



**MODIFICATION REQUEST:
*Pacific Highway Upgrade: Sapphire to
Woolgoolga - Modification 5***

(06_0293 MOD5)

***Modification of Conditions 2.22 and 2.23 to
allow for private agreements to be entered into
with property owners regarding blasting criteria***

Director General's
Environmental Assessment Report
Section 75W of the
Environmental Planning and Assessment Act 1979

February 2011

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EXECUTIVE SUMMARY

The Pacific Highway Upgrade - Sapphire to Woolgoolga Project (06_0293) was approved by the Minister on 13 January 2009 under Part 3A of the *Environmental Planning and Assessment Act, 1979* (the EP&A Act). The approved project involves the upgrade of a 25 kilometre section of the Pacific Highway to a four lane divided highway from Campbell Close in Sapphire to Arrawarra Beach Road, Arrawarra in the Coffs Harbour local government area.

Construction of the Sapphire to Woolgoolga Project commenced in August 2010.

The NSW Roads and Traffic Authority (the Proponent) has submitted a request (06_0293 MOD5) under section 75W of the EP&A Act to modify the approved project to allow for private agreements to be entered into with property owners regarding the blasting criteria.

There is no requirement under section 75W of the EP&A Act for exhibition of the modification request, however, the Department placed the modification request on its website and consulted with the Department of Environment, Climate Change and Water (DECCW), who raised no objection to the proposal.

The Department has undertaken a detailed assessment of the modification request, considering the views of the DECCW and is satisfied that the likely impacts of the proposal to enter into private agreements with property owners regarding blasting criteria could be adequately addressed through the implementation of appropriate management and mitigation measures.

The Department considers the proposal would have overall benefits to the local and regional community, and minimal long term residual impacts to the wider community and environment. Therefore it is recommended that the Director, Infrastructure Projects, as the delegate of the Minister, approve the Proponent's modification request for the Sapphire to Woolgoolga Project in regard to blasting criteria.

TABLE OF CONTENTS

1.	BACKGROUND	3
2.	PROPOSED MODIFICATION	4
	2.1 Modification Description	4
3.	STATUTORY CONTEXT	4
	3.1 Modification of the Minister's Approval	4
	3.2 Delegated Authority	4
4.	CONSULTATION	5
5.	ASSESSMENT	5
6.	CONCLUSION AND RECOMMENDATIONS	7
APPENDIX A	MODIFICATION REQUEST	8
APPENDIX B	DRAFT PRIVATE AGREEMENT	9
APPENDIX C	RECOMMENDED MODIFYING INSTRUMENT	10

1. BACKGROUND

The Pacific Highway Upgrade - Sapphire to Woolgoolga Project (06_0293) was approved by the Minister for Planning on 13 January 2009 under Part 3A of the *Environmental Planning and Assessment Act, 1979* (the EP&A Act). The approved project involves the upgrade of a 25 kilometre section of the Pacific Highway to a four lane divided highway from Campbell Close in Sapphire to Arrawarra Beach Road, Arrawarra in the Coffs Harbour local government area. Construction of the Sapphire to Woolgoolga Project commenced in August 2010. The project location is shown in Figure 1.

Figure 1: Project Location



The project approval was modified in November 2009 (MOD1) to provide flexibility in how community engagement was achieved, in February 2010 (MOD2) to permit the minor clearing of endangered ecological communities and threatened species habitat and salvage of Aboriginal relics during pre-construction work, in September 2010 (MOD3) to modify the requirement for light wells in culverts and in October 2010 (MOD4) to permit work in a non-Aboriginal heritage site.

2. PROPOSED MODIFICATION

2.1 Modification Description

The NSW Roads and Traffic Authority (the Proponent) has submitted a request (06_0293 MOD5) under section 75W of the EP&A Act to modify the approved project to allow for private agreements to be entered into with property owners regarding the blasting criteria specified in Conditions 2.22 and 2.23 of the Minister's approval. The objective of the private agreements would be to allow blasting criteria to be increased at particular receivers.

Conditions 2.22 and 2.23 specify the airblast overpressure and peak particle velocity criteria required to be met by blasting associated with the Sapphire to Woolgoolga Project. The Proponent considers the blasting criteria to be conservative by industry standards and is related to human comfort levels for blasting operations rather than damage to structures. Furthermore, the blast levels recommended by the Australian Standard AS2187.2-2006 *Explosives - Storage and use - Use of explosives* (AS2187) for control of damage to structures is greater than that recommended for human comfort.

The Proponent considers the proposal to enter into private agreements relating to blast levels would result in the implementation of best practice construction management measures which would benefit the broader community and road users through a reduction in the construction duration and impacts on residential amenity.

3. STATUTORY CONTEXT

3.1 Modification of the Minister's Approval

Consideration of the modification request under section 75W of the EP&A Act is appropriate as the proposed modification is not consistent with the project approval, but is not a radical transformation of the approved project. The modification request would allow private agreement to be entered into with a property owner to increase the blasting criteria. The blasting criteria would be unchanged if there is no private agreement with a property owner.

3.2 Delegated Authority

On 25 January 2010, the Minister delegated his powers and functions under section 75W of the EP&A Act to Directors in the Major Projects Assessment Division in cases where there are less than 10 public submissions (not including submissions from public authorities) in the nature of objections in respect of the modification request.

As no public submissions were received (see section 4), the modification request meets the above criteria, consequently the Director, Infrastructure Projects may determine the modification request under delegated authority.

4. CONSULTATION

Under Section 75X(2)(f) of the EP&A Act, the Director General is required to make the modification request publicly available. Accordingly, the Department placed a copy of the modification request on its website.

The Department also consulted with the Department of Environment, Climate Change and Water (DECCW), who did not object to the proposal.

5. ASSESSMENT

The blasting limits for the Sapphire to Woolgoolga Project are specified in Conditions 2.22 and 2.23 of the project approval (refer to Table 1). Condition 2.22 specifies the airblast overpressure limits to protect human comfort and annoyance due to blasting. The criteria is based on guidelines prepared by the Australian and New Zealand Environment and Conservation Council (and adopted by DECCW) for the assessment of blasting impacts. Condition 2.23 specifies the peak particle velocity (PPV) ground vibration level for the assessment of damage to structures. The criteria are based on ground vibration levels recommended by AS2187 for assessment of damage to buildings.

Table 1: Blasting Criteria

Condition 2.22 - Airblast Overpressure (dBL)	Condition 2.23 - Ground Vibration (PPV mm/s)	Allowable Exceedance
115	5	5% of the total number of blasts over a period of 12 months
120	10	None

The Proponent states that these limits are conservative and relate to human comfort levels rather than damage to buildings, which may occur at levels of more than 125 dBL airblast overpressure or 25 mm/s PPV vibration level. The Proponent proposes to enter into private agreements with property owners to increase the blast criteria but not exceed 125 dBL and/ or 25 mm/s.

The Department notes the proposal to vary the blasting criteria through private agreements with property owners is consistent with AS2187 which recommends blasting limits for human comfort and damage to structures and recognises that higher limits may be agreed with landowners (refer to Table 2). The recommended guideline for ground vibration levels for human comfort is 10 mm/s (unless an agreement for a higher limit is reached with the property owner) and for damage to structures, levels of 15mm/s (4-15Hz blast), 20mm/s (15Hz blast) and 50mm/s (40Hz and above blast) above which cosmetic damage may occur.

The proposed private agreement would restrict ground vibration levels to a maximum of 25mm/s, which, based on a blast frequency of between 40 and 70Hz (expected to be generated by the type of blasting that would be carried out for the project), is unlikely to cause damage to structures. The increase in vibration levels would only apply to properties with an agreement. The limit of 5mm/s would apply to all other residences and sensitive receivers. The Department considers that variation of the

5mm/s level to a maximum of 25mm/s is consistent with AS2187 and that a blast of with vibration levels up to 25 mm/s PPV is unlikely to cause building damage.

Similarly with airblast impacts, the Department considers the proposed maximum level of 125 dBL is unlikely to cause discomfort to residents or damage to buildings. AS2187 recommends maximum airblast limits of 125 dBL (with agreement of landowner) for human comfort and 133 dBL (unless higher level is agreed) for control of damage to structures. The proposed maximum airblast limit of 125 dBL is therefore consistent with AS2187. The blast limits in the approval would apply where there is no private agreement with a property owner and the Proponent would adjust the size of the blast to ensure compliance with the blast limits.

Table 2: Summary of blast criteria

MEASURE	CONDITION	RECOMMENDED AS2187 BLAST LIMIT		PROPOSED BLAST LIMITS
Ground vibration limits for human comfort	Operations lasting less than 12 months or less than 20 blasts	10 mm/s unless agreement is reached with occupier that a higher limit may apply		25 mm/s with agreement of landowner
Ground vibration limits for control of damage to structures	British Standard BS 7385-2 guide for cosmetic damage	4 Hz to 15 Hz blast frequency	15 Hz and above blast frequency	40 Hz to 70 Hz
		15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above	25 mm/s with agreement of landowner
Airblast limits for human comfort	Operations lasting less than 12 months or less than 20 blasts	120 dBL for 95% of blasts. 125 dBL maximum unless agreement is reached with occupier that a higher limit may apply		125 dBL with agreement of landowner
Airblast limits for control of damage to structures	Structures that include masonry, plaster and plasterboard in their construction	133 dBL maximum unless agreement is reached with occupier that a higher limit may apply		125 dBL with agreement of landowner

The Proponent has proposed to undertake detailed property inspections and prepare pre-condition reports, as required by the project's Statement of Commitments. Following the completion of the blasting program, the Proponent would undertake follow-up property inspections and repair any damage caused by blasting to the pre-condition level.

The benefit of entering into private agreements to increase blast levels would be a shortened blasting program, for example the number of blasts required to comply with the blast criteria of 5 mm/s PPV (condition 2.23) at two cut locations (Cut 19 and Cut 35) would be approximately 130 blasts. This could be reduced to 60 blasts (maximum of 25 mm/s PPV) if private agreements were in place with property owners. For Cut 19 the blasting program could be reduced from approximately 10 months to 4 months and Cut 35 from 11 months to 6 months. The Proponent considers a shortened blasting program would have positive amenity impacts for the community and reduce potential traffic delays resulting from road closures. The

Proponent has identified 8 receivers (5 near Cut 19 and three near Cut 35) with which private agreements could potentially be negotiated.

The proposed private agreement would identify the approved and proposed blasting limits, state that damage caused by blasting would be rectified at no cost to the property owner and that the agreement may be terminated by either party if concerns about the increased blasting limits could not be resolved. A copy of the draft agreement and information sheet is in Appendix B. The Department considers the proposed agreement contains sufficient information about the blasting program and the obligations of the Proponent to enable property owners to make an informed decision on a private agreement to vary the blast criteria during controlled blasts in the vicinity of residences or sensitive receivers.

The DECCW has no objection to modification of the approval to allow larger blasts provided all receivers have entered into an agreement with the Proponent and that the current limits would apply to all other receivers.

6. CONCLUSION AND RECOMMENDATIONS

The proposal to allow an increase in blasting levels with the agreement of property owners would have benefits for the local and broader community and road users. The ability to increase blast sizes would result in a shortened blasting program which would have a positive amenity impact for the community and reduce the potential for traffic delays from road closures.

The increase in blast levels would only apply to properties for which an agreement has been entered into. The existing blast limits would apply to properties which do not have an agreement. The proposed maximum ground vibration and airblast levels are consistent with AS2187 which sets recommended guidelines for human comfort and damage to buildings.

The Proponent has committed to undertake pre-and post-blasting inspection of properties, rectify any damage caused by blasting, undertake blast monitoring at the nearest receiver irrespective of whether a private agreement has been made and provide for the termination of any agreement entered into.

The Department considers the proposal has positive benefits for the community and that commitments made by the Proponent would ensure that potential impacts from larger blasts are managed and monitored. The Department recommends that the Director Infrastructure Projects approve the modification request under section 75W of the EP&A Act, by signing the attached Instrument of Modification (Appendix C).

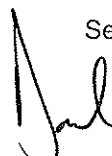
Prepared by
Michael Young

Senior Planner, Infrastructure Projects



Dinuka McKenzie
**A/Manager Roads
Infrastructure Projects**

25/2/11



Daniel Keary
**Director
Infrastructure Projects**



25/2/11

APPENDIX A MODIFICATION REQUEST

See the Department's website at

http://majorprojects.planning.nsw.gov.au/page/project-sectors/transport--communications--energy---water/roads/?action=view_job&job_id=4452

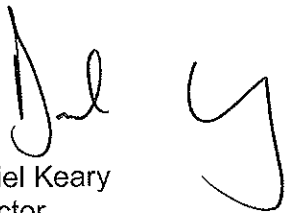
APPENDIX B DRAFT PRIVATE AGREEMENT

APPENDIX C RECOMMENDED MODIFYING INSTRUMENT

Modification of Minister's Approval

Section 75W of the *Environmental Planning & Assessment Act 1979*

As delegate of the Minister for Planning under delegation executed on 25 January 2010, I approve the modification of the project application referred to in Schedule 1, subject to the conditions in Schedule 2.



Daniel Keary
Director
Infrastructure Projects

Sydney 25 FEBRUARY 2011

SCHEDULE 1

Project Approval:

06_0293 granted by the Minister for Planning on 13 January 2009.

For the following:

The construction and operation of an approximately 25 kilometre dual carriageway upgrade of the Pacific Highway comprising duplication of the existing highway from Korora to South Woolgoolga and the Option E bypass of Woolgoolga. The project comprises five grade separated interchanges and is referred to as the "Coffs Harbour Highway Planning – Sapphire to Woolgoolga" Project.

Modification:

Modification of the approval in relation to blasting criteria.

SCHEDULE 2

The approval is modified by:

1. Deleting condition 1.1 and replacing with the following:

1.1 The Proponent shall carry out the project generally in accordance with the:

- a) Major Projects Application 06_0293;
- b) *Coffs Harbour Highway Planning – Sapphire to Woolgoolga section - Environmental Assessment* (volumes 1, 2 and 3), prepared by Connell Wagner Pty Ltd and dated November 2007;
- c) *Coffs Harbour Highway Planning – Sapphire to Woolgoolga section – Environmental Assessment Submissions Report*, prepared by Connell Wagner Pty Ltd and dated June 2008, including the revised Statement of Commitments contained therein;
- d) correspondence from the NSW Roads and Traffic Authority to the Department of Planning dated 29 October 2008 withdrawing the proposed Arrawarra Rest Area from the project;
- e) Modification Application dated 21 October 2009 (06_0293 MOD 1) and request for modification dated 20 October 2009; and
- f) Modification Application dated 22 January 2010 (06_0293 MOD 2), and request for modification dated 22 January 2010;
- g) Modification Application dated 15 July 2010 (06_0293 MOD 3), including correspondence from the RTA to the Department dated 29 August 2010
- h) Modification Application dated 21 September 2010 (06_0293 MOD 4) and request for modification dated 22 September 2010;
- i) Modification Application and request for modification dated 23 November 2010 (06_0293 MOD 5); and
- j) the conditions of this approval.

2. Deleting condition 1.2 and replacing with the following:

1.2 In the event of an inconsistency between:

- a) the conditions of this approval and any document listed from condition 1.1a) to 1.1i) inclusive, the conditions of this approval shall prevail to the extent of the inconsistency; and
- b) any document listed from condition 1.1a) to 1.1i) inclusive, and any other document listed from condition 1.1a) to 1.1i) inclusive, the most recent document shall prevail to the extent of the inconsistency.

3. Inserting after condition 2.23 the following:

- 2.23A The blasting criteria identified in condition 2.22 and/ or 2.23 do not apply where the Proponent has a written agreement with the relevant landowner to exceed the criteria identified in condition 2.22 and/ or 2.23 and the Director General has approved the terms of the written agreement.

The following exclusions apply to the application of this condition:

- a) any agreements reached may be terminated by the landowner at any time should concerns about the increased blasting limits be unresolved;
- b) the blasting limit agreed to under any agreement can at no time exceed a maximum Peak Particle Velocity vibration level of 25 mm/s or maximum Airblast Overpressure level of 125 dBL; and
- c) the provisions under condition 2.23A (to increase applicable blast criteria in agreement with the relevant landowner) do not apply where the property is a heritage property.