



Appendix N2

Cultural heritage management plan

Cultural Heritage Management Plan

Narrabri Gas Project

September 2016

Appendix N2

CONTENTS

CLAUSE	PAGE
1. INTRODUCTION	3
1.1 The Proponent	3
1.2 EIS requirements for the Project	3
1.3 Development of this CHMP	3
2. BACKGROUND TO THE PROJECT AND THIS CHMP	4
2.1 Project	4
2.2 Project approval process and EIS requirements	5
2.3 Objectives of CHMP	7
2.4 Development of this CHMP – compliance with statutory processes	7
2.5 Application, Term and Amendment of this CHMP	8
3. ABORIGINAL CULTURAL HERITAGE IN THE PROJECT AREA	8
3.1 Cultural Heritage Audit Review	8
3.2 Zone 1 – Identified Aboriginal Cultural Heritage Places	8
3.3 Zone 2 – Previously surveyed / developed areas	9
3.4 Zone 3 – Aboriginal Cultural Heritage Sensitivity	9
4. MANAGEMENT FRAMEWORK FOR ABORIGINAL CULTURAL HERITAGE	9
4.1 Principles	9
4.2 Site protection of known Aboriginal cultural heritage Sites	10
4.3 Aboriginal Cultural Heritage Working Group	10
4.4 Cultural Heritage Coordinator	11
4.5 Santos Aboriginal Cultural Heritage Site Register	11
4.6 Site verification, reporting and reconciliation	12
4.7 Additional Research Program	12
4.8 Disturbance Activities and Pre-Clearance Surveys	12
4.9 Management of New Finds	16
4.10 Human Remains	16
4.11 Workforce Education	17
5. CONSULTATION, MANAGEMENT, REPORTING AND REVIEWS	17
5.1 Annual Report	17
5.2 AHIMS Reporting	17
5.3 5 Year Review Process	17
5.4 Review Consultation Meeting	18
5.5 Sensitivity mapping must be reviewed	18
5.6 Legislative Change Review Process	18
5.7 Dispute Resolution	18
5.8 Engagement of Expert	19
6. CONFIDENTIALITY	20
Schedule	
1 Project Map	22
2 Sensitivity Mapping	23
3 Complete avoidance of site types	24
4 Mitigation measures to be applied to site types	25
5 Description of site types	26
6 Aboriginal Cultural Heritage Working Group	30
7 Previously Recorded Sites	33
8 Cultural Heritage Coordinator Role Summary	34

CULTURAL HERITAGE MANAGEMENT PLAN NARRABRI GAS PROJECT

1. INTRODUCTION

1.1 The Proponent

Santos NSW (Eastern) Pty Ltd (Santos) is proposing to develop natural gas from coal seams in the Gunnedah Basin in New South Wales (NSW), southwest of Narrabri.

1.2 EIS requirements for the Project

Santos is in the process of making an application for State significant development consent under the *Environmental Planning and Assessment Act 1979 (NSW)* to carry out the Project. The development application is to be accompanied by an Environmental Impact Statement (EIS).

Amongst other requirements, the EIS is required to include:

- (a) assessment of the impacts of the Project on Aboriginal Cultural Heritage;
- (b) Cultural Heritage Management Plan (CHMP) providing the framework for the management of Aboriginal Cultural Heritage during the implementation of the Project. The CHMP is also to incorporate:
 - (i) Aboriginal Cultural Heritage sensitivity mapping for the Project Area;
 - (ii) an update of the mapping every five years as part of a CHMP review; and
 - (iii) avoidance strategies and mitigation measures in the placement of infrastructure.

1.3 Development of this CHMP

Santos has developed this CHMP in consultation with the Aboriginal stakeholders e.g. the Gomeroi Native Title Applicant, Registered Aboriginal Parties, and Local Aboriginal Land Councils, to provide the framework for avoiding or minimising impacts from the Project on Aboriginal Cultural Heritage and to promote the responsible management of Aboriginal Cultural Heritage Values in connection with the undertaking of the Project.

This CHMP describes how the impact of activities required for the Project on Aboriginal Cultural Heritage will be managed. Project Activities will be designed such that, to the greatest extent possible, there is no impact on Aboriginal Cultural Heritage. Where the impact cannot be avoided, then the Project Activity will minimise impact on any Aboriginal Cultural Heritage, and other management measures, as appropriate, are to be implemented to minimise or mitigate harm.

Santos is committed to fully implementing the CHMP.

The CHMP provides parties undertaking activities for the Project in the future with a clear understanding of the commitment of Santos to manage any impact on Aboriginal Cultural Heritage. The CHMP sets out:

- (a) the background to the Project and development of the CHMP;

- (b) the details of the approval process, the objectives of the CHMP and the consultation undertaken in the preparation of the CHMP;
- (c) Section 3 – Aboriginal Cultural Heritage in the Project Area describes the results of the Aboriginal cultural heritage assessment undertaken for the Project Area;
- (d) the management strategies to be implemented for the known Aboriginal cultural heritage sites and any future sites which may be identified during the life of the Project;
- (e) ongoing consultation, management and reporting requirements;
- (f) proposed review processes; and
- (g) dispute resolution procedures.

2. **BACKGROUND TO THE PROJECT AND THIS CHMP**

2.1 **Project**

(a) **Description of the Project**

The Project seeks to develop gas wells, gas and water gathering systems and supporting infrastructure in the Project Area. The natural gas produced would be treated to a commercial quality at a central gas processing facility on a rural property located south-west of Narrabri (the Leewood property) within the Project Area. The gas would then be piped via a gas transmission pipeline to market. The gas transmission pipeline would be part of a separate approvals process and is therefore not part of this Project.

The specific elements of the Project for which planning approval is being sought, and those that are therefore assessed in this EIS, are the gasfield, a central water management facility, a gas processing facility, and supporting infrastructure.

The primary objective of the Project is to commercialise natural gas from coal seams for the East Australian gas market to support the energy security needs of NSW.

(b) **Requirements for the Project**

The development of the Project would include the construction and operation of a range of exploration and production activities and infrastructure including:

- (i) Gas exploration and appraisal activities including seismic surveys, chip holes, core holes and pilot wells (sets of pilot wells), associated temporary supporting infrastructure (flares or water balance tanks) and the installation of monitoring equipment. These may be converted to production wells and counted within the total maximum number of production wells proposed.
- (ii) Installation and operation of up to 850 new individual production wells on a maximum of 425 new well sets. A single well may be vertical, vertical with a slight incline, or lateral; the latter may include several horizontal connections sometimes referred to as a multi-lateral. The target production peak rate is approximately 200 terajoules per day. Each well pad would be approximately one hectare in size during drilling and construction, reducing to approximately 0.25ha during operation.
- (iii) Gas and water gathering systems (comprising underground pipelines) link each well head to the gas processing facility, and the water management treatment and beneficial reuse facilities. A right of way up to 12 metres wide

would be required during installation of the gas and water gathering systems, reducing to about five metres during operation.

- (iv) A central gas processing facility for the compression, dehydration and treatment of the gas to commercial quality. This would be located at the Leewood property and would operate 24 hours per day, seven days per week.
- (v) Augmentation of the approved water management, treatment and beneficial reuse facilities at Leewood to treat the produced water.

Supporting infrastructure such as power generation and distribution, communications, roads and operational management facilities as well as temporary workers' accommodation and concrete batching plant at Leewood.

The Project involves installing the wells and associated infrastructure within the Project Area in accordance with site locational criteria, including as set out in the CHMP.

The Project is expected to generate 1,300 jobs during the construction phase and sustain around 200 jobs during the operational phase.

Subject to obtaining all the required regulatory approvals, construction of the Project is expected to commence in 2018, with first gas scheduled for 2019/2020.

(c) **Project Location**

The Project would be located to the south and west of Narrabri (see the map provided in Schedule 1).

The total Project Area is approximately 95,000 ha in size. The surface infrastructure required for the Project will directly impact approximately one percent of the total Project Area. The majority of the Project is located within an area known as the 'Pilliga', with the remainder of the Project, approximately 30 per cent, located on agricultural land supporting dry-land cropping and pastoral (livestock) activities. None of the agricultural land has been mapped as prime 'biophysical strategic agricultural land' under NSW Government approvals legislation pertaining to coal seam gas.

The collective term 'Pilliga' represents an agglomeration of forested area that totals in excess of 500,000 ha within north-western NSW around Coonabarabran, Baradine and Narrabri. Nearly half of the Pilliga is currently allocated to conservation, and is managed under the NSW *National Parks and Wildlife Act 1974*. Within the Pilliga, the Project would be developed primarily within State Forest (within the area identified for coal seam gas development in the public land assessment process that concluded in 2005), and also on some privately managed land, though would avoid conservation areas such as the Pilliga Nature Reserve, the Pilliga State Conservation Area and Brigalow State Conservation Area.

2.2 **Project approval process and EIS requirements**

(a) **Statutory requirements**

The Project is permissible with development consent under the *State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007*, and is identified as a 'State significant development' under section 89C(2) of the EP&A Act and the *State Environmental Planning Policy (State and Regional Development) 2011*.

The Project is subject to the State significant development assessment and approval provisions of Division 4.1 of Part 4 of the EP&A Act. The Minister for Planning is the

consent authority, who is able to delegate the consent authority function to the Planning Assessment Commission, the Secretary of the Department of Planning and Environment or to any other public authority.

If the Project is granted approval as a State significant development under the *Environmental Planning and Assessment Act 1979 (NSW)*, then an Aboriginal heritage impact permit is not required to be obtained under Part 6 of the *National Parks and Wildlife Act 1974 (NSW)*. However, a Care and Control Permit under section 85A of the *National Parks and Wildlife Act 1974 (NSW)* will be required should there be a need for any salvage works that require the transfer of Aboriginal objects to Aboriginal groups. Further, section 89A of the *National Parks and Wildlife Act 1974 (NSW)* requires the OEH to be notified about the location of any newly discovered Aboriginal objects as soon as practicable after their discovery.

(b) EIS requirements

The EIS for the Project is required to address the Secretary's Requirements. The Secretary's Requirements require:

"Heritage – including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, having regard to OEH's recommendations to the Secretary."

The OEH's recommendations appended to the Secretary's Requirements are:

- (a) an Aboriginal cultural heritage assessment (including both cultural and archaeological significance) which:
 - (i) demonstrates effective consultation with Aboriginal communities in determining and assessing impacts, and developing and selecting mitigation options and measures. The proponent must comply with the OEH 2010 Consultation Requirements for Proponents and consult with all Registered Aboriginal Parties (RAPs) not just Gomeroi Native Title Applicant and relevant LALC in relation to the development and implementation of the CHMP;
 - (A) an assessment of the impacts of the Project on Aboriginal cultural heritage; and
 - (B) outlines any proposed impact mitigation and management measures (including an evaluation of the effectiveness and reliability of the measures).
- (b) Aboriginal cultural heritage sensitivity mapping for the Project Area
- (c) Descriptions of the Cultural Heritage Values inclusive of relevant archive and oral history transcriptions documented in the ACH Brigalow Belt South Bioregion assessment (RACD 2002: LALC report).
- (d) Significance statements about Aboriginal objects inclusive of the results of previous studies including the studies titled the Aboriginal cultural heritage Stage 1 Preliminary Assessment report (RACD 2000) including Appendix C titled, Aboriginal cultural heritage field survey of the Goonoo and Pilliga Forests.
- (e) Description of the sensitivity of landforms affected by the Project inclusive of the geomorphic landforms described in the ACH Brigalow Belt South Bioregion assessment (RACD 2000: Appendix C (as titled above) and Appendix Ca titled, Geomorphology of the Goonoo and Pilliga Forests, Brigalow Belt South Bioregion as part of the Indigenous cultural heritage assessment and community consultation of the BBSB,).
- (f) A review of Aboriginal Cultural Data held by OEH and the Narrabri LALC, and strategic validation of this data.
- (g) A Cultural Heritage Management Plan (CHMP) providing the framework for the management of Aboriginal cultural heritage during the implementation of the Project.

- (h) The CHMP is proposed to:
 - (i) incorporate the ACH sensitivity mapping; provide for an update of the mapping every five years as part of the CHMP review; and
 - (ii) incorporate avoidance strategies and mitigation measures in the placement of infrastructure;
- (i) the participation of the Aboriginal community (being representatives of the Gomeroi Native Title Applicant and relevant LALC) in pre-clearance surveys for the placement of infrastructure in accordance with the avoidance strategies in the CHMP. The proponent must comply with the OEH 2010 Consultation Requirements for Proponents and consult with all Registered Aboriginal Parties (RAPs) not just Gomeroi Native Title Applicant and relevant LALC in relation to the development and implementation of the CHMP;
- (j) the significance of any impacts and appropriate management response determined by the Aboriginal community (being representatives of Gomeroi Native Title Applicant and the relevant LALC) in discussion with the proponent;
- (k) provide a report on implementation of the CHMP to OEH every year; and
- (l) an independent dispute resolution process where the Aboriginal community and proponent cannot agree on matters under the CHMP.

2.3 Objectives of CHMP

The objectives of this CHMP are:

- (a) to address the OEH recommendations appended to the Secretary's requirements;
- (b) to provide the framework for the management of Aboriginal Cultural Heritage during the implementation of the Project.
- (c) to set out the processes and procedures to ensure that the Project will be designed such that to the greatest extent possible, there is no impact on Aboriginal Cultural Heritage. Where impact cannot be avoided then the Project Activity will be designed to minimise impact on any Aboriginal Cultural Heritage, and other management measures as appropriate are to be implemented to minimise or mitigate harm; and
- (d) to include participation of the local Aboriginal community in management of potential impacts from the Project on Aboriginal Cultural Heritage.

2.4 Development of this CHMP – compliance with statutory processes

This CHMP has been developed with the cooperation of members of the local Aboriginal community, and Aboriginal people who have a traditional or cultural connection to, the Project Area.

As part of the process to develop this CHMP, Santos issued notices to relevant Aboriginal stakeholders and published notices in local newspapers circulating in the general location of the Project Area, in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*. These notices invited Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal cultural heritage in the Project Area to register their interest in contributing to the development of this CHMP.

All those persons who responded to those notices and sought to register an interest in contributing to the development of this CHMP were recorded and given the status of Registered Aboriginal Parties (RAP).

Santos met with and consulted with those RAPs in relation to the development of the Project and the development of this CHMP. Each RAP was sent a copy of the proposed methodology

for review and comment. Similarly, each RAP was asked to provide information about whether there are any Aboriginal objects or places of cultural value to Aboriginal People in the Project Area.

Santos provided each RAP with an opportunity to comment on the provisions of this CHMP, either in writing or verbally, or to express their views regarding the nature or significance of Aboriginal Cultural Heritage within the Project Area.

The comments and views of the RAPs have been considered and reflected in the development of this CHMP.

2.5 Application, Term and Amendment of this CHMP

This CHMP sets out the principles and processes by which Aboriginal Cultural Heritage will be managed within the Project Area, and will apply to all activities carried out for the Project within the Project Area. It is intended that this CHMP will apply, subject to any amendments or revisions, throughout the life of the Project.

Santos acknowledges that, given the 25-year life of the Project, the CHMP may require review and amendment. Any modification to the application of this CHMP or its amendment will involve appropriate consultation with Aboriginal stakeholders in accordance with this CHMP and compliance with any relevant statutory approval process for amendment.

3. ABORIGINAL CULTURAL HERITAGE IN THE PROJECT AREA

3.1 Cultural Heritage Audit Review

In compliance with the OEH requirements and for the purposes of preparing the EIS, Santos reviewed a broad range of baseline data and undertook comprehensive field surveys as part of a cultural heritage audit review. The data obtained through the cultural heritage audit review were integrated into a comprehensive data set which has allowed the generation of a sensitivity map and the creation of an Aboriginal Cultural Heritage Zoning Scheme (CHZS) for the Project Area (see Schedule 2).

As it currently stands it contains three general sets of zones in the CHZS. The definitions of these and how each has been developed is discussed below.

3.2 Zone 1 – Identified Aboriginal Cultural Heritage Places

Zone 1 represents areas where there is known Aboriginal Cultural Heritage.

The cultural heritage audit review collated information on 268 individual places containing Aboriginal cultural heritage material and values within the field survey area. Of these places, 90 are located in the Project Area. These have been grouped into two sub-zones (Zone 1a and 1b) based around the source of this information.

Buffers for each of these two sub-zones have been generated as follow:

- Zone 1a includes a 100m buffer (radius) of all places currently included on AHIMS – this buffer will be revised down as additional data becomes available from the site verification program (see Section 4.6):
- Zone 1b includes a graduated buffer based on the place-type and values adhering to it for the remaining identified Aboriginal cultural heritage places. The buffer has been applied to both the point-based data and, where available, the extent of the place where such has been provided or able to have been generated. Five buffer categories have been applied to the items in this particular Zone as follows:
 - 20m around isolated stone artefact/s;

- 40m around stone artefact scatters;
- 50m around places including scarred trees, resource places, rock shelters/ caves, hearths and general historic places (such as camps);
- 75m around grinding grooves; and
- 100m around places including those associated with Aboriginal ceremony (such as stone arrangements and rings) and burials, as well as the considerably undefined places identified as being an ochre source and that containing shell.

Santos will avoid the identified Aboriginal Cultural Heritage Sites within this Zone.

3.3 **Zone 2 – Previously surveyed / developed areas**

Zone 2 represents areas where an Aboriginal cultural heritage survey and assessment has been undertaken but within which no Aboriginal Cultural Heritage has been identified.

This zone has been created from an amalgam of various sources relating to portions of the field survey area which have been the subject of Aboriginal cultural heritage survey and assessment and within which areas have subsequently been developed as part of CSG (both ESG and/or Santos) development programs. There were two types of data that were provided either as digital data sets or which could be created from information provided within reports, and which represented areas that had been inspected during fieldwork: actual survey areas (polygons) or survey transects (lines). The transect records were buffered using the widths nominated within the associated reporting and added to the existing polygons. These records were then merged together to remove overlap.

3.4 **Zone 3 – Aboriginal Cultural Heritage Sensitivity**

Zone 3 represents areas where an Aboriginal cultural heritage survey and assessment has identified the potential for Aboriginal Cultural Heritage to exist, in a sufficient manner to prepare sensitivity mapping.

This has been broken down into six sub-zones (Zones 3a - 3f). The first five identify portions of the field survey area which have been identified as having an Aboriginal cultural heritage sensitivity graduated from very high (Zone 3a) to very low (Zone 3e). The sixth sub zone (3f) relates to four small portions of the study area (approximately 362 ha or <0.2% of the field survey area) for which information was not sufficient to make an adequate assessment of its likely sensitivity with respect to Aboriginal Cultural Heritage.

It is possible that there may be cultural heritage sites that have not been identified in previous studies within Zone 3. This CHMP provides for the methodology to deal with any Aboriginal Cultural Heritage that has not yet been identified.

4. **MANAGEMENT FRAMEWORK FOR ABORIGINAL CULTURAL HERITAGE**

4.1 **Principles**

The Project will be managed in accordance with the following principles:

- (a) the Avoidance Principle, which is defined in the following terms:
 - (i) Project Activities will be designed such that, to the greatest extent possible, there is no impact on Aboriginal Cultural heritage. Where impact cannot be avoided then the Project Activity will be designed to minimise impact on any Aboriginal Cultural Heritage, and other management measures as appropriate are to be implemented to minimise or mitigate harm; and

- (b) the Precautionary Principle, which is defined as:
 - (i) the implementation of actions that are reasonable and practicable to minimise causing harm to known Aboriginal objects; and/or
 - (ii) identifying Aboriginal Cultural Heritage so they can be managed in accordance with the provisions of relevant legislation and regulations, and implementing reasonable and practicable management measures for these Aboriginal Cultural Heritage.

4.2 **Site protection of known Aboriginal cultural heritage Sites**

The cultural heritage audit review identified 90 known Aboriginal cultural heritage sites within the Project Area. Santos will ensure that the infrastructure required for the Project will not be located in areas where the 90 known Aboriginal cultural heritage sites are located or within specified buffer distances around these areas. The 90 currently known sites and proposed buffer areas for each site are identified in Schedule 7.

The cultural heritage audit review recognised that there was some uncertainty about the specific location of each of the 90 known Aboriginal cultural heritage sites. Santos undertook a pilot site verification audit for a portion of the known Aboriginal sites to verify the precise location of each site and update the details in the sites register.

The audit identified some discrepancies in the recorded locations of the site from the actual on-ground locations. Santos has updated the sites register to reflect the verified locations and is committed to undertake a further audit as part of this CHMP to verify the ground locations and to update the Aboriginal Cultural Heritage Site Register for the remaining known sites (see section 5). This will ensure that Santos, as a practical matter, is able to locate its infrastructure for the Project so as not to be in areas where the 90 sites are located. Further, as a precautionary approach, Santos has proposed an additional buffer around the sites in which it will not disturb the ground for installation of infrastructure.

The cultural heritage audit review also recognised that given the size of, and vegetation cover within the Project Area, there may be other Aboriginal cultural heritage sites which have not been identified in the surveys undertaken to date. In order to manage the risk of the installation of infrastructure for the Project impacting on these potential sites, Santos is committed to a process of undertaking pre-clearance surveys prior to disturbing the land for the particular infrastructure to verify whether the proposed site contains any Aboriginal cultural heritage sites. The process for the pre-clearance surveys is set out in section 4.8.

Should the pre-clearance survey identify an Aboriginal cultural heritage site of the type in the table in Schedule 3, then Santos will not locate the infrastructure in that area and will re-site the infrastructure after following the same process again.

Should the pre-clearance survey identify an Aboriginal cultural heritage site of the type in the table in Schedule 4, then Santos will, where practicable, not locate the infrastructure in that area and will re-site the infrastructure after following the same process again. If it is not practicable to re-site the infrastructure, then Santos will adopt the management measures identified in the third column of the table.

A description of each site type is located in Schedule 5.

The cultural heritage audit review specifications identified that Yarrie Lake was a place of Aboriginal cultural heritage significance. Santos will not locate surface infrastructure for the Project in Yarrie Lake or within 200 metres of its edge.

4.3 **Aboriginal Cultural Heritage Working Group**

Santos will establish an Aboriginal Cultural Heritage Working Group (ACHWG) to assist in the implementation of this CHMP.

The process to establish the ACHWG and its purpose, functions and procedures are described in Schedule 6.

On agreement by Santos, Santos will provide all resources reasonably required to enable the Aboriginal Cultural Heritage Working Group to perform all required duties and functions. Resourcing will be in accordance with Santos' schedule of rates.

4.4 Cultural Heritage Coordinator

The ACHWG will be requested to appoint a Cultural Heritage Coordinator by majority decision and to notify Santos of the name and contact details of the person appointed as Cultural Heritage Coordinator within 10 business days of each nomination from time to time.

The Cultural Heritage Coordinator will be the first point of contact for Santos in matters relating to the implementation of this CHMP on which the views of the ACHWG are required. The Cultural Heritage Coordinator's role and essential skills are described in Schedule 8, including that they must have knowledge of Gomerioi cultural heritage.

The Cultural Heritage Coordinator will not be a member of the ACHWG and will not have voting or any other procedural rights under this CHMP.

The Cultural Heritage Coordinator's performance will be reviewed annually by their employer or head contractor in consultation with the ACHWG and Santos with a view to confirm whether the appointment of the Cultural Heritage Coordinator will continue or if the Cultural Heritage Coordinator will be replaced.

The functions of the Cultural Heritage Coordinator under this CHMP are:

- (a) nominating Cultural Heritage Officers, that are able to observe and comply with Santos policies and procedures, to be members of a Survey Team to undertake Pre-Clearance Surveys in relation to Work Programs issued by Santos;
- (b) ensuring that all members of the Survey Team will unconditionally observe and comply with any health, safety, environmental and other reasonable procedures and policies implemented by Santos;
- (c) receipt and issue of notices under provisions of this CHMP; and
- (d) responsibility for the timely implementation of any Pre-Clearance Surveys relating to Work Programs prepared or issued under provisions of this CHMP.

The Cultural Heritage Coordinator may also perform any other duties as requested by the ACHWG where such duties and functions are consistent with the provisions and intent of this CHMP.

On agreement by Santos, Santos will provide all resources reasonably required to enable the Cultural Heritage Coordinator to perform all required duties and functions.

4.5 Santos Aboriginal Cultural Heritage Site Register

Santos will maintain a comprehensive Aboriginal Cultural Heritage Site Register for the Project Area.

Santos will maintain the Aboriginal Cultural Heritage Site Register for the life of the Project and will ensure that all confidentiality requirements of information obtained during the life of the Project are complied with and maintained.

The Site Register will be amended from time to time as information becomes available through the site verification program, Additional Research Program and Pre-Clearance Survey Program as described in sections 4.6 to 4.8.

The Site Register, in collaboration with GIS and other mapping tools, will be used by Santos to implement management measures provided for in this CHMP.

The Aboriginal Cultural Heritage Site Register for the Project Area will be made available to the Aboriginal Cultural Heritage Working Group, subject to any confidentiality requirements.

4.6 Site verification, reporting and reconciliation

Santos has undertaken a pilot study to confirm the ground location of each of the recorded known Aboriginal cultural heritage sites mentioned in section 4.2.

Santos will implement a Site Verification Program for all other sites identified from the cultural heritage audit review within the Project Area.

The program will be completed before any Disturbance Activities take place within the Study Area.

The site verification program will use the same methodology as used in the pilot site verification program described in the Project EIS.

Where Santos identifies inconsistencies between any information included on the Santos Aboriginal Cultural Heritage Site Register and the Aboriginal Heritage Information Management System (AHIMS), Santos may liaise with OEH to have the AHIMS revised so that it is consistent with the Aboriginal Cultural Heritage Site Register.

Where OEH agrees to revise any information on the AHIMS database, the ACHWG Coordinator will advise the members of the ACHWG and note such amendments in the Aboriginal Cultural Heritage Site Register.

Santos may amend the Sensitivity Mapping as necessary to reflect any amendments to the Aboriginal Cultural Heritage Site Register that results from the site verification program.

4.7 Additional Research Program

To further Santos' commitment to adopt the Precautionary Principle as it relates to the management of impacts on Aboriginal Cultural Heritage, supplementary research will be undertaken in consultation with the Aboriginal community to confirm existing data sets for places of Aboriginal Cultural Heritage and, where it proves necessary, augment data.

This will be done by the conduct of an Additional Research Program. The aim will be to collate a body of data on places and values that can be integrated into general project planning such that the locations where these places and values are identified can be managed by the Avoidance Principle.

The Additional Research Program will be commissioned by Santos and completed within 12 months of its commencement.

4.8 Disturbance Activities and Pre-Clearance Surveys

(a) Disturbance Activities

Santos will not carry out Disturbance Activities in the Project Area except in accordance with the process set out below.

(b) Work Programs

Subject to section 4.8, if Santos proposes to conduct Disturbance Activities on any part of the Project Area, Santos will provide to the Cultural Heritage Coordinator a copy of Santos' intended Work Program for the relevant area and request a planning meeting with the Cultural Heritage Coordinator.

The Cultural Heritage Coordinator, the Santos Senior Cultural Heritage Field Supervisor and, where applicable, a Technical Expert will meet (in person or by telephone) within 2 Business Days following provision of a copy of Santos' intended Work Program to agree on:

- (i) the number of (and identity of, as nominated by the Cultural Heritage Coordinator) persons required to conduct a Pre-Clearance Survey of the Work Area which will be:
 - (A) for Work Areas in a Zone 3d and 3e of the CHZS (**Low to very low Sensitivity Zone**), a maximum of 2 persons unless otherwise agreed by Santos;
 - (B) for Work Areas in Zone 3c of the CHZS (**Medium Sensitivity Zone**) or above, a minimum of 2 persons and a maximum of 4 persons unless otherwise agreed by Santos, plus one Technical Expert if requested by the Cultural Heritage Coordinator.

(Pre-Clearance Planning Meeting)

- (ii) the methodology and logistics for the Pre-Clearance Survey of the Work Area; and
- (iii) a timetable for the Pre-Clearance Survey of the Work Area (which shall commence within a further 10 Business Days following the planning meeting or any later date as agreed between the Cultural Heritage Coordinator and the Santos Senior Cultural Heritage Field Supervisor).

If, at the Pre-Clearance Planning Meeting, the Santos Senior Cultural Heritage Field Supervisor and the Cultural Heritage Coordinator are unable to reach agreement on either 4.8(b)(i), 4.8(b)(ii) or 4.8(b)(iii) above Santos may independently determine these items.

(c) Contents of Work Programs

Each Work Program issued by Santos to the Cultural Heritage Coordinator will contain the Program Timeframe and sufficient detail to identify the proposed Disturbance Activities and the Work Area and may include:

- (i) a topographic map at a scale of 1:100 000 or other appropriate scale of the Work Area, and/or aerial/satellite images showing with reasonable accuracy the Work Area; and
- (ii) with respect to the Work Area, details of:
 - (A) the nature and extent of the proposed Disturbance Activities;
 - (B) the estimated duration of the proposed Disturbance Activities;
 - (C) the means of access to undertake the proposed Disturbance Activities;
 - (D) the resourcing offered for the conduct of a Pre-Clearance Survey; and
 - (E) any other information considered relevant by Santos.

(d) **No Pre-Clearance Surveys or Work Programs required for some Project Activities**

Santos may undertake Project Activities without undertaking a Pre-Clearance Survey or Work Program:

- (i) when there will be No Additional Surface Disturbance; or
- (ii) on areas that have been subject to Significant Ground Disturbance; or
- (iii) on areas where a Cultural Heritage Compliance Plan (or equivalent due diligence or other survey conducted under the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales) has previously been issued, or
- (iv) on areas marked Zone 2 on the CHZS.

(e) **Pre-Clearance Survey**

Following Santos' provision of a Work Program to the Cultural Heritage Coordinator, it is proposed that the Survey Team, in the relevant Program Timeframe, would undertake the survey of the Work Area with objectives to:

- (i) provide an opportunity for the members of the Survey Team to walk over and inspect the Work Area and to consider the Aboriginal Cultural Heritage in the Work Area;
- (ii) identify, document and determine the geographical coordinates of, and report upon, any Aboriginal Cultural Heritage within the Work Area;
- (iii) peg or flag Aboriginal Cultural Heritage within the Work Area, if deemed necessary by the Survey Team; and
- (iv) recommend any required management measures consistent with the provisions of the CHMP.

(f) **Santos Representative**

Santos Senior Cultural Heritage Field Supervisor will accompany each Survey Team while it performs the Pre-Clearance Survey.

The Santos Senior Cultural Heritage Field Supervisor will have authority to undertake their role in accordance with this CHMP.

(g) **Alternative Work Area Clearance**

If a Work Area is suspected by the Survey Team to contain Aboriginal Cultural Heritage, the Survey Team will advise the Santos Senior Cultural Heritage Field Supervisor to that effect and the Santos Senior Cultural Heritage Field Supervisor may propose alternative Work Areas during the course of the Pre-Clearance Survey without the need for Santos to issue a new Work Program.

(h) **Cultural Heritage Compliance Report**

At the completion of the Pre-Clearance Survey, a Cultural Heritage Compliance Report will be prepared by Santos and presented to the Survey Team for endorsement. The Cultural Heritage Compliance Report will identify:

- (i) the geographic area for which the Pre-Clearance Survey was undertaken;

- (ii) any Aboriginal Cultural Heritage identified by the Survey Team or confirmation that no Aboriginal Cultural Heritage was identified; and
- (iii) arrangements for the management of Aboriginal Cultural Heritage including the measures required to be implemented in Schedule 3 and Schedule 4 for specific site types (e.g. avoidance for sites where the CHMP specifies avoidance and management measures for other sites where it is not practicable to re-site the infrastructure).

(i) **Cultural Heritage Compliance Plan**

The Cultural Heritage Compliance Report will become a Cultural Heritage Compliance Plan through the following process:

- (i) the Survey Team is to consider the Cultural Heritage Compliance Report when presented to it by Santos and endorse it as approved;
- (ii) if the Survey Team fails to, or is not able to for any reason, endorse the Cultural Heritage Compliance Report, Santos may present it to the Cultural Heritage Coordinator and request the Cultural Heritage Coordinator endorse it as approved;
- (iii) if the Cultural Heritage Compliance Report is not endorsed as approved by the two proceeding methods, Santos may refer the plan to an Expert for consideration and determination.

Any one of these parties may endorse a Cultural Heritage Compliance Report by marking it with their signature.

Santos will be entitled to undertake the Disturbance Activities set out in the relevant Work Program once the Cultural Heritage Compliance Report becomes the Cultural Heritage Compliance Plan.

Once a Cultural Heritage Compliance Report becomes a Cultural Heritage Compliance Plan, no party may raise a dispute under this condition in relation to the arrangements for the management of Aboriginal cultural heritage within the Work Area to which it relates.

4.9 **Management of New Finds**

(a) **Discovery of New Cultural Heritage Sites During Construction**

Subject to section 4.10, if, in the course of undertaking Project Activities, Santos locates a New Find, Santos will continue Project Activities in the relevant New Find Area only if such activities are in accordance with relevant New Find Measures.

(b) **New Find Measures**

The Project Activities in the New Find Area will stop and the New Find Area will be secured to prevent impact or harm.

Santos will use reasonable endeavours to deal with a New Find through agreement between the Cultural Heritage Coordinator and the Santos Senior Cultural Heritage Field Supervisor.

If agreement is not reached within 2 Business Days after the location of a New Cultural Heritage Site, or there are no Survey Teams working in the Project Area at the time of discovery of the New Cultural Heritage Site, Santos may arrange for the Santos Senior Cultural Heritage Field Supervisor to provide notice to the Cultural Heritage Coordinator (**New Find Notice**).

If a New Find Notice is issued, Santos will endeavour to arrange a meeting between the Santos Senior Cultural Heritage Field Supervisor and the Cultural Heritage Coordinator within 2 Business Days after Santos' delivery of a New Find Notice to discuss, and document measures to deal with the relevant New Find.

If measures to deal with a New Find are not agreed and documented by the Santos Senior Cultural Heritage Field Supervisor and the Cultural Heritage Coordinator within 2 Business Days of Santos' delivery of the relevant New Find Notice, Santos may independently determine the New Find Measures.

Santos will complete the required OEH card and forward to the regulator for inclusion in the AHIMS database. Santos will also include the New Find in the Aboriginal Cultural Heritage Site Register.

The New Find Measures employed by Santos must be consistent with any directions received from OEH.

4.10 **Human Remains**

If human remains are discovered during the course of Project Activities, Santos:

- (a) will comply with the requirements of the *Coroners Act 2009* (NSW) and *National Parks and Wildlife Act 1974* (NSW) and all other Applicable Laws;
- (b) report the discovery to the NSW Police or Coroner as soon as possible;
- (c) will not allow Project Activities in the vicinity of the find until such time as Santos has advice from relevant Government Agencies that it may proceed;
- (d) if the remains are proved to be the remains of an Aboriginal person, this site will be avoided;

4.11 **Workforce Education**

Santos will provide site induction training to employees and contractors working in the Project Area, and will ensure that induction training includes information about Aboriginal Cultural Heritage and the provisions of this CHMP.

5. **CONSULTATION, MANAGEMENT, REPORTING AND REVIEWS**

5.1 **Annual Report**

Within 6 weeks of the anniversary of the approval of this CHMP Santos will report to OEH on the implementation of this CHMP.

This report will set out:

- (a) the number of surveys conducted that previous year;
- (b) whether additional Aboriginal Cultural Heritage sites were found, and their locations;
- (c) how many sites were avoided as a result of this CHMP; and
- (d) how many, and the nature of sites mitigated, and the mitigation measures implemented in accordance with this CHMP.

An Aboriginal Site Impact Recording Form will be completed and submitted to the AHIMS Registrar, in respect of any Aboriginal Cultural Heritage that is harmed through archaeological investigations required, permitted under this CHMP, or authorised in any Cultural Heritage Compliance Report.

5.2 **AHIMS Reporting**

An AHIMS Site Recording Form will be submitted to the AHIMS Registrar for each Aboriginal site found as a result of implementation of this CHMP.

5.3 **5 Year Review Process**

Santos will appoint a third party (**CHMP Auditor**) to undertake a review of this CHMP within 5 years after the CHMP is approved.

Santos will provide a notice (**Review Notice**) to the Aboriginal Cultural Heritage Working Group, OEH and take out an advertisement in a local paper stating:

- (a) the identity of the CHMP Auditor;
- (b) the date, time and location of the proposed Review Consultation Meeting; and
- (c) the scope of the review process (eg sensitivity mapping, dispute resolution clauses, the entire CHMP etc).

Santos will hold a Review Consultation Meeting within 6 weeks of providing the Review Notice.

Any person who attended the Review Consultation meeting will be able to provide written submissions to the CHMP Auditor within 6 weeks of the Review Notice being advertised (**Review Submission Date**).

Within four weeks after the Review Submission Date the CHMP Auditor will provide a report outlining any issues identified in the CHMP Review Process and propose any

recommendations for consideration (**CHMP Auditor's Report**) to each of the Review Participants.

Within 8 weeks of receiving the CHMP Auditor's Report, Santos will provide OEH with a proposed revised CHMP along with a copy of the CHMP Auditor's Report and any comments or responses Santos may have to the report.

OEH may review Santos' proposal and responses and either:

- (a) approve the proposed revised CHMP;
- (b) reject the proposed revised CHMP; or
- (c) otherwise provide comments on the revised CHMP.

Santos will take into consideration OEH's comments and provide OEH with a proposed revised CHMP along with any comments or responses to the recommendations.

The Review Process will not impact on the ongoing operation of the CHMP.

5.4 **Review Consultation Meeting**

The purpose of this meeting is to give each attendee an opportunity to discuss issues with the CHMP in its current form and to propose amendments.

The meeting is to be held within 6 weeks of Santos issuing the Review Notice at a time date and location determined by Santos.

The attendees at this meeting will be the CHMP Auditor, a representative from OEH, representatives from Santos and any Aboriginal person who has an interest in the Project Area and the implementation of this CHMP.

The agenda for this meeting will be determined by the CHMP Auditor 1 week prior to the meeting and will be circulated at the meeting.

If any person does not attend the Review Consultation Meeting the meeting will proceed without that person.

5.5 **Sensitivity mapping must be reviewed**

The Sensitivity Mapping must be reviewed and amended where necessary within the scope of the 5 Year Review.

5.6 **Legislative Change Review Process**

If there is a legislative change which affects the operation of this CHMP or management of Aboriginal cultural heritage, Santos may appoint a CHMP Auditor to undertake a review of the CHMP in the same manner as set out in condition 5.3.

5.7 **Dispute Resolution**

(a) **Dispute Notice**

If there is a dispute between Santos and either the Cultural Heritage Coordinator and the ACHWG (by majority resolution) relating to this CHMP (including agreeing New Find Measures) (**Dispute**), that party must give written notice to the other party, providing details of the Dispute (**Dispute Notice**).

(b) **Dispute Procedures**

On delivery of a Dispute Notice by either party, the following procedures will apply:

- (i) Santos may use reasonable endeavours to convene, within 2 Business Days from the delivery of the Dispute Notice, a meeting between the parties relevant to the dispute, Santos Senior Cultural Heritage Field Supervisor and the Cultural Heritage Coordinator (**Dispute Parties**) to discuss the Dispute in a manner which ensures minimum disruption to the Project Activities;
- (ii) if the Dispute is not resolved at the meeting held pursuant to paragraph (i), Santos must use reasonable endeavours to convene a meeting as soon as possible between the Dispute Parties, an Expert and must request the Expert's decision about the Dispute;
- (iii) the Dispute Parties must advise each other if they propose to bring other representatives to the meeting held pursuant to paragraph (ii);
- (iv) at the meeting held pursuant to paragraph (ii), each of the Dispute Parties present may, within a reasonable period of time, present their issues in the Dispute to the Expert;
- (v) the Dispute Parties will be bound by the decision of the Expert in relation to the Dispute;
- (vi) the costs of the Expert pursuant to this section will be borne by Santos.

5.8 **Engagement of Expert**

Santos may from time to time, but is not obliged to, engage an Expert to undertake any one or more of the following:

- (a) be the Cultural Heritage Coordinator if:
 - (i) the Aboriginal Cultural Heritage Working Group has not nominated a Cultural Heritage Coordinator;
 - (ii) the Cultural Heritage Coordinator does not respond to a Work Program within 2 Business Days of it being provided by Santos;
 - (iii) the Cultural Heritage Coordinator does not attend a Pre-Clearance Planning Meeting; or
 - (iv) the Cultural Heritage Coordinator has not otherwise complied with the requirements of a Cultural Heritage Coordinator under this CHMP.
- (b) perform the role of a Survey Team if:
 - (i) the Aboriginal Cultural Heritage Working Group has not nominated sufficient Cultural Heritage Officers to conduct a Work Program within the Program Timetable;
 - (ii) the Cultural Heritage Coordinator:
 - (A) does not respond to a request from the Senior Santos Field Supervisor for a Pre-Clearance Planning Meeting; or
 - (B) does not attend a Pre-Clearance Planning Meeting; or

- (C) at the Pre-Clearance Planning Meeting does not nominate the number of persons required or nominates unsuitable persons; or
 - (iii) another Cultural Heritage Officer is unable to perform his or her role;
 - (iv) the Survey Team fails to conduct a Pre-Clearance Survey of a Work Area within the Program Timetable;
 - (v) subject to, and in accordance with condition 4.10 of, this CHMP, assess human remains located during the course of Project Activities; and
 - (vi) resolve disputes arising from condition 5.7 of this CHMP,
- provided in relation to conditions 5.8(b)(i), 5.8(b)(ii), 5.8(b)(iii) and 5.8(b)(iv), notice has first been provided by Santos to the Aboriginal Cultural Heritage Working Group and the Aboriginal Cultural Heritage Working Group have failed to procure the relevant person to undertake the relevant task listed in this section within 2 Business Days.
- (c) consider and determine the contents of a Cultural Heritage Compliance Report in circumstances described in clause 4.8(i).

6. **CONFIDENTIALITY**

(a) **Santos**

Santos will keep confidential and not disclose any information it receives as a result of this CHMP relating to cultural heritage or cultural values without the consent of the Aboriginal Cultural Heritage Working Group unless:

- (i) required by law;
- (ii) required under official listing requirements of an Australian or overseas stock exchange;
- (iii) contemplated by the provisions of this CHMP;
- (iv) it is or becomes public knowledge;
- (v) it is disclosed to Santos' accountants, financiers, financial institutions, legal advisors, auditors, consultants or employees;
- (vi) to a related body corporate, joint venture party or a bona fide potential assignee; or
- (vii) to perform an obligation, or preserve or enforce a right or interest under this CHMP.

(b) **Other Parties**

The members of the Aboriginal Cultural Heritage Working Group, its Independent Chair, the Cultural Heritage Coordinator, Cultural Heritage Officers and the Auditor will all be bound to keep confidential and not disclose any information it receives as a result of this CHMP or about any activity undertaken pursuant to this CHMP without Santos' consent unless:

- (i) required by law;
- (ii) contemplated by the provisions of this CHMP;

- (iii) it is or becomes public knowledge;
- (iv) it is disclosed to that party's accountants, financiers, financial institutions, legal advisors, auditors, consultants or employees.

(c) **Limited use of some reports**

Santos or the ACHWG may provide the Registered Native Title Claimant with copies of, or may disclose, Cultural Heritage Compliance Plans and New Find Measures, and these may be utilised by the Registered Native Title Claimant for the limited purpose of supporting the Gomeroi Native Title Claim Application, provided that prior to disclosure the Registered Native Title Claimant obtain the written consent of Santos and the Cultural Heritage Working Group and, as far as reasonably practicable, remove from such reports all references to Santos and to any tenement title or authority held by Santos.

SCHEDULE 1

Project Map

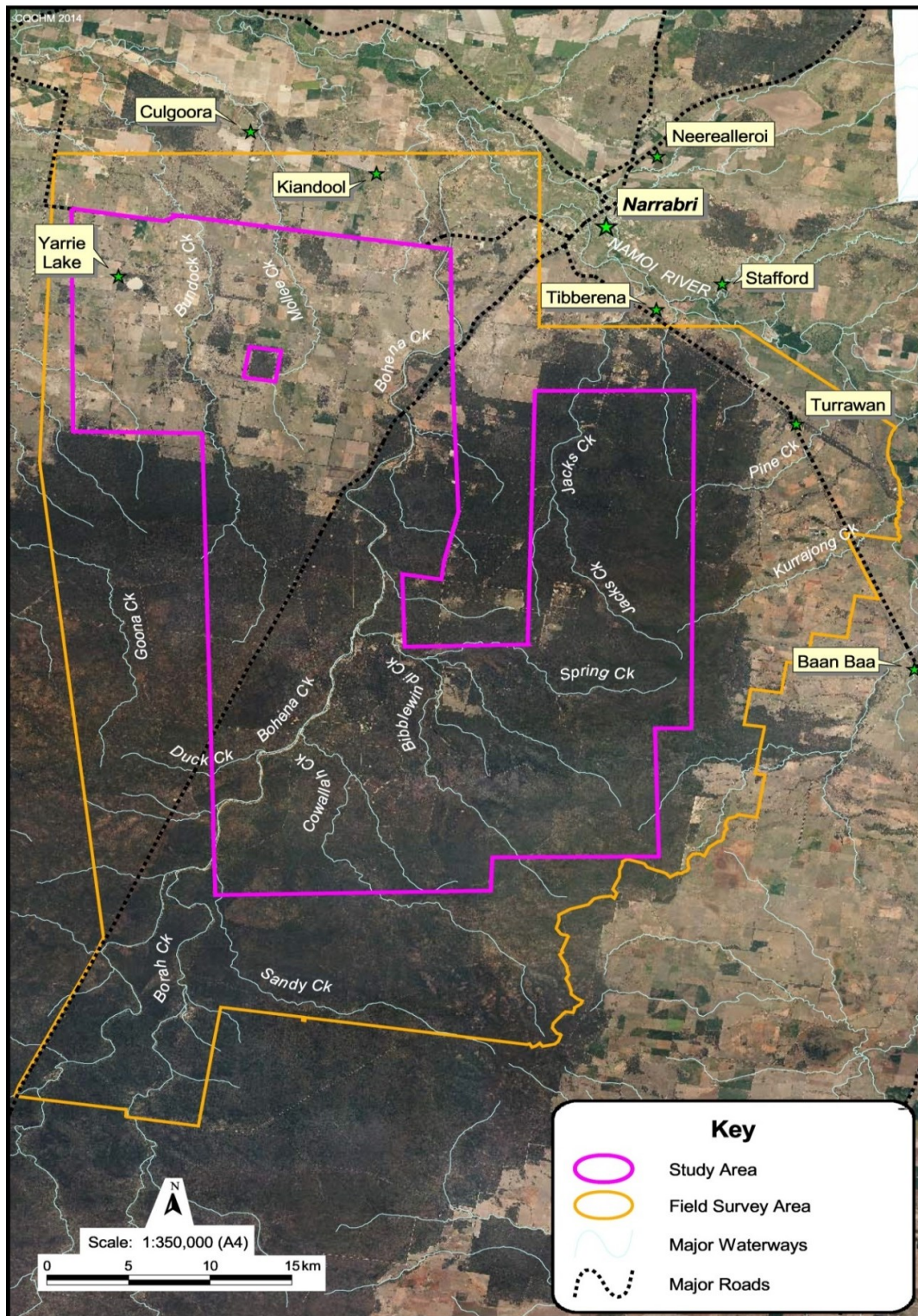


Figure 2-1: Relationship of the Study Area and the Field Survey Area

SCHEDULE 2

Sensitivity Mapping

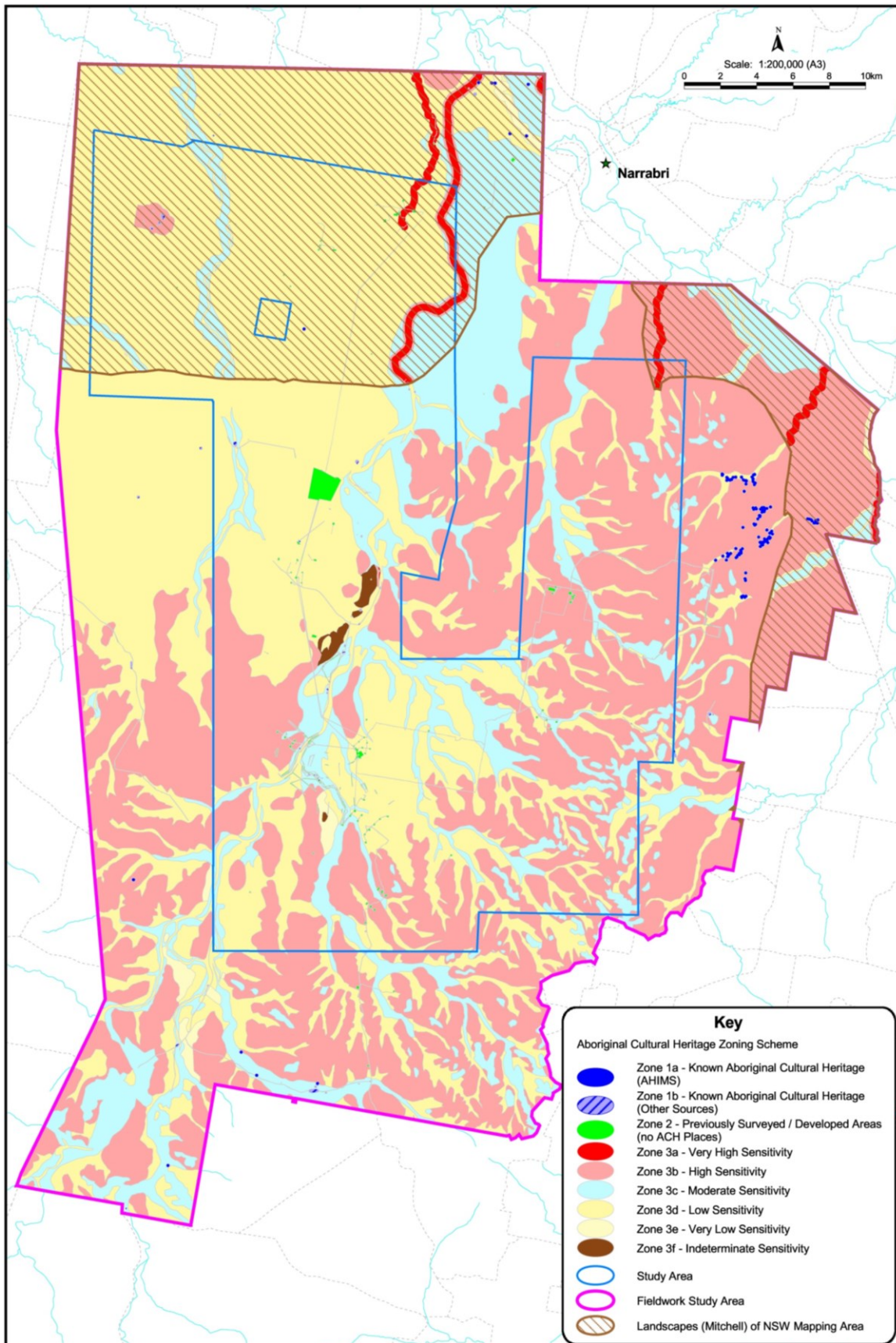


Figure 4-3: Aboriginal Cultural Heritage Zoning Scheme as it applies to the Study Area and Fieldwork Survey Area

SCHEDULE 3

Complete avoidance of site types

Should the pre-clearance survey identify an Aboriginal cultural heritage site of the type in the table below, then Santos will not locate the infrastructure in that area and will re-site the infrastructure after following the same process again. A full description of each type of site is contained in Schedule 5.

Site Type	Commitment	Detail
Burials	Complete Avoidance	
Stone Arrangements and Earthen Circles	Complete Avoidance	
Carved Trees	Complete Avoidance	
Rock Shelters	Complete Avoidance	
Rock Art	Complete Avoidance	
Grinding Grooves	Complete Avoidance	
Quarries	Complete Avoidance	
Mounds	Complete Avoidance	Subject to confirmation as a cultural feature.
Scarred Trees	Complete Avoidance	Subject to confirmation as a cultural feature there will be complete avoidance of this site type.
Hearths and Ovens	Complete Avoidance unless identification during construction	Subject to confirmation as a cultural feature. If identified during construction, mitigation will be in line with the New Find Measures under condition 4.9 of this CHMP.
Places of Traditional and Anthropological Significance identified in the cultural heritage audit review or in a Cultural Heritage Compliance Plan	Complete Avoidance	Sites previously identified by Santos as a Place of Traditional and Anthropological Significance or otherwise identified in the Additional Research Program.
Recent Historic and Contact Sites	Complete Avoidance	Sites previously identified by Santos as a Recent Historic and Contact Site or otherwise identified in the Additional Research Program.

SCHEDULE 4

Mitigation measures to be applied to site types

Should the pre-clearance survey identify an Aboriginal cultural heritage site of the type in the table below, then Santos will, where practicable, not locate the infrastructure in that area and will re-site the infrastructure after following the same process again. If it is not practicable to re-site the infrastructure, then Santos will adopt the management measures identified in the third column of the table. A full description of each type of site is contained in Schedule 5.

Site Type	Commitment	Detail
Stone Artefact Concentrations	<p>Maximise avoidance</p> <p>Avoidance efforts will be focussed on complex sites.</p>	<p>Stone Artefact Concentrations, where any two or more artefacts are within 1m of each other. May be subject to relocation except where complex sites are encountered, at these sites avoidance efforts must be increased further. Complex sites are defined as places where a specific knapping event can be identified, grinding equipment (or fragments thereof) and/or ground edge tools (or fragments thereof) are present or form an element of the stone artefact concentration, there is any sub-surface material that may be <i>in situ</i>, or the stone artefact concentration is directly associated with any other site type.</p>
Shell Middens	<p>Maximise avoidance</p> <p>Avoidance efforts will be focussed on complex sites.</p>	<p>Shell Middens may be subject to mitigation except where complex sites are encountered. Where complex sites are encountered they will be avoided. Complex sites are defined as where the shell midden material has not been subject to any process that has caused any disaggregation of the material, where a defined concentration of more than 10 shells or shell fragments over an area of more than 2m², there is a definable lens of shell, there is any sub-surface material that may be <i>in situ</i> or the shell midden is directly associated with any other site type.</p>
Sub-surface Cultural Material	<p>Maximise avoidance</p>	<p>Potential Archaeological Deposits will be subject of testing in line with OEH specifications for same. Where it is confirmed to exist, all Sub-surface Cultural Material, other than stone artefacts, will be avoided. This will apply irrespective of whether the material is <i>in situ</i> or not.</p>
Isolated Stone Artefacts	<p>Maximise avoidance</p>	<p>Where they cannot be avoided, Isolated Stone Artefacts may be relocated.</p>

SCHEDULE 5

Description of site types

A description of each site type identified in Schedules 3 and 4 is described below for reference:

1. Burials

Burials are the most sensitive site type that can be encountered: with the remains of ancestors being of immense importance to Aboriginal people. They can also be of considerable scientific significance by virtue of their antiquity, evidence of genetic development of the Aboriginal population, evidence of cultural practices (care for wounded or aged individuals, tooth evulsion, mortuary practices such as cremation or painting of bone) and the goods that may be buried with the individual. In some areas what can only be described as cemeteries have also been identified. Interment can take place as burials in locations such as watercourse-bordering dunes or lunettes, areas where soft sand is available, in rock shelters and within the limbs and trunks of hollow trees. Evidence of complex burial practices including maceration of flesh prior to final interment is also known. The geochemistry and base geology of an area has a major impact on the likelihood of finding burials and the locations in which they will be discovered. Tree burials are susceptible to destruction by bushfires and clearing. The study of burials in the region has provided information on where burials might be expected, how these are related to residential patterning and some interpretations of social patterns (McBryde 1974; Pardoe 1986, 1988; Witter *et al.* 1993).

RCAD (2002 appendix C: 15) notes oral testimony from Monty Ruttley that burials were found on 'a sandy creek in the Pilliga in the 1920s'. However, it is also noted that portions of the Pilliga have acidic soils. With this biochemistry it is unlikely that bone will survive for long. Therefore, any burials encountered in such areas are not likely to have any great antiquity.

2. Stone arrangements and earthen circles

Stone arrangements have been located in the region, typically at higher elevations, both where stone is available and perhaps so that they are less accessible. These are commonly presumed to be associated with ceremonial activities, including initiations.

3. Carved trees

Examples of this type of site have been reported for Bohena Creek. Carved trees result from the removal of bark and the carving of both figures and geometric patterns on the wood with axes or sharp stone tools. They were associated both with ceremonial sites such as bora grounds and to mark the boundaries of burial sites. In recognising these dual functions, Etheridge (1918) referred to them as teleteglyphs and taphoglyphs. Numbers of carved trees, including apparently the Bohena Creek example, were cut and removed to national and local museums, and to other keeping places, or have otherwise been destroyed by bushfires.

4. Rock shelters

Examples of this site type have been identified in the study area, but none are within the Project Area for the proposed Project. Where sediment has been trapped in the rock shelter and the shelter occupied, and the site geochemistry favours it, there can be deep, stratified deposits containing a wide range of cultural materials including: stone artefacts; organic equipment (e.g. dilly bags, boomerangs) and decorative items (e.g. grass necklaces and beads); remains of food stuffs both faunal and vegetable; charcoal from camp fires; and interred human remains. Rock art can sometimes be found rendered on the walls of shelters.

5. Rock art

Rock art can be found as drawings (dry pigment) and paintings (wet pigment) in rock shelters and overhangs. Engravings, both in rock shelters and on large expanses of rock of suitable composition, are known in the region but are unlikely in the Project Area due to the nature of the landscape. McBryde (1974) recorded engravings at Bullawa Creek, near Narrabri. RCAD (2002, appendix C: 15) notes that rock art is also found in shelters in the Pilliga Nature Reserve and Wilderness Area.

6. Grinding grooves

Wherever there are suitable large slabs of stone (typically sandstone) axes and other tools such as wooden spear points can be ground. This grinding results in creation of grooves on the large slabs. Grooving may also result from seed grinding. Grooves associated with axe production are typically associated with a source of water to allow creation of suitable grinding paste.

7. Quarries

Quarries [stone sources] are locations where stone used in the manufacture of stone artefacts has been found and there is evidence of manufacture in the form of stone artefacts such as debitage or blanks of the tools themselves. Quarries of various raw material are found and these relate to the tools or equipment that is to be manufactured. Sources where highly siliceous, krypto-crystalline and isotropic material are available are used for flaked tools. Hard volcanic and metamorphic material provides axes. Well-stratified outcrops of sandstone can provide material for grindstones, but materials can also be found as floaters or collected from gravel beds in watercourses and palaeochannels.

Ochre quarries can also be found. These can take two forms: locations where strata of clays with high content of iron compounds are found, and locations where there are large concentrations of stone nodules within which talc-like iron oxide is found – the nodules are cracked open and the iron oxide then ground to a powder. Kaolin (white clay) was used for purposes of painting, as was charcoal.

8. Mounds

Mounds might be encountered but the probability is low and will be limited to the largest watercourses in the study area in the extreme northwest, as they are found in floodplain country. Mounds may contain by-products of occupation including food debris, stone artefacts tools, charcoal and baked clay heat retainers. Burials are occasionally found in mounds. Mounds are raised areas typically measuring 10m to 20m in diameter, although larger examples have been recorded. Earthen mounds have been recorded to the west of the study area at the Macquarie Marshes (Balme and Beck 1996) and to the south and west along major rivers and watercourses. Excavation of mounds demonstrate they are of fairly recent origin, generally the late Holocene.

9. Scarred trees

These are sometimes referred to as culturally modified trees. They result from various types of activities:

- trees that have been scarred as a result of removing bark for the manufacture of various implements (coolamons), for construction of gunyahs and canoes or to mark particular trees associated with important events or places;
- trees where wood has been removed for the manufacture of particular tools such as bowls, spears, shields and clubs;
- trees where the bark has been removed as an ancillary to cutting into a tree to retrieve a resource such as honey or possums from hollow limbs.

Scarred trees should not be confused with carved trees where there has been removal of bark followed by figurative and geometric patterns on the trunk or major branches of a tree.

The size and shape of a scar may provide some indication of the use made of the bark or reason for scarring. It is sometimes possible to identify whether axes made of stone and steel have been used, usually in the form of the presence of cut marks and the definition of those marks. But there can be significant amounts of regrowth as the tree responds to the wound and this can obscure the size and shape of the scar as well as cut marks.

Many scarred trees have been registered. We note that both Roberts (1991) and oral testimony (RCAD 2002) urge caution in attributing all scarred trees to traditional practices of Aboriginal people. Trees will be found in areas where there has not been complete clearing of vegetation. The banks of creeks and watercourses and corridors of remnant vegetation in stock routes and along roads offer opportunity for their discovery.

10. Hearths and ovens

Hearths are surface features while ovens have been excavated. Heat retainers in the form most usually of pieces of baked clay, but less commonly small cobbles of stone along with charcoal, can be found in them. Other organic material may also be found. The charcoal and organic material offers the opportunity to date these features.

11. Places of traditional and anthropological significance

Again, RCAD (2002) contains statements that such places exist. These may be associated with a range of beings and events: important creator beings and culture heroes, places associated with important dreaming stories, dangerous places where the creator beings or dreaming characters may be encountered, places where important ceremonies were performed, birthing locations etc. There may be no material markers of such locations and they will be known only to suitably enculturated individuals who may choose to disclose the location and significance of these places.

12. Recent historic and contact sites

Archaeological evidence of Aboriginal life from the contact period of the 1800s has been documented in the region: RCAD (2002) demonstrates there is plenty of scope for this type of site in the study area.

13. Stone artefact concentrations

Stone artefact concentrations represent areas where there has been discard of artefactual material and are the most common form of open site that will be encountered. This is commonly believed associated with occupation of an area, but this is not necessarily the case. The density of discard and types of stone tools are commonly interpreted as demonstrating different activities in an area and intensity of occupation. However, the level of discard can also be closely related to the amount of raw material available and to the technology used to reduce the raw material and manufacture of specific tool types.

Quartz is a common raw material in this area. Various techniques are used in its reduction: bipolar flaking, lamellate reduction, shatter along natural flaws as well as conchoidal percussion. Identification of quartz artefacts can prove difficult dependent on technique used and the degree of natural flawing present in a block. Other stone materials likely present will include: silcrete, chert, quartzite, basalt and various other volcanic and metamorphosed materials.

14. Shell middens

Shell middens will be found close to rivers, lakes and other watercourses. Composed of mussel shells, they may be in stratified deposits or found as exposures in eroded areas.

They vary in size from small dinner time camps to extensive and stratified lens of shell. Stone artefacts, hearths, animal bones, other organic material, and burials can be found in larger examples or associated with them. The high carbonate content of the midden creates an excellent micro-environment for the preservation of organic material.

15. Isolated stone artefacts

Isolated stone artefacts usually are simple stone flakes but can include edge ground axes, grinding equipment, retouched flakes and cores. While individual artefacts can look unprepossessing, they may well be indicators of subsurface materials. RCAD (2002) notes this possibility and it is a point made by Roberts (1991) and Hughes (2002). Grinding equipment including such as slabs or dishes (the bottom stone), top stones, mortars and pestles, pieces of stone used for axe sharpening and preparation of ochre are possible. So, too, are edge ground axes and fragments of such axes. These are important for various reasons. They can provide direct evidence of the activities undertaken in the general area where they have been left. This can come from the type of tool itself and the residues that may adhere to them: the residue and phytoliths of various seeds ground or pounded; particles of ochre. Axes themselves provide a broad date for sites on which they are found, dating from about 4,000 years b.p. Grinding equipment, notably grinding slabs, have been found in deposits at Cuddie Springs dating to the Pleistocene. However, there are ongoing doubts about these dates – not least that such equipment has typically been found in deposits at most sites dating to the mid-Holocene. Sandstone is the most common material used for grinding equipment, but various other materials can be used. Edge-ground axes are manufactured using hard volcanic and metamorphosed material to preserve the edge achieved after great effort grinding the blank with a suitable paste of sandstone and water.

SCHEDULE 6

Aboriginal Cultural Heritage Working Group

1. Purpose of the ACHWG

The ACHWG will assist Santos to ensure the participation of the Aboriginal community in Pre-Clearance Surveys for the development of the Project in accordance with the Avoidance Principle in this CHMP.

2. Functions of the ACHWG

The functions of the ACHWG are to:

- (a) represent the views and interests of the Aboriginal community in relation to the management of the impact of the Project on Aboriginal Cultural Heritage;
- (b) nominate persons to be Cultural Heritage Officers to participate in the Pre-Clearance Surveys as part of the Survey Teams;
- (c) appoint and empower the Cultural Heritage Coordinator to implement the CHMP and provide support and direction to the Cultural Heritage Coordinator where requested; and
- (d) participate in the implementation of the CHMP during the life of the Project, including any review of the operation of the CHMP.

3. Membership of the ACHWG

Membership of the ACHWG will be a maximum of 9 people and will be constituted as set out below:

- (a) eight people chosen as follows:
 - (i) If there is a Registered Native Title Claim within the Project Area and one or more Local Aboriginal Land Councils, four persons nominated by the Registered Native Title Claimants and four persons nominated by the Local Aboriginal Land Councils;
 - (ii) If there is a Registered Native Title Claim, but no Local Aboriginal Land Council, eight persons nominated by the Registered Native Title Claimants;
 - (iii) If there is no Registered Native Title Claim within the Project Area but there is one or more Local Aboriginal Land Councils, eight persons nominated by the Local Aboriginal Land Councils; or
 - (iv) If there is no Registered Native Title Claims and no Local Aboriginal Land Council, eight persons from the local Aboriginal community nominated by Santos; and
- (b) an Independent Chair appointed by Santos.

At the date of approval of this CHMP, if there is a Registered Native Title Claim, then the four representatives from the Local Aboriginal Land Councils will consist of three people nominated by the Narrabri Local Aboriginal Land Council and one being nominated by the Wee Waa Local Aboriginal Land Council.

4. Quorum

A meeting of the ACHWG will have achieved quorum when the Independent Chair and five other ACHWG Members attend.

ACHWG Members may attend by phone subject to the prior approval of the Independent Chair

ACHWG Members will use all reasonable endeavours to ensure that ACHWG Members are present at all meetings.

5. Decisions

All decisions, approvals, advice and recommendations of the ACHWG made pursuant to provisions of this CHMP will be made by majority vote of all members of the ACHWG attending the meeting at which the vote is taken, provided a quorum is present (with the exception of the appointment of the Cultural Heritage Coordinator). All decisions, approvals, advice and recommendations made by the ACHWG must relate to the functions and duties of the ACHWG as described in clause 2 of this Schedule.

All decisions, approvals, advice and recommendations of the ACHWG made pursuant to provisions of this CHMP will be made as follows:

- (a) a resolution is to be tabled specifying the decisions, approvals, advice and recommendations;
- (b) the ACHWG may discuss the resolution and discussion points will be noted;
- (c) the resolution is to be the subject of a formal vote and the results will be recorded; and
- (d) the resolution and the results of the vote are to be included in minutes of the meeting.

Where there is no quorum, decisions may not be made by the ACHWG at that meeting, and must be deferred to the next meeting;

Only ACHWG Members may vote at any meeting of the ACHWG.

The Independent Chair will be responsible for ensuring there are records of the items discussed in the meeting of the ACHWG.

6. Timing of Meetings

Unless otherwise convened by the Independent Chair (with the agreement of Santos) under other provisions of this CHMP, meetings of the ACHWG will be held at least every six months during the life of this CHMP.

The time and venue for the meetings will be as agreed by the Independent Chair.

7. Person who may attend ACHWG Meetings

All ACHWG Members may attend all meetings of the ACHWG.

The Cultural Heritage Coordinator may attend meetings.

A person appointed by the Independent Chair to record the proceedings of a meeting of the ACHWG may attend.

8. Additional People Attending

ACHWG members may advise the Independent Chair they wish to invite other persons to attend meetings. Such notice must be provided in writing at least 48 hours before any meeting and must specify the name of the person and the specific agenda item for which attendance is requested.

The Independent Chair must advise all other ACHWG Members of the receipt of the request.

The Independent Chair may agree to the request.

Where the Independent Chair agrees to the request, it is on the basis that the person who is requested to attend agrees to comply with the following conditions:

- (a) they may attend the meeting only while the specific agenda item is being discussed; and
- (b) they may only address the ACHWG with the majority agreement of the ACHWG; and
- (c) they are not a member of the ACHWG and so have no voting rights or any other procedural rights that fall to an ACHWG member under provisions of this CHMP.

The Independent Chair will, in considering requests for any person to attend, ensure that no more than 14 persons (including ACHWG Members) attend any one meeting of the ACHWG.

It is the responsibility of the ACHWG Member who makes the request to contact the Independent Chair to secure the decision of the Independent Chair in this matter, and to advise the person they requested to attend of the Independent Chair's decision. In meeting their responsibility under this section the ACHWG Member may telephone the Independent Chair for the decision.

9. Register of Decisions

All decisions, approvals, advice and recommendations of the ACHWG made pursuant to provisions of this CHMP on any matter arising from the implementation of this CHMP will be entered in a Register of Decisions which will be maintained by the Independent Chair.

The Register of Decisions may be used by the Cultural Heritage Coordinator as part of day to day management planning and implementation of Management Measures.

10. Correspondence

Where correspondence by mail, email, fax or verbally with Santos on any element of the CHMP or any Management Measure is received, Santos will forward copies of such correspondence to the Independent Chair who will distribute to all ACHWG Members and the ACHWG shall consider such correspondence.

SCHEDULE 7

Previously Recorded Sites

REMOVED FOLLOWING REQUEST MADE
DURING CONSULTATION PROCESS WITH
REGISTERED ABORIGINAL PARTIES

SCHEDULE 8

Cultural Heritage Coordinator Role Summary

Employer

A third party, to be identified.

Purpose and role

The coordinator's role is to support the implementation of the CHMP through responding to work programs and to work with Santos to give effect to the terms and intent of the CHMP; and

Ensuring that all members of the Survey Team will unconditionally commit to implementation of this CHMP, observe and comply with any health, safety, environmental and other reasonable procedures and policies required by Santos; and

Responsibility for the timely implementation of any Pre-Clearance Surveys relating to Work Programs prepared or issued under provisions of this CHMP.

On agreement by Santos, Santos will provide all resources reasonably required to enable the Cultural Heritage Coordinator to perform all required duties and functions. Resourcing will be in accordance with Santos' schedule of rates.

Responsibilities

- comply with all requirements of this CHMP
- the first point of contact for Santos in matters relating to the implementation of this CHMP
- fulfil all requirements of the Cultural Heritage Coordinator role in accordance with the CHMP
- prepare reports as required including Cultural Heritage Compliance Reports.

Essential qualifications and skills

- Knowledge of Gomerioi cultural heritage
- Ability to identify cultural heritage sites and implement appropriate protective measures.
- Ability to use GIS and GPS
- Competent use and understanding of basic computer programs e.g. Word, Excel etc.
- Ability to forward plan and prioritise work and project demands
- Proficient report writing skills
- Experience and ability to work across diversity of backgrounds and experience.

Performance review

The coordinator's employer or head contractor will be required to review the coordinators performance annually, in consultation with the ACHWG and Santos.

GLOSSARY

Aboriginal Cultural Heritage includes all places of archaeological and anthropological significance (including places of traditional, historical and contemporary significance to Aboriginal people) that are in the Project Area. It includes, but is not limited to, archaeological sites (such as artefact scatters, stone arrangements, scarred trees and the like), Aboriginal Objects associated with sites, any places that have traditional stories associated with them, places which are historically important (such as old camps) and places which are important today (such as good food-gathering places or places used for recreational purposes). It also includes, but is not limited to, Aboriginal cultural values as identified and described in the Project EIS.

Applicable Laws means every law and regulation of any Government Agency from time to time in operation and applicable to the Project Area.

Cultural Heritage Management Plan (or CHMP) means this document and its associated schedules. This CHMP constitutes the Heritage Management Plan established in fulfilment of the Secretary's Requirements, OEH recommendations and any Consent Conditions specified by the Secretary, Department of Planning and Infrastructure.

Aboriginal Objects are defined under the *National Parks and Wildlife Act 1974* as "any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains".

Aboriginal Cultural Heritage Site Register means a register including the location of Aboriginal Cultural Heritage sites in and near the Project Area, but does not necessarily include information about the objects or values at a site.

Aboriginal Cultural Heritage Working Group (ACHWG) means the Aboriginal Cultural Heritage Working Group established under this CHMP. The ACHWG is the primary entity with whom Santos proposes to engage with during the life of the Project regarding the management of Aboriginal Cultural Heritage associated with the Project.

ACHWG Members means the persons who are members of the ACHWG appointed in accordance with clause 3 of Schedule 6.

Additional Research Program means the research program described in condition 4.6 commissioned by Santos.

Avoidance Commitments are the commitments to avoid or mitigate impact to Aboriginal cultural heritage as detailed in this CHMP.

Avoidance Principle means Project Activities will be designed such that, to the greatest extent possible, there is no impact on Aboriginal Cultural Heritage. Where impact cannot be avoided then the Project Activity will be designed to minimise impact on any Aboriginal Cultural Heritage, and other management measures as appropriate are to be implemented to minimise or mitigate harm.

Complete Avoidance means to ensure Project Activities do not:

- have a physical impact on; or
- cause harm to Aboriginal Cultural Heritage.

Consent Conditions means any conditions specified by the Secretary for the Department of Planning and Infrastructure (NSW) on which basis the Project has been given approval to proceed.

Cultural Heritage Field Supervisor (CHFS) means those persons appointed by Santos to implement elements of the CHMP relating to the management of Aboriginal Cultural Heritage associated with the Project Area.

Cultural Heritage Officer means an Aboriginal person nominated by the ACHWG in accordance with the processes in this CHMP in response to a request for cultural heritage assessment and who meets all Santos OHS requirements. The Cultural Heritage Officer is not an employee of Santos.

Cultural Heritage Compliance Report means a report prepared after the Pre-Clearance Survey for an area is complete.

Cultural Heritage Compliance Plan means a Cultural Heritage Compliance Report which has been endorsed by either:

- a Survey Team;
- the Cultural Heritage Coordinator; or
- an Expert.

Cultural Heritage Coordinator means the person appointed by the ACHWG to carry out the duties specified in this CHMP.

Cultural Heritage Zoning Scheme – zones based on the cultural heritage sensitivity of an area.

Dispute Notice means a notice issued in writing by any member of the ACHWG under this CHMP.

Disturbance Activity means Project Activities that involve surface disturbance other than those which involve No Additional Surface Disturbance.

Expert means a suitably qualified archaeologist or anthropologist appointed by Santos pursuant to section 5.8 of the CHMP.

Gomeroi Native Title Claim Application means the native title application registered by the Native Title Tribunal and currently allocated Federal Court file number Federal Court NSD2208/1911.

Government Agency means:

- (a) a government or government department or other body;
- (b) a governmental, semi-governmental or judicial person including a statutory corporation; or
- (c) a person (whether autonomous or not) who is charged with the administration of a law.

Independent Chair means the independent chair appointed by Santos to the Aboriginal Cultural Heritage Working Group.

Native Title Applicant means those persons specified in the registered Gomeroi Native Title Claim Application as the named applicants for this native title claim.

New Find means Aboriginal Cultural Heritage that has not been identified by the Project EIS, the Pre-Clearance Survey and is discovered during Project Activities.

New Find Area means any part of the Project Area which is within 20 metres laterally of a New Find.

New Find Measures means a way for dealing with a New Find:

- (a) as agreed and documented; or
- (b) as independently determined by Santos.

New Find Notice means a notice referred to in this CHMP.

No Additional Surface Disturbance means planned disturbance of an area must be consistent with any previous disturbance including any disturbance within areas previously the subject of:

- (a) permanent and mobile camps;
- (b) plant sites including ancillary infrastructure such as lay down areas:
 - (i) compressor stations;
 - (ii) drilling leases; and
 - (iii) pipeline and flowline rights of way
- (c) works associated with the repair and maintenance of existing roads (including drains); and
- (d) excavation of existing borrow pits

OEH Recommendations means the Recommendations prepared by OEH and specified in the Secretary's Requirements.

OEH means the Office of Environment and Heritage (NSW).

Pre-Clearance Planning Meeting means a meeting between the Santos Senior Field Supervisor and the Cultural Heritage Coordinator prior to a Pre-Clearance Survey.

Pre-Clearance Survey means a survey to identify if there is any Aboriginal Cultural Heritage present within an identified area.

Program Timeframe means the timeframe in which Santos requires a Pre-Clearance Survey of a Work Area to be undertaken.

Project means Santos Narrabri Gas Project described in the Project EIS.

Project Activities means the physical carrying out of the Project within the Project Area.

Project Area means the area of PPLA 13, 14, 15 and 16 as shown in the map in Schedule 1.

Project EIS means the Environmental Impact Statement prepared for the Project.

Registered Aboriginal Parties (RAPs) means those Aboriginal people being individuals. Local Aboriginal Land Councils and other groups that are registered in accordance with the OEH Consultation Requirements for consultation in relation to the assessment of this Project.

Registered Native Title Claimants means the registered claimants in the Gomeroi Native Title Claim Application.

Reported Site means Aboriginal Cultural Heritage recorded in a Cultural Heritage Compliance Plan.

Santos means Santos NSW (Eastern) Pty Ltd.

Santos Cultural Heritage GIS means the Santos GIS established in compliance with Santos management systems.

Santos Senior Cultural Heritage Field Supervisor means the Santos employee from time to time responsible for the field coordination of Santos' work priorities and the provision of support for Pre-Clearance Surveys, or the nominee from time to time of such employee.

Secretary means Secretary of the Department of Planning and Infrastructure (NSW).

Secretary's Requirements means the requirements specified by the Secretary of the Department of Planning and Infrastructure (NSW) for the preparation of an Environmental Impact Statement for the Project.

Sensitivity Mapping means that mapping undertaken in compliance with the OEH Recommendations for the Project EIS, a copy of which is included in Schedule 2 of this CHMP, which is stored in the Project Aboriginal cultural heritage GIS and which must be amended every five years from the date of commencement of this CHMP.

Significant Ground Disturbance means:

- (a) disturbance by machinery of the topsoil or surface rock layer (excluding consolidated rock or solid sheet rock) of the ground, such as by grading, bulldozing, trenching, drilling or dredging; and
- (b) the removal of vegetation by disturbance of root systems and exposing underlying soil.

Surface Disturbance means any disturbance of any area which causes lasting impact to the land or waters during the activity or after the activity has ceased.

Study Area is the area shown as the Study Area in the Project EIS and depicted as the Study Area on the map in schedule 2 of this CHMP.

Survey Team means the team of Cultural Heritage Officers employed or contracted to conduct a Pre-Clearance Survey.

Technical Expert means a suitably qualified archaeologist or person appointed by the Aboriginal Cultural Heritage Working Group with the consent of Santos.

Work Area means the area which is the subject of a Work Program.

Work Program means a program of Project Activities.