in place with a sensitive receiver, is considered an application of best practice management. Negotiated agreements are considered to be a best practice management measure, particularly where excessive noise impacts occur as described in the *Interim Construction Noise Guideline* (DECC 2009). As such, to adopt this process which may allow blasting criteria (which is set at human comfort levels) to be exceeded to the benefit of the broader community and road users, is considered to be an application of best management practice. It demonstrates an adoption of an industry accepted method to effectively achieve a project-specific objective of managing impacts on the community, which is captured in Condition M10.1 of the Sapphire to Woolgoolga Environment Protection Licence (EPL# 13278).

The benefits of allowing private agreements to be negotiated to the local community and road users would be a considerably shortened blasting program (up to three months). The positive amenity impacts associated with this would be a reduced exposure to potential noise and vibration impacts and a reduction in the disturbance caused by evacuating residents. In addition, as traffic would be temporarily delayed due to road closures, the shortened blasting program would thus result in fewer times that this would be required. Additionally, with a reduction of three months in the blasting program and the ability to run the construction of the project more efficiently (eg use of larger plant and equipment due to the ability to undertake larger blasts), the community would derive a long-term benefit from having the project completed earlier, thus reducing the exposure to construction impacts and allowing them to utilise the upgraded highway earlier than anticipated.

Any structural damage that resulted from allowing the blast criteria to be exceeded would be rectified to the satisfaction of the property owner to the pre-condition level or similar.

### Objective of the Private Agreement

The objective of the private agreement would be to allow for blasting criteria to be increased at particular premises. However, the Leighton Fulton Hogan Joint Venture would negotiate levels which are substantially below the level that may result in damage to structures. According to Australian Standard AS2187 Table J4.4.2.1, the level of vibration that may onset cosmetic damage is 50mm/s at a frequency of 40Hz and above. The frequency of vibration for the type of blasting carried out at Sapphire to Woolgoolga will generally be between 40 and 70Hz. The maximum levels that the Leighton Fulton Hogan Joint Venture intends to negotiate are 25 mm/s peak particle velocity and 125 dBL airblast overpressure depending on the type of structure and the frequency of vibration. Where no private agreements exist, the criteria provided in the Project Approval would be adhered to.

### Process

The negotiation and process of establishing a private agreement would be consistent with that set out in the *NSW Industrial Noise Policy* (EPA 2000) and *Interim Construction Noise Guideline* (DECC 2009). The process of obtaining negotiated agreements is presented in Chapter 8 '*Negotiated process*' of the *NSW Industrial Noise Policy* (EPA 2000). Individual sensitive receivers will be consulted in instances where blasting criteria are sought to be altered. The consultation will explain the need for the activity, likely impacts and the long-term benefits of undertaking the activity (eg a saving in program and thus length of exposure to impacts). An agreement will then be reached between the sensitive receiver and the contractor to allow for blasting at the increased limits to proceed.

The negotiated agreement process has been widely adopted in recent times for projects such as the Hume Highway duplication.

An example of the information to be provided to sensitive receivers and a blank agreement form is attached.

## Pre-condition Reports

Notwithstanding the potential application of private agreements, the Leighton Fulton Hogan Joint Venture have undertaken detailed property inspections and prepared pre-condition reports as required by the RTA Statement of Commitments for the Sapphire to Woolgoolga project. Following the blasting program, follow-up property inspections would be undertaken with the preparation of post-condition reports. Any damages that have resulted from the blasting program would be rectified to the satisfaction of the property owner to the pre-condition level or similar.

## Blast Locations

Blasting will be required as a result of the road cuttings, particularly in the Woolgoolga area. As such, the modified condition would apply for the whole Sapphire to Woolgoolga project.

## Sensitive Receivers Impacted

The potential for negotiated agreements have not yet been discussed in individual briefings with landowners. Further the potential for negotiated agreements to allow for increase limits has not yet been discussed at any community information sessions.

In consideration of the areas subject to blasting for the Sapphire to Woolgoolga project, approximately 8 private agreements would be potentially negotiated by the Leighton Fulton Hogan Joint Venture. Based on the experiences of other projects, it is envisaged that private agreements would be viewed as amenable by those affected residents.

The following table describes the number of sensitive receivers associated with each road cutting and the distances to the blast location.

Cut	Receiver	Approximate distance
19	J. Lloyd	100
19	B. Lloyd	170
19	Glover	210
19	Jones	300
19	Gill	450
35	Write / Mielke	260
35	Singh	410
35	Craig	415

All sensitive receivers listed in the table above will be consulted with in regards to a negotiated agreement. For all other locations, the existing criteria described in the project approval would be complied with.

## Number of Blasts

The following table describes the predicted number of blasts required to comply with blast criteria and number proposed if agreements in place.

Cut	No. of blasts for 5 mm/s	No. of blasts for 25 mm/s
19	60	20
35	70	40

As such, there is a potential to reduce the number of blasts from 130 to 60.

## Monitoring and Reporting

As required under the *Protection of the Environment Operations Act 1997*, the Leighton Fulton Hogan Joint Venture, engaged by the RTA to undertake the construction of the Sapphire to Woolgoolga project, hold an Environmental Protection Licence (EPL 13278) for their works. The EPL conditions related to blasting criteria are consistent with the Project Approval. However, monitoring for compliance is required at the most affected residence or noise sensitive location that is not owned by the licensee or subject to a private agreement between the owner of premises or noise sensitive location and the licensee for all blasts carried out in or on the premises.

It is proposed that a similar exemption to monitoring for compliance against blasting criteria as provided in the EPL conditions be adopted for the Project Approval for the Sapphire to Woolgoolga project.

All blasts are monitored electronically for airblast overpressure and peak particle velocity at the closest sensitive receivers. In addition, weather conditions are also recorded at the time of blast, including cloud cover and wind speed and direction. Should negotiated agreements be able to be applied, monitoring at the closest sensitive receivers would still be undertaken to confirm that negotiated limits are not exceeded.

The instrumentation being used meets the requirements of Australian Standard AS 2187.2-2006. As such the monitoring program developed meets the licence conditions of the EPL for the Sapphire to Woolgoolga Upgrade.

The results of the blasts will be presented within the six monthly compliance tracking report required by Condition of Approval 4.1 of the Sapphire to Woolgoolga project.

As airblast overpressure is to some extent dependent on the meteorological conditions at the time of blasting, it can only be approximately predicted. However, based on above peak particle velocity predictions, the airblast overpressure would not exceed 125 dB(Lin Peak) for the limit of 25 mm/s.

## Conclusion

The benefits of allowing private agreements to be negotiated as part of the Project Approval to the broader community and road users would be a considerably shortened blasting program. With the existing Project Approval, the blasting program for the Sapphire to Woolgoolga Upgrade would commence in December 2010 and continue up until December 2011 given ideal weather conditions. With allowing private agreements to be negotiated, the blasting program would be reduced by up to three months. This would have positive amenity impacts for the local community and reduce the potential traffic delays resulting from road closures.

# Sapphire to Woolgoolga

Upgrading the Pacific Highway

Blasting information sheet – November 2010



The NSW Roads and Traffic Authority (RTA) has engaged the joint venture of Leighton Contractors and Fulton Hogan to design and construct the Sapphire to Woolgoolga Pacific Highway upgrade. The upgrade will provide about 25km of new dual carriageway driving conditions from Campbell Close, Sapphire to Arrawarra Beach Road, Arrawarra. The project includes a bypass of Woolgoolga and interchanges at Sapphire, Moonee Beach, Emerald Beach, south Woolgoolga and Arrawarra. This project is jointly funded by the NSW and Australian governments. This information sheet provides information on the blasting works required for this project.

## Background

Controlled blasting will be required to break up 50,000m<sup>3</sup> of rock in the cutting located 1km southwest of Woolgoolga (Cut 19) and 300,000m<sup>3</sup> of rock in the cutting which is located approximately 1.5km west of the highway between Safety Beach and Mullaway (Cut 35). There may be some smaller blasts in other cuttings where it is not efficient to rip or mechanically excavate material without blasting. Controlled blasting is expected to be carried out Monday to Friday between 9am – 5pm and on Saturdays between 9am – 1pm, up to two times per week in each cut between December 2010 and December 2011.

## What is controlled blasting?

Controlled blasting is used to break up high strength rock for removal by earthworks equipment. It involves a combination of pre splitting and/or bulk blasting.

## What is pre splitting?

Pre splitting is used to sever the rock to be removed from the surrounding rock mass and provide a clean face for the cutting. This is done by drilling a line of close spaced holes along the batter line and setting off a smaller blast to initiate a crack between the drill holes. This reduces the compression wave or vibration from the bulk blasting travelling into the surrounding rock.

## What is bulk blasting?

Bulk blasting is used to break up high strength rock for removal by earthworks equipment. The process involves drilling small holes deep into the rock in a predetermined pattern, loading each hole with explosives and the delayed detonation of the explosive to limit the amount of energy being released at any particular moment.

The energy released from the detonation of the explosive breaks the hard rock into smaller pieces to allow the subsequent removal and use of the material in the new road embankments.

## Why is controlled blasting required?

The alignment of the upgrade has been designed to minimise the number of hills and provide a more level road for drivers. A level road grade reduces fuel consumption and noise levels associated with motor vehicle engines and truck braking.

To achieve flatter (vertical) grades in hilly terrain, cuttings are required up to 30 deep through some of the hills. Geotechnical investigation and testing has determined that the rock in some of these cuts is of a high strength and will require blasting treatment to allow it to be excavated by earthworks equipment.

## Where is controlled blasting required?

The project requires blasting in the rock section of Cuts 19 and 35. Blasting may also be required where hard rock outcrops extend into the smaller cuts where hard rock boulders may be found.

## When is controlled blasting likely to start?

Controlled blasting for Cut 19 and Cut 35 is expected to commence December 2010. Controlled blasting for the other cuttings will be determined as the cuttings are excavated and hard rock is encountered.

**How often will controlled blasting occur?**

It is anticipated that there will be up to two blasts per week in each cutting. Blasting will not take place on Sundays or public holidays unless otherwise advised in advance.

**What time will each controlled blast occur?**

Blasting is planned to occur Monday to Friday between 9am – 5pm and on Saturdays between 9am – 1pm on selected blasting days.

**What are the impacts of controlled blasting?**

Controlled blasting is often used in road construction and other industries. The RTA engages contractors who are very experienced in carrying out safe blasting. Blasting has a number of issues which need to be managed including:

- Ground vibration, ie shaking of the ground and things sitting on it (eg structures and buildings).
- Air blast or noise.
- Dust.
- Scattering of "fly rock".

These impacts will be carefully managed by the Leighton Fulton Hogan Joint Venture to minimise the impact to local residents.

The noise expected from the controlled blasts will be minimal and will only last for a few seconds.

The vibration from blasts is expected to be very minor beyond the immediate vicinity of the blast. Monitoring will be carried out to record noise and vibration for each controlled blast.

There should be minimal dust and no fly rock beyond the immediate vicinity of the blast. Blasting is subject to weather and is not generally undertaken when cloud cover is low or dense.

**How do we manage the impacts of controlled blasting?**

The blasting is controlled using the size of the instantaneous charge which is the amount of explosive detonated at any particular instant. The size of the instantaneous charge is adjusted so that the limits for ground vibration and air blast for each sensitive receiver are not exceeded. The size of the instantaneous charge is achieved by using delays on the detonators so that the blast is set off in sections.

Pre splitting is also used to reduce the vibration passing outside the blasting zone. Dust and fly rock are monitored visually so that the blast design can be adjusted as required.

**What are the blasting mitigation measures?**

Affected residents and businesses will be informed prior to a blast. Public safety and Government guidelines require that all people, vehicles and livestock are a safe distance away from the blast. To ensure people are at a safe distance from each blast, mitigation measures will include:

- Temporary closure of access locations to the State forest, local roads, and property accesses.
- Stopping of traffic on the Pacific Highway for up to 5 minutes during routine blasts and up to 15 minutes for more complex blasts when the highway is within the safety zone.
- For safety reasons some residents will be asked to remain indoors or be temporarily relocated during controlled blasting. A Leighton Fulton Hogan Joint Venture representative will be in contact with these residents in advance.

Roadside variable message signs will notify road users of the blast activities on a daily basis. The public are requested to follow all traffic controller instructions.

**Animals and pets during controlled blasting**

It is advisable to keep smaller pets inside the house or shed during blasting for their safety and well being. Animals in paddocks should be checked before and after blasting. Paddocks should be checked for fly rock after blasting.

For more information, please call the project information line on 1800 63 63 63, email [community.enquiries@S2Wincite.com.au](mailto:community.enquiries@S2Wincite.com.au) or visit the website at [www.rta.nsw.gov.au/pacific](http://www.rta.nsw.gov.au/pacific) (click on Sapphire to Woolgoolga).



Date

Resident

Address 1

Address 2

### **Controlled blasting**

Dear Mr and Mrs [Resident],

The Leighton Fulton Hogan Joint Venture is subject to strict environmental controls, especially in terms of noise and vibration. In the area adjacent to your property at [Property ID] hard rock has meant that some controlled blasting is required, for which we require your consent.

#### **What is involved?**

The closest controlled blasts are approximately [X] metres from your house. For a detailed explanation of what controlled blasting is all about, please refer to the attached information sheet.

#### **What are our current restrictions?**

Blasting is planned Monday to Friday between 9am and 5pm and on Saturdays between 9am and 1pm on selected blasting days.

Our Environment Protection Licence sets the following limits for blasting:

- Overpressure not to exceed 120dB at any time and not to exceed 115dB for more than 5% of the time.
- Ground vibration not to exceed 10mm/s at any time and not to exceed 5mm/s for more than 5% of the time.

These levels are set to ensure the comfort of occupants in a house when a controlled blast takes place and is well below the level at which any cosmetic damage to property (such as minor paint cracking) occurs.

#### **Why are we seeking your assistance?**

The ground vibration and overpressure from the blasts we would like to undertake in this area is expected to exceed the limits specified in our Environment Protection Licence. The Environment Protection Licence allows us to exceed the limits, but only with the owner's consent.

### **LEIGHTON FULTON HOGAN JOINT VENTURE**

PO Box 946, Morree Beach NSW 2450

Tel: 011 8880 7100

Fax: 011 8880 7399

E: [leighton.fulton.hogan@leightonfh.com.au](mailto:leighton.fulton.hogan@leightonfh.com.au)

W: [www.leightonfh.com.au](http://www.leightonfh.com.au)

**What are we asking you to consider?**

By agreeing to the joint venture's proposal to increase the limit to **125dB** for blast overpressure and **25mm/s** for ground vibration, the number of blasts undertaken would be reduced with no risk of damage to your property. It would also minimise inconvenience to you by reducing the number of recommended relocations during controlled blasting and the duration of works required to extract the rock. In the unlikely event any damage is caused to the property by the controlled blast, the joint venture will rectify it appropriately and you are free to rescind your consent to this agreement at any stage.

Could I kindly ask you to please consider our request and sign the consent? If you require further information, please call the community relations team on 1800 63 63 63.

Kind regards,



Rob Dierkx  
Project Director  
Sapphire to Woolgoolga  
Pacific Highway upgrade

**Owner's Consent**

I, (name) .....  
of (address) .....  
Woolgoolga, consent to the Leighton Fulton Hogan  
Joint Venture's proposal as set out in this letter.  
Signed ..... Date .....

Signed ..... Date .....



# Request to modify a major project



NSW GOVERNMENT  
Department of Planning

Date duly made: 26/11/10

Modification No. 06-0293 MOD5

## 1. Before you lodge

This form is required under section 75W of the *Environmental Planning and Assessment Act 1979* (the Act) in order to request the Minister to modify the Minister's approval to carry out a project or concept plan to which Part 3A of the Act applies.

Before making this request, it is recommended that you first consult with the Department of Planning (the Department) concerning your modification. The Director-General may issue environmental assessment requirements that must be complied with before your request will be considered by the Minister. If the changes proposed by the modification will result in a project that is consistent with the existing approval, the Minister's approval for a modification is not required.

### Disclosure Statement

Persons making a request to modify a project or concept plan are required to declare reportable political donations (including donations of or more than \$1,000) made in the previous two years.

Note: For more details about political donations disclosure requirements, including a disclosure form, go to [www.planning.nsw.gov.au/donations](http://www.planning.nsw.gov.au/donations).

### Lodgement

All modification requests must be lodged with the Director-General of the Department of Planning, by courier or mail. An electronic copy should also be e-mailed to the assessment contact officer assigned to the project.

NSW Department of Planning  
Ground floor, 23-33 Bridge Street, SYDNEY NSW 2000  
GPO Box 39 SYDNEY NSW 2001  
Phone 1300 305 695

## 2. Details of the proponent

Company/organisation/agency		ABN	
Roads and Traffic Authority		64480155255	
<input checked="" type="checkbox"/> Mr <input type="checkbox"/> Ms <input type="checkbox"/> Mrs <input type="checkbox"/> Dr <input type="checkbox"/> Other			
First name		Family name	
Robert (Bob)		Higgins	
Position			
General Manager, Pacific Highway Office			
STREET ADDRESS			
Unit/street no.		Street name	
21		Prince Street	
Suburb or town		State	Postcode
Grafton		NSW	2460
POSTAL ADDRESS (or mark 'as above')			
PO Box 546			
Suburb or town		State	Postcode
Grafton		NW	2460
Daytime telephone		Fax	Mobile
02 6640 1000		02 6640 1001	
Email			
bob_higgins@rta.nsw.gov.au			

### 3. Identify the land

STREET ADDRESS (where relevant)

Unit/street no.

N/A

Street or property name

Pacific Highway

Suburb, town or locality

Sapphire to Woolgoolga

Postcode

2440

Local government area(s)

Coffs Harbour City Council

State Electorate(s)

REAL PROPERTY DESCRIPTION

As per Sapphire to Woolgoolga EA

Note: The real property description is found on a map of the land or on the title documents for the land. If you are unsure of the real property description, you should contact the Department of Lands.

Please ensure that you place a slash (/) to distinguish between the lot, section, DP and strata numbers. If the proposed modification applies to more than one piece of land, please use a comma to distinguish between each real property description.

OR: detailed description of land attached: ☐

MAP: A map of the site and locality should also be submitted with this request.

### 4. Details of the original major project or concept plan

Briefly describe what the original approval allows

The upgrade will consist of:

- A new southern section, 15 km dual carriageway, between Sapphire and South Woolgoolga largely within the existing highway corridor. The existing highway will be upgraded to provide a local traffic access route without the need to mix with high speed through traffic
- A new 'Greenfield' northern section, 10 km bypass from South Woolgoolga to the west of Woolgoolga which rejoins the existing highway alignment in the vicinity of Arrawarra Beach

What was the original project application no.?

06\_0293

What was the date of the approval?

13 January 2009

What was the original application fee?

N/A

Note: Clause 245K of the *Environmental Planning and Assessment Regulation 2000* provides information on calculating the maximum fee for a request for modification.

### 5. Describe the modification you propose to make to the approval

Describe the proposed modification

The Roads and Traffic Authority (RTA) are requesting a modification to the conditions of approval for the Sapphire to Woolgoolga Project to all for private agreements to be entered into with property owners regarding blasting criteria in accordance with Environment Protection Licence 13278 for the project.

To this end RTA requests insertion of condition replicating condition M10.1 of EPL 13278 as follows: 'Airblast overpressure and ground vibration levels must be measured and electronically recorded at the most affected residence or noise sensitive location

that is not owned by the licensee or subject to a private agreement between the owner of the premises or noise sensitive location and the proponent – for all blasts carried out in or on the project premises.”

Can RTA please submit modification request drawing from Kempsey submission including responses to DoP queries. If you save as Kempsey cover letter incorporating DoP response comments and forward in word version I will add details regarding receptor numbers, blasting duration, etc and obtain plan of blasting locations to accompany the submission.

Your modification request may need to be accompanied by an Environmental Assessment, including plans. An electronic and hard copy of this document will be required.

#### ESTIMATED CAPITAL INVESTMENT VALUE

Please indicate the estimated capital investment value (CIV) of the modification to the project approval or concept plan (excluding GST).

\$N/A

#### FULL TIME EQUIVALENT JOBS

Please indicate the number of jobs created by the proposed modification. This should be expressed as a proportion of full time equivalent (FTE) jobs over a full year.

Construction jobs (FTE)

N/A

Operational jobs (FTE)

N/A

### 6. Landowner's consent (where required)

As the owner(s) of the above property, I/we consent to this request being made by the proponent:

Land

N/A

Signature

Name

Date

Land

N/A

Signature

Name

Date

Note: Under Clause 8F of the *Environmental Planning and Assessment Regulation 2000* (the Regulation), certain applications for approval under Part 3A of the Act do not require consent of the landowner, however, the proponent is required to give notice of the application (e.g. linear infrastructure, mining & petroleum projects, and critical infrastructure).

### 7. Political donation disclosure statement

Persons making a request to modify a project or concept plan are required to declare reportable political donations (including donations of or more than \$1,000) made in the previous two years.

Have you attached a disclosure statement to this request?

☐ Yes

☒ No

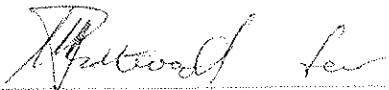
Note: For more details about political donations disclosure requirements, including a disclosure form, go to

## 8. Proponent's signature

As the proponent(s) of the project and in signing below, I/we hereby:

- provide a description of the modification to the project approval or concept plan and address all matters required by the Director-General pursuant to Section 75W of the Act, and
- declare that all information contained within this form is accurate at the time of signing.

Signature



Name

Robert (Bob) Higgins

Date

23/11/10

In what capacity are you signing if you are not the proponent

General Manager, Pacific Highway

Name, if you are not the proponent