

20 September 2022

James Collins
Senior Project Manager
Savills Australia
Level 25, 1 Farrer Place
Sydney NSW 2000

Re: Shellharbour Hospital Aboriginal Due Diligence

Dear James,

1 Background

1.1 Project overview

EMM Consulting Pty Ltd (EMM) has been engaged by Savills Australia Pty Ltd (Savills) to undertake an Aboriginal Heritage Due Diligence Assessment of the enabling works for a proposed new hospital in Dunmore, NSW (Figure 1.1). The construction phase of the hospital has been identified as a State Significant Development (SSD) taking place on behalf of Health Infrastructure (HI) NSW. The enabling works for this project are considered to be a separate initial component to the construction works and will involve a Review of Environmental Factors (REF), as applicable to the relevant planning approval pathway. The enabling works include the installation of High Voltage (HV) electricity cabling from the site to the Shellharbour Zone Substation.

The HV electrical works include the installation of HV padmount substation within Lot 10 DP128639 and installing HV cabling between the padmount substation and the Shellharbour Zone Substation (Figure 1.2).

1.2 Study area

The site is located on the eastern side of the Princess Highway and the South Coast railway line, at 86 Dunmore Road (Lot 10 DP128639, northern portion) and 50 Dunmore Road (Lot 10 DP128639, southern portion), Dunmore, NSW (Shellharbour LGA) (Figure 1.1). The entire study area was previously cleared of all extant vegetation and has been utilised for farming activities.

HV cabling will extend from the project area to the Shellharbour Zone Substation (13 The Grove, Shellharbour NSW 2529). Detail drawings of the HV cabling alignment can be found in Appendix C.

1.3 Assessment framework

In NSW, Aboriginal objects, whether recorded or yet undiscovered, are afforded statutory protection under the *National Parks and Wildlife Act 1974*. Under Section 86 of the Act, it is an offence to disturb, destroy or deface Aboriginal objects without the approval of the Chief Executive of Heritage NSW. A breach of Section 86 of the *National Parks and Wildlife Act 1974* could result in prosecution and fines in excess of \$1 million. Heritage NSW provides a series of guidelines as a framework for identifying and managing Aboriginal heritage and the cultural heritage interests of Aboriginal parties within development planning contexts. The Due Diligence process is the first step and is outlined in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010) guidelines; and is intended to identify whether a proposed activity is likely to harm Aboriginal objects.

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the framework for cultural heritage values to be formally assessed in the planning and development consent process. The EP&A Act requires that environmental impacts are considered before land development and includes impacts on cultural heritage items and places as well as archaeological sites and deposits. The EP&A Act also requires that local governments prepare planning instruments, such as Local Environmental Plans (LEPs) and Development Control Plans (DCPs) to provide guidance at the local level of environmental assessment required, it also includes a range of planning instruments that can include Aboriginal objects, sites and places, although these would still generally be managed under the *National Parks and Wildlife Act 1974*.

1.4 Scope and assessment methods

The due diligence guidelines provide a generic code of practice used to determine whether activities will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm where possible. A summary of the due diligence is shown in Figure 1.3. This involves:

- a search of the Aboriginal Heritage Information Management System (AHIMS) database;
- consideration of the environmental context for the presence of Aboriginal objects or places;
- consideration of existing Aboriginal cultural heritage studies in the area and region for the presence of Aboriginal objects or places;
- a site inspection of the project area by an EMM archaeologist to identify any Aboriginal objects or areas of potential archaeological deposit (PAD); and
- determination of whether further heritage investigation and impact assessment is required.

This report addresses the potential for Aboriginal heritage within the investigation envelope. It is an initial investigation of constraints and opportunities pertaining to identified existing and potential Aboriginal heritage sites and places on and/or in the immediate vicinity of the study area.

As such, this due diligence assessment aims to identify whether the program will impact a known Aboriginal object or place, or areas that have potential for Aboriginal sites to occur (typically as subsurface archaeological material). It is not an Aboriginal Cultural Heritage Assessment (ACHA) and is not sufficient to support an application for an Aboriginal Heritage Impact Permit (AHIP), in accordance with section 90 of the *National Parks and Wildlife Act 1974*. Instead, this due diligence assessment aims to identify whether an ACHA is required to potentially support an AHIP application.

This report does not address historical or built heritage.

1.5 Authorship

This letter report was prepared by Joel Mason (EMM Heritage Specialist). It was reviewed by Luke Kirkwood (EMM Associate Heritage Specialist). Historical aerials were supplied by Tim Osborn (Land Insight).



Source: EMM (2022); ABS (2021); DFSI (2020, 2021); GA (2011)



KEY

- Proposed electricity cable
- Rail line
- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- Local government area

INSET KEY

- Major road
- State forest

Regional context

New Shellharbour Hospital
Electricity Transmission Line
Aboriginal Due Diligence
Figure 1.1



KEY

Proposed New Shellharbour Hospital Site

Proposed electricity cable

Existing environment

Rail line

Major road

Minor road

Watercourse/drainage line

Waterbody

Local context

New Shellharbour Hospital
Electricity Transmission Line
Aboriginal Due Diligence
Figure 1.2

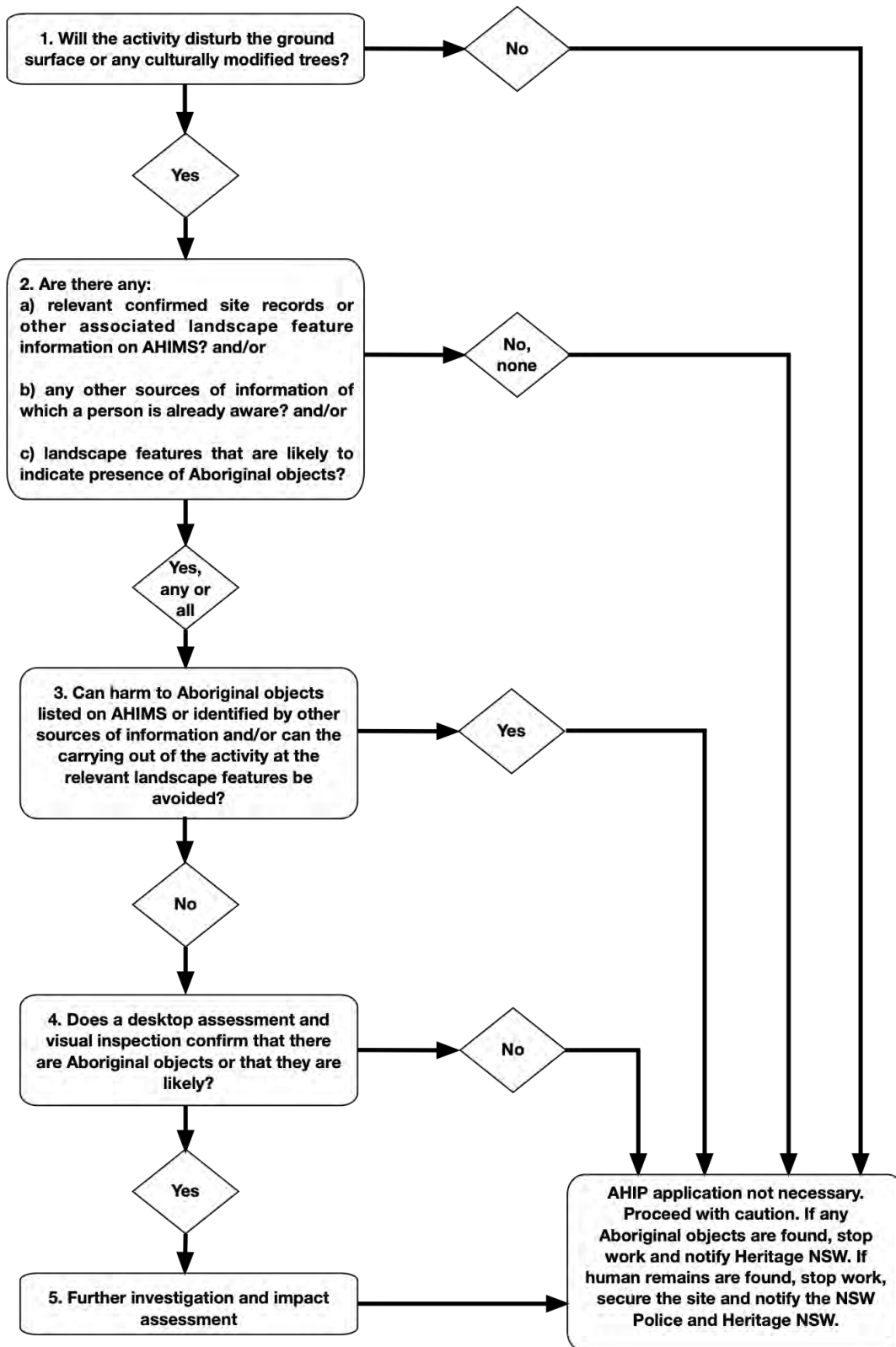


Figure 1.3 Due diligence process summary (adapted from: Due Diligence Code of Practice [DECCW 2010])

2 Environmental context

2.1 Landscape overview

The study area is situated adjacent to the Princess Highway and approximately 2 km north west of Killalea Beach within the City of Shellharbour (LGA). It is part of the Sydney Basin Bioregion and the Illawarra subregion identified as part of the Interim Biogeographic Regionalisation for Australia (IBRA, SYB12) (NSW National Parks and Wildlife Service 2003; Australian Government 2010). Situated between the mountains and the sea, the area is characterised by grassy coastal plains that merge with eucalypt forests and woodlands toward the periphery of the Illawarra escarpment. Soil profiles consist of shallow texture contrast residual units situated above the sandstone and/or shale geologies, with increasing alluvium adjacent creeklines and waterways.

The study area sits between two suburban regions, the city of Shellharbour and Dunmore. With built up areas following the coastline, Shellharbour boasts a population of roughly 70,000 people. While Dunmore remains semi-rural, with an increase in urbanisation throughout the past decade. The Illawarra region is largely characterised by its farming, coal mining and steel manufacturing, with mining being a key industry for over 200 years (Spillett and Langford 2014).

2.2 Geology, soils and topography

The Sydney Basin is a major sedimentary basin, some 60,000 km² in size. Initially formed on Palaeozoic (541-250 ma) metamorphosed rocks, the basin is primarily a series of Permian (300-250 ma) and Triassic (250-200 ma) sandstones and siltstones that were formed by a massive delta, and then subject to a range of uplift and subsidence (see Gale 2020 for a comprehensive overview). This has resulted in a series of smaller plateaus and basins surrounded by elevated dissected sandstone uplands on its periphery (eg the Great Dividing Range to the west). Over-laying these basal sandstone and siltstones are Wianamatta shales (also of Triassic age), and then more recent Quaternary alluvium and other pedogenetic units.

The ridgeline near the study area forms part of the eastern edge of the Southern Highlands plateau, which uplifted along with the Blue Mountains around 70 ma and was eroded by creeklines to its present height around 30 ma (Young 1980). The Illawarra escarpment runs for approximately 120 km from sea cliffs in the north (~300 m height) to bordering inland plateaus in the south (~700 m height). The cliffs and plateau comprise of extensive beds durable of quartz and sandstone. The slopes and foothills beneath the escarpment that sweep down to the coastal plain are primarily formed of shales, claystones and coal seams (Brooke et al. 1994; Carr 1982). These geological formations provide high nutrient levels to support lush rainforests and are rich in coal.

The sandstone geology characteristic of the region is conducive to the formation of certain archaeological site types. Sandstone tends to break away in large blocks creating boulders and vertical cliffs. It weathers cavernously creating overhangs or caves that could have been occupied, and flat surfaces or platforms that can be used for engraving (McDonald 2008). While the project footprint lies some 15 km east of the Illawarra escarpment, small foothills and steep coastlines border the area. Additionally, fluctuations in sea level throughout the past 14,000 years (Williams et al. 2018) would have heavily impacted transitory patterns between the coastline and escarpment and are reflected in the surviving aboriginal heritage (see Section 3 below).

The study area contains three soil landscapes as defined in Hazelton (1992). These include the Bombo, Shellharbour and Killalea soil landscapes. The study area mostly contains Bombo and Killalea sediments that are characterised as erosional (ER) and swamp (SW) respectively (Figure 2.1).

These three soil profiles are both residual and are the result of diagenesis (soil formation) of under-lying Budgong sandstone. They are typically shallow varying in depth with a general maximum depth of >150 cm and characterised by sandy loam, sandy clay loam or sandy clay. The topsoil (A1 horizon), within which cultural

materials is typically constrained is usually only the upper part of this soil profile and if frequently loss or affected by later activities.

While the project footprint is compiled of Bombo, Shellharbour and Killalea soil profiles, it has been significantly modified by agropastoral processes since 1832 (Jervis 1942), as well as the construction of the nearby rail line and old train station in 1887. It is considered probable that the upper portion of the soil profile within which cultural material may have been present, would have been adversely affected by these prolonged activities. As such, the potential for in situ (primary context) cultural material is largely considered improbable.

2.3 Flora and Fauna

The natural vegetation of a landscape is an important consideration when preparing an Aboriginal heritage assessment because it provided Aboriginal people with resources. Bark from trees could be stripped to make canoes, shields and other items. The vegetation itself provided food resources such as edible plants, fruits and seeds and also provided habitats for animals such as possums and birds, which could be hunted (Ens, Walsh, and Clarke 2017).

Vegetation would probably have looked broadly similar to national parks and reserves that remain around the region today. These resources would have been used by local Aboriginal people for a variety of activities, including to construct huts, build canoes and create fire. Evidence shows that from approximately 5,000 years ago, the surrounding region would have been dominated by wet sclerophyll forest and subtropical rainforest (Jones 1990). Localised wetland dynamics along the coast would have evolved by freshwater replacing saline c. 2600 years ago, potentially in response to a decline in sea-level (Jones 1990). Common plant species in the area include blackbutt (*Eucalyptus pilularis*), Sydney blue gum (*Eucalyptus saligna*), forest red gum (*Eucalyptus tereticornis*), stringybark (*Eucalyptus globoidea*) and kangaroo grass (*Themeda australis*) (NSW National Parks and Wildlife Service 2003). These forests and wetlands were estimated to be around 23,000 ha in size and upon European settlement, and have been cleared by roughly 70% compared to today (Mills 2007).

Subsistence for Aboriginal people in the past would probably have circulated between marine and terrestrial fauna throughout different seasons. According to the Department of Agriculture, Water and the Environment, approximately 52 species of endangered wildlife, including birds, fish, frogs, mammals and plants may occur within the region. These species are protected by the EPBC Act (1999) and are at risk of extinction in the wild.

2.4 Hydrology

The presence or availability of water was a major influence on the presence and intensity of past Aboriginal occupation and are key indicators of archaeological sensitivity. The closest watercourses are within the study area and are unnamed drainage channels located toward the central and northern end of the project boundary. Due to local topography and land use patterns, it appears this drainage channels may have been artificially constructed or modified to feed into or from nearby dams. Therefore, it is unlikely to represent a source of water readily available to Aboriginal people prior to the implementation of European land use practices.

The closest freshwater resource to the study area is Rocklow Creek. It is located approximately 1 km south and is a 2nd order stream (Strahler stream order) forming part of the Illawarra Creek ecosystem. This creek feeds into Minnamurra River to the south east before turning east (roughly 1.6 km from the study area) and opening out to sea. This watercourse is fed by a series of smaller creeklines draining from the nearby escarpment and swamplands. Additional nearby water resources include Lake Illawarra, which is also than 5 km to the north west, along with Killalea Beach, which is located 2 km south east.



KEY

- Proposed electricity cable
- Topographic contour (5 m)
- Strahler stream order
 - 1st order
 - 2nd order
 - 3rd order
 - 4th order
- Mitchell landscape
 - Kiama Coastal Slopes
 - Lake Illawarra Alluvial Plains
 - Lake Illawarra Barrier
- Existing environment
 - Rail line
 - Major road
 - Waterbody

Soils, hydrology and topography

New Shellharbour Hospital
Electricity Transmission Line
Aboriginal Due Diligence
Figure 3.1

2.5 Previous disturbance

Offset against the landforms of archaeological interest is any disturbance that may have occurred within the study area in the past, and which may have had adverse impacts on survival of cultural materials.

Initial disturbance to the study area began when settlers arrived between 1817-1831, where land was extensively cleared and used mainly for cattle grazing (Lindsay, Organ, and Doyle 1994; Shellharbour City Council 2019). The construction of roads and later railways would have significantly disturbed soil horizons, and potentially indicates the loss of cultural materials.

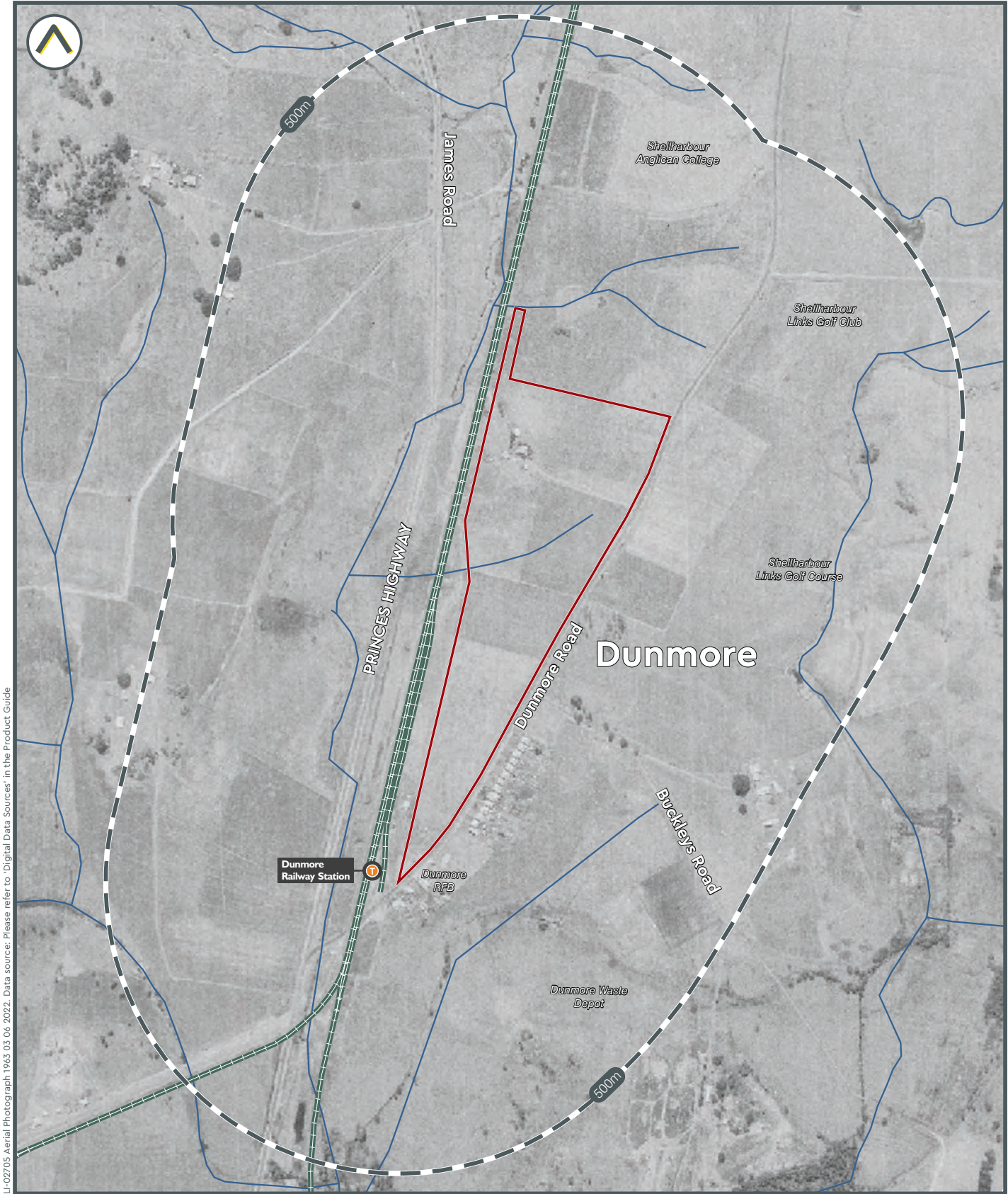
Through time, farming leases expanded (Plate 2.1) as well as the addition of butter manufacturing, coal mining and basalt quarrying, which flourished as industries for the local region (Jervis 1942). Evidence from historical aerial imagery (Figure 2.2) shows the consistent record of farmland around the area from 1963, further indicating that the study area has been repeatedly disturbed through time. Later aerial imagery in 1984 shows the landscape surrounding the project area to be developed for residential and commercial purposes (Figure 2.3). Thin veneers of vegetation remain surrounding cleared land for agricultural activities. The former had the potential to remove or lead to the erosion of the upper soil profile, in which archaeological material is typically constrained and the latter would have submerged, destroyed or removed any extant Aboriginal objects.

Despite disturbance from historic and current land use practices, Aboriginal heritage may remain in the study area. This may include artefact scatters (that would usually be subsurface and visible when disturbed/eroded) and isolated scarred trees.



Plate 2.1 The Parish of Terragong (County of Camden, Land District of Kiama) 1901 map showing the location of the study area within Lot 12, outlined in red (Sydney Department of Lands: G8971.G46)

Historic Aerial Photograph - 1963

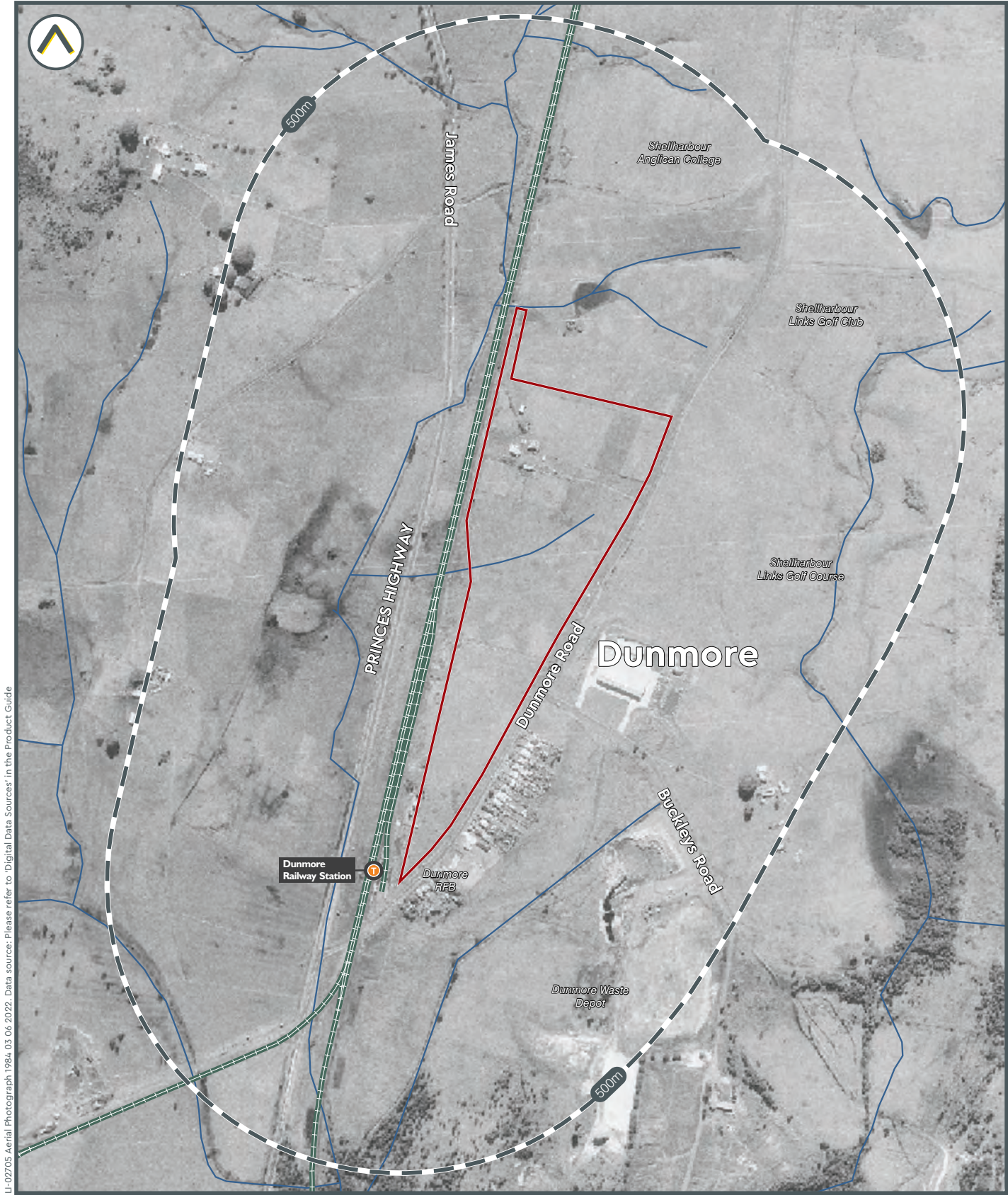


LI-02705 Aerial Photograph 1963 03 04 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 400m

Historic Aerial Photograph - 1984



Subject area

0 400m

3 Aboriginal Cultural Heritage Context

3.1 Ethnographic context

Information about the socio-cultural structure of Aboriginal society prior to European contact largely comes from ethno-historical accounts made by colonial settlers. The primary focus of the majority of these accounts was to record early European expeditions, not Aboriginal culture. These accounts and observations were often made after significant social disruption due to disease and displacement. As a result, this information is often contentious, particularly in relation to language group borders. Therefore, it is likely that language group boundaries were far more diffuse and complex than the arbitrary demarcations drawn by colonial observers.

Over thirty separate Aboriginal groups populated the wider Sydney Basin in 1788, each with their own country, practices, diets, dress, and dialects. We now know of these groups as ‘clans’ and each identified with broader cultural-linguistic groups known as ‘tribes’ – Darug, Darkinjung, Gundungarra, Tharawal, Guringai (Coastal Darug), Eora (Coastal Darug) and Awabakal.

Tindale (1974) drew the boundary for the Wodi Wodi tribal group around Shellharbour (Plate 3.1), which forms part of the Tharawal/Dharawal dialect group. Each group had its own country, dialects and practice, but would have connected with neighbouring tribes through complex trade and social relationships. Wodi Wodi country is believed to encompass the area north of the Shoalhaven River to Wollongong, some 2,600 km².

In 1770, Captain Cook noted smoke columns from Aboriginal fireplaces along the Illawarra coastline while onboard the *Endeavour* (Organ 1990; Lindsay, Organ, and Doyle 1994). First interactions were not recorded until March 26 1796, when Bass and Flinders’ took a single-mast Jollyboat, named the *Tom Thumb*, to explore the south coast (Shellharbour City Council 2019). Encounters revealed that some of the Aboriginal inhabitants were from Sydney (Broken and Botany Bays) as well as the inclusion of white men and women within the group (Organ 1993; 1990). Due to the paucity of available information, it is unclear what the allegiances were at the time between European and first nation people within the group, as well as whether the Aboriginal people from Broken and Botany Bay were in Illawarra temporarily or found the need to relocate.

Governor Macquarie visited Illawarra in 1822 where he met briefly with roughly 100 Aboriginal people near Red Point. He noted that the local people were from various tribes, some as far as Jervis Bay, but all knew who he was and could pronounce his name (Organ 1990). In 1836, Backhouse described a number of Aboriginal camps within grassy open forests in the Illawarra district as well as along the coastline (Green Point and Bulli Point c. 1848) (Beale, Mitchell, and Organ 1991). For example, the *Illawarra Mercury* described a camp of 200 Aboriginal people associated with the Berkeley Estate from the 1840s (Barwick-Hooke 1963). Through time, Aboriginal camps appear to become increasingly associated with European homesteads, although there still seems to be considerable movement between regions.



Plate 3.1 Tindale's map (1974) showing the location of Wodi Wodi country

3.2 Contact and post-contact

The First Fleet landed in Sydney Cove in January of 1788. The belief in the superiority of European life and introduction of foreign food and drink, plants and animals, materials, and disease quickly unsettled the way of life of the local Aboriginal peoples. By the middle of 1788 local groups had begun to express dissatisfaction with the European colonisers and letters to England recounting violent encounters between convicts and Aboriginal people (Warren 2014). In April of 1789 a smallpox epidemic spread through the Aboriginal populations coming from western New South Wales (and originally from trepangers on the north coast of Australia a year or so earlier) (Campbell 2002). Data available suggest that this disease may have killed up to 80% of the population. In Illawarra, by 1820 over 95% (from approximately 3,000 to 33) of the inhabitants were wiped out from disease and persecution (Donaldson, Bursill, and Jacobs 2017; Organ 1990).

For 45 years after Cook's arrival, Illawarra was virtually free of Europeans who wanted to settle. However, in 1815 two Dharawal men led Charles Thornsby down an ancient dreaming track (now Bulli Pass) to excellent pasturage (Donaldson, Bursill, and Jacobs 2017). Thornsby returned with cattle and built the first stockman's shanty in Illawarra. Word of the grassy plains spread, and other Europeans soon followed. Governor Macquarie sent John Oxley to survey Dharawal country for land grants to their employers (Donaldson, Bursill, and Jacobs 2017). The fate of the Illawarra Aboriginal people was sealed by a notice from the Governor in the Sydney Gazette:

Those who have obtained promises of allotments are hereby required to avail themselves of the approaching occasion of the surveyors being on duty in Illawarra to get their locations marked out to them and for this purpose they are required to meet the Surveyor General at the hut of Mr Throsby's Stockman in Illawarra, or the Five Islands district, at noon on Monday, 2 December 1816.

Following this announcement in 1816, 2,100 hectares of Dharawal land (what is now Wollongong) was handed over to five Europeans, signifying the formal beginning of indigenous displacement and occupation (Donaldson, Bursill, and Jacobs 2017). The increasing incursion of Europeans into Illawarra displaced the local population and increased tensions in the region. Aboriginal groups were noted to have raided farms, one example was in 1822 when the Western family's home was burned to the ground along with their crops (Donaldson, Bursill, and Jacobs 2017). This process continued down to Shellharbour in 1821, where more land was given to Europeans, and mostly by one man (Donaldson, Bursill, and Jacobs 2017). D'Arcy Wentworth, the colony's Superintendent of Police, Principal Surgeon and founder of the Bank of NSW owned more than 5,000 hectares of predominantly Wodi Wodi land.

3.3 Previous archaeological investigations

There has been a considerable level of archaeological investigation of the region, primarily from the 1980s onwards. These investigations focus on a range of mining lease exploration and development, residential development and infrastructure activities situated in the vicinity of Bowral and Mittagong to the west, or the outskirts of Wollongong – and notably the West Dapto release area – to the north. These have been summarised and outlined below.

Notable contributors to the identification and management of Aboriginal sites locally and regionally include Archaeological and Heritage Management Solutions Pty Ltd (AHMS) (2010, 2011, 2012) and Australian Museum Business Services (AMBS) (AMBS, 2006). Based on the AHMS data, additional reports in the vicinity of the short-listed sites include a range of studies around the upgrading of the Princes Highway, and include reports and site work by Kelleher Nightingale Consultants, Navin Officer Heritage Consultants, and Artefact Heritage Services. These reports were not consulted for document.

The vast majority of these studies appear to show that past behaviour on these broader coastal plains was dominated by the exploitation of marine and nearby riverine resources, with increasingly ephemeral use of the hinterland during seasonal movement to the uplands in the west. In the Wollongong hinterland, cultural material is dominated by relatively low-density stone artefact scatters ($<30/\text{m}^2$) often found in close proximity to minor (1st and 2nd order) creek lines and on various elevations, crest or ridgelines. For example, the release area-wide study of West Dapto undertaken by AMBS (2006), consisted of considerable surface investigation and test excavations across the region. Despite the extensive investigations, in some 136 test pits situated across the release area, they recovered 425 artefacts (equivalent to $\sim 3/\text{m}^2$), of which 146 were recovered from a single locale on the banks of Forest Creek. These deposits were generally <20 cm, with occasional alluvium up to 1 m in depth. Subsequent work adopting the models of AMBS (2006) were undertaken by AHMS (2010, 2011, 2012) as part of a series of residential development along Bong Road. These reinforced the sparse use of the region, similarly, finding very low densities of cultural material, at a discrete locale on an elevated terrace of Mullet Creek containing ~ 22 artefacts/ m^2 . In both studies, artefacts in these areas were dominated by quartz, chert and silcrete; and in most cases were considered to date to the late Holocene (<5000 years ago).

A further study of relevance was undertaken by Jo McDonald Cultural Heritage Management (JMCHM) in 2003. The JMCHM investigation involved archaeological excavations on the banks of Wingecarribee Swamp, just west of Shellharbour (JMCHM, 2006). These works were initiated by Sydney Catchment Authority following a structural collapse of several of the swamp's banks, which resulted in the loss of substantive parts of a peat unit, exposing a number of Aboriginal sites. JMCHM investigated two of the seven areas containing cultural material – both in the general vicinity of the Intermediate Shaft 1 – and undertook the excavations of $\sim 27 \text{ m}^2$. These excavations indicated the formation of the peat unit, ~ 50 cm in thickness, began forming $\sim 2,700$ years ago, and contained evidence of past visitation. Specifically, 521 artefacts ($7\text{--}74/\text{m}^2$) were recovered within 20 m of the swamps' edge, primarily in the upper 40 cm of the soil profile. The assemblage was dominated by silcrete and quartz raw materials with lesser occurrences of fine grained siliceous and fossilised wood. The site reflected

multiple phases of occupation of the area, which in some instances preceded the formation of the peat unit, which was the focus of the study.

More recently, Navin Officer Heritage Consultants (NOHC) (NOHC 2008) conducted extensive survey investigations of a proposed groundwater bore-field, between East Kangaloon and Renwick, west of Shellharbour. Overall, this study documented 18 Aboriginal sites (7 artefact scatters, five isolated objects, and six culturally modified trees) dominated by silcrete, chalcedony and quartz raw materials, as well as a number of areas of archaeological sensitivity where buried cultural material was considered likely. One site NBF13 (a potential culturally modified tree) and areas of moderate and high archaeological sub-surface potential were also identified. The report made several recommendations for further actions associated with these areas, but it is unclear whether they were ever implemented.

To the west, in the uplands and above the escarpment, the archaeological signature sees increasing diversity, with the steep sandstone country more conducive to rock shelter (and associated deposits), grinding grooves and engraving site types. While studies have been extensive in this area, most notably the recent PhD works by Julie Dibden (2019), the environmental characteristics do not align with any of the short-listed sites in this document.

Kelleher Nightingale Consulting Pty Ltd [KNC] (KNC 2020) completed an ACHA for the site in early 2020. This investigation was targeted at the northern portion of the project area and did not include the southern portion. Overall, the assessment found that the site was largely still intact and contained a shallow loamy topsoil (A1 horizon) overlying a culturally-sterile clay (B2 horizon). Test excavations carried out by KNC found 11 artefacts across 21 test pits, with an average test pit depth of 20 cm. The artefacts were constrained to two discrete locales registered as AHIMS #52-5-0921 and #52-5-0922 (Appendix A). Both sites were low-density stone artefact scatters of flake and flake fragments of “chert, silicified tuff/mudstone and other siliceous materials”, which were contained in a shallow soil profile exhibiting low levels of disturbance. KNC determined the sites were reflective of temporary “in-between” camps used by Aboriginal people travelling to and from the coast, as well as south to the Minnamurra River. Although the artefacts were contained in a shallow soil profile, KNC determined the site was largely still intact, and assessed both sites as having moderate archaeological significance. Artefact scatters are common across NSW, and the identification of moderate significance in this case comes largely from the stratigraphic integrity of the site (rather than the age, contents, depth or density of the deposit), meaning it provides an opportunity to understand the chronology and timing of past activities, which is less common in the region.

An Aboriginal heritage Impact Permit (AHIP) (#4660) was issued to KNC on 17 December for the salvage excavation of each site. The AHIP covers Lot 1 DP1144885 and remains in force for 5 years. This area has since been subdivided to now northern area of the project area of Lot 10 DP 1281639. It permits the complete destruction of AHIMS #52-5-0921 and #52-5-0922 as long as the mitigation measures and a range of other standard conditions are followed. There is no evidence that the mitigation measures have occurred to date.

The following reports have been reviewed and utilised to develop an Aboriginal heritage predictive model for the study area.

3.4 Predictive Model

Based on these studies, the following cultural materials may be expected in the vicinity of the project area:

- artefact scatter sites, isolated finds and potential archaeological deposits are the most common sites, and can occur across most landforms, even in disturbed contexts;
- open stone artefact sites are usually found close to streams on elevated, level to gently inclined landforms such as hill crests and hill spur crests, alluvial plains and terraces;

- subsurface archaeological deposits mostly occur on level to gently inclined landforms, such as hill crests and hill spur crests. To a lesser extent, archaeological deposits are found on foot slopes. However, the integrity and extent of the deposit is reliant on the condition and depth of soils. Where present, stone artefacts are most likely to reflect occupation over the last 5,000 or so years, with few significantly older open sites documented in the region;
- middens of bone, charcoal, stone and freshwater shells may occur along extensive and reliable river systems; and especially along the coastal and lake fringes. If present, they are most likely to occur in association with open camp sites;
- culturally modified trees have not been recorded within the local area previously. Given the early use of the region for timber and/or pastoralism their presence is unlikely. No mature trees occur in the project area. They may exist where native vegetation has been retained in the landscape, or can remain present for a considerable time as dead or felled trees; and if found will often be highly significant to the Aboriginal and scientific community as cultural markings on trees are rare;
- in sandstone uplands, generally some distance to the west of Shellharbour, rock shelters and/or rock art and engravings and grinding grooves are common; and may occur in areas with sandstone outcropping or near vertical escarpments;; and
- burials can occur anywhere in the landscape, but their identification is rare. They may be identified by mounds of earth, carved trees or stone markers, but evidence of burials is generally rare because human bodies are susceptible to the generally acidic Australian environments and other taphonomic processes. Where sub-surface burial is not performed, human bodies can have limited preservation in the archaeological record. Such sites and their component parts are also more susceptible to the impacts of low-level development (such as farming) than other sites.

3.5 AHIMS data

Heritage NSW maintains the Aboriginal Heritage Information Management System (AHIMS), a database of registered Aboriginal heritage sites in NSW. An AHIMS search was undertaken on 2 March 2022 encompassing a 10 km² centred on the study area (Figure 3.1). The results are summarised in Table 3.1 and provided in full in Appendix B

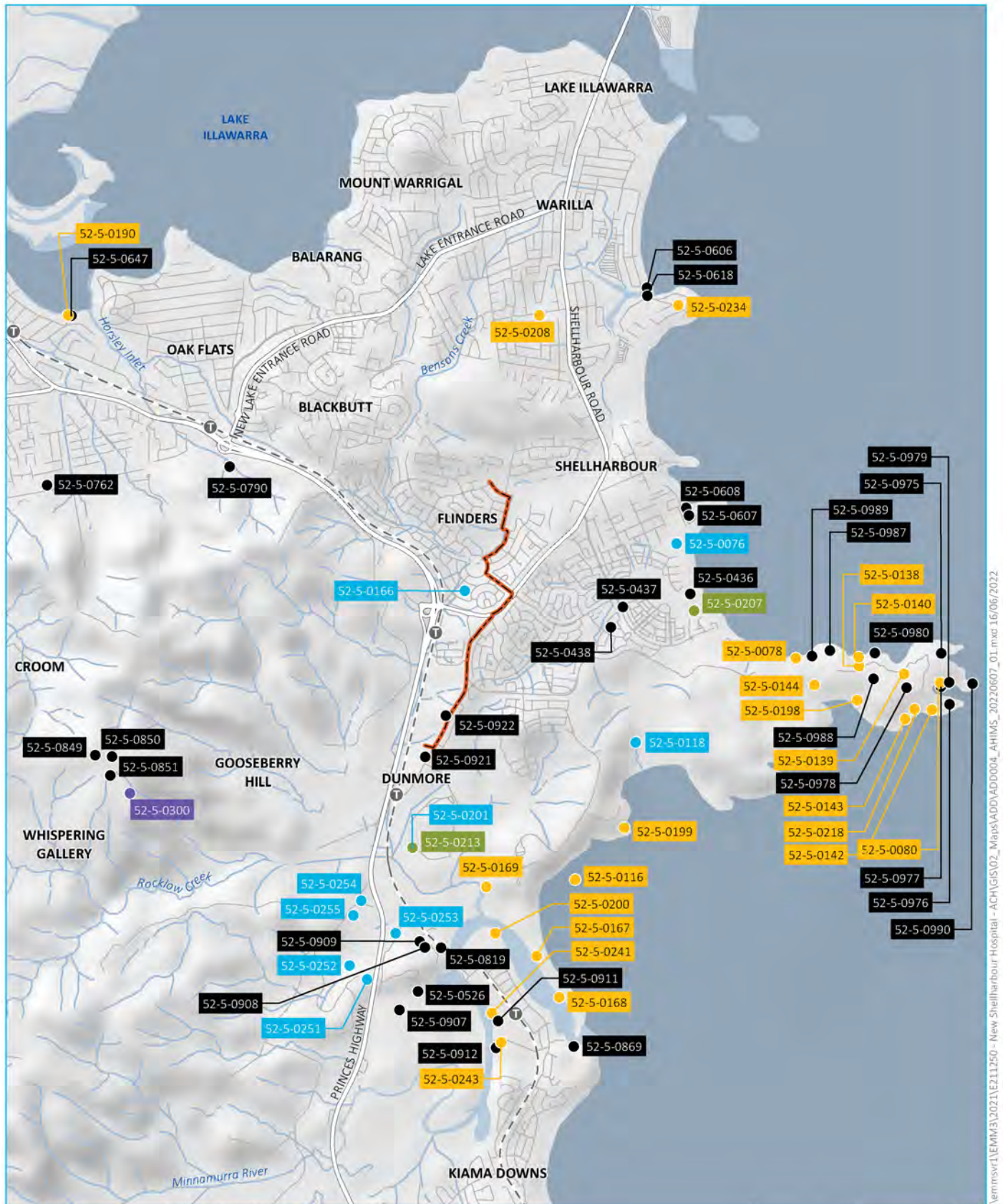
The search identified 82 Aboriginal heritage registered sites, objects and/or places. Of these, four sites have been investigated and determined to not be an Aboriginal site. Additionally, one site (AHIMS # 52-5-0243) is restricted, but upon communication with the department it was determined that it is not within 1 km of the study area. This results in 78 valid sites that remain within the locale. The recorded sites within the search area are dominated by middens (47%) and artefact sites (43%), with lesser occurrences of other site types. Spatially, the sites are concentrated along the coastline, particularly on the headlands surrounding Bass Point and along the riparian corridors of creeks and gullies.

There are two recorded Aboriginal sites within the study area (artefact sites), AHIMS 52-5-0921 and AHIMS 52-5-0922 recorded by KNC in 2019. AHIMS 52-5-0921 is test excavation site with 11 artefacts recovered from 3 test squares excavated at the site. The artefacts were flakes and flake fragments of chert, silicified tuff and medium grained siliceous materials. The site is located in the south eastern portion of Lot 10 DP1281639 adjacent to the western boundary of Dunmore Rd.

AHIMS 52-5-0922 is also a test excavation site with 5 artefacts recovered from 13 test squared excavated at the site. The artefacts were flakes and flake fragments of chert, silicified tuff/mudstone and medium grained siliceous materials. The site is located in the eastern portion of Lot 10 DP1281639 adjacent to the western boundary of Dunmore Road.

Table 3.1 **Summary of AHIMS site types within the search area**

Site type	Subcategory	Total
Aboriginal ceremony and dreaming		1
Aboriginal resource and gathering		1
Axe grinding grooves		1
Artefact site		34
– <i>Specific number of artefacts</i>	4	
– <i>Unspecified number of artefacts</i>	29	
– <i>Isolated find</i>	1	
Culturally modified tree		1
Middens		37
– <i>middens</i>	3	
– <i>midden with artefacts</i>	32	
– <i>midden with PAD and artefacts</i>	2	
Rockshelters		1
– <i>rockshelter with artefacts</i>	1	
Stone arrangement		1
PAD/Not a site		4
Restricted		1
TOTAL		82



KEY

- | | |
|------------------------------|-----------------------------|
| — Proposed electricity cable | Existing environment |
| AHIMS (site type) | — Rail line |
| ● Other | Ⓜ Train station |
| ● Midden | — Major road |
| ● Midden, Open camp site | — Minor road |
| ● Open camp site | — Watercourse/drainage line |
| ● Scarred tree | ■ Named waterbody |
| ● Shelter with deposit | |

0 1 2 km
GDA2020 MGA Zone 56

AHIMS

New Shellharbour Hospital
Electricity Transmission Line
Aboriginal Due Diligence
Figure 3.1

3.6 Implications for Aboriginal archaeology

Particular landforms are known to have been favoured locations for repeated or long-term occupation and are therefore, more likely to retain archaeological evidence of past Aboriginal use. Within the *Due Diligence Code of Practice for the Protection of Aboriginal Objects* in NSW (DECCW 2010), Heritage NSW specifies five landscape features which are likely to indicate the presence of Aboriginal objects:

1. within 200 m of waterways;
2. within a sand dune system;
3. on a ridge top, ridge line or headland;
4. within 200 m below of above a cliff face; and
5. within 200 m of or in a cave, rockshelter, or a cave mouth.

Although several minor creek lines surround the study area, they have all been modified and are potentially of post-European origin. The closest major watercourse is Rocklow Creed to the south. The entire study area is a significant distance beyond areas where archaeological sensitivity triggered by the presence of water would be expected. No other landforms of interest thresholds apply.

Based on the environmental, ethnographic and archaeological context outlined in Sections 3-5, it can be summarised that occupation deposits containing shell (midden) and stone artefacts that are common in the region and are most likely to be identified within the study area if present in areas along the crest on the ridgeline heading to Rocklow Creek.

Traditional Aboriginal burials can occur anywhere in the landscape, but in coastal areas they are most commonly found within soft, sandy sediment contexts. Burial sites have been historically noted in the region, however it is unlikely that they would occur in the study area. Other site types are documented in the broader region, but they are considered unlikely to be present within the study area given the current conditions.

4 Site inspection

A site inspection was undertaken on 15 June 2022 by EMM Heritage Specialist Joel Mason, along with Mr Roy Stewart of the Illawarra Local Aboriginal Land Council (ILALC). The project area and the HV feeder line from the project area to the Shellharbour Zone Substation was inspected to identify any previously recorded Aboriginal objects and areas of archaeological potential that may be present (Plate 4.1 to Plate 4.14).

The project area is situated on a gently inclined hillslope, sloping to the southwest. The overall ground surface visibility was very poor (0 – 10%) due to thick grass coverage across the project area (Plate 4.1 – Plate 4.2). Ground surface exposures were limited to the edge of the road and tracks. In the areas of ground surface exposure, a brown silty loam with mixed gravels could be observed.

No active waterways were identified within the project area as a result of this site inspection. Drainage lines would follow the south western slope of the project area however these would only be observed during or shortly after heavy rainfall.

4.1 Project Area

The project area has been subject to various disturbance activities that have had localised impacts to the project area. Impacts include the drive way from Dunmore Rd to the house located in the northern portion and the driveway to the Dunmore Train station in the southern portion (Plate 4.2). Other disturbances also come in the form of services (water, comms, etc) have had localised impacts within the project area, particularly adjacent to Dunmore Road where a number of service pits were observed on the boundary of the site. Additionally, along the Dunmore Road boundary, the landform has been cut and/or filled where needed to ensure level ground for the road and road verge. Lastly, the area has been used for low-intensity grazing activities in the past with scattered remains of buildings and dams associated with this activity are evident along the project area.



Plate 4.1 **Location of HV padmount substation in Lot 10 DP1281639.**



Plate 4.2 **Driveway leading to house and farming estate. View west**

AHIMS # 52-5-0921 (Plate 4.3) and AHIMS #52-5-0922 (Plate 4.4) were revisited as part of the field investigation. Both areas were overgrown with no visibility or exposures. No additional artefacts were found in these areas.



Plate 4.3 Recorded location of AHIMS 52-5-0921, view south east with Dunmore Rd in the background.



Plate 4.4 Recorded location of AHIMS 52-5-0922. View south west

4.1.1 SH-FL01 – artefact scatter

A low density artefact scatter was observed on the road verge at the southern portion of Lot 1 DP302910 adjacent to Dunmore Road. The site is located mid-slope with a low gradient slope to the south west. The artefact scatter consisted of eight artefacts with one quartzite flaked piece, and seven chert flaked pieces found over an area of 10m x 10m. These artefacts were found mixed in with the imported road gravel that forms the road verge. Exposure of this area was 100% with 20% visibility due to the background gravels imported on the road. The artefact scatter was found in the mixed gravel that was laid upon the surface of the site, however it was not possible to discern if these artefacts were brought in as fill or were exposed during the deposit of the imported gravel. There is moderate potential for there to be additional artefacts in the area and low potential for there to be subsurface archaeological deposits.



Plate 4.5 Chert flaked pieces



Plate 4.6 Quartzite flaked piece



Plate 4.7 Chert flaked piece



Plate 4.8 Context of SH-FL01 showing the road gravels

4.1.2 SH-FL02-PAD

An area of potential archaeological deposit was identified in the north eastern portion of Lot 1 DP302910 located on the spur crest area adjacent to Dunmore Road (Plate 4.9). This area is a continuation of the landform associated with the PAD area of AHIMS # 52-5-0921 that KNC (2020) confirmed to have subsurface deposit and artefacts. The spur crest follows the ridgeline down towards Rocklow Creek. There is moderate surface disturbance in this area with the construction of the driveway to Dunmore Train Station and the road verge for Dunmore Road. Whilst localised areas of moderate disturbance were observed, much of the PAD area is relatively undisturbed and due the results of the test excavation conducted by KNC (2020) confirms that artefacts are in the associated landform(Plate 4.9).



Plate 4.9 Location of SH-FL02-PAD on the flat area of the spur line in Lot 1 DP 302910. View south.



Plate 4.10 **Boundaries of SH-FL02-PAD and SH-FL01**

4.2 Underground HV feeder

The site inspection also included the area of the proposed installation of the underground HV feeder from Shellharbour Zone substation to the HV padmount substation in the project area (Appendix C). The proposed HV electrical cabling followed along the road reserves between the project area and the Shellharbour Zone substation approximately 5 km in distance (Plate 4.11). Modern disturbance in the form of services (water, comms, etc) have had impacts within the area of the proposed HV electrical cabling as well as the construction of pedestrian side walks and landscaped areas (Plate 4.12-Plate 4.14). Overall the visibility and exposure of this area was 0% due to the construction and highly disturbed sections of the road reserve and urban streetscape. No Aboriginal objects, culturally modified trees or areas of potential archaeological deposit were identified during this site inspection.



Plate 4.11 Proposed location of HV electricity cabling outside the project area along Dunmore Road. View north



Plate 4.12 Proposed location of the HV electricity cabling on Lakewood Blvd. View north west.



Plate 4.13 Proposed location of the HV electricity cabling on the pedestrian laneway adjacent Flinders Field. View north east.



Plate 4.14 Proposed location of HV electricity cabling towards the Shellharbour Zone substation in the background. View west.

5 Conclusions and recommendations

The assessment investigated the project area, the proposed HV feeder electricity cabling and padmount substation and the potential for Aboriginal objects to occur. Based on the environmental and archaeological background of the region, the main evidence of past Aboriginal occupation would be present in the form of artefacts (scatters or isolated finds) and potential archaeological deposits found upon and/or within a shallow duplex soil profile. Overall there is low potential for impact to aboriginal heritage for the enabling works of the electricity cabling and padmount substation. Based on this information, combined with the findings outlined above, it is recommended that:

- SH-FL01 and SH-FL02-PAD to be registered on AHIMS; and
- Any subsequent ground disturbance works in the vicinity of SH-FL01 and SH-FL02-PAD area will require further investigation and an application of an AHIP to be prepared; and
- the nature of disturbance does not preclude the potential for isolated finds, which is a common site type across the region, even in disturbed contexts. In the event of unexpected Aboriginal objects, sites or places (or it is recommended that: potential Aboriginal objects, site or places) are discovered during construction, all works in the vicinity should cease and the proponent should determine the subsequent course of action in consultation with a heritage professional and/or the relevant State government agency as appropriate; and
- this documentation may be summarised within and/or appended to a Development Application (DA), and a Review of Environment Factors (REF). If any Aboriginal objects are later identified within the proposed activity area, this report cannot be used alone to support an application for an Aboriginal Heritage Impact Permit (AHIP). Such an application would require more detailed investigation involving a formal process of Aboriginal community consultation and the preparation of an Aboriginal Cultural Heritage Assessment (ACHA); and
- if human skeletal material are discovered, the *Coroners Act 2009* requires that all works should cease, and the NSW Police and the NSW Coroner's Office should be contacted. Traditional Aboriginal burials (older than 100 years) are protected under the *National Parks and Wildlife Act 1974* and should not be disturbed. Interpreting the age and nature of skeletal remains is a specialist field and an appropriately skilled archaeologist or physical anthropologist should therefore be contacted to inspect the find and recommend an appropriate course of action. Should the skeletal material prove to be archaeological or Aboriginal remains, notification of DPC and the Local Aboriginal Land Council will be required. Notification should also be made to the Commonwealth Minister for the Environment, under the provisions of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*.

Yours sincerely



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Appendix A

AHIMS Site Search

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-5-0765	Yallah to Oak Flats IF 3	GDA	56	297780	6171630	Open site	Valid	Artefact : -		
	Contact	Recorders								
52-5-0762	Yallah to Oak Flats AS 1	GDA	56	298391	6171662	Open site	Valid	Artefact : -		
	Contact	Recorders								
52-5-0850	Croome West AFT 2	GDA	56	299050	6168911	Open site	Valid	Artefact : -		
	Contact	Recorders								
52-5-0072	Minnamurra Glengowrie	AGD	56	301450	6165490	Open site	Valid	Shell : -, Artefact : -	Midden	687,1662,2048
	Contact	Recorders								
52-5-0909	DLS Boral AFT 3	GDA	56	302177	6167036	Open site	Valid	Artefact : -		104811,104812
	Contact	Recorders								
52-5-0921	Dunmore Road Dunmore AFT 1	GDA	56	302232	6168906	Open site	Valid	Artefact : -		
	Contact	Recorders								
52-5-0198	Bass Point;Shellharbour;	AGD	56	306520	6169290	Open site	Valid	Shell : -, Artefact : -	Midden	102212
	Contact	Recorders								
52-5-0143	Bass Point Bass Point 9	AGD	56	307004	6169097	Open site	Valid	Shell : -, Artefact : -	Midden	95,102212
	Contact	Recorders								
52-5-0218	Bass Point;	AGD	56	307100	6169200	Open site	Valid	Shell : -, Artefact : -	Midden	102212
	Contact	Recorders								
52-5-0118	Dunmore;	AGD	56	304265	6168860	Open site	Valid	Artefact : -	Open Camp Site	102212
	Contact	Recorders								
52-5-0201	Dunmore Midden Shellharbour Waste Disposal Dump	AGD	56	302000	6167800	Open site	Valid	Artefact : -	Open Camp Site	901
	Contact	Recorders								
52-5-0213	Dunmore Midden	AGD	56	302000	6167800	Open site	Valid	Artefact : -, Shell : -	Midden,Open Camp Site	901
	Contact	Recorders								
52-5-0241	Minnamurra Site 1;	GDA	56	302910	6166310	Open site	Valid	Shell : -, Artefact : -	Midden	1525,104074,104075,104264,104265
	Contact	Recorders								
52-5-0912	MBW PAD 2	GDA	56	302953	6165955	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		104264,104265
	Contact	Recorders								
52-5-0849	Croome West AFT 3	GDA	56	298880	6168925	Open site	Valid	Artefact : -		
	Contact	Recorders								
52-5-0144	Bass Point Bass Point 10	AGD	56	306082	6169444	Open site	Valid	Shell : -, Artefact : -	Midden	95,102212
	Contact	Recorders								

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-5-0145	Bass Point Bass Point 11	AGD	56	306082	6169444	Open site	Valid	Shell : -, Artefact : -	Midden	95,102212
	Contact	Recorders	ASRSYS					Permits		
52-5-0138	Bass Point Bass Point 2	AGD	56	306536	6169636	Open site	Valid	Shell : -, Artefact : -	Midden	95
	Contact	Recorders	Sandra Bowdler					Permits		
52-5-0141	Bass Point Bass Point 7	AGD	56	307276	6169194	Closed site	Valid	Artefact : -	Shelter with Deposit	95,102212
	Contact	Recorders	ASRSYS					Permits		
52-5-0199	Killalea Beach;S.R.A.;Albion Park;	AGD	56	304150	6168000	Open site	Valid	Shell : -, Artefact : -	Midden	102212
	Contact	Recorders	A Anderson					Permits		
52-5-0112	Minnamurra;	AGD	56	302052	6165157	Open site	Valid	Shell : -, Artefact : -	Midden	2048
	Contact	Recorders	Kate Sullivan					Permits		
52-5-0869	James Oates Reserve midden	GDA	56	303744	6165971	Open site	Valid	Shell : -		
	Contact	Recorders	Rod Wellington,NPWS - Narooma					Permits		
52-5-0116	Dunmore;Killalea;	AGD	56	303652	6167475	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	Recorders	Kate Sullivan					Permits		
52-5-0240	Min 1;	AGD	56	300650	6164660	Open site	Valid	Shell : -, Artefact : -	Midden	1473,99329
	Contact	Recorders	Margrit Koettig					Permits		
52-5-0160	Minnamurra;	AGD	56	301143	6164865	Open site	Valid	Shell : -, Artefact : -	Midden	1473,99329
	Contact	Recorders	ASRSYS					Permits		
52-5-0907	DLS Boral AFT 1	GDA	56	301970	6166341	Open site	Valid	Artefact : -		104811,104812
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd,Ms.Cristany Milicich,Mr.Matthew Kelleher,					Permits		
52-5-0980	Bass Point Landform - Inter-Tidal Zone	GDA	56	306803	6169958	Open site	Valid	Aboriginal Resource and Gathering : 1, Artefact : 1, Potential Archaeological Deposit (PAD) : 1, Shell : 1		
	Contact	Recorders	Ms.Mary-Jean Sutton,Virtus Heritage Pty Ltd - Pottsville					Permits		
52-5-0139	Bass Point Bass Point 3	AGD	56	306995	6169554	Open site	Valid	Shell : -, Artefact : -	Midden	95,102212
	Contact	Recorders	ASRSYS					Permits		
52-5-0977	Bass Point Landform - Gulches Eroded from Volcanic Dykes	GDA	56	307474	6169615	Open site	Valid	Aboriginal Resource and Gathering : 1, Shell : 1		
	Contact	Recorders	Ms.Gina Scheer,Virtus Heritage Pty Ltd - Pottsville					Permits		
52-5-0976	Bass Point Landform - Enclosed Bays	GDA	56	307559	6169440	Open site	Valid	Aboriginal Resource and Gathering : 1		
	Contact	Recorders	Ms.Mary-Jean Sutton,Virtus Heritage Pty Ltd - Pottsville					Permits		

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-5-0235	Tabbogong;	AGD	56	297200	6167000	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1330
	Contact	Recorders	Kerry Navin					Permits		
52-5-0078	Bass Point Bass Point 1	AGD	56	305894	6169715	Open site	Valid	Shell : -, Artefact : -	Midden	95,427,1605,2048,102212
	Contact	Recorders	R Lampert					Permits		
52-5-0911	MBW PAD 3	GDA	56	302975	6166230	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		104264,104265
	Contact	Recorders	Biosis Pty Ltd - Wollongong,Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats,Mrs.S					Permits	4551	
52-5-0242	Minamurra Site 2;	AGD	56	302900	6165500	Open site	Valid	Shell : -, Artefact : -	Midden	1525
	Contact	Recorders	I Lilley					Permits		
52-5-0787	YTOF AS 3	GDA	56	297341	6171087	Open site	Valid	Artefact : -		
	Contact	Recorders	Artefact - Cultural Heritage Management - Pyrmont,Artefact - Cultural Heritage Ma					Permits		
52-5-0142	Bass Point Bass Point 8	AGD	56	307276	6169194	Open site	Valid	Shell : -, Artefact : -	Midden	95,102212
	Contact	Recorders	ASRSYS					Permits		
52-5-0437	SH 2 (Shellcove)	AGD	56	304138	6170238	Open site	Valid	Artefact : 8		102212,103373
	Contact	Recorders	Therin Archaeological Consulting					Permits	2534	
52-5-0922	Dunmore Road Dunmore AFT 2	GDA	56	302444	6169322	Open site	Valid	Artefact : -		
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd,Miss.Kristen Taylor					Permits	4660	
52-5-0166	Shell Harbour Shell Harbour 1	AGD	56	302530	6170400	Open site	Valid	Artefact : -	Open Camp Site	656,102212
	Contact	Recorders	S Cohen,Doctor.Sue Feary					Permits	342	
52-5-0167	Minnamurra;Minnamurra Spit 2;	AGD	56	303260	6166700	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	Recorders	Rod Wellington					Permits		
52-5-0252	Dunmore 2;	AGD	56	301360	6166600	Open site	Valid	Artefact : -	Open Camp Site	1662
	Contact	Recorders	Kerry Navin,Mr.Kelvin Officer					Permits		
52-5-0254	Dunmore 4;	AGD	56	301480	6167260	Open site	Valid	Artefact : -	Open Camp Site	1662
	Contact	Recorders	Kerry Navin,Mr.Kelvin Officer					Permits	1519	
52-5-0793	YTOF AS 8	GDA	56	297390	6170953	Open site	Valid	Artefact : -		
	Contact	Recorders	Artefact - Cultural Heritage Management - Pyrmont,Ms.Alyce Howard					Permits		
52-5-0988	Bass Point Landform - Vegetated Hillsides	GDA	56	306789	6169696	Open site	Valid	Aboriginal Ceremony and Dreaming : 1, Aboriginal Resource and Gathering : 1, Artefact : 1, Potential Archaeological Deposit (PAD) : 1, Shell : 1		

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : E211250 Shellharbour

Client Service ID : 663860

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor.Mary-Jean Sutton,Virtus Heritage Pty Ltd - Pottsville					Permits		
52-5-0975	Bass Point Landform - Boulder Beaches	GDA	56	307478	6169954	Open site	Valid	Aboriginal Resource and Gathering : 1, Shell : 1		
	Contact	Recorders	Ms.Gina Scheer,Virtus Heritage Pty Ltd - Pottsville					Permits		
52-5-0076	Shellharbour;	AGD	56	304682	6170880	Open site	Valid	Artefact : -	Open Camp Site	2048,102212
	Contact	Recorders	K Jeffcoat					Permits		
52-5-0438	SH 3 (Shellcove)	AGD	56	304016	6170032	Open site	Valid	Artefact : 5		102212,103373
	Contact T Russell	Recorders	Therin Archaeological Consulting					Permits	2534	
52-5-0253	Dunmore 3	AGD	56	301830	6166930	Open site	Valid	Artefact : -	Open Camp Site	687,1662,2048
	Contact	Recorders	Kerry Navin,Mr.Kelvin Officer					Permits		
52-5-0819	Riverside Drive 1	GDA	56	302395	6166973	Open site	Valid	Artefact : 1, Shell : 1		
	Contact	Recorders	Mr.Neville Baker,Baker Archaeology Pty Ltd					Permits		
52-5-0764	Yallah to Oak Flats IF 2	GDA	56	297764	6171595	Open site	Valid	Artefact : -		
	Contact	Recorders	Artefact - Cultural Heritage Management - Pyrmont,Ms.Alyce Howard					Permits		
52-5-0413	Duke -9	AGD	56	297760	6168130	Open site	Valid	Artefact : 2		
	Contact	Recorders	Stuart Huys					Permits		
52-5-0913	MBW PAD 1	GDA	56	302858	6164954	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		104264,104265
	Contact	Recorders	Biosis Pty Ltd - Wollongong,Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats,Mrs.S					Permits	4551	
52-5-0851	Croome West AFT 1	GDA	56	299035	6168718	Open site	Valid	Artefact : -		
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd,Miss.Kristen Taylor					Permits		
52-5-0790	YTOF AS 6	GDA	56	300246	6171853	Open site	Valid	Artefact : -		
	Contact	Recorders	Artefact - Cultural Heritage Management - Pyrmont,Ms.Alyce Howard					Permits		
52-5-0251	Dunmore 1	AGD	56	301540	6166460	Open site	Valid	Artefact : -	Open Camp Site	687,1662,2048
	Contact	Recorders	Kerry Navin,Mr.Kelvin Officer					Permits		
52-5-0117	Minnamurra;AFT	GDA	56	301740	6165565	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Kate Sullivan,Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generi					Permits		
52-5-0989	Bass Point Landform - Supra-tidal Zone including Sea Cliffs	GDA	56	306162	6169928	Open site	Valid	Aboriginal Resource and Gathering : 1, Artefact : 1, Potential Archaeological Deposit (PAD) : 1, Shell : 1		
	Contact	Recorders	Ms.Mary-Jean Sutton,Virtus Heritage Pty Ltd - Pottsville					Permits		
52-5-0140	Bass Point Bass Point 5	AGD	56	306534	6169728	Open site	Valid	Shell : -, Artefact : -	Midden	95,102212
	Contact	Recorders	Sandra Bowdler					Permits		

Report generated by AHIMS Web Service on 02/03/2022 for Morgan Wilcox for the following area at Lat, Long From : -34.6394, 150.7885 - Lat, Long To : -34.5687, 150.912. Number of Aboriginal sites and Aboriginal objects found is 82

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : E211250 Shellharbour

Client Service ID : 663860

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-5-0080	Bass Point Bass Point 4	AGD	56	307362	6169470	Open site	Valid	Shell : -, Artefact : -	Midden	877,1605,2048,102212
	<u>Contact</u>	<u>Recorders</u>	Phil Hughes,Margery Sullivan							<u>Permits</u>
52-5-0608	SBTP-PAD-2	GDA	56	304884	6171432	Open site	Not a Site	Potential Archaeological Deposit (PAD) : 1		102296
	<u>Contact</u>	<u>Recorders</u>	Austral Archaeology Pty Ltd - Liverpool,Austral Archaeology Pty Ltd - Liverpool,Mr							<u>Permits</u> 3387
52-5-0990	Bass Point Landform - Offshore Stacks Islets and Bomboras	GDA	56	307795	6169647	Open site	Valid	Aboriginal Resource and Gathering : 1		
	<u>Contact</u>	<u>Recorders</u>	Ms.Mary-Jean Sutton,Virtus Heritage Pty Ltd - Pottsville							<u>Permits</u>
52-5-0200	Minnamurra;S.R.A.;Albion Park;	AGD	56	302840	6166930	Open site	Valid	Shell : -, Artefact : -	Midden	
	<u>Contact</u>	<u>Recorders</u>	A Anderson							<u>Permits</u>
52-5-0607	SBTP-PAD-1	GDA	56	304913	6171357	Open site	Not a Site	Potential Archaeological Deposit (PAD) : 1		
	<u>Contact</u>	<u>Recorders</u>	Austral Archaeology Pty Ltd - Liverpool,Austral Archaeology Pty Ltd - Liverpool,Mr							<u>Permits</u> 3387
52-2-1791	DQ1;	AGD	56	299200	6168660	Open site	Valid	Artefact : -	Open Camp Site	1992
	<u>Contact</u>	<u>Recorders</u>	Mr.Kelvin Officer							<u>Permits</u>
52-5-0168	Minamurra;Minamurra Spit 1;	AGD	56	303490	6166280	Open site	Valid	Shell : -, Artefact : -	Midden	
	<u>Contact</u>	<u>Recorders</u>	ASRSYS							<u>Permits</u>
52-5-0397	TEST PITTING AREA 15	AGD	56	299550	6164900	Open site	Valid	Artefact : -		99329
	<u>Contact</u>	<u>Recorders</u>	Stuart Huys							<u>Permits</u>
52-5-0255	Dunmore 5;	AGD	56	301400	6167110	Open site	Valid	Artefact : -	Open Camp Site	1662
	<u>Contact</u>	<u>Recorders</u>	Kerry Navin,Mr.Kelvin Officer							<u>Permits</u> 1519
52-5-0526	Minnamurra River Shell Midden 1 (MR 1)	AGD	56	302054	6166338	Open site	Valid	Shell : -, Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Mary Dallas Consulting Archaeologists (MDCA)							<u>Permits</u> 2920
52-5-0908	DLS Boral AFT 2	GDA	56	302231	6166976	Open site	Valid	Artefact : -		104811,104812
	<u>Contact</u>	<u>Recorders</u>	Kelleher Nightingale Consulting Pty Ltd,Ms.Cristany Milicich							<u>Permits</u>
52-5-0079	Bass Point Bass Point 6	AGD	56	307362	6169470	Open site	Valid	Shell : -, Artefact : -	Midden	95,1605,2048,102212
	<u>Contact</u>	<u>Recorders</u>	Phil Hughes,Margery Sullivan							<u>Permits</u>
52-5-0979	Bass Point Landform - Prominent Lagoons and Rock Pools	GDA	56	307556	6169663	Open site	Valid	Aboriginal Resource and Gathering : 1		
	<u>Contact</u>	<u>Recorders</u>	Ms.Mary-Jean Sutton,Virtus Heritage Pty Ltd - Pottsville							<u>Permits</u>
52-5-0077	Bass Point;Bass Point 2;	AGD	56	305894	6169715	Open site	Valid	Shell : -, Artefact : -	Midden	1605,2048,102212
	<u>Contact</u>	<u>Recorders</u>	Phil Hughes							<u>Permits</u>
52-5-0159	Tabbagong;Tabbagong 1;	AGD	56	301865	6165336	Open site	Valid	Shell : -, Artefact : -	Midden	
	<u>Contact</u>	<u>Recorders</u>	Klim Gollan							<u>Permits</u>

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : E211250 Shellharbour

Client Service ID : 663860

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-5-0436	SH1 (Shellcove)	AGD	56	304821	6170370	Open site	Valid	Artefact : 10		102212,103373
	<u>Contact</u> T Russell	<u>Recorders</u>	Therin Archaeological Consulting					<u>Permits</u>	2534	
52-5-0207	Shellharbour Beach;	AGD	56	304859	6170198	Open site	Valid	Shell : -, Artefact : -	Midden,Open Camp Site	937,102212,103373
	<u>Contact</u>	<u>Recorders</u>	Doctor.Susan (left ahms) McIntyre-Tamwoy					<u>Permits</u>	628,2534	
52-5-0169	Minamurra;Bass Point SRA;	AGD	56	302750	6167400	Open site	Valid	Shell : -, Artefact : -	Midden	102212
	<u>Contact</u>	<u>Recorders</u>	Miss.Marjorie Sullivan					<u>Permits</u>		
52-5-0300	DQ2;	AGD	56	299130	6168350	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1992
	<u>Contact</u>	<u>Recorders</u>	Mr.Kelvin Officer					<u>Permits</u>	1770,2137	
52-5-0451	MR-IF-1, Kiama	AGD	56	301530	6165440	Open site	Valid	Artefact : 1		
	<u>Contact</u> T Russell	<u>Recorders</u>	Jim Kelton					<u>Permits</u>		
52-5-0987	Bass Point Landform - Sand Beaches	GDA	56	306345	6169982	Open site	Valid	Aboriginal Resource and Gathering : 1, Artefact : 1, Shell : 1		
	<u>Contact</u>	<u>Recorders</u>	Ms.Mary-Jean Sutton,Virtus Heritage Pty Ltd - Pottsville					<u>Permits</u>		
52-5-0978	Bass Point Landform - Headland Dunes	GDA	56	307125	6169607	Open site	Valid	Aboriginal Resource and Gathering : 1, Stone Arrangement : 1		
	<u>Contact</u>	<u>Recorders</u>	Ms.Mary-Jean Sutton,Virtus Heritage Pty Ltd - Pottsville					<u>Permits</u>		
52-5-0825	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			
	<u>Contact</u>	<u>Recorders</u>	Rod Wellington					<u>Permits</u>		
52-5-0243	Green Three"Minnamurra Golf Course";	AGD	56	302900	6165820	Open site	Valid	Shell : -, Artefact : -	Midden	
	<u>Contact</u>	<u>Recorders</u>	Doctor.Johan Kamminga					<u>Permits</u>		

** Site Status

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 02/03/2022 for Morgan Wilcox for the following area at Lat, Long From : -34.6394, 150.7885 - Lat, Long To : -34.5687, 150.912. Number of Aboriginal sites and Aboriginal objects found is 82

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Appendix B

AHIMS Site Cards

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville 2220 NSW

AHIMS site ID: 52-5-0921

Date recorded: 12-07-2019

Site Location Information

Site name: Dunmore Road Dunmore AFT 1

Easting: 302232

Northing: 6168906

Coordinates must be in GDA (MGA)

Horizontal Accuracy (m):

5

Zone: 56

Location method:

Client GIS or CAD system

Recorder Information

(The person responsible for the completion and submission of this form)

Title

Surname

First name

Ms.

Taylor

Kristen

Organisation: Kelleher Nightingale Consulting Pty Ltd

Address: Level 10, Bligh St, Sydney NSW 2000

Phone: 0292325373

E-mail:

kristen.taylor@knconsult.com.au

Site Context Information

Land Form
Pattern:

Undulating Plain

Land Use:

Farming Low Intensity

Land Form
Unit:

Crest

Vegetation:

Cleared

Distance to
Water (m):

120

Primary
Report:

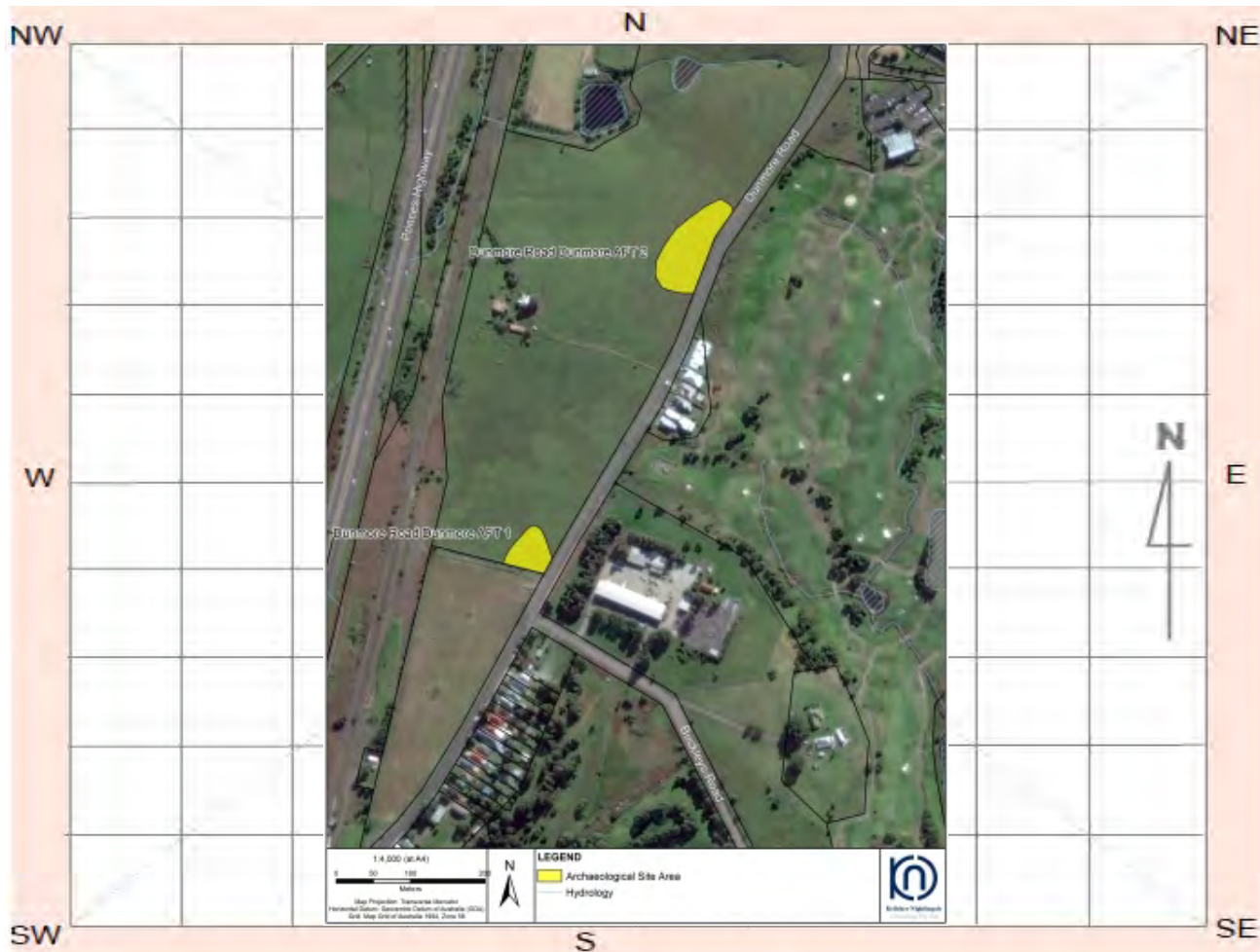
How to get
to the site:

The site is located within the south eastern portion of Lot 1
DP1144885 adjacent to the western boundary of Dunmore Road and
approximate 55 metres north of the intersection of Dunmore Road and
Buckleys Road

Other site
information:

Test excavation found a shallow deposit with low disturbance.

Site location map



Site contents information

open/closed site:

Site condition:	Good
------------------------	------

Features:

1. Artefact

Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
--------------------	---------------------------------	---------------------------------

11

60

50

Scar Depth Regrowth (cm) Scar shape Tree Species

Description:

11 artefacts were recovered from 3 test squares excavated at the site. The artefacts were flakes and flake fragments of chert, silicified tuff/mudstone and medium grained siliceous materials.

Features:

2.

Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
--------------------	---------------------------------	---------------------------------

7

9

7

Scarred Trees			
Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
10	15	Irregular	Redwood
15	20	Linear	Douglas Fir
20	25	Irregular	Sequoia
25	30	Linear	Western Red Cedar
30	35	Irregular	Yellow Pine
35	40	Linear	White Pine
40	45	Irregular	Jefferson Pine
45	50	Linear	Liberty Pine
50	55	Irregular	Monterey Pine
55	60	Linear	Parry Pine
60	65	Irregular	Ponderosa Pine
65	70	Linear	Shasta Red Fir
70	75	Irregular	Sierra Redwood
75	80	Linear	Sierra Yellow Pine
80	85	Irregular	Sierra White Pine
85	90	Linear	Sierra Yellow Pine
90	95	Irregular	Sierra White Pine
95	100	Linear	Sierra Yellow Pine

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Description:

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
3.	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description:

<div></div>

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
4.	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description:

<div></div>

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
5.	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description:

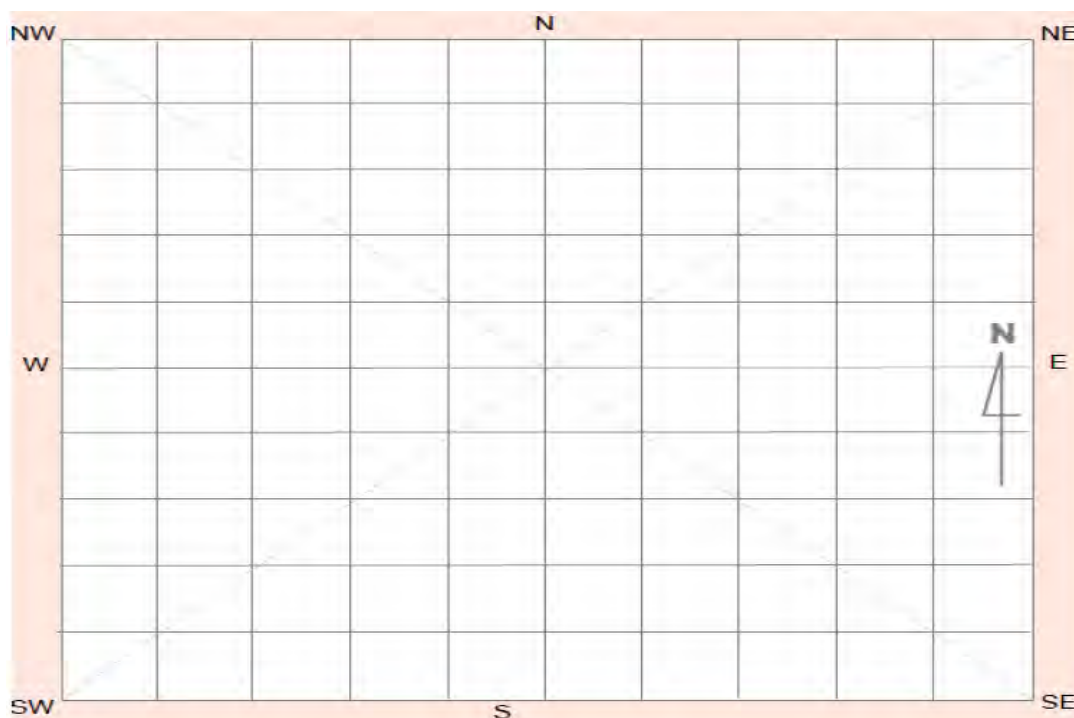
<div></div>

Scarred Trees

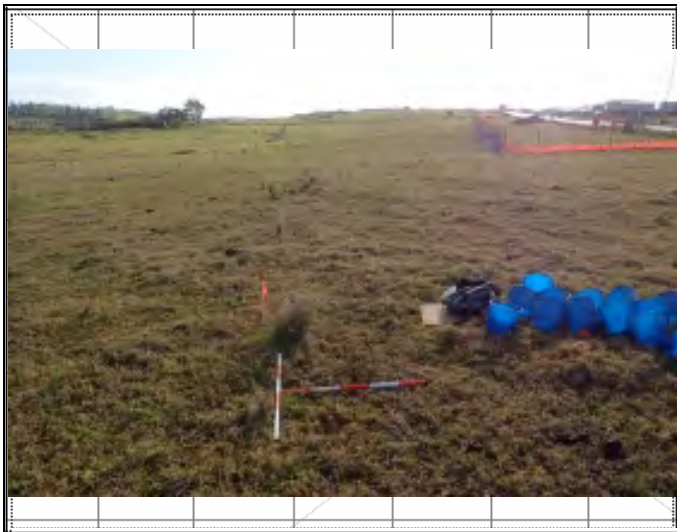
Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Other Site Info:

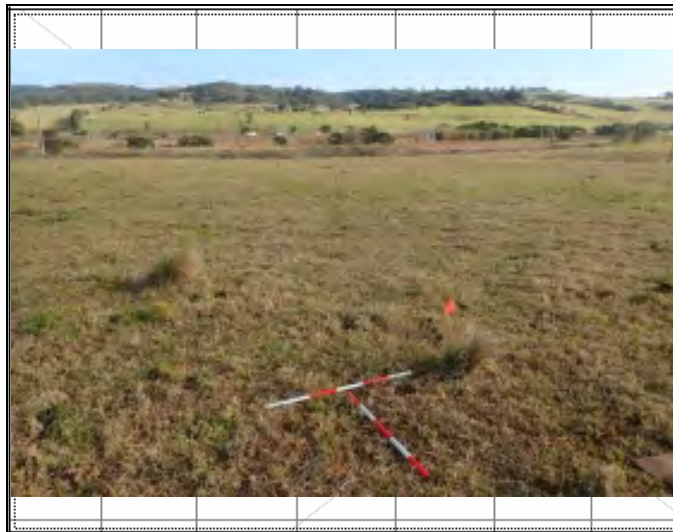
Test excavation found a shallow deposit with low disturbance.

Site plan

Site photographs



Description: View to north from TS 2



Description: View to north west from TS 2



Description: TS 1 north section



Description: Artefacts from TS 3

Site restrictions

Do you want to Restrict this site?: ☐

Restriction type: Gender ☐ General ☐ Location ☐

Why is this site restricted?:

Further information contact

Title Surname First name

Organisation:

Address:

Phone: E-mail:

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville 2220 NSW

AHIMS site ID: 52-5-0922

Date recorded: 12-07-2019

Site Location Information

Site name: Dunmore Road Dunmore AFT 2

Easting: 302444 Northing: 6169322 Coordinates must be in GDA (MGA)

Horizontal Accuracy (m): 5

Zone: 56 Location method: Client GIS or CAD system

Recorder Information

(The person responsible for the completion and submission of this form)

Title Surname First name
Ms. Taylor Kristen

Organisation: Kelleher Nightingale Consulting Pty Ltd

Address: Level 10, Bligh St, Sydney NSW 2000

Phone: 0292325373 E-mail: kristen.taylor@knconsult.com.au

Site Context Information

Land Form Pattern: Undulating Plain Land Use: Farming Low Intensity

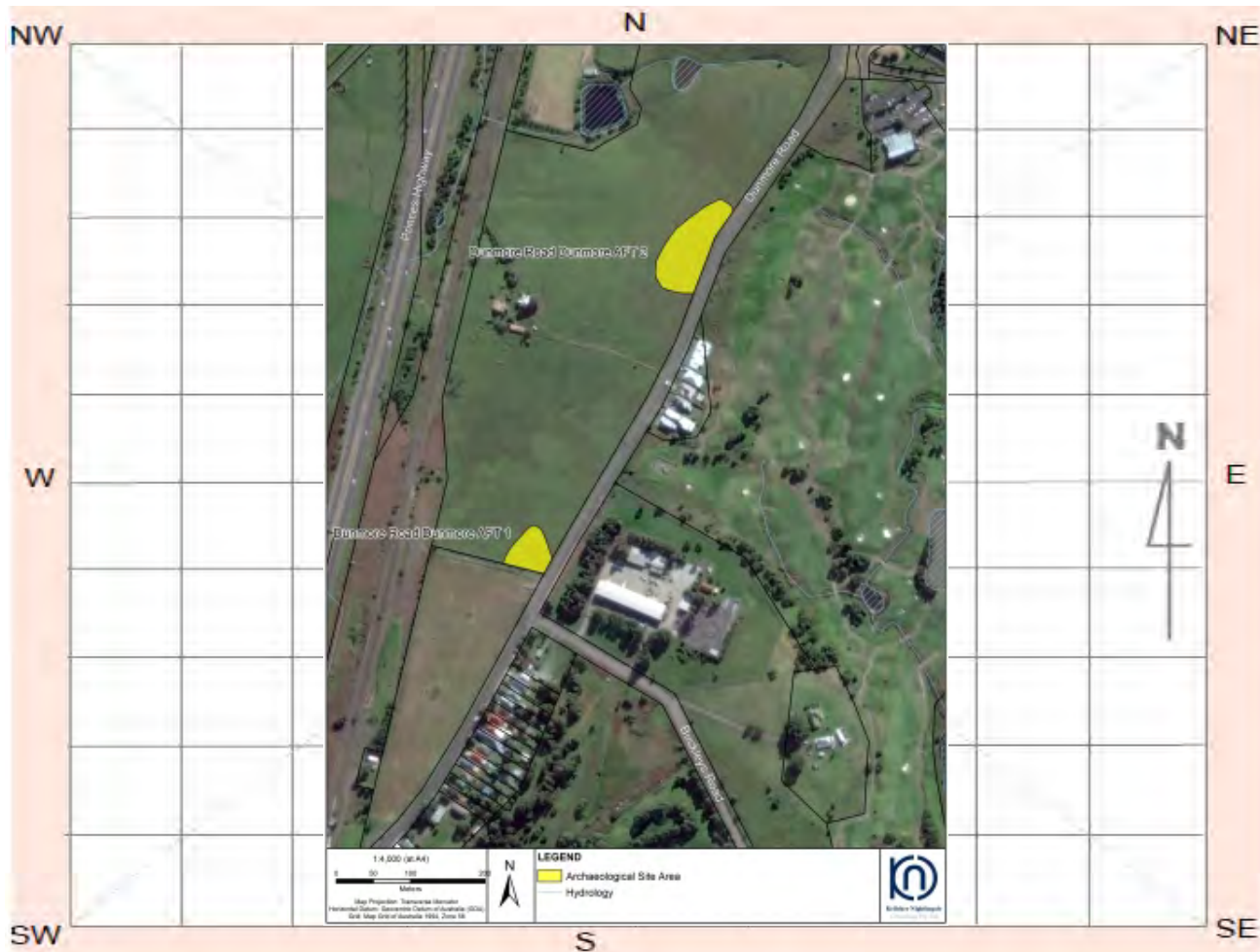
Land Form Unit: Crest Vegetation: Cleared

Distance to Water (m): 120 Primary Report:

How to get to the site: The site is located within the eastern portion of Lot 1 DP1144885 adjacent to the western boundary of Dunmore Road and approximately 360 metres south west of Bass Point Quarry Road

Other site information: Test excavation found a shallow deposit with low disturbance.

Site location map



Site contents information

open/closed site:

Site condition:	Good
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Features:

1. Artefact

Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
--------------------	---------------------------------	---------------------------------

5		140		60
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140

60

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
0.5	0.5	1	1
0.5	0.5	1	2
0.5	0.5	1	3
0.5	0.5	1	4
0.5	0.5	1	5
0.5	0.5	1	6
0.5	0.5	1	7
0.5	0.5	1	8
0.5	0.5	1	9
0.5	0.5	1	10
0.5	0.5	1	11
0.5	0.5	1	12
0.5	0.5	1	13
0.5	0.5	1	14
0.5	0.5	1	15
0.5	0.5	1	16
0.5	0.5	1	17
0.5	0.5	1	18
0.5	0.5	1	19
0.5	0.5	1	20
0.5	0.5	1	21
0.5	0.5	1	22
0.5	0.5	1	23
0.5	0.5	1	24
0.5	0.5	1	25
0.5	0.5	1	26
0.5	0.5	1	27
0.5	0.5	1	28
0.5	0.5	1	29
0.5	0.5	1	30
0.5	0.5	1	31
0.5	0.5	1	32
0.5	0.5	1	33
0.5	0.5	1	34
0.5	0.5	1	35
0.5	0.5	1	36
0.5	0.5	1	37
0.5	0.5	1	38
0.5	0.5	1	39
0.5	0.5	1	40
0.5	0.5	1	41
0.5	0.5	1	42
0.5	0.5	1	43
0.5	0.5	1	44
0.5	0.5	1	45
0.5	0.5	1	46
0.5	0.5	1	47
0.5	0.5	1	48
0.5	0.5	1	49
0.5	0.5	1	50
0.5	0.5	1	51
0.5	0.5	1	52
0.5	0.5	1	53
0.5	0.5	1	54
0.5	0.5	1	55
0.5	0.5	1	56
0.5	0.5	1	57
0.5	0.5	1	58
0.5	0.5	1	59
0.5	0.5	1	60
0.5	0.5	1	61
0.5	0.5	1	62
0.5	0.5	1	63
0.5	0.5	1	64
0.5	0.5	1	65
0.5	0.5	1	66
0.5	0.5	1	67
0.5	0.5	1	68
0.5	0.5	1	69
0.5	0.5	1	70
0.5	0.5	1	71
0.5	0.5	1	72
0.5	0.5	1	73
0.5	0.5	1	74
0.5	0.5	1	75
0.5	0.5	1	76
0.5	0.5	1	77
0.5	0.5	1	78
0.5	0.5	1	79
0.5	0.5	1	80
0.5	0.5	1	81
0.5	0.5	1	82
0.5	0.5	1	83
0.5	0.5	1	84
0.5	0.5	1	85
0.5	0.5	1	86
0.5	0.5	1	87
0.5	0.5	1	88
0.5	0.5	1	89
0.5	0.5	1	90
0.5	0.5	1	91
0.5	0.5	1	92
0.5	0.5	1	93
0.5	0.5	1	94
0.5	0.5	1	95
0.5	0.5	1	96
0.5	0.5	1	97
0.5	0.5	1	98
0.5	0.5	1	99
0.5	0.5	1	100

--	--	--	--

Description:

5 artefacts were recovered from 4 of the 13 test squares excavated at the site. The artefacts were flakes and flake fragments of chert, silicified tuff/mudstone and medium grained siliceous materials.

Features:

2. 

Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
--------------------	---------------------------------	---------------------------------

11

11

7

Scarred Trees			
Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
10	15	Irregular	Redwood
15	20	Linear	Douglas Fir
20	25	Irregular	Sequoia
25	30	Linear	Western Red Cedar
30	35	Irregular	Yellow Pine
35	40	Linear	White Pine
40	45	Irregular	Jefferson Pine
45	50	Linear	Liberty Pine
50	55	Irregular	Monterey Pine
55	60	Linear	Parry Pine
60	65	Irregular	Ponderosa Pine
65	70	Linear	Shasta Red Fir
70	75	Irregular	Sierra Redwood
75	80	Linear	Sierra Yellow Pine
80	85	Irregular	Sierra White Pine
85	90	Linear	Sierra Yellow Pine
90	95	Irregular	Sierra White Pine
95	100	Linear	Sierra Yellow Pine

--	--	--	--

Description:

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
3.	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description:

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
4.	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description:

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
5.	<input type="text"/>	<input type="text"/>	<input type="text"/>

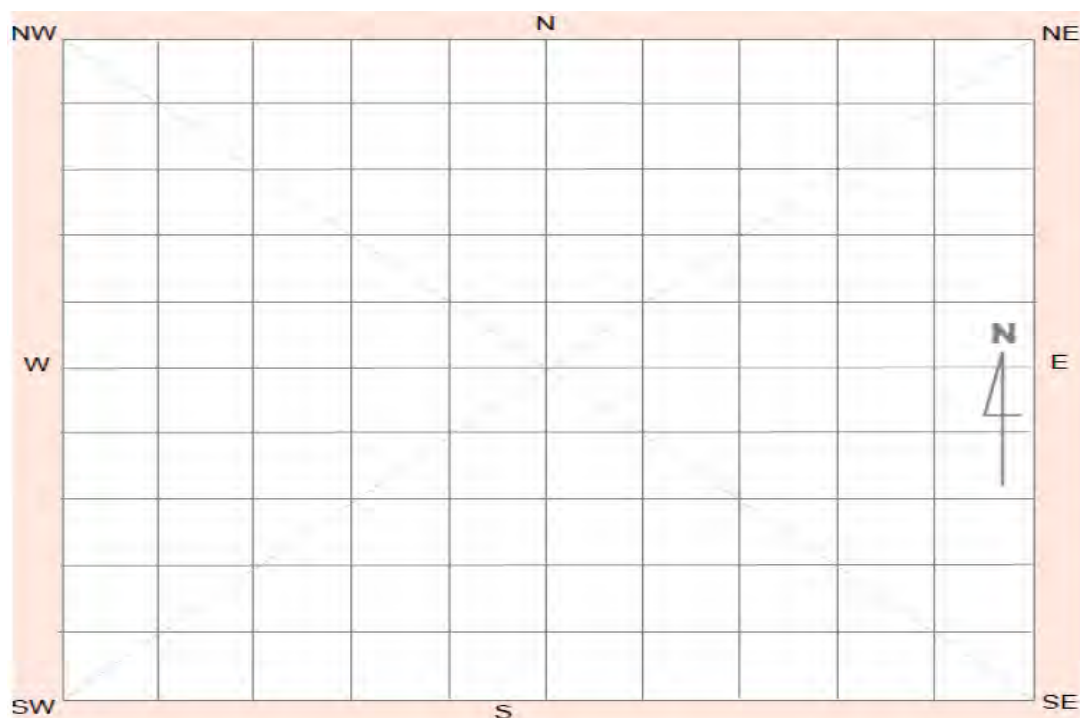
Description:

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Other Site Info:

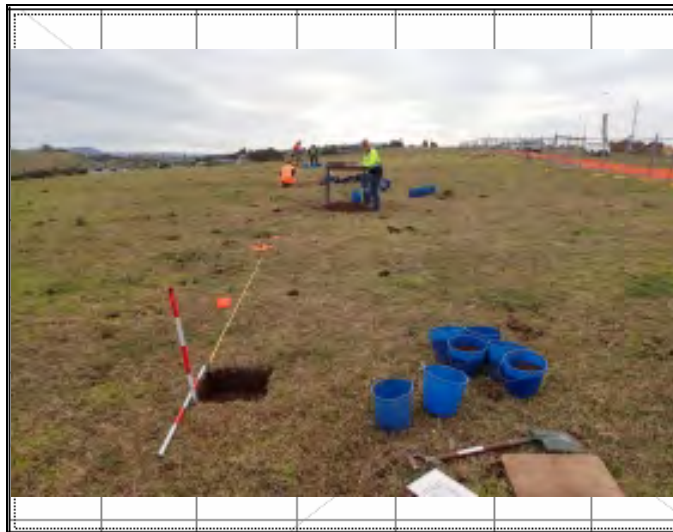
Test excavation found a shallow deposit with low disturbance.

Site plan

Site photographs



Description: Facing south west from TS 6



Description: Facing north from TS 4



Description: TS 6 West section



Description: Artefacts from TS 9 and 16

Site restrictions

Do you want to
Restrict this site?: ☐

Restriction type: Gender ☐ General ☐ Location ☐

Why is this site restricted?:

Further information contact

Title Surname First name

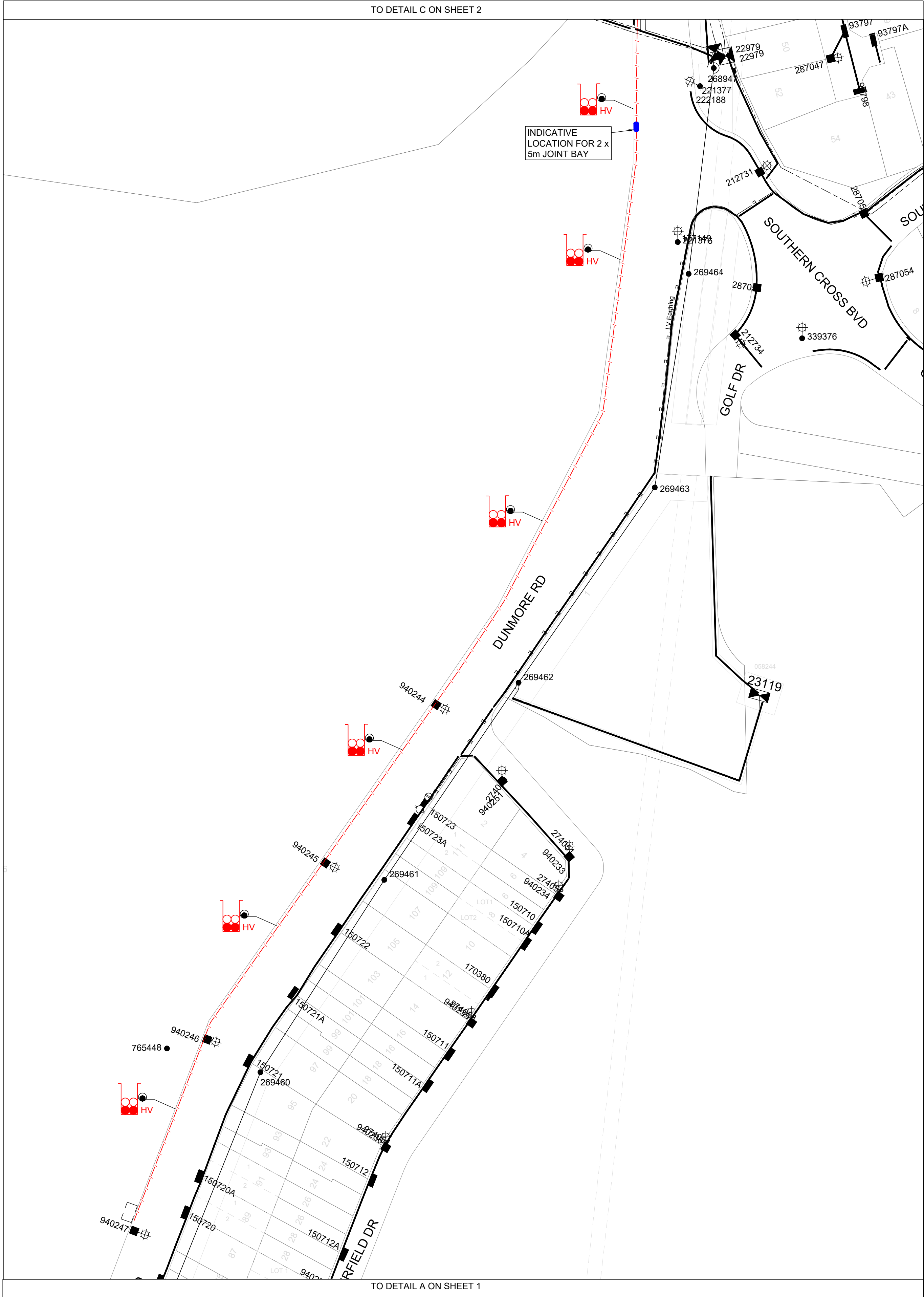
Organisation:

Address:

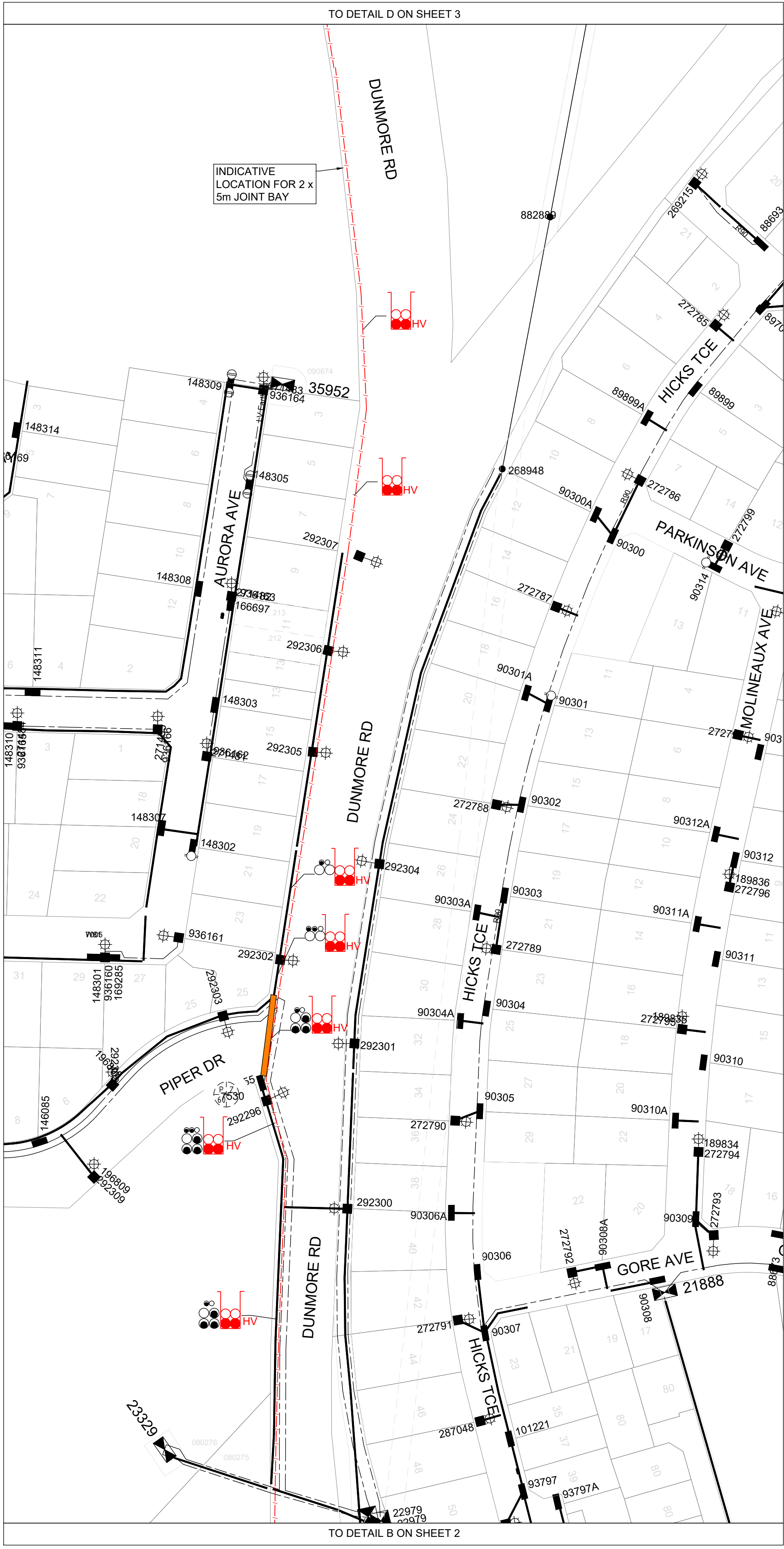
Phone: E-mail:

Appendix C

HV Electrical Works Detailed Drawings



DETAIL B
SCALE 1:1000



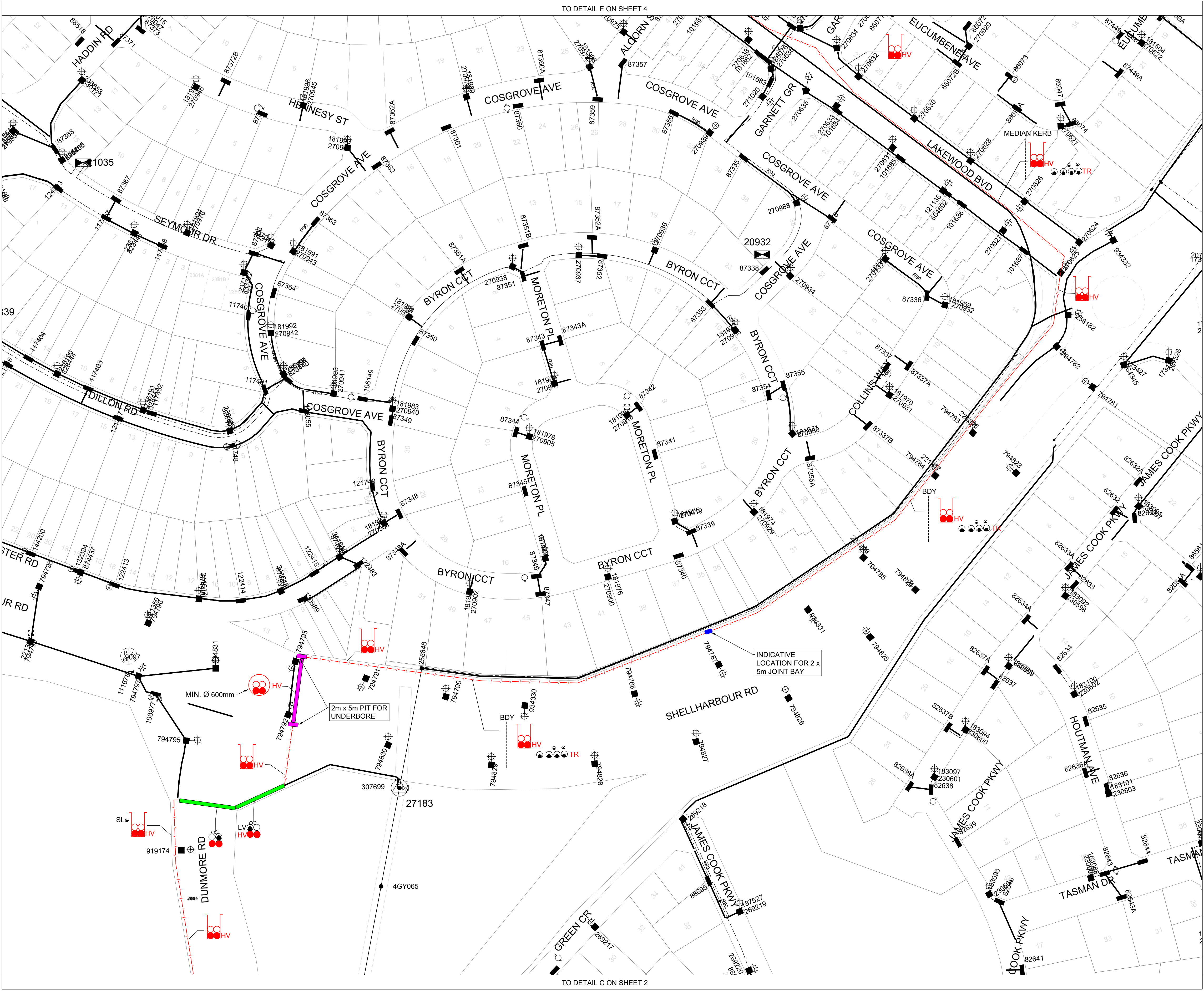
DETAIL C
SCALE 1:1000

SITE PLAN LEGEND

- EXISTING U.G. CABLES
- EXISTING DUCTS
- EXISTING DUCTS TO UTILIZE FOR NEW HV CABLE
- PROPOSED ROAD CROSSING DUCT
- EXISTING O.H. CABLES
- PROPOSED HV TRENCH
- EXISTING PM SUBSTATION
- EXISTING LV PILLAR
- EXISTING SL COLUMN
- EXISTING POLE
- LV LINK NORMALLY OPEN
- LV LINK NORMALLY CLOSED
- HV ISOLATION POINT-ABS-CLOSED
- HV CABLE JOINT LOCATION

DUCT LEGEND

- PROPOSED CABLE TRENCH
- SPARE DUCT
- NEW CABLE IN DUCT
- EXISTING CABLE IN DUCT



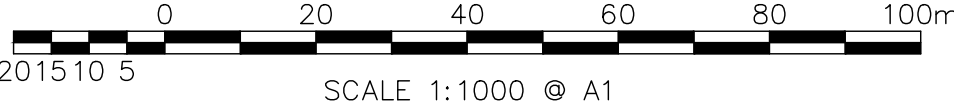
SITE PLAN LEGEND

- EXISTING U.G. CABLES
- EXISTING DUCTS
- EXISTING DUCTS TO UTILIZE FOR NEW HV CABLE
- PROPOSED ROAD CROSSING DUCT
- PROPOSED UNDERBORE ROAD CROSSING DUCT
- EXISTING O.H. CABLES
- PROPOSED HV TRENCH
- EXISTING PM SUBSTATION
- EXISTING LV PILLAR
- EXISTING SL COLUMN
- EXISTING POLE
- LV LINK NORMALLY OPEN
- LV LINK NORMALLY CLOSED
- HV ISOLATION POINT-ABS-CLOSED
- HV CABLE JOINT LOCATION
- HV HIGH VOLTAGE
- TR TRANSMISSION

DUCT LEGEND

- PROPOSED CABLE TRENCH
- SPARE DUCT
- NEW CABLE IN DUCT
- EXISTING CABLE IN DUCT
- UNDERBORE

DETAIL D
SCALE 1:1000



AMENDMENTS

REF	ISSUE
R1	DRAFT No. 01

PROJECT: 210332

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REFERENCE DRAWING'S

WORK ORDERS

CAMS File No.	ULL3373
AM PROJ. No.	
HV SWITCHING	
EE	SHELLHARBOUR
EE REGION	SOUTHERN
HV OP DIAG	
LOCAL GOV AREA	

201510 5

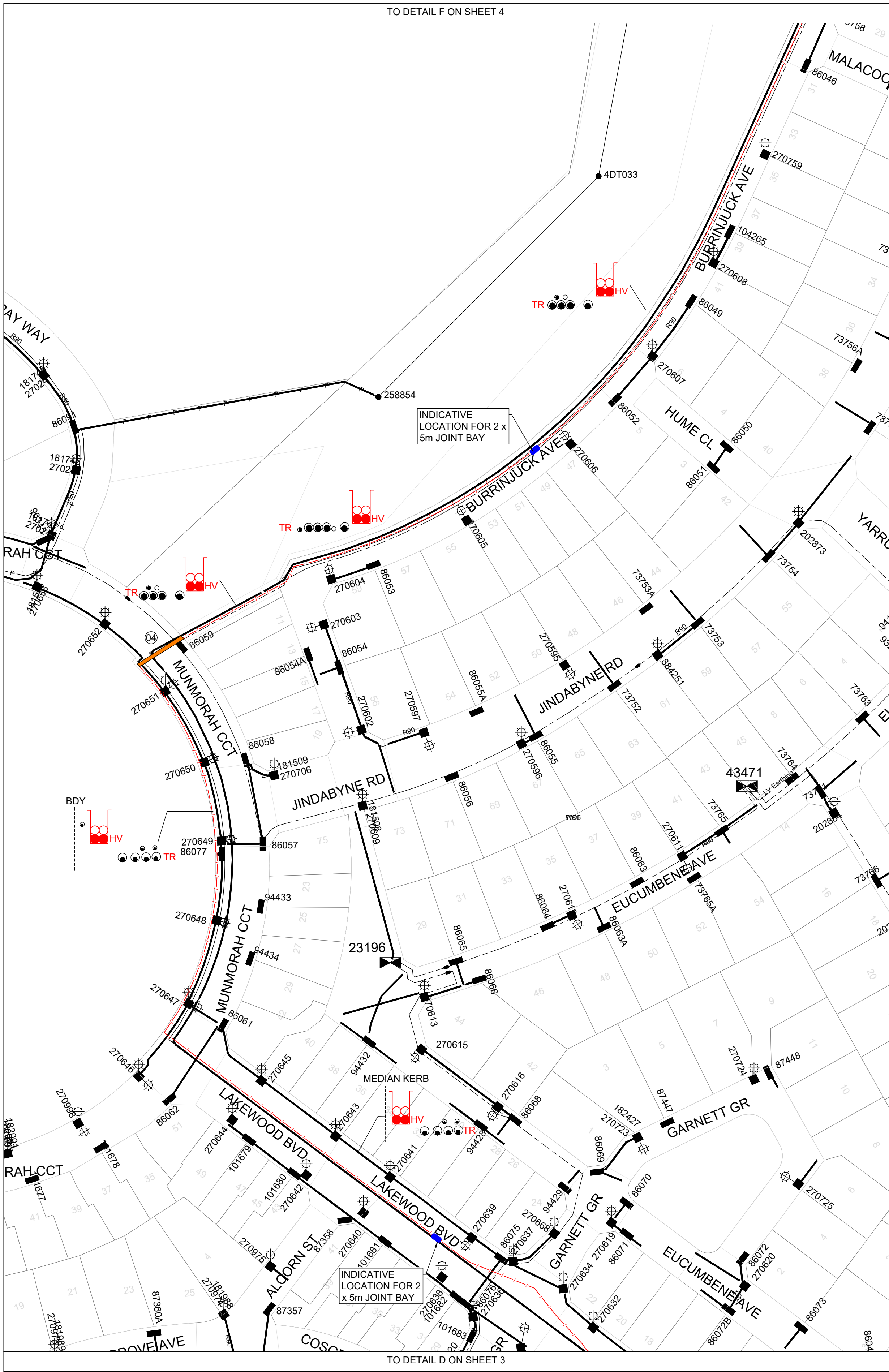
SCALE 1:1000 @ A1

86 DUNMORE ROAD, DUNMORE
NEW SHELLHARBOUR HOSPITAL
ULL3373
HV ENABLING WORKS
FOR REF (NOT FOR TENDER)

A1

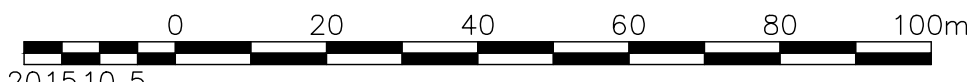
210332

SHEET No 3 OF 6 SHEETS

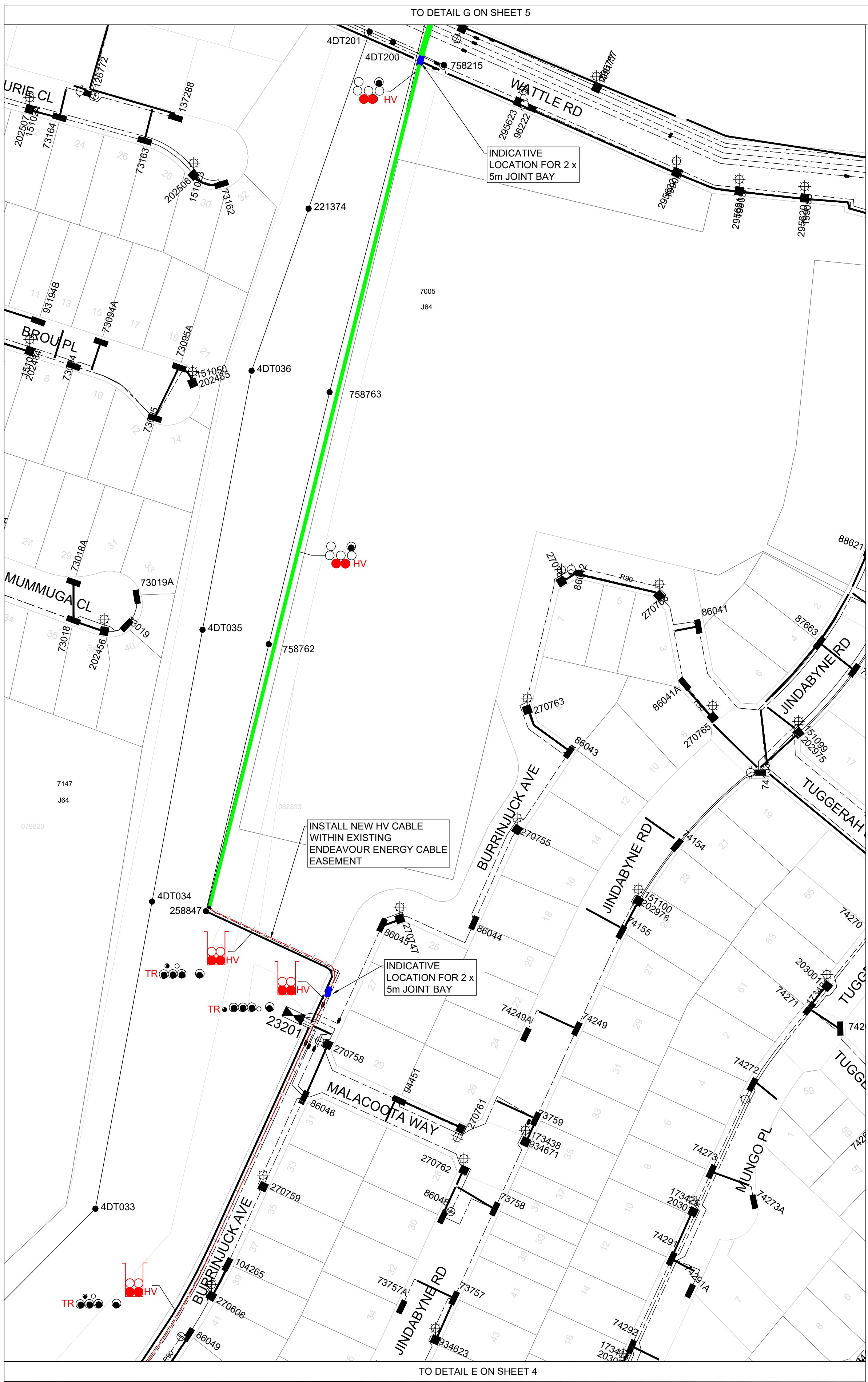


DETAIL E

SCALE 1:1000

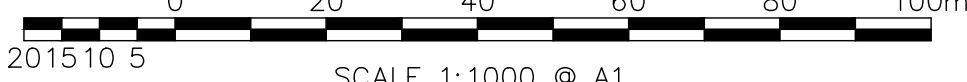


SCALE 1:1000 @ A1



DETAIL F

SCALE 1:1000



SCALE 1:1000 @ A1

SITE PLAN LEGEND

- EXISTING U.G. CABLES
- EXISTING DUCTS
- EXISTING DUCTS TO UTILIZE FOR NEW HV CABLE
- PROPOSED ROAD CROSSING DUCT
- EXISTING O.H. CABLES
- PROPOSED HV TRENCH
- EXISTING PM SUBSTATION
- EXISTING LV PILLAR
- EXISTING SL COLUMN
- EXISTING POLE
- LV LINK NORMALLY OPEN
- LV LINK NORMALLY CLOSED
- HV ISOLATION POINT-ABS-CLOSED
- HV CABLE JOINT LOCATION
- HV HIGH VOLTAGE
- TR TRANSMISSION

DUCT LEGEND

- PROPOSED CABLE TRENCH
- SPARE DUCT
- NEW CABLE IN DUCT
- EXISTING CABLE IN DUCT

AMENDMENTS
R1
DRAFT No. 01

REFERENCE DRAWING'S

WORK ORDERS

GENERAL	
OVERHEAD	
UNDERGROUND	
SUBSTATIONS	

CAMS File No.	ULL3373
AM PROJ. No.	
HV SWITCHING	
EE	SHELLHARBOUR
EE REGION	SOUTHERN
HV OP DIAG	
LOCAL GOV AREA	

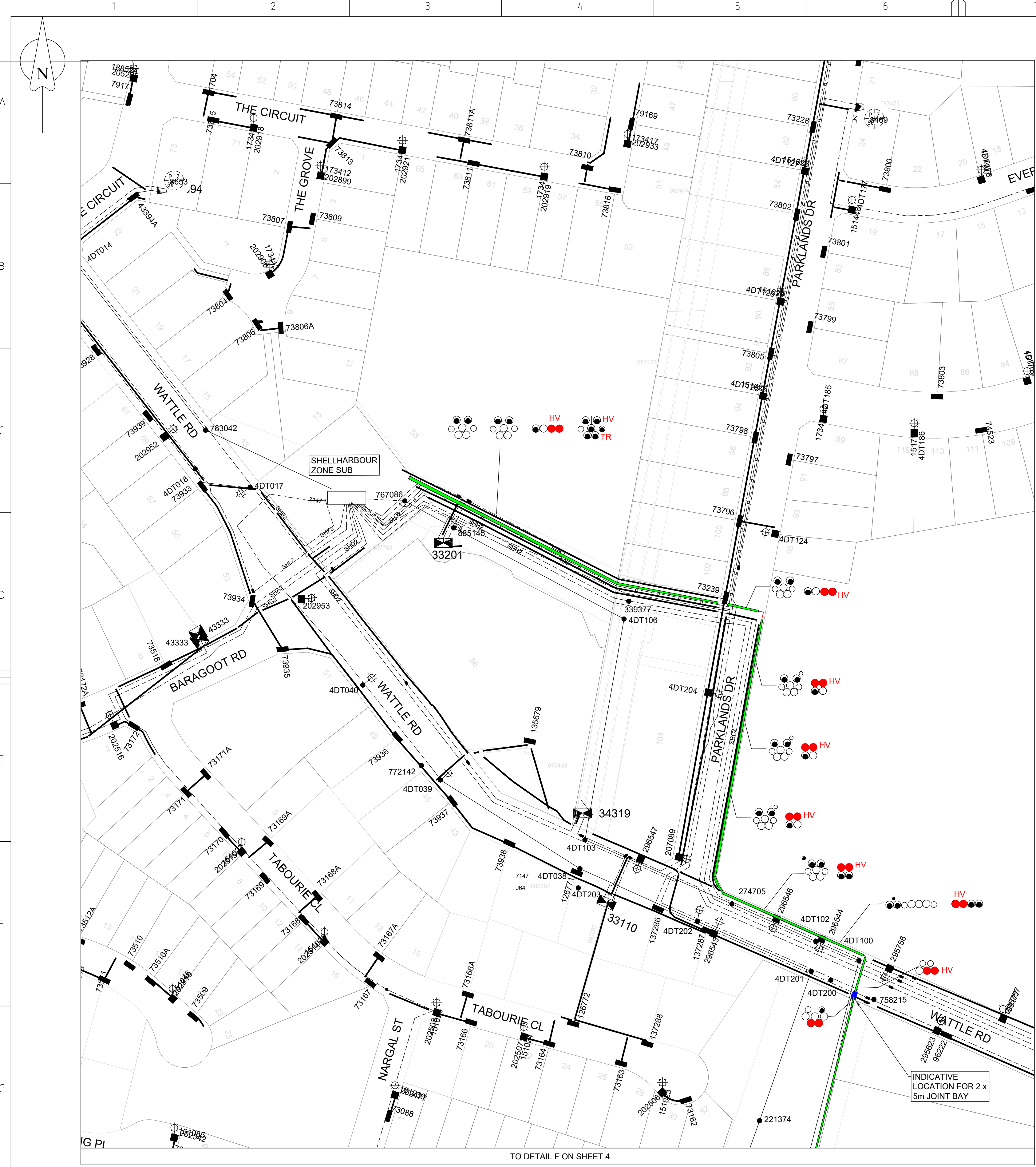
ORIGINAL SCALE AS SHOWN	
DRAWN	MARVIN M.
DATE	09/09/2022
CHD	BRENTON B.
DESIGN	MARVIN M.

DO NOT SCALE DIMENSIONS IN METRES

86 DUNMORE ROAD, DUNMORE
NEW SHELLHARBOUR HOSPITAL
ULL3373
HV ENABLING WORKS
FOR REF (NOT FOR TENDER)



A1 210332



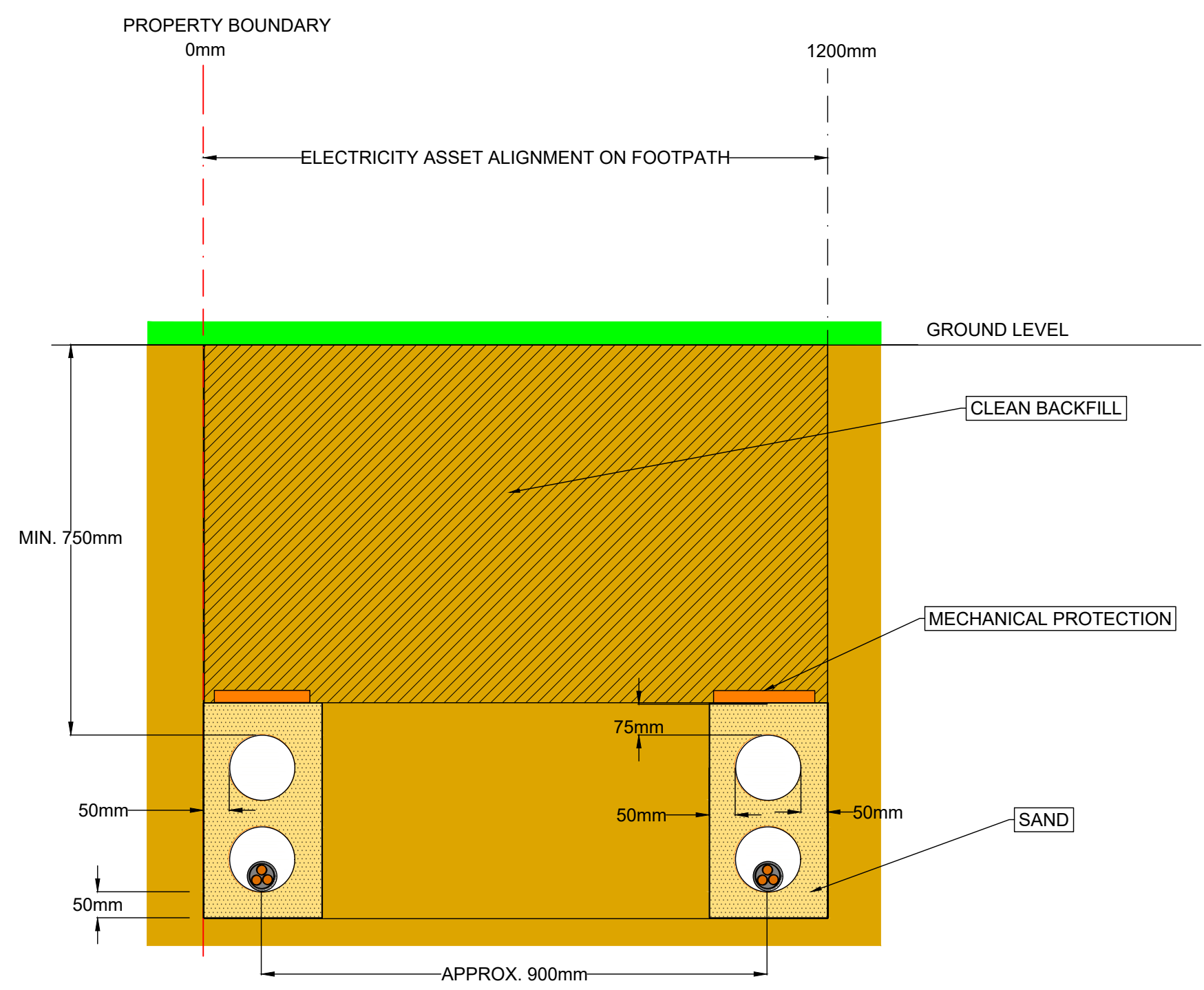
DETAIL G
SCALE 1:1000

SITE PLAN LEGEND

- EXISTING U.G. CABLES
- EXISTING DUCTS
- EXISTING DUCTS TO UTILIZE FOR NEW HV CABLE
- PROPOSED ROAD CROSSING DUCT
- EXISTING O.H. CABLES
- PROPOSED HV TRENCH
- EXISTING PM SUBSTATION
- EXISTING LV PILLAR
- EXISTING SL COLUMN
- EXISTING POLE
- LV LINK NORMALLY OPEN
- LV LINK NORMALLY CLOSED
- HV ISOLATION POINT-ABS-CLOSED
- HV HIGH VOLTAGE
- TR TRANSMISSION

DUCT LEGEND

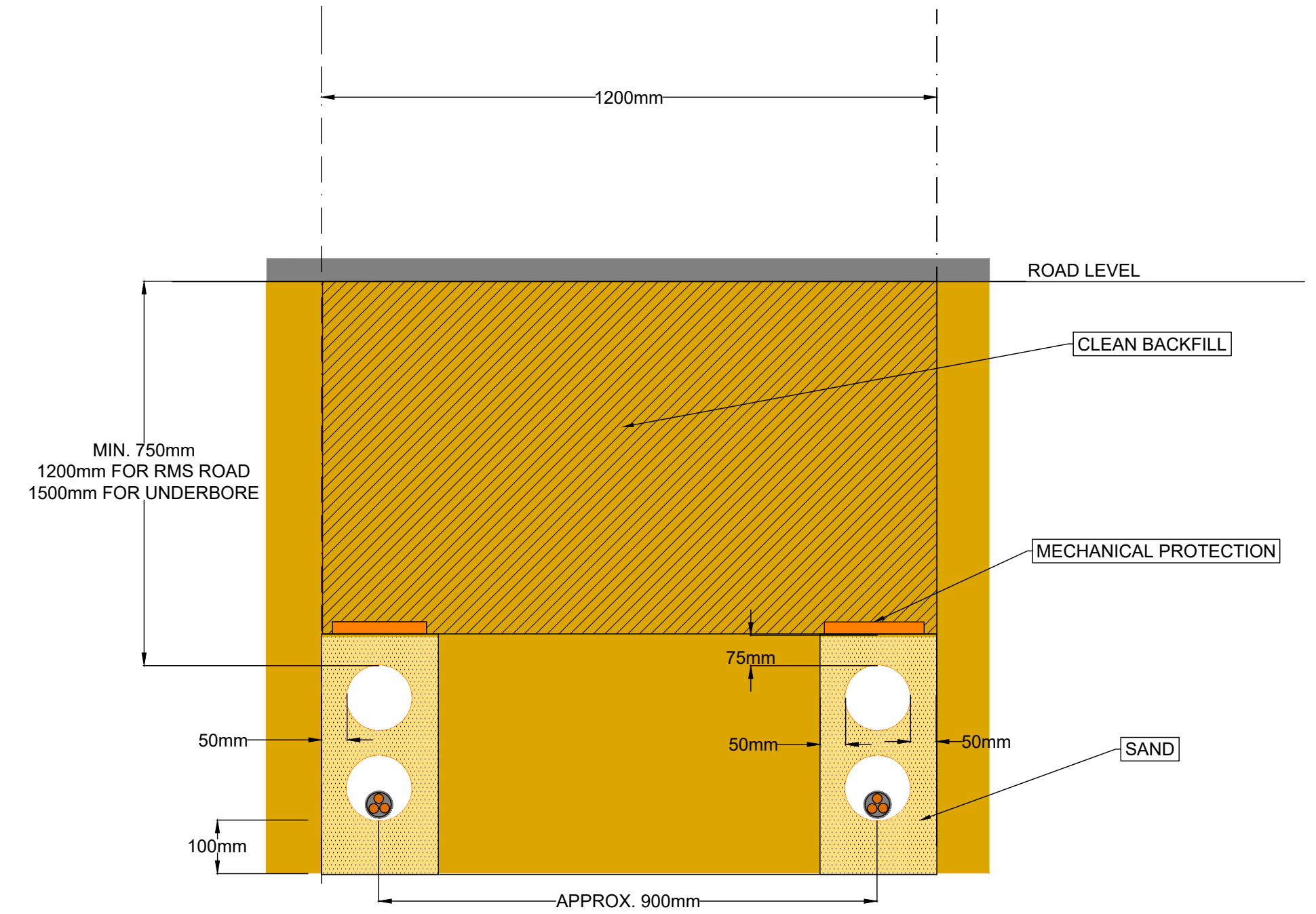
- PROPOSED CABLE TRENCH
- SPARE DUCT
- NEW CABLE IN DUCT
- EXISTING CABLE IN DUCT



NOTE:
THE TWO PROPOSED HV FEEDERS SHALL BE INSTALLED WITH MAXIMUM ACHIEVABLE SEPARATION WITHIN STANDARD ELECTRICITY ASSETS ALIGNMENT.

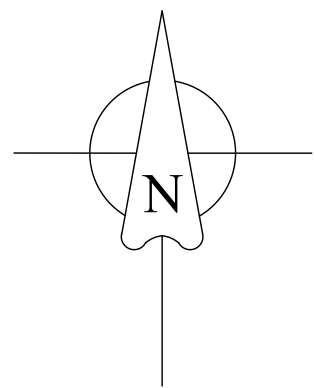
TYPICAL PROFILE FOR FOOTPATH CABLE TRENCH

SCALE NTS

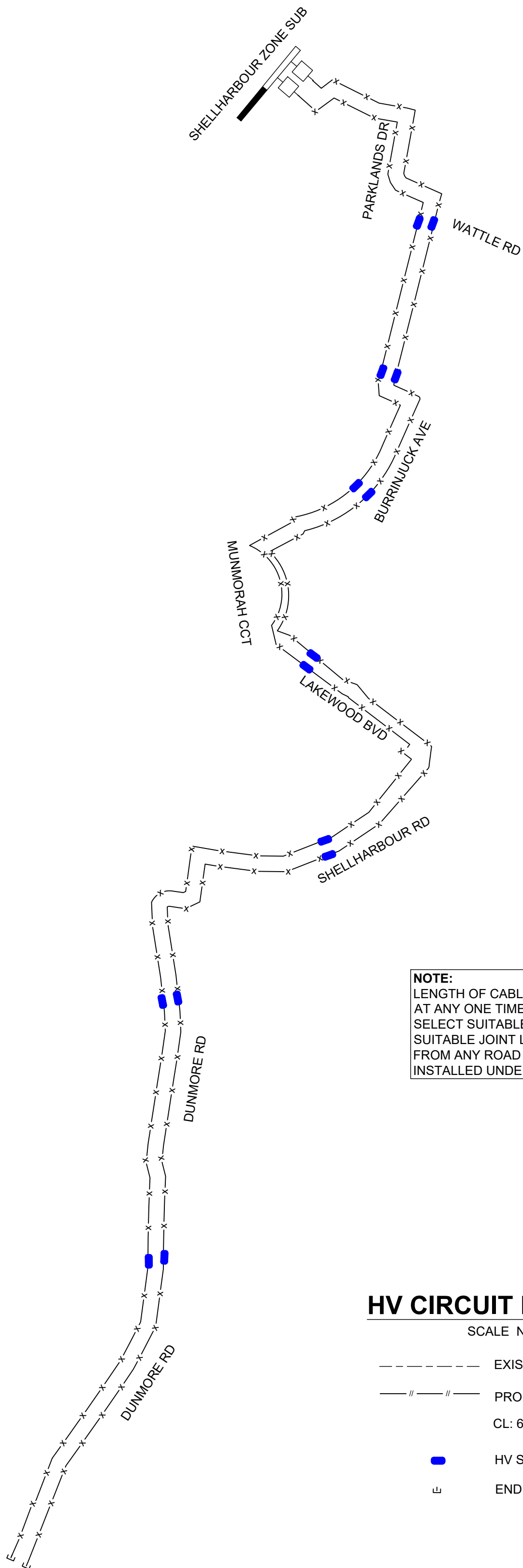


TYPICAL PROFILE FOR ROAD CROSSING CABLE TRENCH

SCALE NTS



PROPOSED FINAL HV CIRCUIT
NTS



NOTE:
LENGTH OF CABLE TO BE PULLED THROUGH CONDUITS
AT ANY ONE TIME SHALL NOT EXCEED 500m. ASP 1 TO
SELECT SUITABLE CABLE DRUM TO DETERMINE
SUITABLE JOINT LOCATION. STJ SHALL BE MINIMUM 15m
FROM ANY ROAD INTERSECTION. STJ SHALL NOT
INSTALLED UNDER ANY DRIVEWAY.

HV CIRCUIT DIAGRAM

SCALE NTS

- EXISTING U.G. CABLES
- //— PROPOSED 11kV 300mm² Cu 3C XLPE/PVC/HDPE CABLE
CL: 6654m RL: 6700m
- HV STJ
- ⏏ END CAP