

Moorebank Precinct East Stage 2 Proposal Response to Submissions

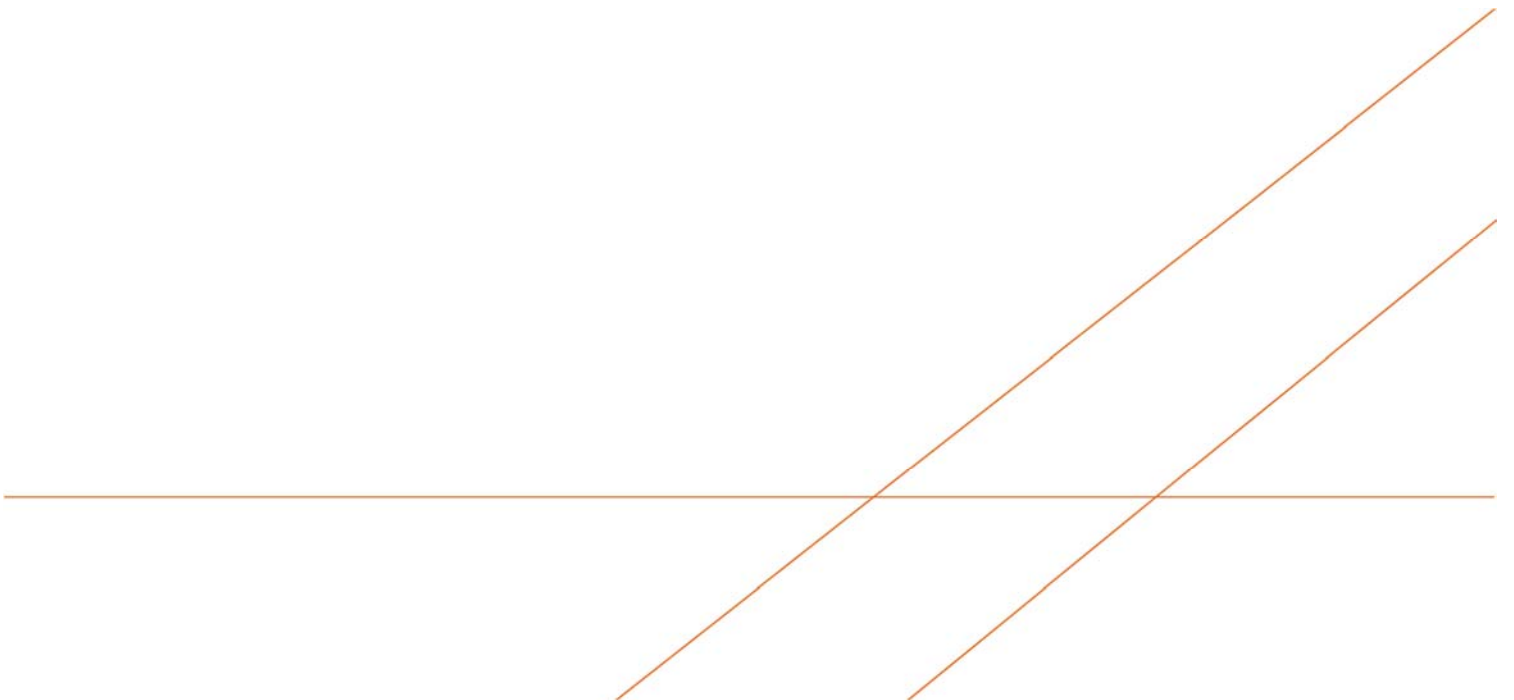
Appendix H: Pre-construction Environmental Works Method Statement



SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant
Development



MOOREBANK PRECINCT EAST - STAGE 2 PRE-CONSTRUCTION

ENVIRONMENTAL WORK METHOD STATEMENT (EWMS)

Pre-Construction (EWMS-001)

Scope

Introduction

This Environmental Work Method Statement (EWMS) is required to allow Works Period A (Pre-construction activities) for Stage 2 of the MPE Project to be undertaken (SSD 16_7628). In accordance with Mitigation Measure 0A of the MPE Stage 2 EIS (refer to Section 22 of the MPE Stage 2 EIS), construction for Stage 2 of the MPE Project includes all work in respect of the SSD other than:

- Survey; acquisitions; or building/ road dilapidation surveys; fencing; investigative drilling, excavation or salvage
- Clearing any native vegetation within the Proposal site, except for drainage infrastructure located outside of the MPE site to the east and south.
- Establishment of site compounds and construction facilities
- Installation of environmental mitigation measures
- Utilities adjustment and relocation that do not present a significant risk to the environment, as determined by the Environmental Representative
- Other activities determined by the Environmental Representative to have minimal environmental impact
- All works as described in Works period A in Section 4 of this EIS.

The above definition facilitates works to be undertaken prior to the commencement of construction, including those within Works period A. These works within Works period A are hereafter referred to as 'pre-construction works', and are defined within the revised Project Description, within Appendix J of the MPE Stage 2 RtS as follows:

- Establishment of site access points
- Importation of fill for site preparation activities
- Stockpiling of construction, C&D waste and fill materials within compounds
- Installation of site fencing
- Remediation and UXO, EO or EOW management, where required.
- Utilities relocation

The environmental risks, mitigation measures and residual environmental risks associated with these activities are included within the Work Method. These works are proposed to occur prior to approval of the Construction Environment Management Plan (CEMP) for the MPE Stage 2 Proposal.

Objectives of this EWMS

The objective of this EWMS is to identify specific control measures, checklists and permits to be implemented onsite for pre-construction works associated with Stage 2 of the MPE Project, and to manage identified risks resulting from site proposed activities to be undertaken:

- in accordance with Ministers Conditions of Approval (MCoAs) (SSD MP10_1093), Mitigation Measures and Revised Environmental Mitigation Measures (REMMs) relevant to pre-construction works for the Proposal, outlined within the MPE Stage 2 Response to Submissions Report
- in a manner that minimises the potential for environmental harm to occur.

Area/Location of Activity/Site

Activities will be undertaken within the MPE Stage 2 Construction footprint as identified in the Environmental Control Map (ECMs) within Appendix A of this EWMS.

Timing of works/duration

Pre-construction works for MPE Stage 2 is anticipated to occur over a 4-month period in the fourth quarter of 2017.

Permissible working Hours

In accordance with standard working hours defined by the NSW EPA's Interim Construction Noise Guideline (DECC, 2009) (ICNG), and extended working hours assessed within the MPE Stage 2 EIS (refer to Section 8 of the MPW Stage 2 EIS), permissible working hours for specific pre-construction works are outlined in Table 1.

Table 1: Permissible work hours for MPE Stage 2 Pre-construction works

Construction activity	Construction hours	
	Weekdays	Saturdays
Material Delivery	6am-10pm	7am-6pm
Direct placement	7am-10pm	8am -6pm
Stockpiling	7am-6pm	7am-6pm

Some additional construction works would be undertaken outside of standard daytime construction working hours, subject to consultation with the relevant authorities and in accordance with the Interim Construction Noise Guidelines (DECC, 2009), including:

- Any works which would not result in audible noise emissions at any nearby sensitive receptors
- The delivery of oversized plant and/or structures that police or other authorities determine require special arrangements to transport along public roads
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm
- Maintenance and repair of public infrastructure where disruption to essential services and/or consideration of worker safety do not allow work within standard construction hours
- Public infrastructure works that shorten the length of the project and are supported by noise-sensitive receivers
- Any other work as approved through the Construction Noise and Vibration Management Plan
- Construction works where it can be demonstrated and justified that these works are required to be undertaken outside of standard construction hours. These works are to be undertaken in accordance with an OOH Works Protocol.

Summary of Hold Points

Table 2: Summary of hold points for MPE Stage 2 Pre-construction

No.	Aspect	Process held and action required	Responsibility for assessment and management	Evidence Required to Release Hold Point	Responsibility for Approval
1	Commencement of works	Endorsement of this document is required prior to undertaking pre-construction works	Contractor	Signed EWMS (this document)	Principal's Environmental Manager
2	Out of Hours (OOH) Works	No OOH works (i.e. those undertaken outside of permissible working hours) are to be undertaken until OOH request form has been submitted, assessment has been completed by the environmental team and approved by the ER, in accordance with OOH Protocol	Contractor	Approved OOH Assessment (Construction Noise and Vibration Impact Statement)	Environmental Representative
3	Water	Prior to discharge of water, water quality to be tested and compliant with the below: <ul style="list-style-type: none"> pH 6.5-8.5 <50mg/l Total Suspended Solids No visible oil and grease 	Contractor	Approved Permit to discharge	Contractor's Environmental Advisor
4	Importation volume and materialisation of clean general fill	<p>Importation of fill to site during construction is to not exceed a total of 22,000 m³ of material per day. This limit is to be further reduced by an amount equivalent to any fill being imported to the MPW Stage 2 Proposal (SSD 7709) on the same day such that the combined importation of fill to the Amended Proposal site and MPW site does not exceed 22,000 m³ on any given day.</p> <p>Material characterisation of clean general fill will occur prior to being exported to the MPE Stage 2 site, i.e. by the producer of the material at source, in accordance with the NSW Waste Classification Guidelines and the Earthworks Specification for the MPE Site.</p> <p>In order to accept fill material onto site, material characterisation reports/certification showing that the material being supplied is VENM/ENM must be provided.</p> <p>Each truck entry will be visually checked and documented to confirm that only approved materials that are consistent with the environmental approvals are allowed to enter the site. Only fully tarped loads are to be accepted by the gatekeeper.</p> <p>Environmental Assurance of imported fill material will be conducted to confirm that the materials comply with the NSW EPA Waste Classification Guidelines and the Earthworks Specification for the MPW site. The frequency of assurance testing will be as nominated by the Environmental assessor/auditor.</p>	Contractor	Material characterisation certification	Contractor's Environmental Advisor

Change Management

Should there be a change in work scope, an additional environmental hazard identified that is not covered by this EWMS or a mitigation/ control measures is deemed to not be present, effective or efficient, then this EWMS is to be updated, reviewed, approved and reissued. The amendments must be risk-assessed to determine the impact the changes have had to the residual risk and whether or not the risk is acceptable. New or additional control measures may be necessary in order to bring the residual risk to an acceptable level. Table 3 below provides a system for documenting change and enabling modifications within this EWMS where required. The table can be modified within or external to the document to ensure consistency of responsibilities.

Table 3: RACI Table for change management

R	The person RESPONSIBLE for carrying out or delegating action	Client	Project Manager	Environmental Consultant	Environmental Representative	Principal Contractor Project Manager	Supervisor	Workers	Subcontractor's	Visitors
A	The person who has ultimate responsibility and will be held ACCOUNTABLE for the implementation of the action									
C	The person who must be CONSULTED during or prior to the action									
I	The person who must be INFORMED of the action and / or outcomes									
Action:										
	Prior to works commencing prepare an EWMS with identified control measures to mitigate risk of harm to the environment	A	R	R	C	R				
	Review and approve EWMS	A	R	R	C	R				
	Provide information, support and resources to implement this EWMS				C	A	R	R	R	I
	Implement the control measures listed in this EWMS				I	A	R	C	C	I
	Formally inform managers and supervisors if proposed control measures cannot be implemented for any reason		I	C	C	A	R	R	R	I
	Changes to the EWMS control measures are properly considered and documented, after consulting with relevant stakeholders		I	C	A	R	R	R	C	
	Assess the risk of harm when control measures are changed, removed or introduced		I		A	R	R	C	C	
	Formally approve the changes to the EWMS considering the residual risk and document the changes		I		A	R	R	C	C	
	Ensure that others are aware of changes to the EWMS control measures		I		C	A	R	C	I	I
	Comply with the requirements of the control measures in this EWMS					A	R	R	R	R
	Maintain records as required		I	R		A	R	R	R	

Risk Matrix

The following risk matrix (refer to Figure 1) has been used to assess the risk of the identified potential harm, including a description of harm to the health or safety of site personnel, the environment, reputational risk from media, community or government, which could adversely affect the progress of the project and financial harm (measured as a dollar value). It should be noted that harm to the health or safety of site personnel will be managed through the principal contractor's project health and safety management plan, and therefore to avoid duplication and confusion these elements have been purposely omitted from this document.

CONSEQUENCE TABLE					LIKELIHOOD TABLE		
Consequence	Health & Safety	Environment	Community / Media / Government	Loss / Damage	Likelihood	Description	Frequency at Location
LOW	First aid treatment	Limited damage to area or low significance	Public concern restricted to local complaints	\$0-\$5K	ALMOST CERTAIN	Expected to happen	Occurs once a week
MINOR	Medical Treatment	Minor short-term damage to environment / heritage	Minor, adverse local public or media attention and complaints	\$15K-\$150K	LIKELY	May easily happen	Occurs once a month
MODERATE	Classified Injury (LTI or restricted work case)	Moderate effects on environment / heritage	Attention from media and / or heightened concern from community	\$150K-\$1.5M	POSSIBLE	May happen	Occurs once every year
MAJOR	Fatality or severe permanent disability	Significant environmental / heritage damage	Significant adverse national media/public attention	\$1.5M-\$15M	UNLIKELY	May happen sometime	Occurrence once every 10 years
CRITICAL	Multiple fatalities / health effects to > 50 persons	Severe damage to environment / heritage with long-term effects	Serious public or media outcry	\$15M-\$150M	RARE	May happen in extreme circumstances	Occurs once every 100 years

Likelihood	Consequence				
	1 - Low	2 - Minor	3 - Moderate	4 - Major	5 - Critical
A - Almost certain	High (11)	High (16)	Extreme (20)	Extreme (23)	Extreme (25)
B - Likely	Moderate (7)	High (12)	High (17)	Extreme (21)	Extreme (24)
C - Possible	Low (4)	Moderate (8)	High (13)	Extreme (18)	Extreme (22)
D - Unlikely	Low (2)	Low (5)	Moderate (9)	High (14)	Extreme (19)
E - Rare	Low (1)	Low (3)	Moderate (6)	High (10)	High (15)

Tolerable	ALARP	ALARP	INTOLERABLE
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Figure 1: Consequence and Likelihood Tables and Risk Matrix

Risk Assessment Methodology

The purpose of the methodology applied is to assess the initial risk of harm by assigning a value to the likelihood of harm occurring in relation to the likely consequence in the absence of any controls, or assessed as untreated risk. The safeguards and control measures to mitigate the risk of harm are described. Residual risk is assessed after the proposed control measures have been implemented, based on the assumption that all the proposed control measures will be implemented in full. The persons responsible to implement the control measures and documentation, if required, are nominated in the final two columns.

Work Method

#	Sequence of Work Activities (How will the work be done?)	Potential Hazards (What harm can occur?)	Initial Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility	Documentation Required
Prior to Pre-construction works commencing							
1	Planning of works	Works commencing without approval	Moderate (9)	In order to undertake pre-construction works, this EWMS must be approved by the Principles Environmental Manager. Erosion and Sediment Control Plans (ESCP) and Environmental Control Measures for temporary stockpiling area are to be developed and appended to this EWMS progressively. Ensure relevant documentation has been prepared where required, e.g. clearing permit, permit to discharge.	Moderate (6)	Contractor's Environmental Manager	Erosion and Sediment Control Plans (ESCP) Clearing permit Permit to discharge
2	Provide training to all personnel and subcontractor's	Non-compliance with agreed work methods and procedures	High (17)	All personnel are to be inducted to site via a competency-based method to ensure employees (including contractor's and subcontractor's) are aware of their environmental and compliance obligations under the Statement of Commitments for the MPE Concept Approval. Induction is to include site-specific environmental requirements relevant to pre-construction works, including but not limited to: <ul style="list-style-type: none"> • Site access, exit points • Pre-construction site boundary • Speed limits • Haulage routes • Demarcation of environmentally sensitive areas and exclusion zones (including designation EEC areas, areas of known contamination) • Erosion and Sediment Controls • Dust suppression • Unexpected finds (including contamination, heritage and threatened species) • Incident and Emergency Response • Working hours and Out of Hours Protocol • Noise and Vibration Additional training will be undertaken where changes to site requirements and processes occur. This may be either through weekly tool-box talks or re-induction. Attendance of tool box talks and induction will be documented through sign-on sheets. No personnel would be able to undertake works until they have been briefed and signed-on to this EWMS.	Moderate (6)	Safety Manager (Contractor's Environmental Advisor)	Compliance with competency based assessment Tool box talks sign-on sheets (signed)
3	Establish environmental site controls for pre-construction activities	Erosion of disturbed surfaces and sedimentation of waterway	High (12)	Erosion and sediment controls, including temporary sediment basins and dust suppression measures, are to be installed to facilitate the importation and stockpiling of clean general fill prior to commencement of pre-construction works.	Low (5)	Site Supervisor	Erosion and Sediment Control Plans
4	Establish pre-construction works boundary	Disturbance of sensitive heritage items and land outside of MPE construction footprint	High (17)	Personnel are to be made familiar with the MPE Stage 2 construction boundary, including the designated areas for pre-construction stockpiling, site compounds, site access, ancillary facilities and internal haulage roads, as part of the induction process. All pre-construction works are to be limited to the MPE Stage 2 construction area, as outlined in the Environmental Control Map (refer to Appendix A of this EWMS). Prior to commencement of pre-construction works, existing security fencing would be repaired as required around the MPE site. High visibility fencing is to be established around surveyed Aboriginal heritage finds 2,3 and 4, and areas of existing ECC vegetation (refer to Environmental Control Map at Appendix A of this EWMS) within the MPE site, to demarcate these areas for workers onsite as "exclusion zones". Existing heritage buildings on the MPE site would be retained during pre-construction works (refer to Appendix A of this EWMS for locations of heritage buildings)	Moderate (6)	Contractor's Environmental Advisor	N/A

#	Sequence of Work Activities (How will the work be done?)	Potential Hazards (What harm can occur?)	Initial Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility	Documentation Required
5	Undertake Unexpected Unexploded Ordinance (UXO), Explosive Ordinance (EO) and Explosive Ordinance Waste (EOW) survey of MPE Stage 2 construction area, prior to pre-construction works commencement	Detonation of disturbed unidentified UXO or EO during construction activities, resulting in human injury or death. Release of hazardous chemicals, posing a risk to human health and the environment.	High (13)	Engage suitably qualified specialist to undertake UXO, EO and EOW survey, prior to breaking ground, to address the unexpected discovery of UXO, EO or EOW during construction.	Moderate (6)	Site Supervisor	Report containing sign off of UXO, EO and EOW presence on site.
Mobilisation to site							
6	Establish designated site access for pre-construction activities	Inability to access intended area of MPE site. Back spill of trucks on Moorebank Avenue resulting in traffic accident.	High (12)	Establish access to the MPE Stage 2 site via the existing DSNDC northern access, to the north of the Approved MPE Stage 1 site.	Low (5)	Site Supervisor	N/A
7	Driving to site, around site and offsite	Disturbance to native vegetation and unexposed areas	High (17)	Utilise pre-existing haul roads and site compound areas where possible Stay on pre-existing road infrastructure wherever possible. Maintain site speed limits and ensure speed limits are signposted. Park on hard stand areas where possible and/or within designated parking areas. Endangered Ecological Communities (EECs) are to be demarcated with highly visible fencing and considered "exclusion zones" during pre-construction works (refer to Environmental Control Map at Appendix A of this EWMS)	Moderate (6)	Site Supervisor	N/A
8		Generation of dust leading to complaints from stakeholders	High (12)	Stay on pre-existing road infrastructure wherever possible. Maintain site speed limits i.e. 20kmh and speed limits are signposted. Use of water carts to suppress dust on exposed and trafficable areas. Site compound to be screened to assist in capturing airborne particles and reduce potential entrainment of particles from areas susceptible to wind erosion. Truck loads to be covered.	Low (5)	Site Supervisor	N/A
9		Introduction or spread of weeds	High (12)	Prior to arrival to site, subcontractor to provide declaration that plant and equipment is free of mud and vegetation prior to arriving to site.	Low (5)	Site Supervisor	N/A
10	Mobilise plant/equipment/labour to site	Excessive traffic congestion leading to complaints and air quality impacts	High (12)	Parking areas to be nominated for plant, equipment and vehicles. No parking, queuing or idling of engines on public roads. All site staff vehicles must enter the construction site and park within designated parking areas. If access to public areas is required (e.g. to undertake surveys), then road rules must be obeyed and engines must be switched off. No access to/from site via Moorebank Avenue South i.e. to or from Cambridge Avenue unless heavy vehicles are travelling to/from Glenfield Waste Facility.	Low (5)	Site Supervisor (Environmental Representative)	Approved OOH works permit
11		Excessive noise leading to complaints	High (12)	Movement of vehicles to be undertaken during permitted working hours. In the event of any noise or vibration related complaint or adverse comment from the community, noise and ground vibration levels would be investigated as per the Environmental onsite monitoring system data.	Low (5)		
12	Preparing area within MPE Stage 2 site to receive fill for stockpiling and placement	Erosion of material Sedimentation of waterways	High (12)	Erosion and sediment control plan (ESCP) to be prepared in accordance with the Blue Book and approved by the Principal, then implemented prior to pre-construction works commencing. Stage activities and stabilise exposed areas and stockpiles wherever possible with vegetation, polymer, geofabric, rock-armouring, or plastic as soon as possible.	Low (3)	Site Supervisor	Erosion and Sediment Control Plans Approved permit to discharge

#	Sequence of Work Activities (How will the work be done?)	Potential Hazards (What harm can occur?)	Initial Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility	Documentation Required
				<p>Restrict vehicular movements to designated access tracks. Prepare any required access tracks on precleared areas with appropriate erosion and sediment controls.</p> <p>Prior to discharge of water, water quality to be tested and compliant with the below:</p> <ul style="list-style-type: none"> pH 6.5-8.5 <50mg/l Total Suspended Solids No visible oil and grease. <p>HOLD POINT: release of water to occur following approved Permit to discharge</p> <p>Wet weather controls are to be included within ESCP and implemented prior to 60% chance of greater than 10mm rainfall event. Undertake a pre-rainfall ERSED inspection of the entire site and fix or amend controls where required.</p> <p>Flood paths are to be maintained with diversion bunds created to divert flood waters around pre-construction works.</p>			
13		Increased air-borne dust particles, resulting in complaints;	Moderate (8)	<p>Vehicle movements to be limited to designated entry and exit points (refer to ECM in Appendix A), haulage routes and parking areas.</p> <p>Pre-established haulage roads to be re-used where practicable to avoid trucks creating new tracks</p> <p>Assess activities in periods of extreme weather, i.e. dry, hot, and windy conditions, to define application of any reactive control measures such as:</p> <ul style="list-style-type: none"> Use of water carts to suppress dust on exposed and trafficable areas. Temporary stand down of activities Application of temporary covers 	Low (3)	Site Supervisor	N/A
14		Uncovering and mismanagement of unexpected finds	High (13)	Unexpected finds to be managed in accordance with procedure outlined in flow chart attached to this EWMS in relation to heritage, threatened flora and fauna or contamination, including unexploded ordinances (refer to Figure 2 of this EWMS).	Moderate (6)	Site Supervisor	N/A
15		Excessive noise resulting in complaints	High (12)	<p>In the event of any noise or vibration related complaint or adverse comment from the community, noise and ground vibration levels would be investigated as per the Environmental onsite monitoring system data.</p> <p>HOLD POINT: All works undertaken outside of permissible working hours, with the exception of safety or emergency works, are to be undertaken in accordance with the OOH works protocol, provided in Appendix B of this EWMS.</p>	Low (5)	Contractor's Environmental Advisor	Approved OOH works permit
16	Minor vegetation clearance	<p>Erosion of materials</p> <p>Sedimentation of waterways</p> <p>Loss of sensitive (EEC) vegetation</p> <p>Uncovering and mismanagement of unexpected finds</p>	High (12)	<p>Erosion and sediment controls to be installed as per Erosion and Sediment Control Plan (ESCP) including the temporary stabilisation of cleared areas</p> <p>Endangered Ecological Communities (EECs) are to be demarcated with highly visible fencing and considered "exclusion zones" during pre-construction works (refer to Environmental Control Map at Appendix A of this EWMS)</p> <p>Unexpected finds to be managed in accordance with procedure outlined in flow chart attached to this EWMS in relation to heritage, threatened flora and fauna or contamination, including unexploded ordinances</p>	Low (5)		
Relocation of services							
17	Relocation of utilities services to selected warehouse buildings	<p>Erosion of materials</p> <p>Sedimentation associated with disturbed excavated land.</p> <p>Noise complaints from excavation equipment</p> <p>Increased dust emissions leading to complaints</p>	Moderate (8)	<p>Prepare and implement an ESCP prior to pre-construction works. All utilities relocation works are to be undertaken in accordance with the provisions of the ESCP for the site.</p> <p>Use of any noisy machinery to be undertaken during standard daytime working hours in accordance with the ICNG.</p> <p>All plant/equipment is to be fitted with appropriate silencers/mufflers and maintained in an efficient condition so as to reduce noise.</p> <p>All noise complaints to be reported to the site supervisor/environment advisor immediately, recorded and the issue resolved in accordance with the precinct wide Community Engagement Strategy.</p> <p>Noise-generating equipment that is not in use to be switched off.</p>	Low (3)	Site supervisor (Contractor's Environmental Advisor)	N/A

#	Sequence of Work Activities (How will the work be done?)	Potential Hazards (What harm can occur?)	Initial Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility	Documentation Required
		Unauthorised removal of native vegetation Unexpected heritage / contamination / UXO find		Endangered Ecological Communities (EECs) are to be demarcated with highly visible fencing and considered "exclusion zones" during pre-construction works (refer to Environmental Control Map at Appendix A of this EWMS) All unexpected finds would be managed in accordance with the unexpected finds protocol (refer to Appendix C of this EWMS)			
Importation, placement and stockpiling of clean general fill							
18	Materials characterization of imported clean general fill	Importation of unsuitable or contaminated material, resulting in contamination of nearby ecosystems and watercourses	High (13)	HOLD POINT: Material characterisation will occur prior to being exported to the MPE Stage 2 site, i.e. by the producer of the material at source, in accordance with the NSW Waste Classification Guidelines and the Earthworks Specification for the MPE Site. In order to accept fill material onto site, the following will be undertaken: <ul style="list-style-type: none"> Material characterisation reports/certification showing that the material being supplied is VENM/ENM must be provided. Each truck entry will be visually checked and documented to confirm that only approved materials that are consistent with the environmental approvals are allowed to enter the site. Only fully tarped loads are to be accepted by the gatekeeper. Environmental Assurance of imported fill material will be conducted to confirm that the materials comply with the NSW EPA Waste Classification Guidelines and the Earthworks Specification for the MPW site. The frequency of assurance testing will be as nominated by the Environmental assessor/auditor.	Moderate (6)	Site supervisor (Contractor's Environmental Advisor)	N/A
19	Topsoil and subsoil treatment	Potential uncovering and mismanagement of contaminated materials and heritage items Loss of native biodiversity	High (13)	Unexpected contamination/heritage finds to be managed in accordance with unexpected finds flow chart appended to this EWMS (refer to Figure 2). Topsoil is to be stripped to capture native seeds stored in the uppermost portion of the soil profile for use in future landscaping. Subsoils will be tested in-situ to enable characterization. Immediate management and disposal, where possible and appropriate, will be undertaken to avoid stockpiling and minimise double-handling. For relevant materials that are not able to be disposed of immediately, following testing, materials will be segregated into stockpiles based on the characterisation, e.g. VENM, ENM, GSW etc., before disposal. Blending may be undertaken should this pose no environmental health risk.	Moderate (6)	Site Supervisor	N/A
20	Erosion and Sediment Control for stockpiles	Sedimentation of nearby watercourses Erosion of stockpile site and loss of material; Increased dust emissions leading to complaints	High (12)	Stockpile water management will vary depending upon the material composition of the stockpile and its likely residence time. Prior to the commencement of stockpiling activities on the site, the construction contractor would need to produce an ESCP, in accordance with Blue Book guidelines. Stabilisation requirements will be dependent on the type of material stockpiled. The ESCP will outline standard controls to be installed. Additional controls may include, but not be limited to: <ul style="list-style-type: none"> Shaping of the stockpile Additional catch drains and dams Temporary stabilisation of stockpiles and/ or the installation of batter chutes to convey water from the top of the stockpile to the toe drains The catchment area of haul roads for surface water runoff will be approximately 25-30m lengths, facilitated by the provision of spine drains which would convey water from the haul road to toe drains at the base of the stockpile, and then to sediment basins.	Low (3)	Site Supervisor	Erosion and Sediment Control Plan
General							
21	Waste management including litter and tracking of waste quantities	Incorrect disposal leading to contaminated waste streams / illegal dumping resulting in potential human and environmental health risks.	High (17)	Litter waste is to be disposed of onsite in general waste and recycling bins provided at appropriate areas around the site. Removal of asbestos found unexpectedly onsite is to be undertaken in accordance with the Asbestos in Soils Management Plan, to be prepared and attached to this EWMS. Removal of asbestos is to be undertaken in accordance with the Model Code of Practice - <i>How to Safely Remove Asbestos</i> . All other wastes are to be disposed of in accordance with the NSW EPA <i>waste classification guidelines</i> .	High (10)	Site Supervisor	N/A

#	Sequence of Work Activities (How will the work be done?)	Potential Hazards (What harm can occur?)	Initial Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility	Documentation Required
22	General use and maintenance of plant and equipment and storage of hazardous materials	Pollution of ground / waterways due to spill	High (17)	<p>Any refuelling to be undertaken either offsite or at designated refueling areas, that are independently bunded and lined with a self-contained sump. Refuelling is to occur in areas located a minimum of 20 metres from drainage lines or waterways, as defined by the ESCPs prepared for the site, with mobile spill kits readily available. Spill kits are to contain, at a minimum, the following:</p> <ul style="list-style-type: none"> packaged and loose absorb material absorb mats and rolls, spare bags for bagging contaminant soils, and a Spill Report Form <p>The volume/quantity of spill reduction components within each spill kit would be appropriate to the volume of material potentially at risk of spillage.</p> <p>Refuelling is not to be left unattended at any time.</p> <p>Plant and equipment to be maintained in accordance with the plant and equipment manufacturer guidelines. All plant and equipment to be checked at the end of and prior to, each shift, as part of works pre-start including hydraulic hoses and connections.</p> <p>Maintenance to be undertaken in designated maintenance areas where possible (i.e. construction compound). If plant or equipment cannot be moved, ensure that mobile spill kits are readily available during maintenance.</p> <p>Do not discharge hydraulic hoses, oils or fuels onto ground at any time.</p> <p>Generators to have secondary containment placed on hard stand with mobile spill kits (as specified) readily available. Secondary containment is to have a minimum of 110% capacity of the total quantum of fuel storage and be sufficient width and height to contain pin-hole leaks.</p> <p>Chemicals to be stored off the ground on a stable and protected platform (ie within the tray of a ute) to avoid being inadvertently driven over and reduce manual handling risks, and removed to a bunded chemical storage container at the end of each day. Relevant Material Safety Data Sheets (MSDS) to be kept in proximate location to any chemicals used on site.</p> <p>Mobile spill kits to be readily available at each work zone. Contents of individual spill kit should be appropriate to the scale of potential spill risk.</p> <p>Pollution incidents to be managed in line with the Pollution Incident Response Management Plan (PIRMP), to be prepared prior to the commencement of pre-construction.</p>	High (10)	Site Supervisor	N/A
23		Potential bushfire ignition due to hot works undertaken during construction	High (17)	<p>No hot works are to be undertaken during Total Fire Ban days according to the NSW Rural Fire Service</p> <p>During the Bush Fire Danger Period between 1 October and 31 March (as nominated by the NSW Rural Fire Service), any hot works to be undertaken within areas of high bushfire hazard rating (refer to MPE Stage 2 EIS, Appendix U – Bushfire Assessment, Section 3.5) would require a hot works permit from the Safety Manager</p> <p>Heat generating plant or equipment must not be left idling within vegetated areas, and are to be stored in either an off-ground or cleared environment.</p>	High (10)	Site Supervisor	Approved hot works permit
23		Noise causing annoyance to residents.	Moderate (8)	<p>HOLD POINT: All works undertaken outside of permissible working hours, with the exception of safety or emergency works, are to be undertaken in accordance with the OOH works protocol, provided in Appendix B of this EWMS.</p> <p>All plant/equipment is to be fitted with appropriate silencers/mufflers and maintained in an efficient condition so as to reduce noise.</p> <p>All noise complaints to be reported to the site supervisor/environment advisor immediately, recorded and the issue resolved in accordance with the precinct wide Community Engagement Strategy.</p> <p>Noise-generating equipment that is not in use to be switched off.</p> <p>Ingress and egress to designated area for placement of fill is to be established in such a way as to minimise reversing of trucks on the stockpiling site.</p>	Low (3)	Site Supervisor (Environmental Representative)	Approved OOH works permit

Emergency Phone Numbers

The phone numbers are listed in order of responsibility to manage an environmental emergency

Name	Title	Phone Number
	Site Supervisor	
	Project Manager	
	Contractor's Environment Manager	
	Client Representative	
	Principals Environment Advisor	
	Safety Manager	
SIMTA 24hr information line	Community contact	1800 986 465

Consultant Contact Details

Name	Title	Phone Number
	Environmental Representative	
	Project Ecologist (Biosis)	
	Heritage Specialist (Biosis)	

External Contact Details

Organisation	Phone Number	Address
Emergency		
Fire	000	
Ambulance	000	
Police	000	
Liverpool Police Station	02 9765 9499	148 George Street, Liverpool, NSW 2170
State Emergency Service – Liverpool	1300 362 170	Pearce St, Liverpool, NSW 2170
Local Government		
Liverpool City Council	1300 36 2170	33 Moore St, Liverpool, NSW 2170
Campbelltown City Council	4645 4000	91 Queen St, Campbelltown NSW 2560
State and Federal Government		
Commonwealth Department of the Environment	6274 1111	John Gorton Building, King Edward Terrace, Parkes ACT 2600
Department of Planning and Environment	(02) 9228 6111	320 Pitt St, Sydney NSW 2000
Office of Environment and Heritage	(02) 9995 5000	59/61 Goulburn St, Haymarket, NSW 2000
Environmental Protection Authority – Pollution Hotline	131 500	N/A
Transport for NSW	8202 2200	18 Lee Street, Chippendale NSW 2008
Department of Primary Industries (Fisheries and Office of Water)	6391 3100	161 Kite St, Orange NSW 2800

Organisation	Phone Number	Address
NSW Rural Fire Service	8741 5555	Gate 4, Thompson Drive Terrey Hills, NSW 2084
NSW Health	9391 9000	73 Miller Street North Sydney NSW 2060
NSW Ports	1300 922 524	Gate B103, Level 2, Penrhyn Road, Port Botany NSW 2036
Animal Care		
WIRES	1300 094 737	
Liverpool Veterinary Hospital	02 9602 6015	329 Hume Highway, Liverpool, NSW 2170

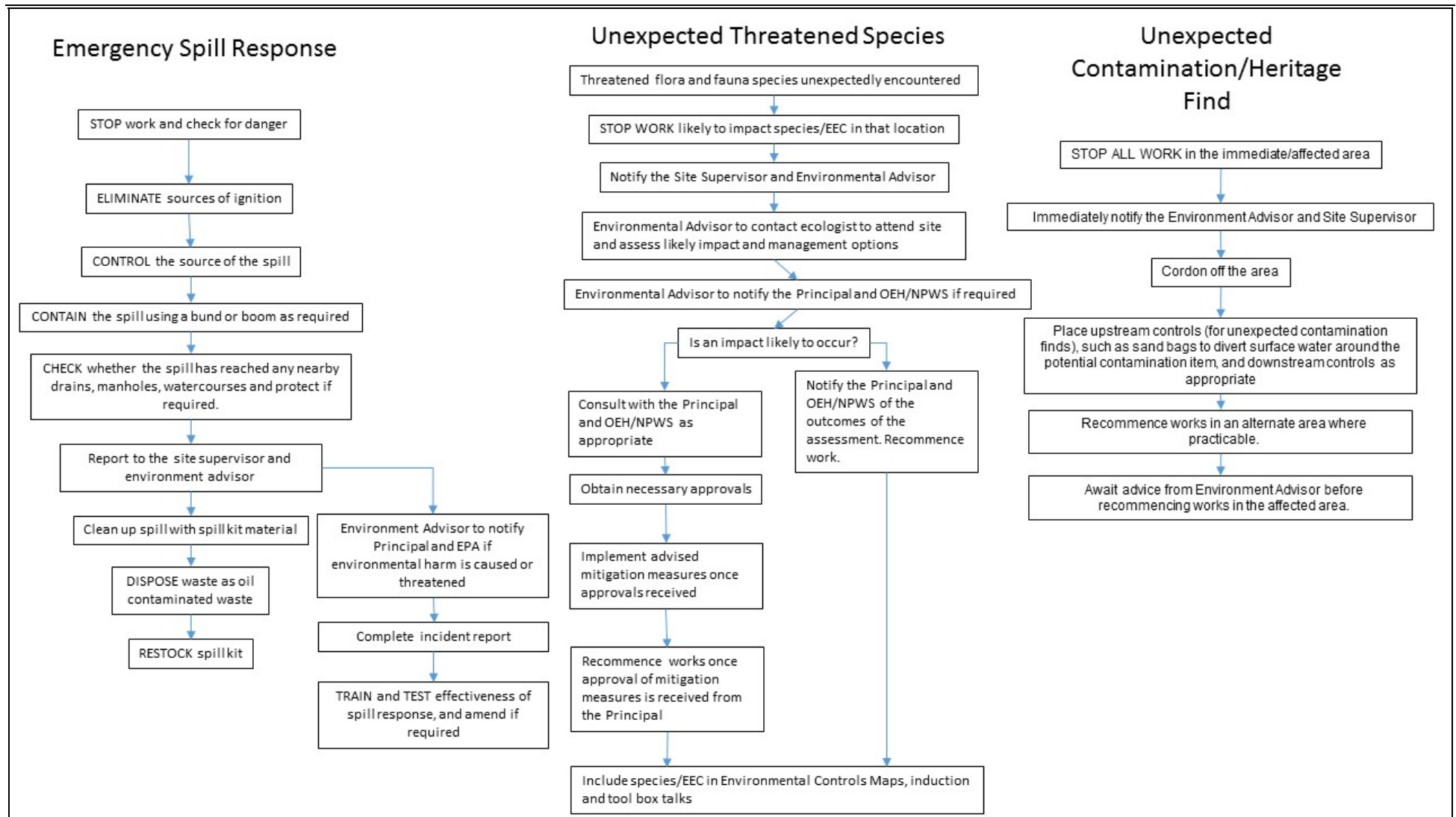


Figure 2: Unexpected Finds Flowchart

Document Control

Author:	Ben Fethers Environmental Consultant	Arcadis	Signature:	Date: 12/04/17
Reviewer/ Approver:	Westley Owers Principal Environmental Planner	Arcadis	Signature:	Date: 12/04/17

Environmental Representative's Review

I have examined the Environmental Work Method Statement against the Minister Conditions of Approval (SSD 7709) and consider the document to satisfy the Minister's approval and consider that, subject to the implementation of all the environmental requirements of the project, is likely to result in minimal environmental impacts.

Signed

Name

Date

Company

Appendix A: Environmental Control Map

MPE Stage 2 EWMS



LEGEND

- Amended construction area
- MPE Stage 1 operational area
- ▲ Site access
- MPE Stage 2 construction compound
- Watercourse
- Isolated Aboriginal find
- Pre-1958, type unknown
- WWII GM (Quarter Master's) store
- WWII carpentry workshop
- WWII composite timber and steel store building
- WWII timber post and beam store building
- Modern building, c. 1990s
- EEC (Castlereagh Scribbly Gum Woodland)

ARCADIS AUSTRALIA PACIFIC PTY LTD
 ABN 76 104 485 299
 Level 5, 141 Walker St | North Sydney NSW 2060
 P: +61 (0) 2 8907 9000 | F: +61 (0) 2 8907 9001
 Coordinate System: GDA 1994 MGA Zone 56
 Date issued: June 23, 2017
 Aerial imagery supplied by heatmap (May, 2017)

1:10,000 at A4
ARCADIS



MPE Stage 2 Pre-construction Environmental Control

Date: 23/06/2017 Path: H:\C:\Users\NS\PS\01\pcc\AA2017\EWMS_A_Current\B_Maps\MPE2_08_RIS\SIMTA_MPE2\08_RIS\Pre-construction Environmental Control_A4P_11.mxd
 Created by: RM
 QA by: RE

Appendix B: Out of Hours Protocol for Pre-construction Works

Introduction

This Out-of-Hours Work (OOHW) Protocol presents the assessment, management and approval process for works required outside permissible working hours for pre-construction stockpiling works (Works period A), for the MPE Stage 2 Proposal.

This Out of Hours Protocol has been prepared to detail:

- The assessment of out-of-hours works against the relevant noise and vibration criteria
- Mitigation measures for any residual impacts, including extents of at-receiver treatments; and
- Proposed notification arrangements

Permissible Working Hours for Pre-construction Works

Permissible working Hours

Construction works for pre-construction for Stage 2 of the MPE Project would generally be undertaken during standard daytime construction working hours, being:

- 7 am to 6 pm Monday to Friday
- 8 am to 1 pm Saturday
- No works on Sunday or Public Holidays.

Bulk earthworks activities during peak construction periods may be undertaken outside of standard construction hours, but not during the night-time (i.e. 10pm to 7am).

The proposed construction hours for activities associated with bulk earthworks during pre-construction are summarised in Table 4.

Table 4: Construction hours for activities associated with bulk earthworks and the Moorebank Avenue upgrade

Construction activity	Construction hours	
	Weekdays	Saturdays
Material Delivery	6am-10pm	7am-6pm
Direct placement	7am-10pm	8am -6pm
Stockpiling	7am-6pm	7am-6pm
Crushing	7am-6pm	8am-1pm

Out of Hours Works

Some additional construction works would be undertaken outside of standard daytime construction working hours, subject to consultation with the relevant authorities and in accordance with the Interim Construction Noise Guidelines (DECC, 2009), including:

- Any works which would not result in audible noise emissions at any nearby sensitive receptors.
- The delivery of oversized plant and/or structures that police or other authorities determine require special arrangements to transport along public roads
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm
- Maintenance and repair of public infrastructure where disruption to essential services and/or consideration of worker safety do not allow work within standard construction hours.
- Public infrastructure works that shorten the length of the project and are supported by noise-sensitive receivers.
- Any other work as approved through the Construction Noise and Vibration Management Plan.
- Construction works where it can be demonstrated and justified that these works are required to be undertaken outside of standard construction hours.

This OOHW Protocol is prepared to facilitate the justification, assessment, approval and community notification procedures for works proposed outside of permissible working hours as defined in Table 3. Figure 3 below provides an illustrated overview of out of hours works approval under a OOHW Protocol.

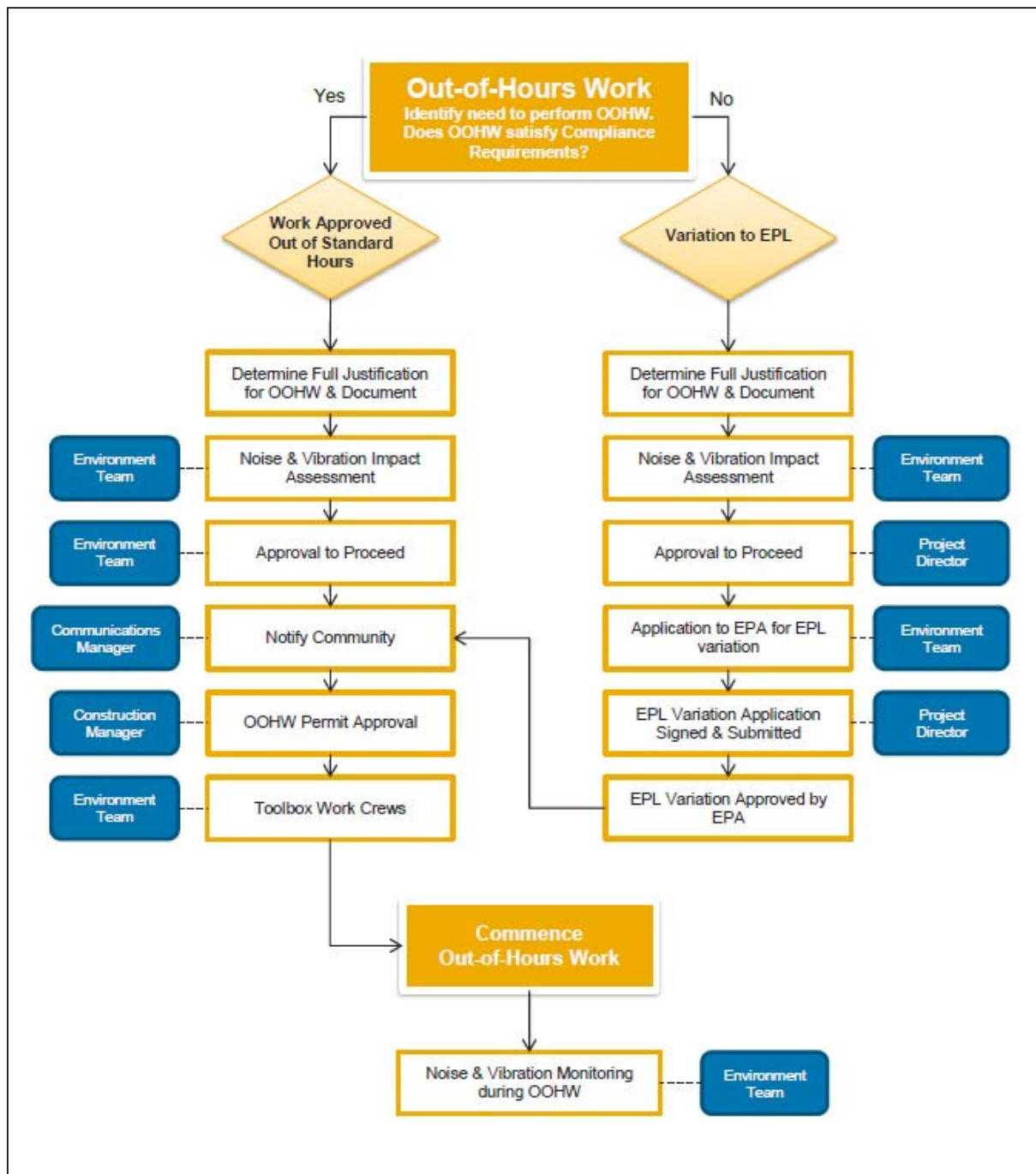


Figure 3: Out of Hours Protocol Flow chart

Justification for OOHW

A key feature of this Protocol is considering the need and justification for any OOHW. This is the first step of the OOHW Protocol and will occur prior to any impacts being assessed. Where OOHW are needed for the safe and efficient implementation of the MPW Stage 2 Proposal, or due to exceptional circumstances, the level of impacts of OOHW will be considered. All proposed OOHW require a full justification as to why the works are required to be undertaken outside standard construction hours. Where possible, OOHW will be avoided and scheduled to occur during the approved hours for construction.

OOHW approval responsibility is based upon the outcomes and level of impact determined through the impact assessment, as outlined in the next section.

Noise and Vibration Impact Assessment

A Construction Noise and Vibration Impact Statement (CNVIS) will be prepared to identify risk of the proposed OOH activity and whether the application is required to be approved by the Contractor's Environmental Manager, the ER, or by the Secretary.

As mentioned above, if no alternate options are available / viable, the activity is to be assessed for noise and vibration impacts on surrounding receptors via a Construction Noise and Vibration Impact Statement (CNVIS) prepared by suitably qualified personnel, taking into account all proposed noise and vibration mitigation measures. The CNVIS will:

- identify the closest and/or potentially most affected receptors situated within the potential area of influence of the works;
- predict noise levels based on the NVIA scenarios or via modelling (or spreadsheet calculation) for new scenarios;
- compare the predicted values to the relevant noise management levels (NMLs) established within the NVIA
- provide a list of necessary mitigation and management measures that will be implemented.

Predictions applied in the CNVIS are to account for:

- Potentially annoying (tonal, low frequency content or impulsive) work activities by applying a 5 dB(A) penalty to the values for annoying works, and;
- All potential noise mitigation and management measures by applying a deduction to the values assessed above for the noise reducing measures that will be implemented, and;
- An assessment of potential sleep disturbance impacts, if anticipated.

General activities such as security operations and general site maintenance that are not audible at receptors will not require a CNVIS. OOHW will not commence until approval is granted by the relevant authority.

Low impact Works

If the CNVIS shows that construction works will not generate $LA_{eq, 15minute}$ noise levels more than 5 dB above the rating background level (RBL) at any residence, and/or more than the noise management levels specified in Table 3 of the ICNG as applicable to other sensitive land uses (in accordance with the ICNG and the additional requirements of this CNVMP), the activity will be considered low environmental risk and referred to the Environmental Manager for review and approval.

Medium Impact Works

If the CNVIS shows that construction works will generate $LA_{eq, 15minute}$ noise levels more than 5 dB above the RBL at any residence, and/or more than the noise management levels specified in Table 3 of the ICNG, as applicable to other sensitive land uses (in accordance with the ICNG and the additional requirements of this CNVMP), the activity will be considered a medium environmental risk and referred to ER for review and approval.

In referring the approval to ER, the contractor will:

- Demonstrate the requirement for activities to be conducted outside the approved standard construction hours
- Summarise the findings of the CNVIS assessment;
- Detail the mitigation measures to be implemented for the specific works, including specific consideration of the Additional Mitigation Measures Matrix (AMMM) process; and
- Detail the actions and notifications to be issued for the specific works.

Where the activity, likely impacts and management measures are considered acceptable by ER, works will proceed following ER and Environmental Manager approval.

High Impact Works

Where the CNVIS and consultation with ER identifies that that construction works will generate significant noise levels exceeding the Additional Mitigation Measures Matrix defined in the CNS (refer to section below), these applications will be considered a high environmental risk and referred to the Secretary for endorsement and DPE approval. In seeking approval from the Secretary, the contractor will:

- Demonstrate the requirement for activities to be conducted outside the approved standard construction hours
- Summarise the findings of the CNVIS assessment;
- Detail the mitigation measures to be implemented for the specific works, including specific consideration of the AMMM process; and
- Detail the actions and notifications to be issued for the specific works.
- Up to 3 weeks (15 business days) will be allowed for DPE to review the OOHW application.

Additional Mitigation Measures to address OOHW

The implementation of the standard mitigation measures, together with community consultation should significantly reduce the noise and vibration impacts on nearby sensitive receptors. Notwithstanding this, in the event of noise exceedances associated with required OOHW, additional mitigation measures aimed to promote pro-active engagement with affected sensitive receivers, adopted from the TfNSW document Construction Noise Strategy (CNS) and their application, would be applied.

The CNS assessment and mitigation approach has been adopted, in conjunction with the requirements of the ICNG, for OOHW subject to CNVIS under this Protocol. Additional Mitigation Measures are identified in Table 5, and their application, with regard to Out of Hours periods and level of intrusiveness, is outlined in the Additional Mitigation Measures Matrix (AMMM) presented as Table 6.

Table 5: Additional Mitigation Measures (Source: CNS, TfNSW 2013)

Measure	Abbreviation
Alternative Accommodation	AA
Monitoring	M
Individual Briefings	IB
Letter Box Drops	LB
Project-specific Respite Offer	RO
Phone Calls	PC
Specific Notifications	SN

Table 6: Additional Mitigation Measures Matrix (Source: CNS, TfNSW 2013)

Time Period	Mitigation Measures				
	L _{Aeq, 15minute} Noise Level above Background (RBL) in dB(A)				
	0 to 10	11 to 20	21 to 30	>30	
	Noticeable	Clearly Audible	Moderately Intrusive	Highly Intrusive	
Standard	Mon-Fri (7am-6pm)				
	Sat (8am-1pm)	-	-	LB, M	LB, M
	Sun/Pub Hol (Nil)				
OOHW Period 1	Mon-Fri (6pm-10pm)				
	Sat (7am-8am & 1pm-10pm)	-	LB	M, LB	M, IB, LB, RO, PC, SN
	Sun/Pub Hol (8am-6pm)				
OOHW Period 2	Mon-Fri (10pm-7am)				
	Sat (10pm-8am)	LB	M, LB	M, IB, LB, PC, SN	AA, M, IB, LB, PC, SN
	Sun/Pub Hol (6pm-7am)				

Source: CNS

Approval to Proceed

OOHW will not commence until approval is granted by the ER. Approval of OOHW through this protocol is to be dependent on the CNVIS prepared for proposed OOHW.

Community Notification

In accordance with established practice, the relevant Council, local residents and other affected stakeholders and sensitive receptors would be informed of the timing and duration of the OOHW (approved under this Protocol) at least 48 hours prior to the commencement of the works.

Enquiries, complaints and incident management will be undertaken as per the Project CEMP and the Community Information and Awareness Strategy, including that related to noise and vibration. Complaints arising from Project works will be treated sensitively and in a manner that recognises the potential for noise and vibration to cause environmental and health impacts. Special consideration will be given to complaints related to noise and vibration during highly intrusive works (particularly those activities when increased impacts are predicted) in order that additional mitigation can be implemented in a timely manner. All reasonable and feasible mitigation measures will be implemented in both standard approved hours and OOHW for the duration of the works subject to this Protocol.

Monitoring

Attended noise monitoring will be undertaken where deemed necessary under the requirements of the AMMM. Monitoring will provide comparison the applicable CNVIS to ensure noise levels comply with those predicted in the CNVIS. Where noise (or vibration) levels are observed to continually exceed those outlined in the activity specific CNVIS, works shall stop and alternate methods and mitigation measures investigated and implemented.

Noise monitoring will be undertaken by suitably qualified personnel, including professionally trained and experienced environmental staff and noise consultants where deemed necessary.