

General air quality impacts	An Air Quality Management Plan will be prepared to detail air quality control measures and procedures to be undertaken during construction, including: – air quality and dust management objectives consistent with DECCW guidelines – emissions from diesel construction plant – potential sources and impacts of dust, identifying all dust-sensitive receptors – mitigation measures to minimise dust impacts to sensitive receivers and to the environment – a monitoring program to assess compliance with the identified objectives – contingency plans to be implemented in the event of non-compliances and/or complaints about dust.		Compliant and Complete	The Stage 1 Construction Air Quality Management Sub Plan was prepared prior to Stage 1 construction as part of the CEMP (Appendix B6) and approved in November 2015. The CAQMP is a construction document is not required during the operational phase of the Project.
	The Air Quality Management Plan would include safeguards and management measures including, but not limited to: – minimising areas of exposed surfaces through construction site planning and programming. – implementation of control measures to minimise dust emissions from stockpile sites and other areas. – covering of truck loads when transporting materials to and from the site. – avoiding/modifying construction activities during high wind periods. – progressive rehabilitation of completed sections of works – regular review of the efficacy of dust suppression measures and revision of these as required.		Compliant and Complete	
Impacts on local air quality during construction	Areas of exposed surfaces are to be minimised through construction site planning and programming, to reduce the area of potential construction dust emission sources.		Compliant and Complete	The site has been progressively rehabilitated and stabilised.
	Control measures, such as compaction stabilisation or covering would be implemented in order to minimise dust from stockpile sites.		Compliant and Complete	The site has been progressively rehabilitated and stabilised.
	Dust suppression measures, such as the use of water carts or soil binders, would be used in any unsealed surfaces and other exposed areas.		Compliant and Complete	The site has been progressively rehabilitated and stabilised. Water carts and soil binders have been utilised.
	All trucks would be covered when transporting materials to and from the site.		Compliant and Complete	All trucks transporting project materials are covered.
	Construction activities that would generate dust would be avoided or modified during high wind periods.		Compliant and Complete	The site has been progressively rehabilitated and stabilised.
	Work activities would be reviewed if the dust suppression measures are not adequately restricting dust generation.		Compliant and Complete	The site has been progressively rehabilitated and stabilised.
	Rehabilitation of completed sections would be progressively undertaken.		Compliant and Complete	The site has been progressively rehabilitated and stabilised.
Exhaust emissions	Construction plant and equipment would be maintained in good working condition in order to limit impacts on air quality.		Compliant and Complete	Noted. This is a construction condition no permanent construction equipment will be used on site during construction.
	Where practicable, vehicles will be fitted with pollution reduction devices.		Compliant and Complete	
Revised Safeguards and Management Measures Geology, Soils and Contamination				
Concept Proposal				
Managing Impacts on soil in general	A Soil and Water Management Plan will be prepared for the each construction stage of the Concept Proposal in accordance with the principles and guidelines set out Soils and Construction – Managing Urban Stormwater series, comprising Volume 1 (Landcom, 2004) and Volume 2D – Main Roads (DECC, 2008).	Compliant and On-going	Compliant and Complete	Stage 1 construction Soil and Water Quality Sub Plan approved by DP&E and issued for construction in November 2015. Stage 2 Construction Soil and Water Quality Sub Plan was approved in August 2016. The CSWMP is a construction document is not required during the operational phase of the Project.

Warringah Road 'slot cut face may be susceptible to erosion and slope stability during construction	As part of future stage(s) design development, subsoil drainage would be incorporated into the 'slot' to ensure the ongoing stabilisation of face. The extent of the drainage network would be finalised during detailed design.	Compliant and On-going	Compliant and Complete	The slot design is being finalised and incorporated in to the Stage 2 Water Management Plan. Construction of Stage 2 is continuing.
Impact to contaminated land	Preparation of a Phase 2 assessment would be required prior to construction of the Stage 2 Project. Outcomes and management measures identified in the Phase 2 assessment would be incorporated into the CEMP for the Stage 2 Project.	Compliant and Complete	Compliant and Complete	Completed as part of Stage 2 EIS. Outcomes of Phase 2 assessment incorporated into Stage 2 revised SWMP submitted for DP&E approval. Phase 2 Contamination Assessment: Northern Beaches Hospital - Stage 2 Network Enhancement Works, URS, June 2015 - captured in Sections 5.1.5 & 6.6 & Table 5-2, Table 7-2 SW65, SW66, SW67, SW68, SW69.
Stage 1 Project				
Managing Impacts on soil in general	A Soil and Water Management Plan will be prepared for each construction stage of the Concept Proposal in accordance with the principles and guidelines set out Soils and Construction – Managing Urban Stormwater series, comprising Volume 1 (Landcom, 2004) and Volume 2D – Main Roads (DECC, 2008), including: – Consideration of soil erodibility – Management strategies to be used to minimise surface and groundwater impacts, including identification of water treatment measures, discharge points and erosion and sediment control measures – Sedimentation basin construction and management – Measures to monitor and manage spoil, fill and materials stockpile sites – Dewatering procedure – Water quality monitoring and checklists		Compliant and Complete	Stage 1 Construction Soil and Water Quality Sub Plan approved by DP&E and issued for construction in November 2015. The CSWMP is a construction document is not required during the operational phase of the Project.
Disturbance of Contaminated or potentially contaminated land	A Contaminated Land Management Plan will be prepared in accordance with the Contaminated Land Management Act 1997, relevant EPA Guidelines and Roads and Maritime Guideline for Management of Contamination (RMS 2013) and will include at a minimum: – Contaminated land legislation and guidelines including any relevant licences and approvals to be obtained – Identification of locations of known or potential contamination and preparation of a map showing these locations – Identification of rehabilitation requirements, classification, and transport and disposal requirements of any contaminated land within the construction footprint – Contamination management measures including waste classification and reuse procedures and unexpected finds procedures for unanticipated discovery of contaminated material during construction.		Compliant and Complete	RSMM incorporated into Stage 1 SWMP approved by DP&E (refer to Table 7-1 SW31, SW32 of SWMP), and the construction Waste and Energy Management Sub Plan (Appendix B7 of the CEMP). Contaminated areas of concern (AECs) were further investigated and defined as part of the Stage 2 EIS Phase 2 Contamination Site Assessment, defining AECs within Stage 2 project area. These areas will be managed as part of Stage 2 construction. Contaminated Land Plan has been completed.
Inappropriate disposal of material that cannot be reused on the Project	Excavated material that is not suitable for on-site reuse or recycling will be transported to a site that may legally accept that material for reuse or disposal.		Compliant and Complete	Where material was not able to be reused or recycled on site it was send to an appropriate facility. No waste will be left on site after the completion of construction.
	Excavated material leaving the site will be classified in accordance with the Waste Classification Guidelines so that correct resource recovery and or off-site disposal occur.		Compliant and Complete	
Construction Accidental spills	An emergency spill response procedure will be prepared to minimise the impact of spills including details on the requirements for managing, cleaning up and reporting.		Compliant and Complete	RSMM incorporated into Stage 1 & 2 SWQMP approved by DP&E (refer to Table 7-1 SWMM7). These measures are in place for Stage 1 works.

	Spill kits and adequate quantities of suitable material to counteract spillage would be kept readily available.		Compliant and Complete	Environmental Incident & Spill Response Protocol Doc # NBHRDC-EN-SWMP-APPA_PLN forms Appendix A of the SWQMP.
	Any potential hazardous or contaminant materials (for example, fuels, curing compounds, and oils) would not be stored within 50 metres of any waterways or drainage lines, flood prone areas, or on slopes steeper than 1:10. Storage areas would be impervious and adequately bunded.		Compliant and Complete	During construction all requirements for the the storage and management of materials has been implemented. During operation no hazardous materials will be stored in the Stage 1 Project area. Management of spills will be managed as per the Norlehrn Beaches Council and Roads and Maritime Services management procedures.
	The refuelling of plant and maintenance of machinery would be undertaken in impervious bunded areas. Refuelling would be attended at all times.		Compliant and Complete	
	Vehicle wash-downs and/or concrete truck washouts would be undertaken within a designated bunded area of an impervious surface or undertaken off-site.		Compliant and Complete	
	Machinery would be checked daily to ensure that there are no oil, fuel, or other liquid leaks.		Compliant and Complete	
Operation Accidental Spills	Detailed design would consider reasonable and feasible measures to optimise pollution mitigation.		Compliant and Complete	

Revised Safeguards and Management Measures Hydrology, Water Quality and Flooding

Concept Proposal

Operational Impacts on Water Quality	The ultimate operational water quality treatment strategy for the Concept Proposal (covering both stages) would be developed/ confirmed during the respective detailed design stages and would address the matters noted by the EPA in its submission (Issue 10).	Compliant and Complete	Compliant and Complete	EPA's submission has been considered as part of detailed design and addressed in the Water Management Plans developed for Stages 1 and 2.
Impact on Council Stormwater Infrastructure	Council would be consulted with regard to matters related to its stormwater drainage infrastructure.	Compliant and Complete	Compliant and Complete	Northern Beaches Council has been consulted during detailed design of the Project. Outcomes from consultation have been considered as part of the final design.
	Health Infrastructure would be consulted during detailed design with regard to allowing for runoff from the developed hospital site.	Compliant and Complete	Compliant and Complete	Health Infrastructure has been consulted during detailed design to ensure consistency in the interface between the two Projects
Sedimentation of surrounding watercourses and drainage lines	A Soil and Water Management Plan will be prepared for each construction stage of the Concept Proposal in accordance with the principles and guidelines set out Soils and Construction – Managing Urban Stormwater series, comprising Volume 1 (Landcom, 2004) and Volume 2D – Main Roads (DECC, 2008). This would also consider and address the matters noted by the EPA in its submission (Issue 11).	Compliant and On-going	Compliant and Complete	The Stage 1 Soil and Water Management Plan was approved by DP&E in November 2015. The Soil and Water Management Plan is prepared for the construction phase of the Project and is not required for the operational phase of the Project. The Project will be stabilised and rehabilitated as required in the UDLP.
Contamination of surrounding watercourses and drainage lines	An emergency spill response procedure will be prepared to minimise the impact of spills including details on the requirements for managing, cleaning up and reporting. The requirements of the plan are detailed in Section 15.5 of the EIS.	Compliant and On-going	Compliant and Complete	RSMM incorporated into Stage 1 & 2 SWQMP approved by DP&E (refer to Table 7-1 SWMM7). These measures are in place for Stage 1 works. Environmental Incident & Spill Response Protocol Doc # NBHRDC-EN-SWMP-APPA_PLN forms Appendix A of the SWQMP.
Management of groundwater quantity and quality	Consultation with the EPA and NSW Office of Water would be undertaken prior to construction, regarding monitoring and the management of groundwater quality from contamination sources. Parameters to be monitored would be agreed with the EPA and the NSW Office of Water.	Compliant and Complete	Compliant and Complete	Consultation with council and DPI Water has been undertaken as required in the conditions. The Water Management Plan has been approved and is being implemented. Groundwater interception is expected to occur when the excavation begins for the slot and will be managed as outlined in the approved Stage 2 Water Management Plan.
	Pre-construction monitoring of groundwater quality, groundwater flows and groundwater levels would continue to be undertaken to establish existing groundwater quality, flow paths and levels of the Concept Proposal.	Compliant and Complete	Compliant and Complete	Pre-construction monitoring was completed. Construction monitoring has been undertaken prior to the commencement of construction and throughout. Groundwater management for Stage 2 is outlined in approved Stage 2 Water Management Plan.

Groundwater flow impacts	Monitoring of the Red-crowned Toadlet habitat would be undertaken prior to and during construction to determine any groundwater impacts on the habitat.	Compliant and On-going	Compliant and On-going	Groundwater is not intercepted as part of the Stage 1 Project. Red-crown toadlet monitoring is being undertaken as outlined in the approved Ecological Monitoring Plan. Monitoring will continue to be undertaken during construction of the Stage 2 Project, post-construction monitoring will be undertaken after the completion of the Stage 2 Project.
Interception of groundwater during construction	Groundwater flows intercepted by project structures (slots and cuttings) would be collected, treated as necessary and recharged into water courses or stormwater.	Compliant and On-going	Compliant and Complete	The Stage 1 Water Management Plan was approved and implemented. No groundwater interception during construction of the Stage 1 Project.
	Engineering methods, such as cross drains, would be used to capture and manage groundwater flows during construction.	Compliant and On-going	Compliant and Complete	
Water sharing plans	Consultation with NSW Office of Water would be undertaken concerning relevant water sharing plans and the need for groundwater extraction licences or approvals prior to construction.	Compliant and Complete	Compliant and Complete	Project has consulted with DPI Water. A licence is not required.
Stage 1 Project				
Erosion and sediment control (construction)	A Soil and Water Management Plan will be prepared for each construction stage of the Concept Proposal in accordance with the principles and guidelines set out Soils and Construction – Managing Urban Stormwater series, comprising Volume 1 (Landcom, 2004) and Volume 2D – Main Roads (DECC, 2008), including: <ul style="list-style-type: none"> – Consideration of soil erodibility – Management strategies to be used to minimise surface and groundwater impacts, including identification of water treatment measures, discharge points and erosion and sediment control measures – Sedimentation basin construction and management – Measures to monitor and manage spoil, fill and materials stockpile sites – Dewatering procedure – Water quality monitoring and checklists. 		Compliant and On-going	Stage 1 & 2 construction Soil and Water Quality Sub Plan approved by DP&E and issued for construction (Aug 2016). Stage 1 Project access to the Northern Beaches Hospital was to be completed in late 2018 with additional works to be completed in early 2019. All minor defect/ maintenance works would continue to use the Project CEMP and sub plans. Stage 1 Project as of the submission of this document has not been handed over to the Northern Beaches Council for operation.
Surface water quality during operation	Three in-line pollutant control devices would be designed and installed at the following locations: <ul style="list-style-type: none"> – Drainage Line 1 – Cobb Street (refer to Appendix M Figure 8.1, Sheet 1 of 4 for location) – Drainage Line 2 – Outlet of new piped stormwater drainage line in Wakehurst Parkway road reserve north of Stage 1 Project (refer to Appendix M Figure 8.1, Sheet 3 of 4 for location) – Drainage Line 3 – End of cul de sac in Winslea Avenue 		Compliant and Complete	Gross Pollutant Traps are being installed in both stage 1 and stage 2 to contain run off from the operational road and capture spills - located in following locations Cobb St, Rabbett St, Patanga Rd, Fitzpatrick Rd. Wakehurst Parkway North.
Scour of bank drainage line and potential channel erosion	Outlet scour protection, such as a rock rip rap apron with an energy dissipation structure, would be considered as part of the detailed design at the pipe outlet in the drainage line downstream (west) of Wakehurst Parkway.		Compliant and Complete	Scour protection has been installed at all stormwater outlets installed or upgraded on the Stage 1 Project. The scour protection has been implemented as per the final design which was completed in consultation with Northern Beaches Council.
Interception of groundwater during construction	Groundwater flows intercepted by project structures, such as cuttings, would be collected, treated as necessary and recharged into watercourses or stormwater.		Compliant and Complete	Compliant and Complete
	Engineering methods, such as cross drains, would be used to capture and manage groundwater flows during construction.	Compliant and Complete		
Revised Safeguards and Management Measures Resource use and waste management				
Concept Proposal				
Inappropriate handling or disposal of waste	A Resource and Waste Management Plan will be prepared for each construction stage of the Concept Proposal to identify the hierarchy for sourcing and use of resources.	Compliant and On-going	Compliant and Complete	Stage 1 construction Waste and Energy Management Sub Plan prepared and issued for construction (Nov 15). Stage 2 requirements incorporated into revised WEMP approved Aug 2016.
	Wastes would be managed consistent with the WARR Act principles of avoidance, reduction, reuse and recycling.			

Stage 1 Project

Inappropriate handling or disposal of waste	A Resource and Waste Management Plan will be prepared to identify the hierarchy for sourcing and use of resources. The plan will adopt the Resource Management Hierarchy principles of the WARR Act and include: – Identification the waste streams that will be generated during construction – A waste register detailing types of waste collected, amounts, date, time, and details of disposal – A resource management strategy detailing beneficial reuse options for surplus and/or unsuitable material.			Compliant and Complete	Stage 1 construction Waste and Energy Management Sub Plan prepared and issued for construction (Nov 15).
	All wastes, including contaminated wastes, will be identified and classified in accordance with Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes.				Access to the Northern Beaches Hospital was to be completed in late 2018 with additional works to be completed in early 2019. All minor defect/maintenance works would continue to use the Project CEMP and sub plans.
	Disposal of any non-recyclable waste will be in accordance with the POEO Act and Waste Classification Guidelines: Part 1 Classifying Waste.				Stage 1 Project as of the submission of this document has not been handed over to the Northern Beaches Council for operation.
Inappropriate disposal of excavated material that cannot be	Excavated material that is not suitable for on-site reuse or recycling will be transported to a site that may legally accept that material for reuse or disposal.			Compliant and Complete	All waste has been removed from site, classified and disposed off site at appropriate locations. The waste tracking register has been maintained during the construction of the Stage 1 Project.
	Excavated material leaving the site will be classified in accordance with the Waste Classification Guidelines so that correct resource recovery and or off-site disposal occur.				

Revised Safeguards and Management Measures Greenhouse gas and climate change

Concept Proposal and Stage 1 Project

Energy consumption during construction	Energy (fuel/electricity) efficiency would be assessed in selecting plant and equipment. Where reasonable and feasible, plant and equipment with higher energy efficiency ratings would be selected.	Compliant and On-going	Compliant and Complete	Compliant and Complete	An energy efficiency management workshop was undertaken in the early phase of the project Feb 2017.		
	Use of locally sourced materials to reduce transport emissions where reasonable and feasible.				Compliant and On-going	Compliant and Complete	Noted. This is a construction phase condition. All material is sourced in Sydney where available otherwise Australian based where possible
	Flyash content within concrete would be specified where feasible.						Noted. This is a construction phase condition. Yes fly ash is used as part of the concrete mixes, as specified in standard concrete mixes.
Re-use of excavated road materials	The feasibility of using biofuels (biodiesel, ethanol, or blends such as E10 or B80) would be investigated by the contractor, taking into consideration the capacity of plant and equipment to use these fuels, ongoing maintenance issues and local sources. Works would be planned to minimise fuel use.	Compliant and On-going	Compliant and Complete	Compliant and Complete	Noted. This is a construction phase condition. Investigations have been undertaken to use biofuels on site, however there are practical difficulties in implementing this on site. Fuel use is minimised as much as possible through operational efficiencies.		
	Reuse of excavated road materials would be maximised as far as possible where they are cost, quality and performance competitive to reduce use of materials (with embedded energy).				Compliant and On-going	Compliant and On-going	Noted. This is a construction phase condition. SMZ being used on the Project is recycled material. Asphalt millings are being used to stabilise exposed, trafficked surfaces.
Energy consumption during construction	Investigate opportunities to use renewable energy sources to operational requirements such as power control systems, lighting and signage where reasonable and feasible.	Compliant and On-going	Compliant and On-going	Compliant and On-going			An energy efficiency management workshop was undertaken in the early phase of the project, Feb 2017. Solar powered temporary lighting systems are being used on the Project. Green energy has been procured for the main compound.

Revised Safeguards and Management Measures Cumulative Impacts and Interactions

Concept Proposal and Stage 1 Project

Cumulative Impacts	Broad consultation would be undertaken with potentially affected local community and key stakeholders in coordination with proponents of other nearby projects.	Compliant and On-going	Compliant and Complete	RSMM incorporated as part of Community Communications Strategy for construction. Interface meetings held with Health Infrastructure, NBH Hospital project contractor, Northern Beaches Council and other relevant stakeholders. Community consultation is undertaken including to local residents for construction works and the wider community about disruptions to the road network.
	consultation would be undertaken with proponents of other nearby projects to increase the overall awareness of project timeframes/staging and impacts and to provide a more coordinated approach to managing construction in the area.	Compliant and On-going		