ENVIRONMENT & APPROVALS MANAGEMENT PLAN

Garvan St Vincent's Campus Cancer Centre

NOISE AND VIBRATION MANAGEMENT SUB-PLAN

Scope	Garvan St Vincent's Campus Cancer Centre
Locations	Victoria St, Darlinghurst
Timing	
DPDA	
S of C	
Other Ref	

Issue	Date	Prepared By	Approved By	Remarks
1	14.04.09			

1 OBJECTIVES

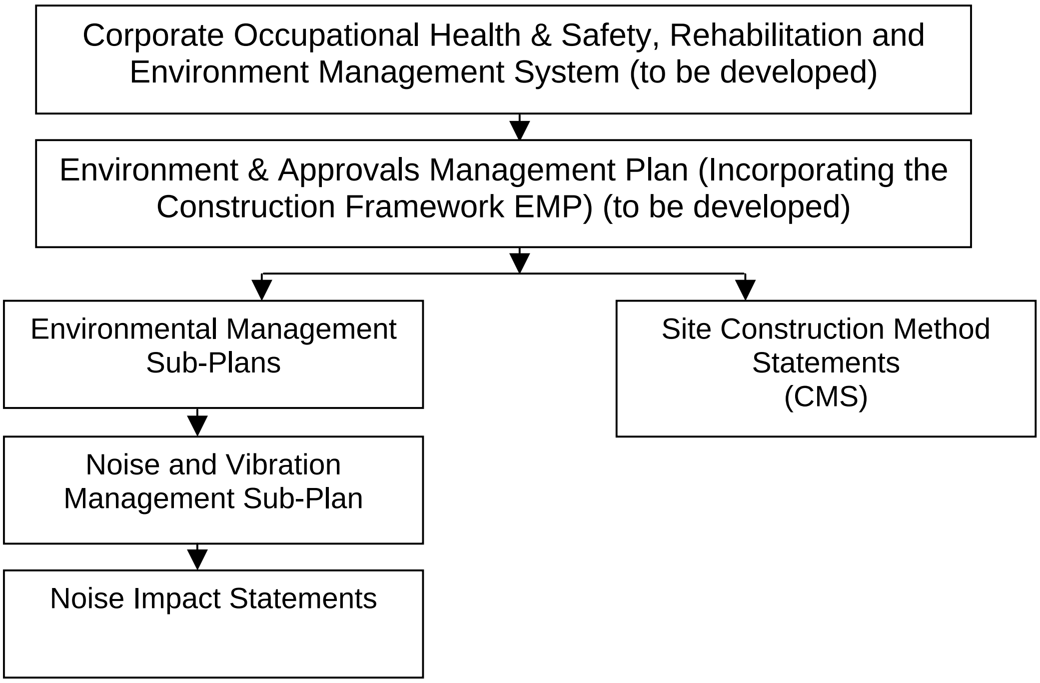
A W Edwards is committed to ensuring that no works significantly impact on local background noise and vibration levels.

The objective of the Noise & Vibration Management Sub-Plan is to:

- Ensure that construction works do not significantly impact background noise levels around each site, and that applicable guidelines and regulations are met;
- Ensure all equipment operates within the applicable noise levels;
- Ensure that construction works do not cause sufficient vibration to damage surrounding buildings, and comply with the applicable guidelines and regulations.

2 SCOPE

This Sub-Plan has been developed as part of the Garvan St Vincent's Campus Cancer Centre (GSVCCC) Environment and Approval Management Plan (to be developed). The relationship between environmental management documentation can be summarised in the flow chart below:



The scope of this Sub-Plan is to provide Project information regarding noise and vibration management. It is to be applied at the following site:

- Garvan St Vincent's Campus Cancer Centre

Further information will be required at site, detailing specific site requirements and mitigation measures. This information will be attached to the CMS for the site.

3 STATUTORY REQUIREMENTS

Documents and references relevant to the implementation of the Noise and Vibration Management Sub-Plan include:

- GSVCCC Works Construction Documentation;
- Protection of the Environment Operations Act 1997;
- Protection of the Environment Operations (Noise Control) Regulation 1999;
- Assessing Vibration: A Technical Guideline (DECC)
- AS 1055 Parts 1 to 3 Acoustics - Description and management of environmental noise;
- AS 2702 Acoustics - Methods for the measurement of road traffic noise.

4 RISK ASSESSMENT

A specific risk assessment is to be developed, that will determine the sources and risks associated with noise and vibration production. Details of the risk assessment, including mitigation measures, are to be included in the For Construction version of the Environment and Approvals Management Plan for the project.

The risk assessment process will be reviewed for this aspect at the following times:

- Every six months during a site audit, and including comments from personnel and sub-contractors on site;
- Following high monitoring results;
- Following a complaint;
- If new work processes that have not been previously addressed start on site; &
- Should new requirements for the project or new legislation take effect.

5 MANAGEMENT AND TRAINING

5.1 Noise & Vibration Impact Statements

Prior to the commencement of construction a Noise & Vibration Impact Statement (NVIS) shall be prepared for the work site. The services of an experienced specialist in the field of noise and vibration shall be engaged to assist in this task. The Impact Statement will include the following information:

- A list of locations associated with the site, including construction depots and site compounds.
- A list of activities that are to be conducted during works and the sources of noise associated with them, including the movement of construction vehicles and delivery traffic.
- A list of all sensitive receptors in the local area that may be affected by either noise or vibration, including residents, hospitals, nursing homes, schools, sound recording facilities and heritage buildings. The condition of sensitive buildings shall

be assessed before and after works, to ensure that activities have not impacted on their structural integrity.

- A listing of noise requirements, including acceptable noise, background noise and vibration levels.
- Details of monitoring to occur, including:
  - Type of monitoring eg background noise, equipment noise etc;
  - Specific monitoring locations, ideally indicated on a map;
  - Monitoring frequency;
  - Monitoring duration and method; and
  - Monitoring reporting requirements, including the method of determining noise and vibration impacts, for example the tenth percentile rule for construction noise.
- Detail of all noise abatement measures, including acceptable working hours. Provision shall be made for exceptional circumstances where abatement measures cannot be adhered.
- Details of internal auditing and reporting of noise related issues, including recording of working hours, spot inspections by the Environmental Management Representative and input by other parties.
- Details of all interested parties for that work site, including local councils, community lobby groups, local residents etc. Contact details shall be maintained, to ensure that consultation processes can occur efficiently.
- Details of a noise complaints procedure will de developed in the future, including contact details for the community liaison. This will be available to the community upon request. The procedure refers to the appropriate procedure for negotiations with the community, should there be resistance to any construction works based on noise.

Upon completion of the Noise & Vibration Impact Statement it shall be submitted to the Principal's Representative for comment and approval. Other parties may be involved in this process, as determined by the Principal's Representative. Community consultation shall be sought as required.

5.2 Possible Noise and Vibration Control Measures

Noise and vibration control measure may include, but not be limited to, the following:

- Installation of temporary barriers around works or sensitive receptors;
- Regular maintenance and tuning of equipment to reduce operating noise levels;
- Scheduling work to minimise impacts on local sensitive receptors, for example schedule work when background levels are at their highest;
- Installed pre-constructed materials, to minimise the amount of work required on site;
- Electric rather than diesel powered tower cranes/lifting equipment;
- Use of rubber matts beneath concrete pumps and trucks;
- Boxing of noise emitters with acoustic shielding ir required;
- Minimise the amount of concrete breaking onsite if required;

5.3 Training

AW Edwards Site Manager shall be trained to ensure that they meet the requirements of this procedure. Other personnel shall be trained from time to time to ensure that the requirements of this procedure are met.

6 MONITORING

6.1 Noise and Vibration Monitoring

Monitoring shall be conducted by an appropriately qualified and experience specialist. The following forms of monitoring are required during the construction works:

6.1.1 Background Noise Monitoring

The following process shall be followed:

- Background noise levels shall be obtained from the Environmental Impact Statement.
- Background levels shall be monitored at locations specified in the Noise & Vibration Impact Statement. Noise monitoring shall be conducted at a minimum of ***monthly or as deem Necessary***, and following ***noise complaints*** as required. This monitoring shall be for a continuous period of at least 15 minutes, and the monitor shall list all noise sources occurring during this period.
- Noise results shall be analysed by the specialist, and the impact of construction determined with reference to an applicable reference document. The reference document shall be specified in the report.
- Should the results exceed acceptable limits control recommendations are to be made, as based on the activities listed during the monitoring period. It shall be clearly stated whether construction works or other works off-site caused excess noise.
- Should the cause of excess noise be unable to be determined, and a longer sampling period is considered a requirement, noise logging shall be considered as a possible solution.

6.1.2 Equipment Noise

A list of equipment being used on site as part of the construction works shall be listed in the Noise & Vibration Impact Statement. Noise levels associated with these pieces of equipment shall be measured and compared with guidelines as detailed in an applicable reference document. The reference document shall be specified in the report.

Measurement shall occur once per ***month or as deemed necessary***. If the equipment is transient but likely to cause significant noise, it shall be monitored while on site, regardless of whether all other equipment is being monitored at the time.

Any piece of equipment failing to comply with the acceptable levels shall have noise abatement recommendations put forward.

6.1.3 Vibration

Vibration shall be monitored at the following locations:

- Any off-site buildings abutting the site boundary.
- Any heritage buildings on site.
- Any heritage buildings in the immediate vicinity that may experience damage due to construction works

Vibration shall be ***monitored continuously or as deemed necessary*** during construction, and reported on ***monthly or as deemed necessary***. Monitoring and analysis of results shall comply with:

- Assessing Vibration: A Technical Guideline (DECC);
- BS 7385: Part 2 – 1993;
- DIN 4150.

Where monitoring results exceed acceptable limits, recommendations shall be made on how to either reduce the amount of vibration or protect structures that may be damaged by excessive vibration.

6.1.4 Records

Records for this Sub-Plan shall be maintained in accordance with detailed procedures in the A W Edwards Management System.

All documents requiring sign-off shall be forwarded to the Principal's Representative one month prior to the sign-off being required.

Particular documents required to be maintained in this Sub-Plan include, but are not limited to:

- Noise & Vibration Impact Statements;
- Pre and post construction surveys and dilapidation reports;
- Noise monitoring results and reports;
- Vibration monitoring results and reports;
- Correspondence with the Principal's Representative and other interested parties regarding noise and vibration;
- Records of damage to structures and reparation documents.

6.1.5 Auditing

The procedure shall be audited during the following audits:

- Six monthly system audits of this EMP, including approvals compliance procedures;
- Monthly on-site and EMP audits;
- Weekly Site environmental management audits.

7 NON-COMPLIANCE AND COMPLAINTS

The protocol for the handling, recording and reporting of noise and vibration related complaints will be in accordance with of the A W Edwards GSVCCC Works Environment & Approvals Management Plan (to be developed).

Should it be found that noise or vibration monitoring results are exceeding the criteria reactive measures will be taken to modify demolition/construction operations and minimise the potential for noise and vibration production. These measures shall include the following:

- An assessment shall be made of sources of noise/vibration production during the monitoring period that are likely to be contributing to the higher than acceptable levels
- Controls and/or operational modifications shall be determined that will decrease the levels of noise/vibration production from those specific sources. Should the activity have ceased once sampling results are obtained, measures shall be put in place to ensure that similar results are not obtained from the same process at different sites.
- Monitoring results following to the reactive measures shall be checked to ensure that actions taken have reduced noise/vibration production. Should results still be outside the acceptable limits an assessment shall be made as to the appropriateness of the process. If the process cannot be avoided, and further modifications cannot be implemented, the Principal's Representative shall be consulted to determine the most appropriate course of action.
- An incident form shall be completed if noise/vibration results significantly exceed the acceptable limit. All incidents shall be notified to the Principal's Representative as soon as practicable.

8 OUT OF HOURS PROCEDURE

Procedures for this Out of Hours Procedure are to be consistent with the GSVCCC Works Contract.

8.1 General Working Hours

Designated working hours are as follows:

Working Day	Working Hours
Monday to Friday	7am to 6pm
Saturday	7am to 3pm
Sunday and Public Holidays	Not permitted

8.2 Permitted Out of Hours Work

The following works are permitted out of hours

a. The delivery of plant, equipment and materials which is required outside these hours as requested by Police or other authorities for safety reasons;
b. Emergency work to avoid the loss of lives, property and/or to prevent environmental harm;

8.3 Out of Hours Work

It is not anticipated that works will occur outside working hours, should unforseen circumstances prevail (Concrete Slab Finishing etc) the following will be implemented.

- Local authority to be contacted and advised of the delay/ works. Reasons for the out of hours works and anticipated completion
- Where possible noise monitoring shall be conducted during the works, to ensure that noise levels at the nearest sensitive receptor are minimised.

9 COMMUNITY MANAGEMENT

Changes affecting the local noise and vibration in community areas will be distributed 14 days prior to the commencement of work causing the change in noise and vibration. Approval of the information is required to be submitted to the Principal 7 days prior to distribution (total minimum is 21 days prior to works taking place).

All communication activities are to be developed to clearly communicate:

What – what is happening

When – what is the timeframe

Where – clearly show or describe the affected area

Who – who will be affected

Why – why is this occurring now, is it a change or planned

The information must be structured clearly so that the important information is at the top. Jargon is to be avoided. Accuracy, content, spelling and grammar must be checked prior to draft documents being submitted for approval.

Once submitted for approval, there are set turnaround times for the Client's Representative and AW Edwards. Edits are to be made within 24 hours by AW Edwards. Project Manager will provide approval/edits within 48 hours of initial submission, and 24 hours for subsequent revision.

Any other community consultation or liaison shall be conducted in accordance with the Community Involvement Management Plan (to be developed).

10 SUB-CONTRACTOR MANAGEMENT

Subcontractors shall be appropriately managed by A W Edwards to ensure that the requirements of this procedure extend to subcontractor works.

Sub-contractors will be audited at periodic intervals to ensure their compliance with A W Edwards' requirements. Auditing shall be random and based on the length of the time sub-contractors are situated on site. Audits may also be the result of non-compliance of the sub-contractor to A W Edwards' requirements.