

7.11 Aboriginal heritage

A technical working paper: Aboriginal heritage (refer to **Appendix M**) has been prepared in order to assess the potential impacts from the project on Aboriginal heritage. This section provides a summary of the technical working paper.

Table 7-187 sets out the Director-General's Requirements as they relate to Aboriginal heritage and where in the environmental impact statement these have been addressed.

Table 7-187 Director-General's Requirements – Aboriginal heritage

Director-General's Requirement	Where addressed
<ul style="list-style-type: none">an assessment of the potential Aboriginal cultural heritage impacts of the project, including an assessment of objects, places of significance, natural and landscape values of the corridor and surrounding area, taking into account the <i>Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation</i> (DEC, July 2005); anddemonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures).	<p>Assessment of Aboriginal cultural heritage impacts is provided in Section 7.11.3.</p> <p>Consultation with Aboriginal heritage stakeholders is provided in Section 7.11.1.</p> <p>Further details are provided in Appendix M – technical working paper: Aboriginal heritage.</p>

7.11.1 Assessment methodology

The Aboriginal heritage assessment was undertaken in accordance with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, 2005b) and the Roads and Maritime Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI). Broadly, the assessment included:

- Consultation with relevant Aboriginal representatives.
- Desktop review of available literature and databases, including mapping of potential Aboriginal archaeological and culturally sensitive sites.
- Field surveys for the purpose of ground-truthing Aboriginal archaeological and culturally sensitive sites identified during the desktop review.
- Identification of mitigation measures to reduce impacts based on the results of the investigation and the anticipated impacts of the project on Aboriginal archaeological and culturally sensitive sites.

The Aboriginal heritage study area (as shown in **Figure 7-83**) included the following areas:

- The Hills M2 Motorway integration works.
- Southern interchange compound (C5).
- Wilson Road compound (C6).
- Trelawney Street compound (C7).
- Northern interchange and tie-in works.

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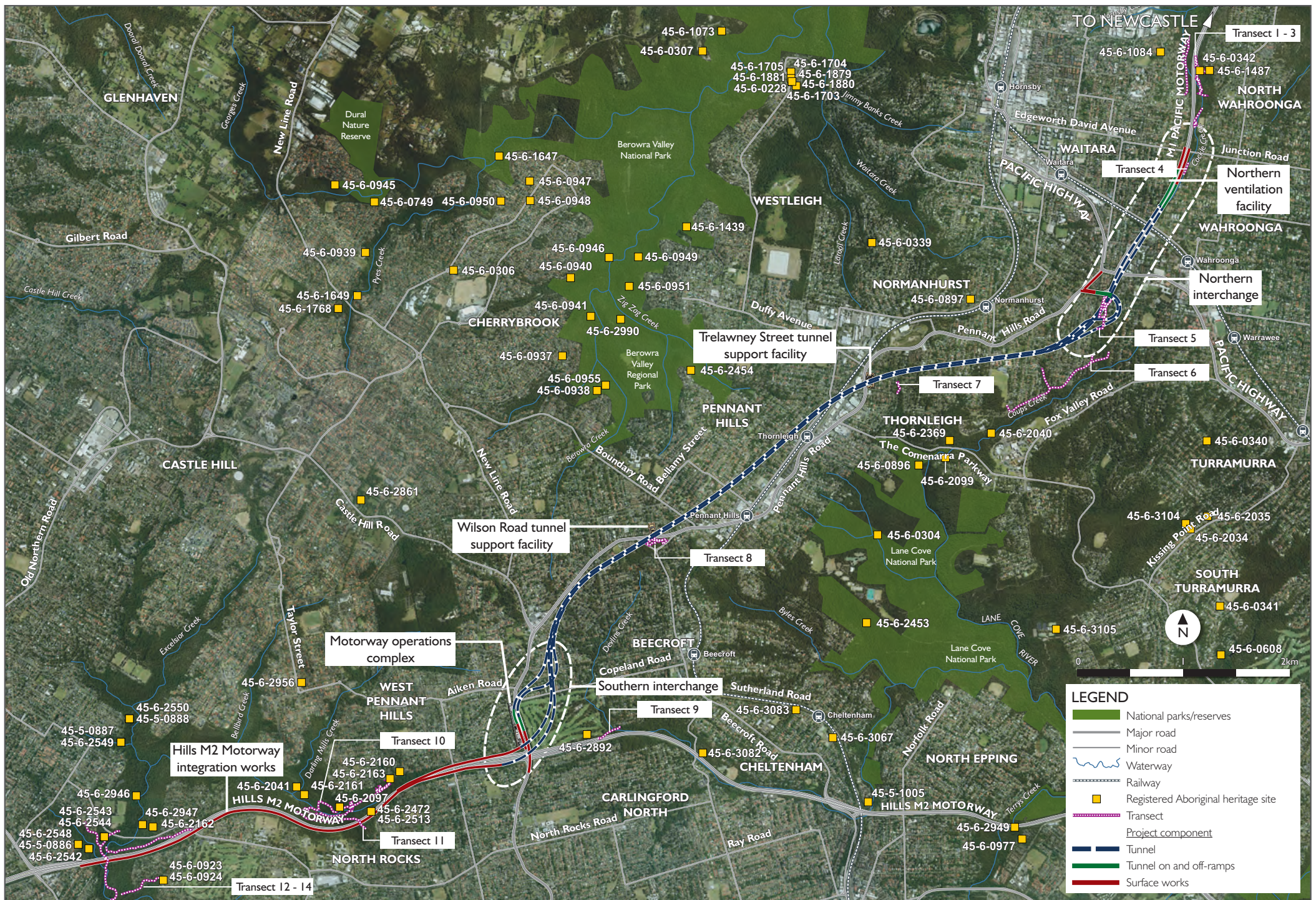


Figure 7-83 Aboriginal heritage study area

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Consultation

The Aboriginal heritage assessment involved consultation with the representatives of relevant Aboriginal stakeholders, including the Metropolitan Local Aboriginal Land Council (MLALC) and the Guringai Tribal Link Aboriginal Corporation (GTLAC). Aboriginal heritage consultation was facilitated by Roads and Maritime and was undertaken consistent with the requirements of the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, 2005b) and the Roads and Maritime Procedure for Aboriginal Cultural Heritage Consultation and Investigation.

Desktop review

The desktop review included a search of the Aboriginal Heritage Information Management System (AHIMS) database and a review of previous archaeological assessments undertaken in the general project region. The desktop review, in addition to Aboriginal stakeholder consultation, was used to determine if known Aboriginal archaeological and culturally sensitive sites are located in or near potential project disturbance areas.

Information gathered during the desktop review was used to facilitate site prediction mapping to identify the potential for further Aboriginal archaeological and cultural heritage sites to be present within the Aboriginal heritage study area. The information was also used to place the area within an archaeological and heritage management context.

Field survey

Field surveys were conducted on:

- 24-25 September 2013 and 2 October 2013, accompanied by representatives of the Metropolitan Local Aboriginal Land Council and the Guringai Tribal Link Aboriginal Corporation.
- 19 December 2013, accompanied by a representative of the Metropolitan Local Aboriginal Land Council. A representative of the Guringai Tribal Link Aboriginal Corporation was unavailable to attend this field survey.

Field surveys consisted of both foot and vehicle surveys, depending on accessibility and ground visibility. These targeted inspections focused on ground-truthing previously recorded Aboriginal archaeological and cultural heritage sites identified in AHIMS in proximity to areas to be disturbed by the project during construction and operation. In addition to disturbance areas, the field surveys included inspection of areas identified through desktop review as having potential Aboriginal archaeological or cultural sensitivity.

Areas were inspected with attention to their capacity to contain Aboriginal archaeological deposits. All outcrops were inspected for grooves and engravings and all mature trees were inspected for signs of modification.

Details of the methodology, timing and extent of field surveys are provided in the technical working paper: Aboriginal heritage (**Appendix M**).

7.11.2 Existing environment

History

The project would be located within the traditional country area of the Guringai Aboriginal people. The Guringai are also referred to as Kuringgai, Kurikgai and Kuring-gai.

The traditional territory of the Guringai people stretched from Sydney to Newcastle and inland to the Great Dividing Range (Attenbrow, 2002). The area contained such clan groups as the Awaba, Borregegal, Cadigal, Cammeragal / Camaraigal, Garigal, Gayimai and Walkeloa (GEEC, 1983; Kowen, 1993). This area was closely bordered by the Darug / Dharug area to the east, the Awabakal and Darkinung areas to the north and north-east and the Turuwal to the south (Horton, 1996). The location of the boundary between the Guringai area and the Darug area is defined in the vicinity of Parramatta based on linguistic evidence (Ross, 1988). However, this is challenged by a counter-argument that the Darug territory extended to the coastline between Port Jackson and Botany Bay, based on the ethnographic observations of explorers and settlers (Kohen, 1988; Kohen *et al.*, 1987; Kohen, 1985). Although language and dialect differed between varying groups, there was enough similarity and commonality through shared words that communication could and did occur (Attenbrow, 2002).

The Guringai area was rich in natural resources, containing both coastal and inland areas. Both riverine and coastal areas were utilised for fish and shellfish (oysters, mussels and cockles), as evidenced by the presence of shell middens and fish traps (KCC, 2013). Yams, bulbs and seeds were utilised for food, along with the burrawang (macrozamia) nut, fern roots, lillypillies and berries. As well as bush foods, many plants were utilised for their medicinal qualities. Fauna species including possums and birds were hunted, with marine animals such as turtles, dugongs and seals also likely to have been a part of the diet (GEEC, 1983).

The Guringai utilised hunting tools such as boomerangs, spears and clubs. Fishing spears were made from plant stems with prongs added, made from grass tree flower stems, fish bones or shells and affixed by bees wax and gum (GEEC, 1983). Fibrous grasses and oyster shell were also utilised to make hooks and fishing lines (GEEC, 1983). A record of the Guringai living space is also present throughout the traditional country in the form of rock art and engravings. Known motifs include fish, dugong, and human figures. The arrival of European settlers radically transformed the life of the Guringai people, as access to land and traditional food resources were blocked by growing settlements and pastoral developments (GEEC, 1983). In the late 1780's a smallpox epidemic swept through the Guringai people, causing a decline in population numbers in the area (Tench, 1793).

New South Wales Aboriginal Heritage Information Management System (AHIMS)

The AHIMS database contains records of Aboriginal objects reported in accordance with section 89A of the *National Parks and Wildlife Act 1974* (NPW Act). It also contains information about Aboriginal places which have been declared by the Minister for the Environment to have special significance with respect to Aboriginal culture. Previously recorded Aboriginal objects and declared Aboriginal places are referred to by AHIMS as 'Aboriginal sites' (OEH, 2013e).

Three separate searches of the AHIMS database were undertaken to cover the study area, including:

- An area around nine kilometres by eight kilometres covering the project corridor, including the main alignment tunnels, northern and southern interchanges and associated construction and operational surface infrastructure.
- An eight kilometre by ten kilometre area covering the Hills M2 Motorway integration works.

A total of 187 Aboriginal sites were identified across the three search areas with results of each site type summarised in **Table 7-188**.

Table 7-188 AHIMS search results for Aboriginal sites within the Aboriginal heritage study area

Site type	Number of sites	Percentage of sites
Artefact scatter	69	37%
Engraving	13	7%
Rockshelter with art	24	13%
Rockshelter	30	16%
Grinding grooves	19	10%
Potential archaeological deposit (PAD)	20	11%
Isolated artefact	6	3%
Midden	1	0.5%
Modified tree	2	1%
Burial	1	0.5%
Quarry	1	0.5%
Water hole	1	0.5%
TOTAL	187	100%

Previous archaeological surveys and excavations

Previous archaeological assessments involving survey, test excavation and salvage have been conducted in the region relating to past residential developments, subdivisions and road construction projects. Fourteen such assessments have been identified as relevant to the Aboriginal study area and have been used to inform the development of an Aboriginal site prediction model and the scope of field surveys. A summary of relevant past archaeological assessments is provided in the technical working paper: Aboriginal heritage (**Appendix M**).

Aboriginal site prediction modelling

An Aboriginal site prediction model was developed to inform the scope and extent of field surveys. The model included statements on the likelihood of finding Aboriginal archaeological and culturally sensitive sites within the Aboriginal heritage study area. These predictive statements were based principally on topography, including the presence of features such as rock overhangs, and proximity to water sources. Reference was also made to previous archaeological assessments identified as relevant to the Aboriginal heritage study area.

Based on the Aboriginal site prediction model, the likelihood of encountering Aboriginal site types was identified as follows:

- Isolated artefacts – high potential for occurrence.
- Rockshelters – possible occurrence.
- Art sites / engravings – possible occurrence.
- Grinding grooves – possible occurrence, most likely in association with a water source.
- Stone artefact scatters – possible occurrence, most likely in association with a rockshelter.
- Modified trees – unlikely in areas of vegetation clearance, but likely in areas where mature vegetation remains extant.

Field surveys

Field surveys were conducted on 24-25 September 2013, 2 October 2013 and 19 December 2013 to:

- Ground-truth the location of AHIMS sites in and around project disturbance areas.
- Evaluate project disturbance areas for previously unknown Aboriginal sites and Aboriginal archaeological and cultural heritage potential, taking into account the predictions of potential occurrence from the Aboriginal site prediction model.

Of the 187 AHIMS sites identified in the Aboriginal heritage study area, a total of 15 were assessed as being within or near the project disturbance footprint based on AHIMS site card data. These existing AHIMS sites are summarised in **Table 7-189** and shown relative to project works in **Figure 7-84**.

Table 7-189 AHIMS sites identified within the Aboriginal heritage study area

AHIMS #	AHIMS site name	Site type	Valid / destroyed	Location
Hills M2 Motorway integration works				
45-6-2097	Darling Mills S.F. 2	Rockshelter	Valid	North of the Hills M2 Motorway integration works
45-6-2160	CF1 a b, Cumberland S.F.	Art site/ rockshelter	Valid	North of the Hills M2 Motorway integration works
45-6-2163	CF5, Cumberland S.F.	Rockshelter	Valid	North of the Hills M2 Motorway integration works
45-6-0923	Darling Mills Creek 1	Rockshelter	Valid	South of the Hills M2 Motorway integration works
45-6-0924	Darling Mills Creek; Parramatta	Rockshelter with art	Could not be re-located during site inspection	South of the Hills M2 Motorway integration works
45-6-2548 / 45-5-0886	DMC 1	Rockshelter	Valid	North of the Hills M2 Motorway integration works

AHIMS #	AHIMS site name	Site type	Valid / destroyed	Location
45-6-2543	DMC 7	Rockshelter	Valid	North of the Hills M2 Motorway integration works
45-6-2544	DMC 8	Rockshelter	Valid	North of the Hills M2 Motorway integration works
45-6-2542	DMC 6	Rockshelter	Valid	North of the Hills M2 Motorway integration works
45-6-2161	CF3, Cumberland S.F.	Rockshelter	Valid	Formerly on land now occupied by the Hills M2 Motorway
45-6-2472 / 45-6-2513	CF6/ CFC (Baulkham Hills) SEE 45-6-2472	Art site/ rockshelter	Could not be re-located during site inspection. Possibly destroyed	Formerly on land now occupied by the Hills M2 Motorway
Southern interchange				
45-6-2892	PHGC 1 (Hills Golf Course)	Rockshelter	Could not be re-located during the site inspection	East of the southern interchange
Intermediate sites				
45-6-0339	Normanhurst	Grinding grooves	Destroyed	North of the Trelawney Street compound
Northern interchange and M1 Pacific Motorway tie-in works				
45-6-0342	Asquith	Engraving	Destroyed	Formerly north of the M1 Pacific Motorway tie-in works
45-6-1487	Golf Links Track, HB-13	Grinding grooves	Destroyed	Formerly north of the M1 Pacific Motorway tie-in works

The valid AHIMS sites listed in **Table 7-189** were identified and their locations confirmed through field surveys, with the exception of:

- AHIMS site #45-6-0339. The AHIMS site card indicates that this site has been 'obliterated by waterboard piping and works', suggesting that although the site is listed as valid in the AHIMS register, it has in fact been destroyed.
- AHIMS site #45-6-2892. This site does not have an AHIMS site card on file. Coordinates for the site recorded in the AHIMS register indicate that it would be located within the Pennant Hills Golf Course. The site was unable to be identified through past surveys of the area undertaken during development of the Hills M2 Motorway Upgrade project (AECOM, 2010).

Through the Aboriginal site prediction model and field surveys, an area of archaeological sensitivity (Archaeological Sensitivity Area 1 (ASA 1) management zone) has been identified to the north of the Hills M2 Motorway integration works. ASA1 management zone is around 800 metres long and is located adjacent to Blue Gum Creek. The area runs parallel to the northern edge of the Hills M2 Motorway and contains numerous outcrops and rock overhangs (refer to **Figure 7-85**). This area contains three registered AHIMS sites (#45-6-2160, #45-6-2163 and #45-6-2472 / #45-6-2513), including two rockshelters (one with art) and a former rockshelter site (with art). In addition to registered AHIMS sites, there is potential for further Aboriginal archaeological heritage sites to be located within ASA1 management zone. The project would not encroach into ASA1 management zone during construction or operation.

Further to the west, around the western extent of the Hills M2 Motorway integration works, field surveys confirmed the presence of five registered AHIMS sites. All of these sites are rockshelters (#45-6-0923, #45-6-2548 / #45-5-0886, #45-6-2543, #45-6-2544 and #45-6-2542). A further two, currently unregistered rock overhang sites were also identified in this area during field surveys (refer to **Figure 7-86**). None of the currently-registered rockshelter sites or newly discovered rock overhang sites included artefacts and many had their deposits eroded or washed away. An area adjacent to Darling Mills Creek, north of the Hills M2 Motorway, containing two of these rockshelters has been referred to as an area of archaeological sensitivity (ASA2 management zone). ASA2 management zone contains outcrops and rock overhangs, and there is potential for further Aboriginal archaeological heritage sites to be located in this area.

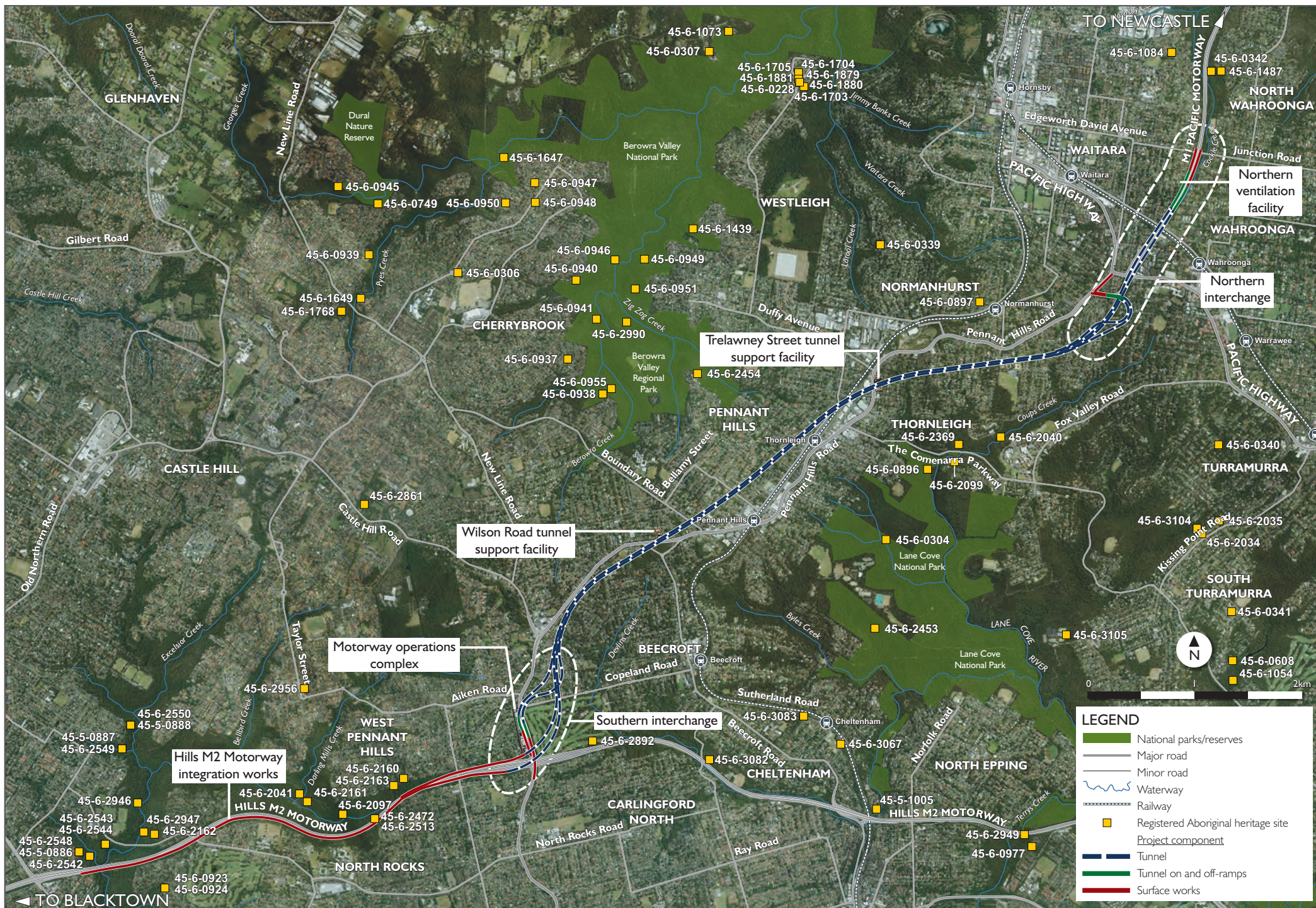


Figure 7-84 AHIMS database search results

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Figure 7-85 Archaeological Sensitivity Area 1 in proximity to the project

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Figure 7-86 Archaeological Sensitivity Area 2 in proximity to the project

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7.11.3 Assessment of potential impacts

The technical working paper: Aboriginal heritage (**Appendix M**) identifies two broad areas of Aboriginal archaeological and / or cultural heritage significance relevant to the project:

- ASA1 management zone, including registered AHIMS sites and potential further Aboriginal archaeological heritage sites. Consultation with Aboriginal representatives during field surveys has identified areas of cultural significance within ASA1 management zone.
- ASA2 management zone, including the two rockshelter sites, rock overhangs and potential for further Aboriginal archaeological heritage sites, around Darling Mills Creek towards the western extent of the Hills M2 Motorway integration works. Consultation with Aboriginal representatives during field surveys has identified areas of cultural significance around these rockshelter sites.

Works associated with the construction and operation of the project would not directly impact on these sites or encroach into ASA1 or ASA2 management zones. Other areas expected to be directly affected by the project have been assessed as disturbed with a low likelihood of containing Aboriginal archaeological heritage sites.

Construction

Construction of the project would not directly affect known heritage sites or encroach into ASA1 or ASA2 management zones.

There is a minor potential for construction activities to indirectly affect items of heritage value in the vicinity of the Hills M2 Motorway integration works. This may occur as a result of vibration from:

- Earthworks in hard material (eg rock) related to construction of the Hills M2 Motorway integration works area in the vicinity of ASA1 management zone.
- Earthworks, including piling works, in hard material related to the widening of the Darling Mills Creek viaduct and Yale Close Bridge (in proximity to ASA2 management zone).

Construction works have recently been conducted in proximity to ASA1 and ASA2 management zones as part of the Hills M2 Motorway Upgrade project. Construction activities included the widening of the Darling Mills Creek viaduct, including earthworks and piling. The Hills M2 Motorway Upgrade Project was successfully completed without adversely affecting nearby rock outcrops, rockshelters and other identified areas of cultural significance. It is reasonable to conclude that the Hills M2 Motorway integration works would be similarly undertaken without adverse impact on these Aboriginal archaeological items or cultural heritage as:

- The Hills M2 Motorway Upgrade project works were in closer proximity to the items than the proposed integration works.
- The integration works would be of a similar nature, scale and intensity as the Hills M2 Motorway Upgrade project works.

Sensitive Aboriginal archaeological and cultural heritage areas and sites would be delineated prior to the commencement of construction works in their vicinity.

Monitoring would be conducted to ensure that indirect impacts, such as vibration, would not pose the potential for adverse impacts on these areas and sites.

Beyond the Hills M2 Motorway integration works, the Aboriginal heritage assessment has not identified other potential Aboriginal heritage constraints relevant to construction works.

Operation

Potential impacts to Aboriginal heritage during operation of the project relate to changes to the landscape or scenic context of ASA1 and ASA2 management zones. The physical, visual and potential habitat changes within these areas would be minimal, as works conducted as part of the Hills M2 Motorway integration works would be consistent with the current landscape (ie widening works of the existing road carriageway and widening of Darling Mills Creek viaduct). The project has been designed to integrate with the visual appearance of existing infrastructure and to be sympathetic to the surrounding landscape context. Further discussion of the urban design of the project is provided in **Section 7.5** (Urban design, landscape character and visual amenity).

7.11.4 Environmental management measures

Direct impact to any known Aboriginal heritage items has been avoided through the design of the project. Two areas of Aboriginal heritage sensitivity have been identified adjacent to the Hills M2 Motorway integration works area. Although indirect impacts to these items are unlikely, vibration monitoring would be conducted when vibration intensive works are being undertaken within 50 metres of these sensitive areas.

Environmental management measures relating to Aboriginal heritage during construction are provided in **Table 7-190**. No operational mitigation measures relating to Aboriginal heritage have been identified as necessary.

Table 7-190 Environmental management measures – Aboriginal heritage

Impact	No.	Environmental management measure	Timing
Construction			
Impacts on culturally sensitive Aboriginal sites	AH1	The detailed design of the project would be developed to avoid direct impacts on ASA1 or ASA2 management zones. If direct impacts to ASA1 or ASA2 management zones cannot be avoided, a Stage 3 assessment would be conducted with reference to the Roads and Maritime PACHCI process (Roads and Maritime, 2011c).	Pre-construction and construction
	AH2	In the event that the project is required to extend outside the assessed construction footprint or study area, these additional areas would be assessed in accordance with PACHCI prior to the commencement of construction within those identified areas.	Pre-construction and construction

Impact	No.	Environmental management measure	Timing
Impacts on rockshelter sites	AH3	The identified rockshelter sites and overhangs located within 200 metres of the Hills M2 Motorway integration works should be clearly delineated prior to construction works.	Construction
Indirect impacts on rockshelter sites	AH4	During construction, vibration monitoring would be conducted for vibration intensive works within 50 metres of rockshelter sites and associated overhangs within management zone ASA2. The need for vibration monitoring would be informed by a preliminary screening of activities at this location to identify activities which have the potential for vibration at these areas of sensitivity.	Construction
Unexpected discovery of Aboriginal objects	AH5	<p>If an Aboriginal object(s) is discovered during construction it would be managed in accordance with the standard management procedure: Unexpected Archaeological Finds (Roads and Maritime, 2012d), including:</p> <ul style="list-style-type: none"> • Relevant works in the vicinity of the object(s), with the potential to directly or indirectly impact on the object(s), would cease. • The construction Environmental Representative, OEH and Registered Aboriginal Parties (RAPs) would be notified of the discovery. • A qualified archaeologist would be engaged to determine the nature, extent and scientific significance of the object(s). • Management recommendations would be developed in consultation with the qualified archaeologist, OEH and RAPs. 	Construction
Unexpected discovery of human remains	AH6	<p>If human remains are discovered during construction would be managed in accordance with the standard management procedure: Unexpected Archaeological Finds (Roads and Maritime, 2012d), including:</p> <ul style="list-style-type: none"> • Relevant works in the vicinity of the remains, with the potential to directly or indirectly impact on the remains, would cease. • The construction Environmental Representative, OEH and NSW Police would be notified of the discovery. • Directions from the NSW Police and / or OEH, as relevant, would be followed depending on the nature of the remains and the outcomes of forensic investigations. 	Construction

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