

Preliminary Site Investigation

Proposed Seniors Housing Development
87-89 Tweed Coast Road, Hastings Point NSW



Final Report

P2108580JR02V02

May 2025

Prepared for TriCare (Hastings) Limited

Project Details

Report Title	Preliminary Site Investigation: 87-89 Tweed Coast Road, Hastings Point NSW
Client	TriCare (Hastings) Limited
Document	P2108580JR02V02
Director	Daniel Martens
Manager	Mo Shahrokhian
Principal Author	Nathan Foster BSc (Hons)

Document History

Issue	Issue Date	Status	Description / Comment	Author	Reviewer	Approved
1	14/06/2024	Draft	Draft issue for Client comment	NF	BM	MS
2	6/02/2025	Final	Updated development plans	NF	BM	MS
2	7/05/2025	Final	Minor revisions	NF	BM	MS

© Copyright Martens & Associates Pty Ltd
Suite 201, 20 George St, Hornsby, NSW 2077, Australia
ACN 070 240 890 ABN 85 070 240 890
P +61-2-9476-9999 | mail@martens.com.au | www.martens.com.au

Copyright Statement

Martens & Associates Pty Ltd (Publisher) is the owner of the copyright subsisting in this publication. Other than as permitted by the Copyright Act and as outlined in the Terms of Engagement, no part of this report may be reprinted or reproduced or used in any form, copied, or transmitted, by any electronic, mechanical, or by other means, now known or hereafter invented (including microcopying, photocopying, recording, recording tape or through electronic information storage and retrieval systems or otherwise), without the prior written permission of Martens & Associates Pty Ltd. Legal action will be taken against any breach of its copyright. This report is available only as book form unless specifically distributed by Martens & Associates in electronic form. No part of it is authorised to be copied, sold, distributed, or offered in any other form.

Contents

1	Introduction	1
1.1	Overview.....	1
1.2	Proposed Development.....	1
1.3	Objectives.....	2
1.4	Scope of Works.....	2
1.5	Regulatory Guidance Documents.....	3
2	Site Description	4
2.1	IA Identification.....	4
2.2	Surrounding Land Use.....	4
2.3	Environmental Setting.....	5
2.4	Hydrogeology and Groundwater Use.....	6
3	Previous Investigations	8
4	Desktop Study	11
4.1	Historical Aerial Photography.....	11
4.2	Council Development Records.....	12
4.3	NSW EPA and Department of Defence Records.....	13
4.4	External Potentially Contaminating Activities.....	14
4.5	Supplementary Information.....	14
5	Site Inspection	15
6	Conceptual Site Model	17
6.1	Areas of Environmental Concern.....	17
6.2	Source - Exposure Pathway – Receptor Linkages.....	18
6.3	Review of Information Data Gaps.....	19
6.4	Conceptual Site Model Discussion.....	19
7	Conclusions and Recommendations	21
8	Limitations Statement	23
9	References	24
	Appendix A – Development Plans	
	Appendix B – Maps	
	Appendix C – Groundwater Bore Records	
	Appendix D – Historical Aerial Photography	
	Appendix E – Council Records	
	Appendix F – NSW EPA Records	

Appendix G – Site Photographs

Appendix H – Areas of Environmental Concern Plan

Tables

Table 1: IA identification information	4
Table 2: Environmental setting information	5
Table 3: Hydrogeological information	6
Table 4: Groundwater bore records	6
Table 5: Summary of previous investigation findings.....	8
Table 6: Historical aerial photography observations for the period 1947 to 2023.....	11
Table 7: Council development records	12
Table 8: Summary of NSW EPA and Department of Defence Records	13
Table 9: Summary of external potential contaminating activities within 500 m of the Site	14
Table 10: Summary of supplementary information relating to the Site.....	14
Table 11: Summary of inspection observations	15
Table 12: Potential contamination sources and contaminants of potential concern.....	17
Table 13: Conceptual site model <i>source – exposure pathway – receptor</i> linkages.....	18
Table 14: Review of information data gaps	19

Glossary of Terms

ACM	Asbestos containing material
AEC	Area of environmental concern
ASS	Acid sulfate soil
AST	Above ground storage tank
BGL	Below ground level
BTEXN	Benzene, toluene, ethylbenzene, xylene, naphthalene
CEC	Cation exchange capacity
CLM	Contaminated land management
COPC	Contaminants of potential concern
CSM	Conceptual site model
DA	Development application
DCP	Development control plan
DCS	NSW Department of Customer Service
DEC	NSW Department of Environment and Conservation
DP	Deposited Plan
DPE	NSW Department of Planning and Environment
DPI	NSW Department of Primary Industry
DSI	Detailed Site Investigation
DUAP	NSW Department Urban Affairs and Planning
EPA	NSW Environmental Protection Authority
GDE	Groundwater dependent ecosystem
HAP	Historical aerial photography
HEPA	Heads of EPAs Australia and New Zealand
HM	Heavy metals
IA	Investigation area
ILU	Independent living units
LEP	Local environmental plan
LGA	Local government area
MA	Martens & Associates Pty Ltd
mAHD	Metres Australian Height Datum
NEMP	National Environmental Management Plan
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
OCP	Organochlorine pesticides
OEH	NSW Office of Environment and Heritage
OPP	Organophosphorus pesticides
PACM	Potential asbestos containing material
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyl
PFAS	Per- and polyfluoroalkyl substances
POEO	Protection of the Environment Operations
PSI	Preliminary Site Investigation
RAC	Residential aged care
SEAR	Secretary's environmental assessment requirements
SEPP	State Environmental Planning Policy
SSDA	State significant development application
SWL	Standing water level
TDS	Total dissolved solids
TPH	Total petroleum hydrocarbons
TRH	Total recoverable hydrocarbons
UXO	Unexploded ordnance
UPSS	Underground petroleum storage system
UST	Underground storage tank
VOC	Volatile organic compounds

1 Introduction

1.1 Overview

Martens and Associates (MA) have been engaged by TriCare (Hastings) Limited (the Client) to undertake a Preliminary Site Investigation (PSI) of land located at 87-89 Tweed Coast Road, Hastings Point NSW.

The PSI has been prepared to evaluate land contamination to support a state significant development application (SSDA) to the NSW Department of Planning and Environment (NSW DPE) for proposed seniors living development. This report addresses part of Item 17 of the Secretary's Environmental Assessment Requirements (SEARs) for the development proposal (dated 20 April 2022).

The PSI considers the land comprising the Site as the nominated investigation area (IA) shown in Appendix B (Map 01).

1.2 Proposed Development

The TriCare Hastings Point development comprises both independent living units (ILUs) and a residential aged care home (RAC) home, that will be supported by a range of other services. The development will consist of four, three-storey buildings (Buildings D to G), each with one level of basement car parking. Specifically, the proposal includes:

- A 47 place RAC (Building D) comprising:
 - Individual private rooms with ensuites facilities;
 - Shared dining, lounge and sitting rooms;
 - Café;
 - Kitchen;
 - Serveries;
 - Nurses stations;
 - Offices;
 - Staff room and facilities;
 - Waste room; and
 - Loading bay.
- 51 ILUs split across 3 buildings, including:

- 24 ILUs in Building E
- 18 ILUs in Building F
- 9 ILUs in Building G.

Complimenting the ILUs and RAC, the development offers a range of communal facilities for entertainment, health, active and passive recreation. These facilities include:

- Bowling Green and pavilion with bowls store, amenities, kitchen, and covered seating area;
- Indoor swimming pool and spa, with amenities and viewing area;
- Perimeter walking trail; and
- Landscaped gardens.

The proposed development will provide an important contribution to supporting the need for seniors accommodation and care within the Kingscliff locality.

No changes to the existing Stage 1 development are proposed.

Development plans (Arqus Design, 2024) and a survey plan are provided in Appendix A.

1.3 Objectives

Investigation objectives include:

- Identify historical and current activities and uses on the IA and adjacent land which could potentially result in land contamination.
- Establish areas of environmental concern (AEC) and associated contaminants of potential concern (COPC) to assist with the development of a conceptual site model (CSM) for the IA.
- Establish the suitability of the IA for the proposed land use, and where required, make recommendations for additional investigation.

1.4 Scope of Works

The scope of works adopted for the investigation included:

- Review of available online mapping resources.
- Review of available online hydrogeological and groundwater information.
- A desktop study, including review of historical aerial photography, historical Council records, information available on relevant regulatory and government databases, and previous environmental investigations completed for the IA.

- Inspection of the IA to confirm desktop study findings and make observations of land use and activities on the IA and surrounding land.
- Preparation of a report in accordance with the relevant guidelines.

1.5 Regulatory Guidance Documents

The following regulatory guidelines have been considered for the preparation of this report:

- NSW DUAP (1998) Managing Land Contamination: Planning Guidelines.
- NEPC (2013) Schedule B2 Guideline on Site Characterisation.
- NSW DEC (2007) Guidelines for the Assessment and Management of Contamination Groundwater.
- NSW EPA (2017) Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme.
- NSW EPA (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.
- HEPA (2020) PFAS National Environmental Management Plan, Version 2.0.
- State Environmental Planning Policy (Resilience and Hazards) 2021.

2 Site Description

2.1 IA Identification

The IA identification details and general descriptions are summarised in Table 1. The location of the IA and general surrounding land is shown in Appendix B (Map 01).

Table 1: IA identification information

Item	Detail
IA address	87-89 Tweed Coast Road, Hastings Point NSW
Legal Identifiers	Lot 1 DP786570
Approximate investigation area	Approximately 2.13 ha (By calculation – SIX Maps)
Geographic site coordinates	North western corner (datum GDA2020 – MGA56): <ul style="list-style-type: none"> • Easting: 556087 • Northing: 6861947 (Source: SIX Maps)
Local Government Area	Tweed Shire Council
Zoning	<ul style="list-style-type: none"> • DM – Deferred Matter • R1 - General Residential (Tweed Local Environmental Plan 2014)
Current land use(s)	Recreational / open space
Proposed land use(s)	Aged care facility

2.2 Surrounding Land Use

The following land uses are located surrounding the IA:

- North – residential and undeveloped land.
- East – existing site development area, followed by Tweed Coast Road and coastal bushland adjacent to South Coral Sea.
- South – undeveloped land, including a service station and telephone exchange located to the south east of the IA.
- West – Gudgera Creek, followed by undeveloped bushland.

2.3 Environmental Setting

Information relating to the environmental setting of the site is presented in Table 2.

Table 2: Environmental setting information

Item	Detail
Topography	<p>The topography of the surrounding landscape is characterised by slopes <3% and local relief between <5 to 10 m. The outer barrier dune system has been extensively mined and in many locations the original dune form has been removed and the ground surface is generally hummocky.</p> <p>Elevation of the IA ranges from approximately 2.0 to 6.0 mAHD, with slopes declining to the west, toward Cudgera Creek.</p> <p>A topographic map of the IA is provided in Appendix B (Map 02).</p>
Geology	<p>Geological mapping produced by the NSW Geological Survey (Colquhoun, et al., 2022) as provided on the web platform MinView (GSNSW, 2024), indicates geology of the Site consists of the following Quaternary sedimentary units:</p> <ul style="list-style-type: none"> • Estuarine interbarrier creek deposits – this unit is mapped along the western margin of the IA. Unit lithology is described as fine- to medium-grained lithic-carbonate-quartz sand (marine-deposited), silt, clay, organic mud, peat, gravel, shell material. • Coastal beach ridge deposits – mapping indicates this unit occurs across much of the IA. Unit lithology consists of fine- to coarse-grained quartz-lithic-carbonate sand (marine-deposited), shell and shell-fragment-rich beds, polymictic gravel. • Coastal dune deposits – mapping indicates this unit occurs within the central eastern to north eastern corner of the IA. Unit lithology consists of marine-deposited and aeolian-reworked coastal sand dunes.
Soil landscape	<p>The eSPADE (NSW DPE, 2024) platform indicates soil landscapes are mapped within the IA:</p> <ul style="list-style-type: none"> • Bobangar Soil Landscape – is mapped across much of the east of the IA. Soils consist of deep (>300 cm), very disturbed Podzols and Siliceous Sands. • Cobaki (Variant a) Soil Landscape – is mapped across the western part of the IA. Soils consist of deep (>200 cm), poorly drained Humic Gleys on the plain; deep (>300 cm), poorly drained Humic Gleys and Acid Peats on very low-lying areas; Podzols and sands overlying Humic Gleys in interbarrier stream alluvial plains. <p>eSPADE record indicates soil cation exchange capacity (CEC) of the upper 2.0 m of soil ranges between ≤5 and 10 cmol/kg, while pH values range between pH 4 and pH 5.</p>
Acid sulfate soils	<p>eSPADE ASS risk mapping indicates the IA is mapped as having low probability of ASS occurrence 1- 3 m below ground surface, with ASS at an elevation of 2 - 4 mAHD.</p> <p>ASS risk mapping associated with the Tweed Local Environmental Plan 2014 indicates the IA is mapped as Class 3 ASS risk (any works <1 m below natural ground surface and where the watertable is likely to be lowered below 1 mBGL).</p>
Surface hydrology	<p>Drainage is likely to occur by a combination of direct soil infiltration (where permeability allows) and overland flow in paved areas. Drainage in hardstand areas is likely to be directed to stormwater infrastructure that drains either to the municipal stormwater system or Cudgera Creek.</p>

Item	Detail
Nearest surface waterbodies	<ul style="list-style-type: none"> Cudgera Creek, 35 m west. South Coral Sea, 250 m east.

2.4 Hydrogeology and Groundwater Use

Available site hydrogeological information and local area is summarised below in Table 3.

Table 3: Hydrogeological information

Item	Detail
Aquifer Type	The Bureau of Meteorology (BoM) Australian Groundwater Insight database (BoM, 2024) indicates the principal hydrogeology of the Hastings Point area consists of porous, extensive aquifers of high productivity. An upper aquifer exists in coastal sediments and a lower aquifer is present in sedimentary rock units.
Depth to groundwater	<ul style="list-style-type: none"> 0.7 to 3.9 mBGL (Coffey Geosciences, 2005) 3.25 to 3.63 mBGL (HEC, 2006)
Groundwater salinity	<ul style="list-style-type: none"> Total dissolved solids (TDS) <3,000 mg/L, indicating non saline groundwater (BoM, 2024). 289 to 386 $\mu\text{S}/\text{cm}$ (HEC, 2006), indicating non-saline groundwater.
Groundwater pH	pH 4.0 to pH 5.0 (HEC, 2006), indicating acid groundwater.
Groundwater Flow Direction (inferred)	West, towards Cudgera Creek

The WaterNSW Real-time Water Database was reviewed to identify local groundwater bores and uses ≤ 500 m of the IA. A summary of available bore records is provided in Table 4. A map of surrounding groundwater bores and their records is provided in Appendix C.

Table 4: Groundwater bore records

Groundwater Bore	Direction (and Distance)	Depth to Groundwater (mBGL)	Registered Use	Water-bearing Zone Information
GW306499	Onsite	3.50	Monitoring	Sand – 3.5 to 4.5 mBGL Yield – unknown Salinity - unknown
GW307634	45 m, east	3.595	Monitoring	Sand – 3.5 to 6.0 mBGL Yield – unknown Salinity - unknown
GW307635	45 m, south east	5.475	Monitoring	Sand – 1.4 to 6.0 mBGL Yield – unknown Salinity - unknown
GW307637	15 m, east	3.510	Monitoring	Sand – 1.5 to 6.0 mBGL Yield – unknown Salinity - unknown
GW307638	15 m, east	4.515	Monitoring	Sand – 2.1 to 6.0 mBGL Yield – unknown Salinity - unknown

Groundwater Bore	Direction (and Distance)	Depth to Groundwater (mBGL)	Registered Use	Water-bearing Zone Information
GW303832	370 m, north	5.20	Domestic	Sand – 5.8 to 6.40 mBGL Yield – 0.4 L/sec Salinity - unknown

Beneficial groundwater extraction was not identified within the IA, but does occur for domestic purposes on land north of the IA. It is expected the development is likely to be serviced by a reticulated water supply and potential beneficial groundwater use in the IA is unlikely. However, given that groundwater is likely of potable quality, the underlying aquifer may represent a potential future beneficial groundwater resource.

At the time of preparing this PSI report, MA have also been conducting a hydrogeological assessment at the Site. As part of the hydrogeological assessment nine onsite groundwater monitoring wells were previously installed by MA in October 2022. Groundwater levels have been continually monitored at the Site since November 2022, with recorded groundwater levels ranging between 1.32 mAHD and 3.28 mAHD.

3 Previous Investigations

For preparation of the PSI, MA have been provided with several environmental investigation reports which have been for the Site, and include:

- Coffey Geosciences (2005) Proposed Retirement and Aged Care Development – Preliminary Geotechnical and Site Contamination Assessment, South Coast Road, Hastings Point.
- HMC Environmental Consulting (2006) Preliminary Site Investigation – Site History, 79-87 Tweed Coast Road, Hastings Point NSW.
- Cavanba Consulting (2010) Site Audit Report 0103 – 0802, 87 89 Coast Road, Hastings Point NSW 2489.
- ENV Solutions (2020) Acid Sulfate Soil Management Plan and Radioactive Sands Assessment, Staged Seniors Living Development, 87-89 Tweed Coast Road, Hastings Point.

A summary of information and key findings from the above documents relating to contamination and radiological items is provided in Table 5.

Table 5: Summary of previous investigation findings

Item	Details
<i>Coffey Geosciences (2005) Preliminary Geotechnical and Site Contamination Assessment</i>	
Objectives and scope of works	<p>It is understood that the developer of the site is concerned about the potential for contamination of the site because of a service station located at the south eastern corner of the site. Coffey carried out a preliminary scope of work to assess if contamination from the service station has affected the site.</p> <p>Soil samples were collected at 0.5 m intervals in four boreholes located at site boundary with the service station, and groundwater monitoring wells were installed at each borehole location for groundwater sampling. Five additional borehole locations were distributed across the larger site area (including the IA) and samples were collected at 0.5 m to 1 m intervals.</p> <p>Soil samples were screening with photo ionisation detector (PID) for potential soil vapours. Soils and groundwater samples were analysed for metals, TPH, BTEX, and PAH. No soil analysis was completed for asbestos.</p>
Investigation findings	<p>PID screening of soils indicated that soil vapours were generally negligible (<20 ppm), except at two locations > 2 mBGL surrounding the service were vapours from 60 ->300 ppm were reported.</p> <p>Soil and groundwater samples indicated metals and organic contaminants were either generally low or below laboratory detection, except for one soil sample collected from a depth of 8.5 to 9.0 m which reported TPH (C₁₀-C₃₆) at a concentration of 1,080 mg/kg.</p>
Conclusions and recommendations	<p>Coffey Geosciences (2005) considered that the results of preliminary assessment were inconclusive as to whether the site was affected by contamination from the adjacent service station development. Further investigation of site history, and additional soil and groundwater investigation was recommended to evaluate potential for site contamination.</p>

Item	Details
HMC Environmental Consulting (2006) Preliminary Site Investigation	
Investigation scope of works	<p>The scope of works for the investigation included:</p> <ul style="list-style-type: none"> • A desktop study to assess historical site use and activities. • Review of previous investigation reports. • A site inspection. • Groundwater sampling from four existing monitoring locations installed by Coffey Geosciences (2005) and laboratory analysis. • Preparation of a report.
Site history	<p>The IA was undeveloped prior to sand mining of the land in the 1960s. By the early 1970s mining had ceased and the site had been revegetated. It was understood that the lot was used as a private residence and caravan park from 1979. The adjacent service station site was subdivided from the lot in 1981, with construction of service station site occurring in 1987 before sale to Shell in 1988.</p>
Site inspection	<p>Inspection observations reported the site was occupied by caravan park buildings, mobile homes, turfed camping sites, and associated internal roads and landscaping. Visible evidence of contamination, such as discolouration or staining of soil, odours, or presence of drums & waste material was not observed.</p>
Investigation findings	<p>Groundwater samples were analysed for metals, TPH, BTEX, and PAH, with levels reported at either low concentrations or below laboratory detection, and generally similar to findings by Coffey Geosciences (2005). HMC noted underground storage tanks {UST} are located off site in the operating service station, and considered that regular on-site groundwater monitoring, would assist with identifying potential groundwater impacts to the site originating from the service station. HMC also recommended:</p> <ul style="list-style-type: none"> • Two replacement monitoring bores be installed at greater depth at locations surrounding the service station. • Survey of groundwater wells be completed to establish groundwater elevation, gradient, and flow direction be carried out, and • Ongoing quarterly groundwater sampling.
Cavvanba (2010) Audit Report and EMP	
Purpose	<p>Works documented related to the Stage 1 development located to the immediate east of the IA, with particular emphasis upon radiological issues associated with heavy mineral sands.</p>
Site history	<p>The Audit Report identified that the overall site had been extensively disturbed as a result of sand mining, with original soil materials having been extensively mixed and the landform reshaped to form re-vegetated marine quartz sands dunes. Cavvanba (2010) also reported a 1962 aerial photograph identified two inactive processing dams located at the southern end of the site, with the rest of the site shown as cleared sand. The former sand mining processing facility was shown off the site, further north, across Tweed Coast Road on the beach front.</p>
Conclusions	<p>The site audit considered the site to be suitable for land use of <i>Other - residential with minimal opportunity for soil access</i> with regard to radiation from heavy mineral sands, however, compliance with the Auditor prepared EMP would be necessary in light of potential radiological contamination remaining on the site. The Cavvanba (2010) audit report did not consider radon to be a hazard.</p>

Item	Details
ENV Solutions (2020) ASSMP and Radioactive Sands Assessment	
Purpose of works	<p>A pre-development application (DA) meeting with Council in 2019 identified the need for radioactive soils assessment of the IA due to historical heavy mineral sand extraction and potential residue disposal. ENV Solutions (2020) undertook field investigations to assess potential radioactive properties in material removed in conjunction during ASS drilling</p> <p>A desktop study of historical heavy mineral sands mining activity within and adjacent to the IA was not completed by ENV Solutions (2020) for their investigation. Additionally, previous radiological assessments, auditing, EMP documented by Cavvanba (2010) as part of Stage 1 development works on the eastern part of the Site were not discussed by ENV Solutions (2020).</p>
Radiological investigations	<p>The assessment of radioactive properties in soils extracted during the drilling program was undertaken at six borehole locations, with radiation levels recorded (as microSieverts per hour) from samples collected every 0.5 m, to the maximum investigation depth of 5.0 mBGL (based on a proposed excavation depth of 4.0 mBGL).</p> <p>The report documented that 64 sampling points were measured, but it is noted that individual radiological measurements for each sampling point are not provided in the document. ENV Solutions (2020) also document that laboratory analysis was not conducted on samples due to the field results obtained.</p> <p>Information relating to the Geiger counter device used (including device calibration certification) to collect measurable data was not supplied in the report.</p>
Investigation findings	<p>Ground conditions appeared to be predominantly sand, with groundwater encountered between 1.5 and 2.5 mBGL. Geiger counter results were recorded below the safe level of human exposure of 0.7 uSv/h, with each reading being around 0.1 uSv/h.</p> <p><i>MA note that the report does not provide detailed borehole logs with soil descriptions, and individual sampling units and results.</i></p>

4 Desktop Study

4.1 Historical Aerial Photography

Historical aerial photography covering the IA and surrounding land for the period 1947 to 2023 have been reviewed. Observations are summarised in Table 6, with copies of historical aerial photographs provided in Appendix D.

Table 6: Historical aerial photography observations for the period 1947 to 2023

Year (Source)	IA Observations	Observation on Surrounding Land
1947 (Geoscience Australia)	The IA area is undeveloped and vegetated.	Surrounding is largely undeveloped and vegetated, with Tweed Coast Road present east of the IA.
1962 (HAP)	Much of the IA appears to have been disturbed for sand mining activities, except for land adjacent to Cudgera Creek which remained vegetated.	Land immediately north, east, and south of the IA appears to associated with sand mining activities within the IA. Land further afield, may potentially have been mined and rehabilitated, but image resolution is poor and features cannot be adequately discerned.
1971 (HAP)	Sand mining activities appear to have ceased, with land rehabilitation having been completed across much of the IA. Some exposed sand areas exist in the western IA.	Sand mining has been completed on land north and south of the IA, with land also having been rehabilitated. Development of land for low density residential use exists to the north.
1979 (HAP)	The IA is generally consistent with the 1971 image.	Much of the surrounding land is consistent with the 1971 image. Several structures exist on land immediately east of the IA, while additional low density residential construction exists on land to the north.
1987 (HAP)	The southern portion of the IA has been developed for use as a caravan or mobile home park, while several structures also appear near to the northern IA boundary. Several access roadways are also present.	The telephone exchange has been constructed south east of the IA, while several large structures occur north east of the IA.
1991 (HAP)	The IA is generally consistent with the 1987 image, except for additional caravan or mobile home structures along the western IA boundary.	The service station site has been constructed to the east of the IA, with remaining surrounding land generally consistent with the 1987 image.
1997 (HAP)	The IA is generally consistent with the 1991 image, except for the clearance of vegetation located along the northern portion of the IA western boundary	Surrounding land is generally consistent with the 1991 image.

Year (Source)	IA Observations	Observation on Surrounding Land
2015 (Nearmap) 1/06/2015	Previously cleared vegetation along the northern portion of the western boundary has regrown. Several caravan or mobile home structures have been removed from the southern IA, including along the eastern boundary.	A large multi building holiday accommodation complex has been constructed immediately east of the IA.
2023 (Nearmap) 11/07/2023	All previous caravan or mobile home structures have been removed from the IA. Several small structures and vehicle exist along the eastern boundary in the north of the IA.	Surrounding land is generally consistent with the 2015 image.

Notes:

1: HAP – NSW Spatial Services historical imagery viewer.

4.2 Council Development Records

Tweed Shire Council development records provided on Council's DA Tracker website (<https://datracker.tweed.nsw.gov.au>) were reviewed for the investigation. Details of the records are summarised in Table 7. Council development records are provided in Appendix E.

Table 7: Council development records

Year	Record Number	Status	Description
2020	DA06/0413.14	Refused	Amendment to Development Consent DA06/0413 for a staged seniors living development under SEPP (Seniors Living) 2004 comprising 91 independent living units, 94 supported living units and 67 beds within a high care facility.
2018	CDC18/0066	Approved	Demolition of 11 various buildings.
2013	DA13/0308	Approved	Change of use and re-allocation of floor area within Block B of existing aged care facility.
2011	DA11/0597	Approved	Advertising sign.
2006	DA06/0413	Approved	Staged seniors living development under SEPP (Seniors Living) 2004 comprising 91 independent living units, 94 supported living units and 67 beds within a high care facility.
2003	DA03/1545	Approved	Changing configuration of short term and camping sites in existing holiday park
2003	DA03/0751	Withdrawn	Demolition of existing sign & erection of two (2) new information signs.
2001	0618/2001DA	Approved	Use of temporary buildings as a marine environment centre.
2000	0560/2000DA	Approved	The relocation of site office/manager's residence.
1998	S98/0014	Approved	Two lot residential subdivision.
1986	D87/0239	Approved	Establishment of 10 caravan sites.
1981	T4/0644	Approved	Erection of two staff flats at existing tourist accommodation.

4.3 NSW EPA and Department of Defence Records

A review of NSW EPA and Department of Defence records was completed for the investigation using the following online records:

- Records of public notices of contaminated land under Section 58 of the *Contaminated Land Management Act 1997* (CLM Act).
- Records relating to contaminated land notified to NSW EPA under Section 60 of the CLM Act.
- Records relating to licensed activities, applications, notices, and audits under the *Protection of the Environment Operation Act 1997* (POEO Act).
- Records relating to sites listed under the NSW EPA per-and polyfluoroalkyl substances (PFAS) investigation program.
- Records relating to site being investigated and or managed by the Department of Defence for PFAS contamination.
- Records managed by Department of Defence relating to land affected, or suspected of being affected, by unexploded ordinance (UXO).

A summary of information relating to the Site is provided below in Table 8. Applicable records are provided in Appendix F.

Table 8: Summary of NSW EPA and Department of Defence Records

Records	Onsite	Surrounding Land
Section 58 of the CLM Act 1997 notices ¹	No record	No record ≤500 m
Duty to Report Contamination under Section 60 of the CLM Act 1997 ²	No record	One location was reported ≤500 m of the IA: <ul style="list-style-type: none"> • 99 Tweed Coast Road, Hasting Point – service station (20 m south east of IA).
Records under the POEO Act 1997 ³	No record	No record ≤500 m
NSW EPA PFAS investigation program ⁴	No record	No record ≤500 m
Department of Defence PFAS management and investigation program ⁵	No record	No record ≤500 m
NSW DPI Cattle Dip Site Locator ⁶	No record	No record ≤500 m
Department of Defence unexploded ordinance (UXO) records ⁷	No record	No record ≤500 m

Notes:

1. Records available at: <https://apps.epa.nsw.gov.au/prclmapp/searchregister.aspx>.
2. Records available at: <https://www.epa.nsw.gov.au/your-environment/contaminated-land/notified-and-regulated-contaminated-land/list-of-notified-sites>.
3. Records available at: <https://apps.epa.nsw.gov.au/prpoeoapp/>.
4. Records available at: <https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program>.

5. Records available at: <https://www.defence.gov.au/about/locations-property/pfas/pfas-management-sites>
6. Records available at: <https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/parasitic-and-protozoal-diseases/ticks/cattle-dip-site-locator>
7. Records available at: <https://uxo-map.defence.gov.au/>

4.4 External Potentially Contaminating Activities

Available online mapping and business services registers were reviewed as part of the investigation to identify industries and activities known as potential sources of land contamination (e.g., service stations, fire stations, mechanics, dry cleaners, airports, etc.) located within 500 m of the Site. The review identified several industries and activities within 500 m of the Site, and information relating to these locations is provided in Table 9.

Table 9: Summary of external potential contaminating activities within 500 m of the Site

Business / Activity Type	Location	Distance and Direction from Site	Inferred Hydraulic Position to Site
Service station	99 Tweed Coast Road, Hastings Point	Immediately south east	Unknown
Telephone exchange	101 Tweed Coast Road, Pottsville	15 m, south east	Unknown

4.5 Supplementary Information

Supplementary information relating to the IA was obtained from several additional sources as part of the investigation. The information obtained from these sources is summarised in Table 10.

Table 10: Summary of supplementary information relating to the Site

Source	Summary of Information
GSNSW Digital Imaging of Geological Systems (DIGS) archive	A search of the mining lease records available on the GSNSW (2024) DIGS archive (https://digs.geoscience.nsw.gov.au/) identified the former mining lease survey plan outlining the spatial extent of PML28, identified as existing within the IA. The survey plan indicated the Site was located within the boundaries of the mining lease. Information indicated the mining was held by Zircon Rutile Ltd for mining of zircon and rutile. The mining lease survey plan is provided in Appendix G.

5 Site Inspection

An inspection of the IA was conducted for the investigation by an experienced MA Environmental Consultant on 16 August 2023. Observations made during the inspection are provided below in Table 11.

Table 11: Summary of inspection observations

Item	Observations
Buildings and structures	Buildings and permanent structures were not observed were not present within the IA at the time of the inspection.
Ground surfaces and pavements	Much of the IA was unsealed and partially covered by a grass surface. An area of bitumen pavement was also observed running along a length of the northern section of the western boundary (Photo 3), connect to a driveway access to Tweed Coast Road.
Fill material and stockpiles	Evidence of filling was observed in the following locations: <ul style="list-style-type: none"> • Suspected across the central and eastern IA (Photo 4). Much of this area appears to be elevated above land to the west and contained evidence of fragmentary rock material, recycled aggregate, crushed concrete, and brick fragments at the ground surface. • Several suspected stockpiles of fill and refuse material were observed in the southern portion of the IA (Photo 5 and Photo 8). • A single woodchip stockpile was observed in the central western IA.
Historic structures	Evidence of former structures was not observed during the inspection.
Chemical storage	Evidence of chemical storage on the IA was not observed during the inspection.
UPSS, USTs and ASTs ¹	Evidence of UPSS and USTs was not observed within the IA during the inspection. Several ASTs connected to stormwater infrastructure were observed in both the northern (Photo 2) and western parts of the IA. A Shell service station (offsite) was observed south east of the IA (Photo 1), where the tank farm area is likely located on the northern area of the service station site.
Waste materials and storage	Evidence of waste materials and storage was reported at the following locations: <ul style="list-style-type: none"> • Vegetation covered stockpile containing observable metal and plastic material (Photo 5). • Shipping container located in the southern area of the IA, but internal access was not available at the time of the inspection (Photo 5).
Odours and staining	Evidence of significant odours or staining was not reported or observed during the inspection.
Hazardous building materials	Evidence of hazardous buildings materials was not observed during the inspection.
Electrical substation kiosks	Electrical substation kiosks were not observed on the IA during the inspection.

Item	Observations
Vegetation and phytotoxicity	Vegetation at the IA consisted mainly of a grass covered surfaces, with some former garden areas and tree planting. Riparian vegetation was also observed within the western margin of the IA and remaining western boundary area of the IA. Vegetation was observed to be in good condition and evidence of potential phytotoxicity effects to vegetation was not identified. Some areas with limited grass cover were observed in the southern IA and indicate possible unsealed (gravel) driveway or access road areas.

Notes:

1. Underground petroleum storage systems (UPSS), underground storage tanks (USTs), and aboveground storage tanks (ASTs).

A selection of photographic images obtained during the site inspection, including those referenced in the text above, are provided in Appendix G.

6 Conceptual Site Model

6.1 Areas of Environmental Concern

An assessment of potential areas of environmental concern (AEC) and contaminants of potential concern (COPC) has been made for the IA on the basis of desktop study and site inspection observations. The outcome of this appraisal is provided in Table 12.

Table 12: Potential contamination sources and contaminants of potential concern

AEC	Potential for Contamination	COPC
AEC A Fill materials (including stockpiles)	The importation of fill material during previous phases of construction / development or sand mine reclamation has likely occurred to achieve design levels. This is of particular significance if filling material was sourced from locations of heavy industry, is a by-product of industrial processes, or includes demolition debris contaminated with asbestos containing materials (ACM).	Heavy metals (HM), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), polychlorinated biphenyls (PCB), and asbestos
AEC B Historic heavy mineral sand mining	The IA and surrounding land have been previously mined for heavy mineral sand. A risk of soil contamination may have occurred during mineral sand excavation, processing, or mine rehabilitation. Ore processing and tailings disposal areas may contain elevated concentrations of radioactive monazite, resulting in exposure to elevated radiation levels. Previous reporting by Cavvanba (2010) notes radon gas is not expected to occur at levels constituting a potential risk to receptors.	Monazite (α , β , γ radiation), HM, TRH, BTEXN, PAH, OCP, OPP, PCB, and asbestos
AEC C Former buildings and structures	Potential contamination may occur in areas of the IA from uncontrolled demolition of historic structures, particularly whereby hazardous building materials (asbestos containing materials (ACM), lead-based paint) associated with demolition debris may have been deposited in surface or near surface soils. Pesticides may have also been applied to surface soils in the historical period beneath former structures for pest and termite control purposes.	HM, OCP, OPP, PCB, asbestos
AEC D Vehicle parking	Due to the unsealed nature of the IA, potential localised contamination may exist within surface soils as a result of fuel / oil leaks and limited spills from long standing vehicle parking across the IA.	HM, TRH, BTEXN, PAH, phenolic compounds

AEC	Potential for Contamination	COPC
AEC E Potential offsite sources – service station & telephone exchange	Offsite contamination sources identified relate to the neighbouring service station and telephone exchange facility. Due to the proximity and inferred hydraulically up-gradient location of these offsite locations, it is possible for local groundwater contamination to exist within the IA. Furthermore, should groundwater be impacted by VOCs, groundwater may be a potential vapour source.	HM, TRH, BTEXN, PAH, volatile organic compounds (VOC)

A map displaying the location of AECs identified in Table 12 is provided in Appendix H.

6.2 Source - Exposure Pathway – Receptor Linkages

A conceptual site model (CSM) outlining *source – exposure pathway – receptor* linkages has been developed from information gathered by the PSI and is presented in Table 13.

Table 13: Conceptual site model *source – exposure pathway – receptor* linkages

Item	Description
Media Affected by AECs and Mechanism of Contamination	<p>Soil is considered a media of interest due to the identification of several potential sources of contamination at the Site. Mechanisms of contamination likely coincide with the following:</p> <ul style="list-style-type: none"> • Fill contamination may be dispersed or localised and influenced by the fill source(s) and method of placement, resulting in potential contamination at all levels of fill and natural soil. • Contamination in other AECs is likely to be locally / spatially constrained and originate at the near surface. Potential ‘top-down’ impacts are likely to be influenced the volume of any releases and leachability or mobility of contamination in subsurface soils. Surface, near surface, and deeper soils (including natural soils) are plausible locations for contamination. • Potential radiation sources are likely associated with ore processing and tailings disposal areas where monazite may be concentrated. <p>Groundwater is a media of interest due to potential subsurface releases from offsite contamination sources (service station and telephone exchange) located south east of the IA. Potential groundwater contamination is likely to relate to the age and magnitude of any subsurface releases, prevailing hydrogeological conditions, and contaminant fate and transport in groundwater. Phase separation of volatile organic contaminants in groundwater could also result in potential vapour migration into buildings and structures, resulting in development of hazardous atmospheres.</p>
Potential Exposure Pathways	<p><i>Human health</i></p> <ul style="list-style-type: none"> • Ingestion • Dermal contact and absorption • Inhalation (dusts, vapours, ground gases) • External radiation • Primary and secondary contact <p><i>Ecological</i></p> <ul style="list-style-type: none"> • Biota uptake and intake

Item	Description
Potential Receptors	<p><i>Human health</i></p> <ul style="list-style-type: none"> Residential users (and site visitors) Commercial workers Basement users (within and beyond IA) Maintenance workers (including intrusive soil workers) Construction workers Groundwater users Recreational use (primary and secondary contact) <p><i>Ecological</i></p> <ul style="list-style-type: none"> Planting and landscaping areas (proposed development area) Cudgera Creek biota (including riparian areas and wetlands)

6.3 Review of Information Data Gaps

A summary of information or data which has not been obtained or considered for inclusion in the PSI is discussed in Table 14. This summary also discusses possible constraints and uncertainty relating to the development of the investigation CSM.

Table 14: Review of information data gaps

Data Gap	Comment on Data Gap
Safework NSW dangerous goods records	There is no historical evidence of large volume storage of petroleum hydrocarbons within the IA, nor of past site uses likely to have required such storage. As such, a search of SafeWork NSW dangerous goods records was not obtained for the investigation.
Section 10.7 planning certificate	Section 10.7 planning certificates were not obtained for review as part of the PSI. It is considered information provided in the planning certificate is unlikely to change the conclusions or recommendations of this report as sufficient historical information relating to former site activities was obtained from past reporting, historical aerial photography interpretation, and inspection of the IA.
Land title records	Land title records were not reviewed as part of this PSI. This is unlikely to affect the findings of the investigation as sufficient historical information relating to former site activities was obtained from previous reporting, desktop study information, and inspection of the IA.
Sampling and analysis of media	Sampling and laboratory analysis of media of concern (soil and groundwater) identified by the CSM was beyond the investigation scope of works and was not undertaken for the PSI. Recommendations have been provided to address this data gap in Section 7 of the report.

6.4 Conceptual Site Model Discussion

Proposed development is for a residential land use scenario.

Based on the *source – exposure pathway – receptor* linkages outlined in Section 6.2, the following AECs could contain contamination with potential for receptor exposure:

- Fill material and stockpiles.

- Former heavy mineral sands mining within IA.
- Former buildings and structures.
- Vehicle parking.
- Potential offsite AECs – service station and telephone exchange.

Given soil and groundwater have been identified as potential media of interest within the IA, a variety of contamination mechanisms and exposure pathways exist that could potentially result in receptor exposure to contamination. Further investigation and characterisation of identified media will be required to understand potential risks posed by contamination and sources.

7 Conclusions and Recommendations

This PSI has been completed by MA to evaluate site suitability, as it relates to land contamination, at 87-89 Tweed Coast Road, Hastings Point NSW for a proposed seniors living development (residential land use).

The PSI was completed for the IA using information obtained from a desktop study, site inspection observations, and review of historical aerial photography and past environmental investigation reports. The information obtained from these sources identified the following:

- The IA was largely undeveloped until the 1960s when the IA and surrounding land was mined for heavy mineral sand (rutile and zircon).
- Sand mining appears to cease by the early 1970s, with land rehabilitated, however the source of material used for land restoration, and any potential incidental landfilling, is unknown.
- By the 1980s caravan or mobile home structures and structures in the north of the IA had been erected on the IA. However, by 2023, most structures had been demolished or removed from the IA.
- A telephone exchange and service station were established to the south east of the IA in the late 1980s, with the service station site being sold to Shell in 1988. Records indicate that the service station site has been reported to NSW EPA under Section 60 of the CLM Act 1997 as potentially contaminated, but regulation under the CLM Act 1997 has been determined to be not required.
- The IA currently consists of undeveloped open space, with no permanent structures present.

The following AECs were identified by the investigation:

- Fill material and stockpiles.
- Former heavy mineral sands mining within IA.
- Former buildings and structures.
- Vehicle parking.
- Potential offsite AECs – service station and telephone exchange.

The CSM developed by the PSI identified several exposure pathways where receptors, located onsite and offsite, could be exposed to media (soil and groundwater) affected by COPC from AECs. Based on the *source – exposure pathway – receptor* linkages detailed in the CSM, the potential land contamination sources may pose risks to human health and

ecological receptors under the proposed development scenario land use and on adjacent land.

Based on investigation findings the potential land contamination risks to human health and ecological receptors require further characterisation. It is recommended that a Detailed Site Investigation (DSI) be conducted within the IA to quantify COPC in media identified by the CSM which may present risks to current and future receptors. This should include an adequate program of field investigation, sampling, and laboratory analysis of soil and groundwater, and radiological assessment.

8 Limitations Statement

The PSI was undertaken in line with current industry standards.

It is important, however, to note that no land contamination study can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating land uses. Therefore, this report should not be read as a guarantee that no contamination shall be found on the site. Should material be exposed in future which appears to be contaminated or inconsistent with natural site soils, additional testing may be required to determine the implications for the site.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of the current development proposal. No reliance on this report should be made for any other investigation or proposal. Martens & Associates Pty Ltd accepts no responsibility and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.

9 References

Arqus Design (2024) Development Application Drawings, TriCare Hastings Point, 87 Tweed Coast Road, Hasting Point 2489 NSW. Job No. 23-0025, Revision E, 9 October 2024.

BoM (2024) Australian Groundwater Insight Portal and Australian Groundwater Dependent Ecosystems Atlas. Bureau of Meteorology, Canberra. Available at <http://www.bom.gov.au/water/groundwater/index.shtml>, accessed 14 May 2024.

Cavanba Consulting (2010) Site Audit Report 0103 – 0802, 87 89 Coast Road, Hastings Point NSW 2489.

Coffey Geosciences (2005) Proposed Retirement and Aged Care Development – Preliminary Geotechnical and Site Contamination Assessment, South Coast Road, Hastings Point.

Colquhoun, G.P., Hughes, K.S., Deyssing, L., Ballard, J.C., Folkes, C.B, Phillips, G., Troedson, A.L. & Fitzherbert, J.A. (2022) New South Wales Seamless Geology dataset, version 2.2 [Digital Dataset]. Geological Survey of New South Wales, Department of Regional NSW, Maitland.

Department of Defence (2023) Defence UXO Mapping Application. Available at: <https://www.wherisuxo.org.au/>, accessed 14 May 2024.

EnRiskS (2016) Proposed Decision Tree for Prioritising Sites Potentially Contaminated with PFASs. NSW Environmental Protection Authority Paper, dated 25 February 2016.

ENV Solutions (2020) Acid Sulfate Soil Management Plan and Radioactive Sands Assessment, Staged Seniors Living Development, 87-89 Tweed Coast Road, Hastings Point. 20121V2, May 2020.

GSNSW (2024) MinView. Geological Survey of New South Wales, Department of Regional NSW, Maitland. Accessed at: <https://minview.geoscience.nsw.gov.au/>, accessed 14 May 2024.

HEPA (2020) PFAS National Environmental Management Plan, Version 2.0. Heads of EPA Australia and New Zealand, 2020.

HMC Environmental Consulting (2006) Preliminary Site Investigation – Site History, 79-87 Tweed Coast Road, Hastings Point NSW. Report No. 2006.112, October 2006.

NEPC (2013) Schedule B2: Guideline on Site Characterisation. National Environment Protection (Assessment of Site Contamination) Measure (NEPM), as amended in May 2013.

NSW DEC (2007) Guidelines for the Assessment and Management of Groundwater Contamination. DEC2007/144, March 2007.

NSW DPE (2024) eSPADE 2.2 Spatial Viewer System. NSW Department of Planning and Environment. Available at: <https://www.environment.nsw.gov.au/eSpade2Webapp/>, accessed 14 May 2024.

NSW DUAP (1998) Managing Land Contamination: Planning Guidelines.

NSW EPA (2017) Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme.

NSW EPA (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.

NSW EPA (2022) Contaminated Land Guidelines: Sampling design part 1 – application. EPA 2022P3915, NSW Environmental Protection Authority, Parramatta.

NSW LRS (2024) Historical Land Records Viewer. NSW Land and Registry Service. Available at <https://hlrv.nswlrs.com.au/>, accessed 14 May 2024.

QLD Health (2020) Land contaminated by radioactive material - A guide to assessment, management, and remediation. January 2020.

State Environmental Planning Policy (Resilience and Hazards) 2021.

SSDCS (2024) Historical Imagery Viewer. Spatial Service - NSW Department of Customer Service. Available at: <https://portal.spatial.nsw.gov.au/portal/apps/webappviewer/>, accessed 14 May 2024.

WaterNSW (2024) Real-Time Water Database. Department of Planning and Environment. Available at: <https://realtimedata.waternsw.com.au/water.stm>, accessed 14 May 2024.

Appendix A - Development Plans

Integrated perspective

Arqus Design Pty Ltd
 ABN 68 135 616 303
 Level 2 15 Mait Street
 Fortitude Valley Qld 4006
 PO Box 2455
 New Farm Qld 4005

Registration:
 Nominated Architect: Scott Peabody
 QLD: 2644
 NSW: 9038
 VIC: 800111 (Arqus Design 600035)

mail@arqudesign.com.au Phone 07 3358 0888
 www.arqudesign.com.au Fax 07 3358 0899

Arqus Design acknowledges the Traditional Owners of Country on which we live, work and design and pay our respects to their Elders, past and present.

NOTES

Contractors are to verify all dimensions on site before commencing any work or producing shop drawings.

These drawings are protected by the laws of copyright and may not be copied or reproduced without the written permission of Arqus Design.

Detail applicable to the scale of the drawing published.

DATE	REVISION	ISSUE
24.01.22	DRAFT DA PACKAGE	A
24.08.16	DRAFT DA PACKAGE	B
24.10.03	UPDATED DRAFT DA PACKAGE	C
24.10.09	DA PACKAGE	D

AREA SCHEDULE

NAME	AREA
BOWLS PAVILION	75.68 m ²
GROUND LEVEL	75.68 m ²
BUILDING D	906.41 m ²
BASEMENT LEVEL	1068.83 m ²
GROUND LEVEL	1133.17 m ²
LEVEL 01	1133.17 m ²
LEVEL 02	4241.57 m ²
BUILDING E	1218.84 m ²
BASEMENT LEVEL	980.96 m ²
GROUND LEVEL	980.95 m ²
LEVEL 01	980.66 m ²
LEVEL 02	4161.40 m ²
BUILDING F	960.38 m ²
BASEMENT LEVEL	712.71 m ²
GROUND LEVEL	712.74 m ²
LEVEL 02	2365.84 m ²
BUILDING G	490.20 m ²
BASEMENT LEVEL	382.97 m ²
GROUND LEVEL	383.01 m ²
LEVEL 01	383.01 m ²
LEVEL 02	1639.18 m ²
POOL PAVILION	435.32 m ²
GROUND LEVEL	435.32 m ²
TOTAL GFA	12938.99 m ²

EXISTING DEVELOPMENT GFA

THIS REFERENCES SHEET 'TPO0' FROM THE EXISTING DEVELOPMENT STAMPED DA PACKAGE

BUILDING A	~4915m ²
BUILDING B	~2755m ²
BUILDING C	~8120m ²
TOTAL GFA (APPROX.)	~15790m²

EXISTING DEVELOPMENT GFA

BUILDING D	~3335m ²	BOWLS PAVILION	~75m ²
BUILDING E	~2945m ²	POOL PAVILION	~435m ²
BUILDING F	~2140m ²		
BUILDING G	~1150m ²		
TOTAL GFA (APPROX.)	~10080m²		

OVERALL FLOOR SPACE RATIO (FSR) = APPROX. 1:0.68

AREAS BY NAME

- BOWLS PAVILION
- BUILDING D
- BUILDING E
- BUILDING F
- BUILDING G
- POOL PAVILION



1 OVERALL AREA PLAN - GFA (GROUND LEVEL)
 1 : 500

NOTE: READ IN CONJUNCTION WITH INDIVIDUAL BUILDING AREA PLANS

CLIENT



PROJECT

TRICARE HASTINGS POINT
87 TWEED COAST RD, HASTINGS POINT 2489, NSW

COUNTRY: BUNDJALUNG

DRAWING

OVERALL AREA PLAN - GFA (GROUND LEVEL)

JOB NUMBER	DESIGN	DRAWN	CHECKED
23-0025	SP	KF	SP

SCALE	DATE CREATED	NORTH
As indicated @A3	01/12/23	

DRAWING NUMBER

DA-2-13

ISSUE

D

ISSUED FOR

DEVELOPMENT APPLICATION

Integrated perspective

Arqus Design Pty Ltd
 ABN 68 135 616 303

Level 2 15 Malt Street
 Fortitude Valley Qld 4006
 PO Box 2455
 New Farm Qld 4005

Registration:
 Nominated Architect: Scott Peabody
 QLD: 2644
 NSW: 9038
 VIC: 800111 (Arqus Design 600035)

mail@arqudesign.com.au Phone 07 3358 0888
 www.arqudesign.com.au Fax 07 3358 0899

Arqus Design acknowledges the Traditional Owners of Country on which we live, work and design and pay our respects to their Elders, past and present.

NOTES

Contractors are to verify all dimensions on site before commencing any work or producing shop drawings.

These drawings are protected by the laws of copyright and may not be copied or reproduced without the written permission of Arqus Design.

Detail applicable to the scale of the drawing published.

DATE	REVISION	ISSUE
24.01.22	DRAFT DA PACKAGE	A
24.08.16	DRAFT DA PACKAGE	B
24.10.09	DA PACKAGE	C

AREA SCHEDULE (CAR PARK)

NAME	AREA
BUILDING D BASEMENT LEVEL	906.41 m ²
BUILDING E BASEMENT LEVEL	1218.84 m ²
BUILDING F BASEMENT LEVEL	960.38 m ²
BUILDING G BASEMENT LEVEL	490.20 m ²
TOTAL CAR PARK AREA	3575.83 m ²

AREAS BY NAME

- BUILDING D
- BUILDING E
- BUILDING F
- BUILDING G

NO. OF CAR PARKING SPACES

BUILDING D	23	
BUILDING E	37	30 REQUIRED
BUILDING F	33	21 REQUIRED
BUILDING G	12	12 REQUIRED
ABOVE GROUND VISITORS	20	
TOTAL	125	TOTAL 63 REQUIRED



1 OVERALL AREA PLAN - GFA (BASEMENT)
 1: 500
 NOTE: READ IN CONJUNCTION WITH INDIVIDUAL BUILDING AREA PLANS

CLIENT



PROJECT

TRICARE HASTINGS POINT
87 TWEED COAST RD, HASTINGS POINT 2489, NSW

COUNTRY: BUNDJALUNG

DRAWING

OVERALL AREA PLAN - GFA (BASEMENT)

JOB NUMBER	DESIGN	DRAWN	CHECKED
23-0025	SP	KF	SP

SCALE	DATE CREATED	NORTH
1: 500 @A1 @A3	01/12/23	

DRAWING NUMBER

DA-2-12

ISSUE

C

ISSUED FOR

DEVELOPMENT APPLICATION

Integrated perspective

Arqus Design Pty Ltd
 ABN 68 135 616 303

Level 2 15 Malt Street
 Fortitude Valley Qld 4006
 PO Box 2455
 New Farm Qld 4005

Registration:
 Nominated Architect: Scott Peabody
 QLD: 2644
 NSW: 9038
 VIC: 800111 (Arqus Design 600035)

mail@arqudesign.com.au Phone 07 3358 0888
 www.arqudesign.com.au Fax 07 3358 0899

Arqus Design acknowledges the Traditional Owners of Country on which we live, work and design and pay our respects to their Elders, past and present.

NOTES

Contractors are to verify all dimensions on site before commencing any work or producing shop drawings.

These drawings are protected by the laws of copyright and may not be copied or reproduced without the written permission of Arqus Design.

Detail applicable to the scale of the drawing published.

DATE	REVISION	ISSUE
24.01.22	DRAFT DA PACKAGE	A
24.08.16	DRAFT DA PACKAGE	B
24.10.03	UPDATED DRAFT DA PACKAGE	C
24.10.09	DA PACKAGE	D



LANDSCAPING AREAS

DEEP PLANTING (INCLUDES ENDANGERED ECOLOGICAL COMMUNITY ZONE)	12329.862m ²
LAWN	980.65m ²
PLANTER	816.16m ²
EXISTING LANDSCAPING	5439.16m ² (approx.)
GROUND LEVEL TOTAL LANDSCAPE AREA	14126.67m ²
TOTAL AREA (WITH EXISTING)	19565.83m ² (approx.)

NOTE: AREAS TO BE READ IN CONJUNCTION WITH LANDSCAPE DA PACKAGE. REFER TO ARCADIA PROJECT NO. 24-244 DRAWING 21

LANDSCAPING LEGEND

- CURRENT RIPARIAN VEGETATION TREE LINE
- CORE REHABILITATION ZONE
- RESIDUAL OUTER REHABILITATION ZONE
- DEEP PLANTING
- LAWN
- PLANTER
- EXISTING LANDSCAPE
- REFER TO LANDSCAPE ARCHITECT'S DOCUMENTATION FOR ALL LANDSCAPE AREAS
- APZ LINE

CLIENT



PROJECT

TRICARE HASTINGS POINT
87 TWEED COAST RD, HASTINGS POINT 2489, NSW

COUNTRY: BUNDJALUNG

DRAWING

OVERALL AREA PLAN - LANDSCAPING AREAS (GROUND LEVEL)

JOB NUMBER	DESIGN	DRAWN	CHECKED
23-0025	SP	KF,SS	SP

SCALE	DATE CREATED	NORTH
1:500 @A1 @A3	01/12/23	

DRAWING NUMBER

DA-2-16

ISSUE

D

ISSUED FOR

DEVELOPMENT APPLICATION

9/10/2024 10:22:15 AM

Appendix B – Maps



Map	Title
Map 01	Site Overview Plan
Map 02	Topography
Map 03	Historical Aerial: 1947
Map 04	Historical Aerial: 1962
Map 05	Historical Aerial: 1971
Map 06	Historical Aerial: 1979
Map 07	Historical Aerial: 1987
Map 08	Historical Aerial: 1991
Map 09	Historical Aerial: 1997
Map 10	Historical Aerial: 2015
Map 11	Historical Aerial: 2023
Map 12	Historical Aerial: 2024
Map 13	Areas of Environmental Concern



1:7500 @ A3
 Viewport
 Notes:
 - Aerial from Nearmap (2024).
 - Cadastre from NSW Clip & Ship (2024).



Legend

- Investigation Area
- Contours

0 90 180 270 360 450 m

1:7500 @ A3
 Viewport
 Notes:
 - Aerial from Nearmap (2024).
 - Cadastre from NSW Clip & Ship (2024).
 - Contours from Elvis Lidar (2013).

Appendix C – Groundwater Bore Records

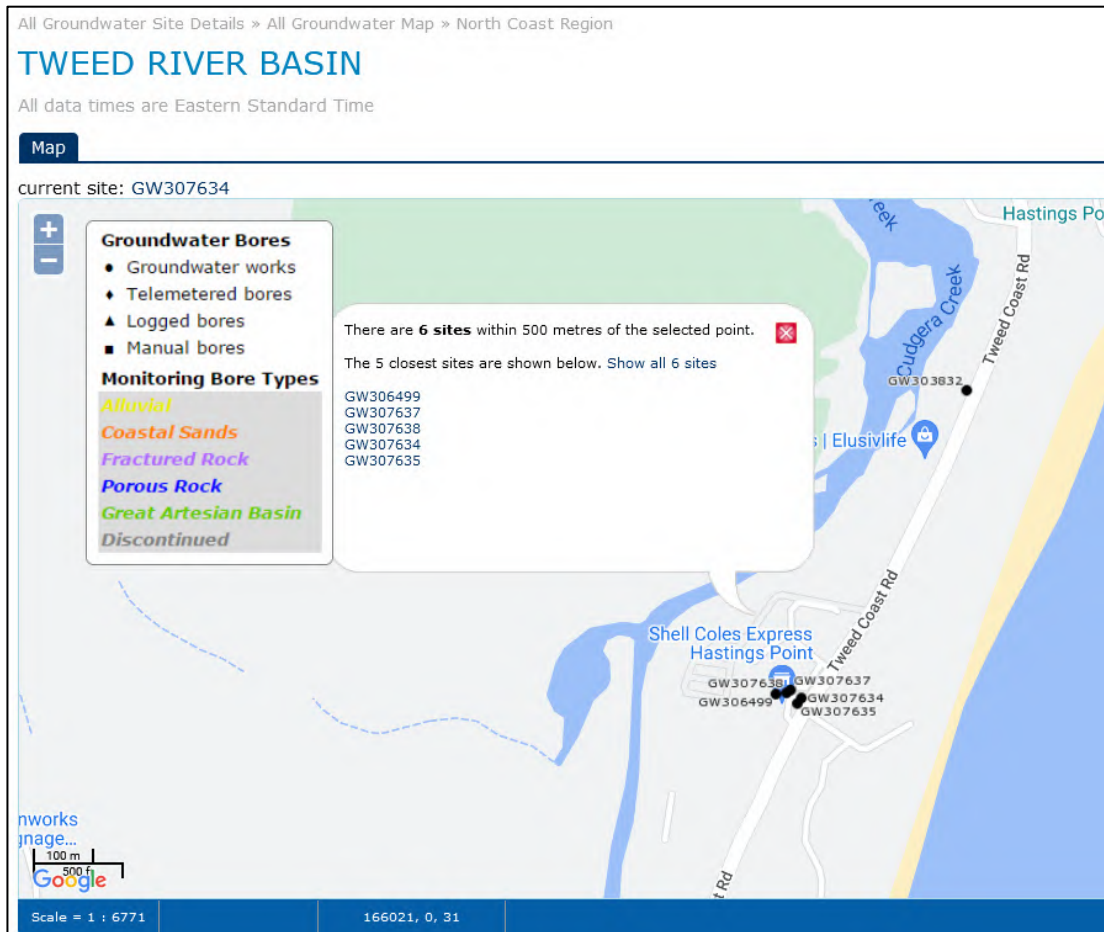


Image A: Groundwater Bore Location Plan

WaterNSW

Work Summary

GW303832

Licence:

Licence Status:

Authorised Purpose(s):
Intended Purpose(s): DOMESTIC

Work Type: Spear

Work Status:

Construct.Method: Rotary - Water

Owner Type: Private

Commenced Date:
Completion Date: 06/03/2003

Final Depth: 6.40 m
Drilled Depth: 6.40 m

Contractor Name: Brian William Mills

Driller: Brian William Mills

Assistant Driller:

Property:

Standing Water Level 5.200
(m):

GWMA:
GW Zone:

Salinity Description:
Yield (L/s): 0.400

Site Details

Site Chosen By:

County ROUS
Parish CUDGEN
Cadastre LT391 DP755701
Form A: ROUS
Licensed:

Region: 30 - North Coast

CMA Map:

River Basin: 202 - BRUNSWICK RIVER
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)

Northing: 6862256.000
Easting: 556390.000

Latitude: 28°21'53.1"S
Longitude: 153°34'31.7"E

GS Map: -

MGA Zone: 56

Coordinate Source: Map Interpre

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.40	97			Rotary - Water
1	1	Casing	Pvc Class 12	-0.30	5.30	115	103		Driven into Hole, Other
1	1	Opening	Screen - Gauze/ Mesh	5.80	6.40	50		0	Other, A: 0.21mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
5.80	6.40	0.60	Unknown	5.20	5.20	0.40	6.40	01:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.50	0.50	SAND GREY FINE	Sand Grains (Lithic)	
0.50	5.80	5.30	SAND WHITE MG	Sand	
5.80	6.40	0.60	FREE FLOWING SAND WHITE MG	Invalid Code	

*** End of GW303832 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW

Work Summary

GW306499

Licence:

Licence Status:

Authorised Purpose(s):

Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Solid

Owner Type: Private

Commenced Date:

Completion Date: 26/11/2006

Final Depth: 4.50 m

Drilled Depth: 4.50 m

Contractor Name: Opalbury Pty Ltd

Driller: Warwick Nash

Assistant Driller:

Property:

Standing Water Level 3.500
(m):

GWMA:
GW Zone:

Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

County ROUS
Form A: Licensed:
Parish CUDGEN
Cadastre 1/786570

Region: 30 - North Coast
CMA Map: 9641-3N
River Basin: 201 - TWEED RIVER
Area/District:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6861785.000
Easting: 556090.000
Latitude: 28°22'08.5"S
Longitude: 153°34'20.7"E

GS Map: -
MGA Zone: 56
Coordinate Source: GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.50	100			Auger - Solid Flight
1		Annulus	Concrete	0.00	0.50	100	50		
1		Annulus	Bentonite	2.00	4.50	100	50		
1		Annulus	Waterworn/Rounded	3.00	4.50	100	50		Graded
1	1	Casing	Pvc Class 12	0.00	4.50	50	44		Seated, Packer
1	1	Opening	Slots - Horizontal	2.00	4.50	50		0	Mechanically Slotted, PVC Class 12, Packer, SL: 50.0mm, A: 1.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
3.50	4.50	1.00	Unknown	3.50					

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	4.50	4.50	Sand, medium grained, light grey brown, moist becoming very moist then wet, medium dense	Sand	

Remarks

26/11/2006: Form A Remarks:

Nat Carling, 15-Dec-2009: No completion date was provided, taken from drillers signature. Requested missing seal depths, slot details, completion date & full drillers log interpretation from the driller.

19/05/2010: Nat Carling, 19-May-2010: Updated missing information, as received from the driller.

*** End of GW306499 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW

Work Summary

GW307634

Licence: 30BL185749

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Hollow

Owner Type: Private

Commenced Date:
Completion Date: 17/03/2011

Final Depth: 6.00 m
Drilled Depth: 6.00 m

Contractor Name: Numac

Driller: Unkown Unknown

Assistant Driller: Graham Lutch

Property: SHELL Lot 2, Coast Rd HASTINGS
POINT 2489 NSW

Standing Water Level 3.595
(m):

GWMA: -
GW Zone: -

Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

County
Form A: ROUS
Licensed: ROUS

Parish
CUDGEN
CUDGEN

Cadastre
2//786570
Whole Lot 2//786570

Region: 30 - North Coast

CMA Map: 9641-3N

River Basin: 201 - TWEED RIVER
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6861779.000
Easting: 556130.000

Latitude: 28°22'08.7"S
Longitude: 153°34'22.2"E

GS Map: -

MGA Zone: 56

Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	200			Auger - Hollow Flight
1		Annulus	Cement Grout	0.00	1.50	200	50		
1		Annulus	Bentonite	1.50	2.50	200	50		
1		Annulus	Waterworn/ Rounded	2.50	6.00	200	50		Graded
1	1	Casing	P.V.C.	0.00	6.00	50			Seated on Bottom,
1	1	Opening	Slots	3.00	6.00	50		0	PVC, ()

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	Fill; Concrete	Fill	
0.20	1.30	1.10	Sand; moist, grey, coarse, subangular, sorted	Sand	

1.30	3.50	2.20	Sand; white, fine, well graded, subangular, moist	Sand	
3.50	6.00	2.50	Sand; brown, fine, well graded, subangular, moist	Sand	

Remarks

23/06/2015: Form A Remarks:

Nat Carling, 23-June-2015; All details were provided on Form-AG, consultants log & location map.

***** End of GW307634 *****

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW

Work Summary

GW307635

Licence:

Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Hollow

Owner Type: Private

Commenced Date:
Completion Date: 17/03/2011

Final Depth: 6.00 m
Drilled Depth: 6.00 m

Contractor Name: Numac

Driller: Unkown Unknown

Assistant Driller:

Property:

Standing Water Level 5.475
(m):

GWMA:
GW Zone:

Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

County ROUS
Form A: Licensed:
Parish CUDGEN
Cadastre 2/786570

Region: 30 - North Coast

CMA Map: 9641-3N

River Basin: 201 - TWEED RIVER
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6861769.000
Easting: 556123.000

Latitude: 28°22'09.0"S
Longitude: 153°34'21.9"E

GS Map: -

MGA Zone: 56

Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	200			Auger - Hollow Flight
1		Annulus	Cement Grout	0.00	2.00	200	50		
1		Annulus	Bentonite	2.00	2.50	200	50		
1		Annulus	Waterworn/Rounded	2.50	6.00	200	50		Graded
1	1	Casing	P.V.C.	0.00	6.00	50			Seated on Bottom,
1	1	Opening	Slots	3.00	6.00	50		0	PVC, ()

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	Fill; Concrete	Fill	

0.10	1.40	1.30	Sand; grey, coarse, well graded, subangular, moist	Sand	
1.40	6.00	4.60	Sand; white, fine, well graded, subangular, moist	Sand	

Remarks

17/03/2011: Form A Remarks:

Nat Carling, 23-June-2015; All details were provided on Form-AG, consultants log & location map.

***** End of GW307635 *****

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW

Work Summary

GW307637

Licence:

Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Hollow

Owner Type: Private

Commenced Date:

Completion Date: 18/03/2011

Final Depth: 6.00 m

Drilled Depth: 6.00 m

Contractor Name: Numac

Driller: Matthew Lee Hansen

Assistant Driller:

Property:

Standing Water Level 3.510
(m):

GWMA:
GW Zone:

Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

County ROUS
Form A: Licensed:
Parish CUDGEN
Cadastre 2//786570

Region: 30 - North Coast
CMA Map: 9641-3N
River Basin: 201 - TWEED RIVER
Area/District:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6861792.000
Easting: 556113.000
Latitude: 28°22'08.3"S
Longitude: 153°34'21.6"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	200			Auger - Hollow Flight
1		Annulus	Cement Grout	0.00	1.50	200	50		
1		Annulus	Bentonite	1.50	2.50	200	50		
1		Annulus	Waterworn/Rounded	2.50	6.00	200	50		Graded
1	1	Casing	P.V.C.	0.00	6.00	50			Seated on Bottom,
1	1	Opening	Slots	3.00	6.00	50		0	PVC, ()

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.40	0.40	Fill; Concrete	Fill	

0.40	1.50	1.10	Sand; grey, moist, coarse, well graded, subangular	Sand	
1.50	3.70	2.20	Sand; white, coarse, well graded, subangular, moist	Sand	
3.70	6.00	2.30	Sand; brown, fine, well graded, subangular, moist	Sand	

Remarks

18/03/2011: Form A Remarks:

Nat Carling, 23-June-2015; All details were provided on Form-AG, consultants log & location map.

***** End of GW307637 *****

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW

Work Summary

GW307638

Licence:

Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Hollow

Owner Type: Private

Commenced Date:

Completion Date: 19/03/2011

Final Depth: 6.00 m

Drilled Depth: 6.00 m

Contractor Name: Numac

Driller: Matthew Lee Hansen

Assistant Driller:

Property:

Standing Water Level 4.515
(m):

GWMA:
GW Zone:

Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

County ROUS
Form A: Licensed:
Parish CUDGEN
Cadastre 2//786570

Region: 30 - North Coast

CMA Map: 9641-3N

River Basin: 201 - TWEED RIVER
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6861787.000
Easting: 556107.000

Latitude: 28°22'08.4"S
Longitude: 153°34'21.4"E

GS Map: -

MGA Zone: 56

Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	200			Auger - Hollow Flight
1		Annulus	Cement Grout	0.00	1.00	200	50		
1		Annulus	Bentonite	1.00	2.50	200	50		
1		Annulus	Waterworn/Rounded	2.50	6.00	200	50		Graded
1	1	Casing	P.V.C.	0.00	6.00	50			Seated on Bottom,
1	1	Opening	Slots	3.00	6.00	50		0	PVC, ()

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	Fill; Concrete	Fill	
0.20	0.40	0.20	Fill	Fill	

0.40	2.10	1.70	Sand; grey, medium to coarse, well graded, well rounded	Sand	
2.10	6.00	3.90	Sand; white, medium to coarse, well graded, well rounded	Sand	

Remarks

19/03/2011: Form A Remarks:

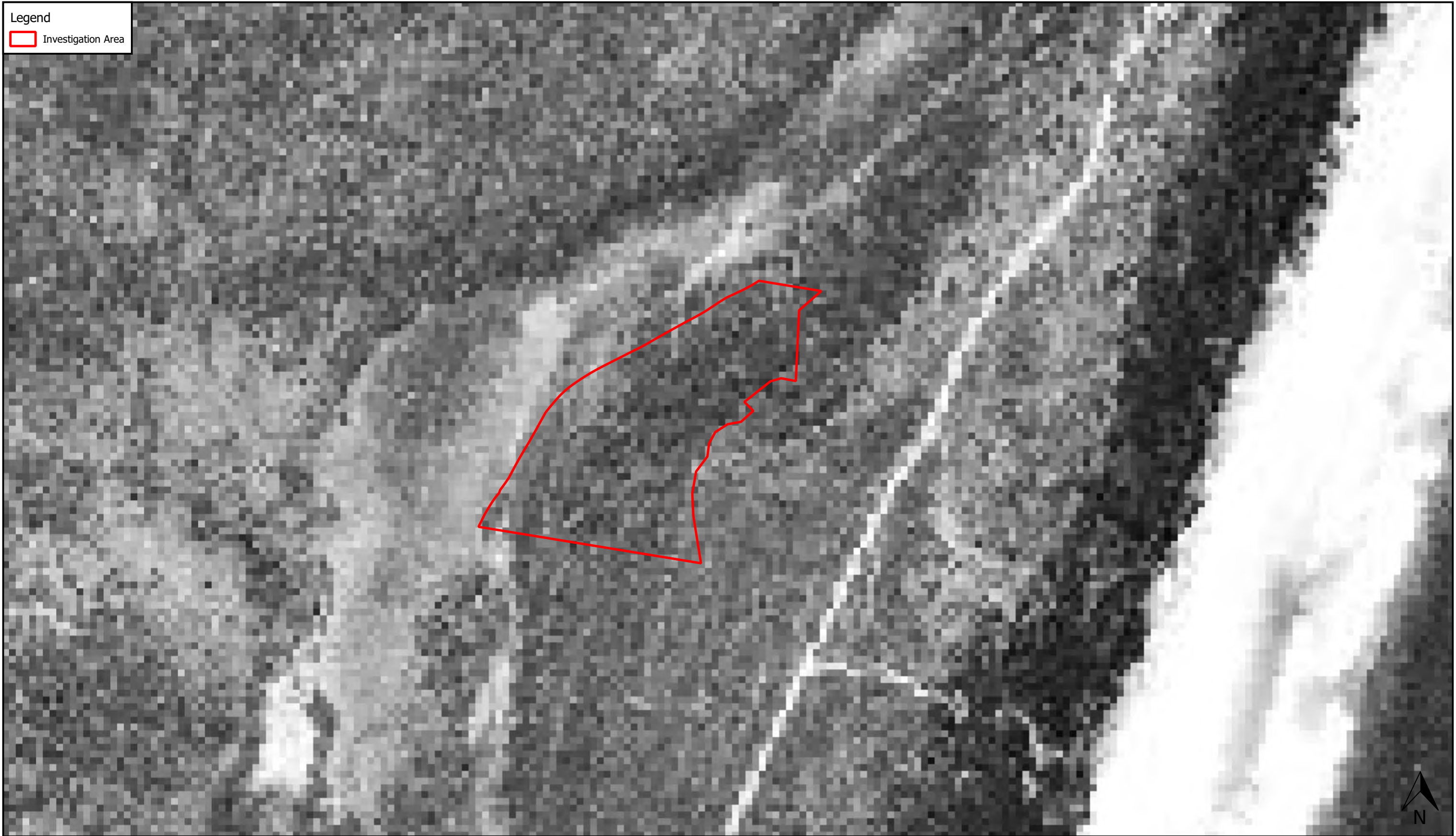
Nat Carling, 23-June-2015; All details were provided on Form-AG, consultants log & location map.

***** End of GW307638 *****

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Appendix D – Historical Aerial Photography

Legend
Investigation Area



0 30 60 90 120 150 m

1:2500 @ A3
Viewport A
Notes:
- Aerial from Geoscience Australia (1947).



Map Title / Figure:
Historical Aerial: 1947

Legend
Investigation Area



0 30 60 90 120 150 m



1:2500 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1962).

Map Title / Figure:
Historical Aerial: 1962

Legend
Investigation Area



0 30 60 90 120 150 m



1:2500 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1971).

Map Title / Figure:

Historical Aerial: 1971

Legend

 Investigation Area



0 30 60 90 120 150 m

1:2500 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1979).



Map Title / Figure:
Historical Aerial: 1979

Legend
Investigation Area



0 30 60 90 120 150 m

1:2500 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1987).



Map Title / Figure:
Historical Aerial: 1987

Legend
Investigation Area



0 30 60 90 120 150 m

1:2500 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1991).



Map Title / Figure:
Historical Aerial: 1991

Legend
Investigation Area



0 30 60 90 120 150 m

1:2500 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1997).



Map Title / Figure:
Historical Aerial: 1997

Legend
 Investigation Area



0 30 60 90 120 150 m

1:2500 @ A3

Viewport A

Notes:
 - Aerial from Nearmap (2015).



Map Title / Figure:
Historical Aerial: 2015

Legend
Investigation Area



0 30 60 90 120 150 m

1:2500 @ A3

Viewport A

Notes:
- Aerial from Nearmap (2023).

Map Title / Figure:
Historical Aerial: 2023

Map 11	Map
87-89 Tweed Coast Road, Hastings Point NSW 2489	Site
Proposed Seniors Housing Development	Project
Preliminary Site Investigation	Sub-Project
TriCare (Hastings) Limited	Client
21/05/2024	Date

Legend
Investigation Area



0 30 60 90 120 150 m

1:2500 @ A3

Viewport A

Notes:
- Aerial from Nearmap (2024).

Map Title / Figure:
Historical Aerial: 2024

Map 12	Map
87-89 Tweed Coast Road, Hastings Point NSW 2489	Site
Proposed Seniors Housing Development	Project
Preliminary Site Investigation	Sub-Project
TriCare (Hastings) Limited	Client
21/05/2024	Date

Appendix E – Council Records



Contact us

Council website

Development Application Tracker & Property Enquiry

[Home](#) / [Property search](#) / The Point Retirement Village 87 - 89 Tweed Coast Road HASTINGS POINT NSW 2489

The Point Retirement Village 87 - 89 Tweed Coast Road HASTINGS POINT NSW 2489

Address:
Property Number:25651
Status: Current
Title(s):
Lot 1 DP 786570
Land Area:3.80 H

Location Applications

Location

[Further mapping detail](#)

Unable to create map: Unable to load the base map layer

[Map View Disclaimer](#)

Applications

Applications

[DA DA06/0413.14](#)

amendment to Development Consent DA06/0413 for a staged seniors living development under SEPP (Seniors Living) 2004 comprising 91 independent living units, 94 supported living units and 67 beds within a high care facility

Submitted: 24/06/2020

[CDC CDC18/0066](#)

demolition of 11 various buildings

Submitted: 15/05/2018

[DA DA13/0308](#)

change of use and re-allocation of floor area within Block B of existing aged care facility

Submitted: 18/06/2013

[DA DA11/0597](#)

advertising sign

Submitted: 08/12/2011

[DA DA06/0413.13](#)

amendment to Development Consent DA06/0413 for a staged seniors living development under SEPP (Seniors Living) 2004 comprising 91 independent living units, 94 supported living units and 67 beds within a high care facility

Submitted: 07/01/2010

[DA DA06/0413.08](#)

amendment to Development Consent DA06/0413 for a staged seniors living development under SEPP (Seniors Living) 2004 comprising 91 independent living units, 94 supported living units and 67 beds within a high care facility

Submitted: 17/09/2008

[DA DA08/0948](#)

provision of temporary access road and removal of vegetation

Submitted: 07/08/2008

[DA DA06/0413.01](#)

amendment to Development Consent DA06/0413 for a staged seniors living development under SEPP (Seniors Living) 2004 comprising 91 independent living units, 94 supported living units and 67 beds within a high care facility

Submitted: 03/12/2007

[CDC CDC07/0067](#)

temporary sales office

Submitted: 28/05/2007

[DA DA06/0413](#)

a staged seniors living development under SEPP (Seniors Living) 2004 comprising 91 independent living units, 94 supported living units and 67 beds within a high care facility

Submitted: 26/04/2006

[DA DA03/1545](#)

changing configuration of short term and camping sites in existing holiday park

Submitted: 21/10/2003

[DA DA03/0751](#)

demolition of existing sign & erection of two (2) new information signs - Marine Environmental Centre & Hastings Point Holiday Village

Submitted: 23/05/2003

[DA 0618/2001DA](#)

the use of temporary buildings as a marine environment centre

Submitted: 06/07/2001

[DA 0560/2000DA](#)

the relocation of site office/manager's residence

Submitted: 04/05/2000

[DA S98/0014](#)

two lot residential subdivision

Submitted: 25/02/1998

[DA D87/9239](#)

amendment to Development Consent D87/239 for the establishment of 10 caravan sites

Submitted: 31/07/1991

[DA D87/0239](#)

establishment of 10 caravan sites

Submitted: 05/06/1986

[DA T4/0644](#)

erection of two staff flats at existing tourist accommodation

Appendix F – NSW EPA Records

NSW EPA CLM Record of Notices

[Home](#) [Public registers](#) [Contaminated land record of notices](#)

Search results

Your search for: Suburb: HASTINGS POINT

[Search Again](#) [Refine Search](#)

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the [planning process](#).

More information about particular sites may be available from:

- The [POEO public register](#)
- The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.

This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register. [POEO public register](#)

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... [more search tips](#)

26 March 2024

[Home](#) [Public registers](#) [Contaminated land record of notices](#)

Search results

Your search for: LGA: TWEED SHIRE COUNCIL

Matched 14 notices relating to 4 sites.
[Search Again](#) [Refine Search](#)

Suburb	Address	Site Name	Notices related to this site
BYANGUM	Old Lismore ROAD	Dip 5022 Oakbank	2 former
MURWILLUMBAH SOUTH	182 Tweed Valley WAY	Caltex Murwillumbah (formerly Puma)	4 former
TERRANORA	Federation DRIVE	Dip 4766 Lamberts	3 former
TWEED HEADS	60 MINJUNGBAL DRIVE	Former Mobil Quix Service Station	5 former

Page 1 of 1

26 March 2024

Protection of the Environment Operations Public Register

Number	Name	Location	Type	Status	Issued date
11221	SOLO WASTE AUST. PTY. LIMITED	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	POEO licence	Issued	26-Oct-00
1040563	SOLO WASTE AUST. PTY. LIMITED	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	9-Sep-04
1097974	SOLO WASTE AUST. PTY. LIMITED	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	23-Apr-09
1519869	SOLO WASTE AUST. PTY. LIMITED	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	4-Mar-14
1619888	SOLO WASTE AUST. PTY. LIMITED	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	30-Jun-22
1620156	SOLO WASTE AUST. PTY. LIMITED	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	30-Jun-22
3618	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	POEO licence	Issued	25-Jul-00
1011078	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	31-Aug-01
1012905	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	27-Mar-02
1018070	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	11-Jun-02
1026887	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	11-Aug-03
1044663	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	7-Mar-05
1026939	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	Load Reduction Agreement	Issued	3-May-06
1070669	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	13-Mar-07
1076744	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	Load Reduction Agreement - Termination	Issued	11-Sep-07
1076747	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	11-Sep-07
1084017	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	19-May-08
1101826	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	12-Aug-09

Number	Name	Location	Type	Status	Issued date
1111554	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	15-Feb-10
1127260	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	21-Apr-11
1512559	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	4-Dec-13
1558466	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	Compliance Audit	Complete	7-Nov-17
1583593	TWEED SHIRE COUNCIL	ROUND MOUNTAIN ROAD, HASTINGS POINT, NSW 2489	s.58 Licence Variation	Issued	7-Aug-19

Notes:

1. POEO Register records for the suburb of Wyong, accessed at <https://apps.epa.nsw.gov.au/prpoeoapp/>.
2. Viewed 29 June 2023.

Records of Notified Sites under Section 60 of the Contaminated Land Management Act 1997

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass	Latitude	Longitude
HASTINGS POINT	Coles Express Hastings Point	99 Tweed Coast ROAD	Service Station	Regulation under CLM Act not required	-28.36914103	153.5725676
HAY	SRA Land	429, 431, 435, 437 & 439 Murray STREET	Other Industry	Regulation under CLM Act not required	-34.49965611	144.840976
HAY	SRA Land	443 Murray STREET	Other Industry	Contamination formerly regulated under the CLM Act	-34.49966753	144.8410778
HAY	Former Shell Hay Depot	391 Murray STREET	Other Petroleum	Regulation under CLM Act not required	-34.50028195	144.8463999
HAY	Former Mobil Depot Hay	397-399 Murray STREET	Other Petroleum	Regulation under CLM Act not required	-34.50019184	144.8456578
HAY SOUTH	Caltex Service Station	429-431 Moama STREET	Service Station	Regulation under CLM Act not required	-34.52001427	144.8380121
HAZELBROOK	Caltex Service Station Hazelbrook	198 Great Western HIGHWAY	Service Station	Regulation under CLM Act not required	-33.72106175	150.4520976
HEATHCOTE	Caltex Service Station	1344 Princes HIGHWAY	Service Station	Regulation under CLM Act not required	-34.08841066	151.0072048
HEATHCOTE	Caltex Service Station	1403 Princes HIGHWAY	Service Station	Regulation under CLM Act not required	-34.09059834	151.003752
HEATHCOTE	Shell Coles Express Service Station	1355 Princes HIGHWAY	Service Station	Regulation under CLM Act not required	-34.08780042	151.0069741
HEATHERBRAE	Bogas (Former Caltex) Service Station	3 Speedy Lock LANE	Service Station	Regulation under CLM Act not required	-32.78057822	151.7372135
HEATHERBRAE	Shell Coles Express Motto Farm Service Station	2137 Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-32.79835449	151.7176284
HEXHAM	QR National - Hexham Precinct	179 & 3/67 Maitland ROAD	Other Industry	Regulation under CLM Act not required	-32.83474038	151.6821895
HEXHAM	Caltex Diesel Stop	360 Maitland ROAD	Service Station	Regulation under CLM Act not required	-32.82844873	151.6851063
HEXHAM	Cummins Newcastle Facility Hexham	21 Galleghan STREET	Other Industry	Regulation under CLM Act not required	-32.83186739	151.686709

Appendix G – Site Photographs



Photo 1: Image of the service station site located to the south east of the IA.



Photo 2: Image of the northern portion of the IA. View is to the south.



Photo 3: Image of access road located along the western IA boundary. View is to the south.



Photo 4: Image of the central and southern IA. View is to the south.



Photo 5: Image of south western corner area of the IA with shipping container. Note the vegetation covered refuse stockpile identified by the red arrow.



Photo 6: View of the central and northern area of the IA. View is to the north.



Photo 7: Image of refuse stockpile and skip bin located with the central eastern portion of the IA.



Photo 8: Image of fill stockpile located within the south eastern corner of the IA. Image is to the east.

Appendix H – Areas of Environmental Concern Plan

