REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

It will generally be useful for a proponent to discuss the preparation of a Referral with the Impact Assessment Unit (IAU) at the Department of Environment, Land, Water and Planning (DELWP) before submitting the Referral.

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
    - a brief description of potential changes or risks to environmental assets resulting from the project;
    - available information on the likelihood and significance of such changes;
    - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A USB copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 10MB as they will be published on the Department's website.**

- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address

Minister for Planning
PO Box 500
EAST MELBOURNE VIC 8002

Couriers

Minister for Planning
Level 16, 8 Nicholson Street
EAST MELBOURNE VIC 3002

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to ees.referrals@delwp.vic.gov.au is required. This will assist the timely processing of a referral.

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	
Authorised person for proponent: **Position:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Colin Reiter Director Campus Management 21 Bedford Street, North Melbourne 3051 creiter@unimelb.edu.au +61 3 8344 6116 N/A
Authorised person for proponent: **Position:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Michael Scott Director Planning 30 Research Way, Clayton, VIC 3800 michael.scott@monash.edu +61 3 9505 51411 N/A
Person who prepared Referral: **Position:** **Organisation:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Billy Greenham Associate Director Urbis L10, 477 Collins Street, Melbourne bgreenham@urbis.com.au +61 3 9617 6614 N/A

Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)

Consultant	Scope	Appendix
Hassell	Architecture, Design, Landscape Context	B, D
Lovell Chen	European Heritage (incl. historical archaeology)	I
Ochre Imprints	Cultural Heritage (CHMP and Cultural Values)	H
Australian Marine Ecology	Marine Impact Assessment	G
BMT	Coastal Processes & Marine Ecology Impact Assessment	F
LR Pardo	Geotechnical	L
Tree Logic	Arborist	J
LCI Services Engineers	Wastewater	Within F
Aurecon	Sustainability (Energy, emissions)	N/A
Urbis	Town Planning	N/A
WSP	Structural and Civil	N/A
Design Guide	Building Surveyor	N/A
Biosis	Native Flora & Fauna	E
Terramatrix	Bushfire Risk	K
Traffix	Traffic Impact	N/A

2. Project – brief outline

Project title: Point Nepean Research & Education Field Station

Project location: *(describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)*

The Project is located within the Point Nepean Historic Quarantine Site, in the Point Nepean National Park, specifically, to the rear of 'Badcoe Hall'. The Project is within Parcel 2039\PP3297.

A new single storey structure will be located to the rear (south) of the existing Badcoe Hall. Seawater extraction and discharge pipes (one intake and one outtake) will be bored underground.

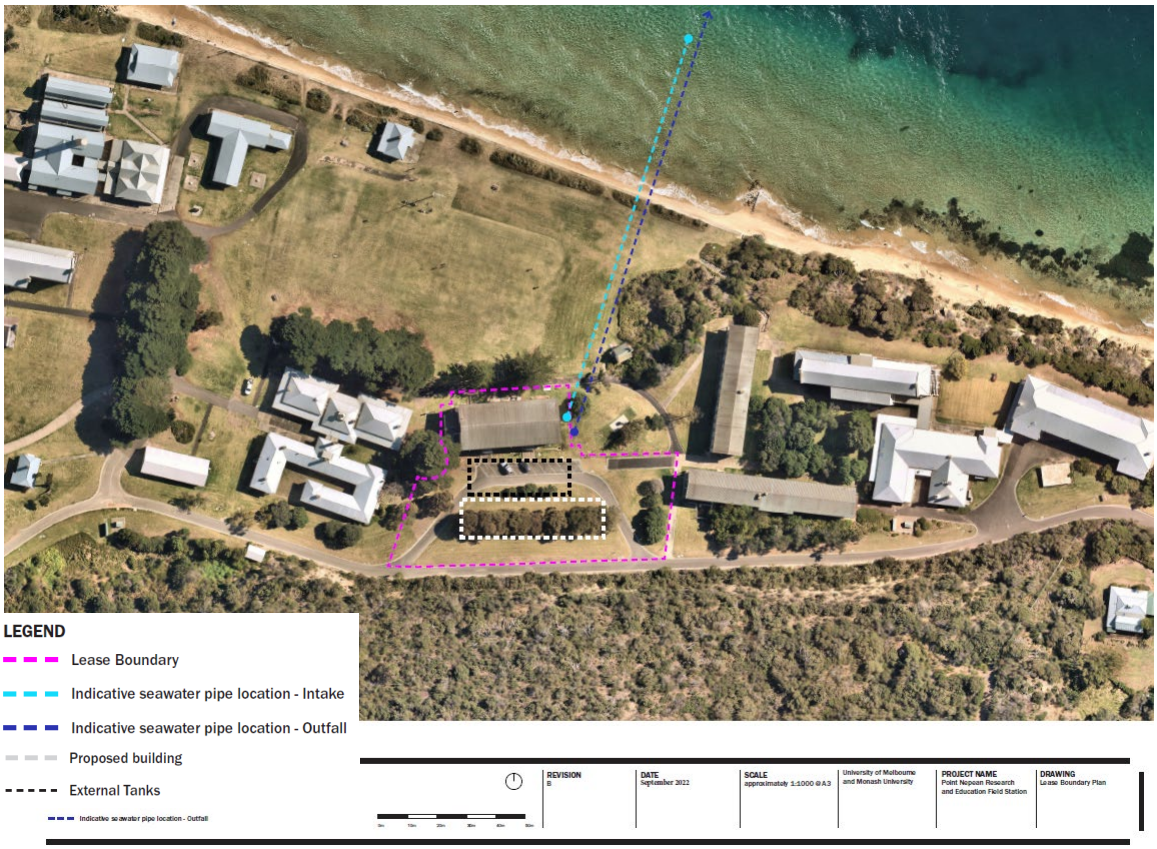


Figure 1 - Site Location

Point Nepean is located on Bunurong country. We acknowledge and respect the Bunurong People of the South-Eastern Kulin Nation as the original custodians of its land and waters, their unique ability to care for country and deep spiritual connection to it.

See Appendix B & D for further site context and location plans.

Short project description *(few sentences):*

The Point Nepean Research and Education Field Station ('PNREFS Project') aims to be a world-renowned research and education facility focusing on coastal, climate and environment research, to be home to the National Centre for Coasts, Environment and Climate (NCCEC).

To be jointly established by Monash University and the University of Melbourne, the facilities will include adaptation of Badcoe Hall (for research, accommodation and offices) and new, single-storey structures to house laboratories, back of house, and seawater storage tanks, connected to Port Phillip Bay via underground piped (bored) seawater extraction system.

Research projects will vary from observations to pilot projects and investigate local topics with global significance, including marine and terrestrial environments, Indigenous knowledges, culture and land management, climate change, restoration and conservation. The Project is funded by a Commonwealth grant through the former Department of Agriculture, Water and the Environment, currently the Department of Climate Change, Energy, the Environment and Water.

3. Project description

Aim/objectives of the project *(what is its purpose / intended to achieve?):*

The PNREFS Project will become a world-renowned research and meeting place for local and global communities, where researchers, Indigenous peoples, and the broader community will uphold Bunurong Indigenous and other local Indigenous groups' knowledge and environmental sciences by collaborating, educating, researching, protecting and experiencing the natural and cultural qualities of this unique intersection of land and ocean.

Research and education will include:

- Site specific research that focuses on the distinctive elements of the location. This will include coastal, marine, climate and environment studies, pollution control, dune management, coastal erosion, Indigenous history and knowledge systems, as well as interactions between disciplines
- Small group graduate research and coursework teaching activities
- Engagement with Traditional Owners and other local Indigenous knowledge holder groups
- Local community and cultural engagement.

Background/rationale of project *(describe the context / basis for the proposal, eg. for siting):*

Monash University and University of Melbourne have partnered to deliver this innovative and nationally significant research and education facility. The site location is necessary for its unique attributes, including:

- Geological and geomorphic features of state and regional significance and the site's special landscape has been shaped by a combination of natural processes and past land uses
- Considerable example of intact remnant coastal vegetation and marine environment, which is of high conservation significance and provides habitat for flora and fauna of national and state significance not well represented in national parks elsewhere.
- State archaeological and Aboriginal cultural significance, providing an opportunity to incorporate Indigenous knowledge systems and culture into the research, education and engagement programs undertaken on the site.
- The significant historic setting provides an attractive, unique and engaging experience for researchers, staff, students and visitors. The community use, interest and engagement with the site also provides unique opportunities for community involvement and engagement and a focal point for the Point Nepean National Park.

The rationale for siting the project behind Badcoe Hall is multi-faceted:

- Adaptive reuse of Badcoe Hall (currently underutilised),
- Contemplation of such a facility within the Point Nepean Master Plan (2017), and
- Siting of new built form to be hidden in the landscape, addressing its significant heritage and landscape character context.

The Project is of State Significance for its contribution to unique research and education fields. The field station will be the only site in Victoria to offer coastal and environment-focused tertiary education, accommodation and onsite-laboratory and storage facilities.

Main components of the project *(nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):*

See Appendix B & D for site plans. The project area has been delineated, although exact siting of elements remains subject to detailed design. All new structures will be single-storey and located within the project area boundary.

The Project comprises three primary elements:

1. Adaptive re-use of the Badcoe Hall building (office and research accommodation)
2. Construction of a new building (laboratory, back of house functions)
3. Installation of a seawater extraction system (pipelines x2, via Horizontal Direct Drilling), tank storage and associated services

The new laboratory building will target a 5-star Green Star rating and designed to be in keeping with the aspirations of the Point Nepean National Park Master Plan and the Point Nepean Quarantine Station Management Plan.
The design will be sympathetic and environmentally sensitive to its surrounds, aligned with the field station vision and functional requirements, and informed by community consultation and the Parks Victoria Point Nepean Master Plan 2017.

Ancillary components of the project *(eg. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):*

Key construction elements are described above and below. Only minor service works are required, as the location has existing access to services.

Key construction activities:

The three primary components of the project are described above. Beyond regular construction activities associated with the buildings there will be:

- Reuse of existing Badcoe Hall building
- New building for labs and back of house
- Underground Horizontal Direct Drilling (HDD) for the seawater pipelines
- Parking spaces
- Above ground tanks

Key operational activities:

Core activities will include a convening space for research and teaching, a community and cultural engagement program such as activation programs that target school groups, and the field study base for the existing University of Melbourne National Centre for Coasts and Climate (currently based at the Parkville campus).

Some of the initial research topics specifically relevant to this site are likely to include:

- Archaeological, paleoarchaeological and paleogeographical investigation,
- Coastal processes and erosion,
- Eco-engineering and restoration of marine and coastal habitats,
- Restoration and conservation management of terrestrial systems,
- Data collection, data analysis, complex systems modelling.

The seawater system pipelines will feed a series of tanks to be used in the marine research.

Key decommissioning activities *(if applicable):*

N/A

Is the project an element or stage in a larger project?

☒ No ☒ ~~Yes~~ If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages).

Is the project related to any other past, current or mooted proposals in the region?

☒ No ☒ ~~Yes~~ If yes, please identify related proposals.

What is the estimated capital expenditure for development of the project?

$25 Million funding budget from the Commonwealth Government

4. Project alternatives

Brief description of key alternatives considered to date *(eg. locational, scale or design alternatives. If relevant, attach A4/A3 plans):*

Buildings:
The concept design has been sited to respond to the heritage and landscape context. Specifically, the new structures are located to the rear (south) of Badcoe Hall to minimise visual impact. The building area location is also influenced by bushfire risk mitigation.

Appendix C shows the original project area outline, which contemplated a more prominent built form. The current design has had significant footprint reduction to minimise its prominence and impact.

Pipelines:
The seawater extraction system relies upon dual pipelines (i.e. intake and outfall) into Port Phillip Bay, to be constructed via Dual Horizontal Directional Drilling (HDD) beneath the coastal zone, perpendicular to the shoreline. The pipelines will run in parallel spaced approximately 10-20m apart and will come out onto the seabed at approximately 18m water depth.
The intake will be located approximately 140m offshore sitting near the seabed. The outfall will be located approximately 170m offshore sitting near the seabed. Further, detailed siting will consider the point(s) of piercing of the seabed and localised marine environment.
The design of the seawater pipelines has undergone detailed consideration of various options, resulting in the selection of the proposed design and construction method (HDD) as the preferred option to minimise any potential impacts.

Brief description of key alternatives to be further investigated *(if known)**:***

N/A

5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:

N/A

6. Project implementation

Implementing organisation *(ultimately responsible for project, ie. not contractor)**:***

The University of Melbourne and Monash University

Implementation timeframe:

2022: Confirm and proceed approval process. 2023: Approval and commence construction. 2024: Complete construction.

Proposed staging *(if applicable):*

N/A

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

☐ ~~No~~ ☒ Yes If no, please describe area for investigation.
If yes, please describe the preferred site in the next items (if practicable).

General description of preferred site, *(including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint):*

See Appendix D 'Site Description' for further detailed information.

Site Area:

- Previously disturbed and cleared land
- Planted vegetation of various species and maturity
- Internal driveway loop to Badcoe Hall dissects site area
- Fall of 4m+ from south (Jacksons Road) to front of site area
- Badcoe Hall is a two-storey building noted as secondary heritage significance within the Quarantine Station heritage site

Interfaces:

- South: Jacksons Road frontage, with vegetated hill rising opposite
- East: Two 'Officers Accommodation' buildings, noted as secondary heritage significance
- West: Primary heritage significant buildings: Officers Mess and Administration Building
- North: cleared land, approximately 60m to shoreline

Topography/landform:

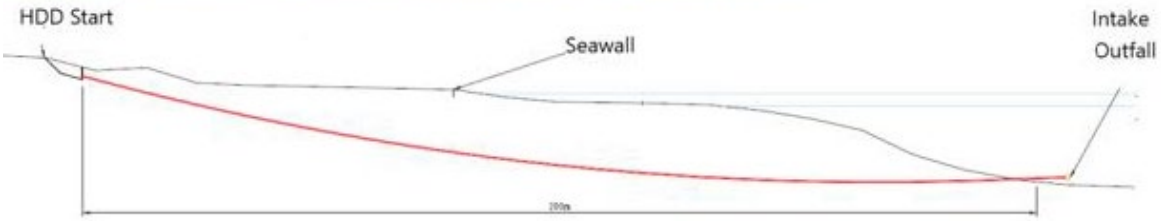
- The Quarantine Station historic site is typically spread from the shoreline to ~10m elevation. Jacksons Road forms the southern boundary of the area, with Point Nepean National Park on its southern boundary. The National Park is heavily vegetated and is relatively hilly.

Marine:

- Localised marine values, see Appendix F & G for marine ecology assessments.

Site area *(if known):* Project Area approximately 4,000m^2. New building footprints <400m^2

Route length *(for linear infrastructure)* for the seawater system, 200-230 metres pipelines (approximately 60m inland and 140-170m from the shoreline into the Bay, with approximate separation of 30m between the intake and outlet openings)(~~km~~) **and width** 10-20 metres separation of pipelines (See below image)



Current land use and development:

Badcoe Hall is currently intermittently used for community groups, meetings and consultation, within the broader Point Nepean historic Quarantine Facility precinct. In general it is underutilised. The precinct is managed by Parks Victoria.
The precinct is a complex of historic buildings historically used as a Quarantine Facility (established as early as 1852). The site is currently accessible to tourists.
The site is within a broader area of public land (see Land Tenure questions).

Description of local setting *(eg. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):*

The site is within the National Park tip of Point Nepean. The site area is accessed by Jacksons Road, a loop road accessing the Quarantine Station off the main 'Defence Road' that runs to the tip of Point Nepean.
The nearest residential land is approximately 800m east of the site.
The Quarantine Station complex contains a large number of buildings, surrounded by the Bay, Ticonderoga Bay Dolphin Sanctuary (north), and Point Nepean National Park (south).

Planning context *(eg. Strategic planning, zoning & overlays, management plans):*

The project area tenure, zoning and overlays are presented in the table below.

	Land	**Water**
Tenure/ Management	Crown – Reserved (Parks Victoria)	Crown – Unreserved (DELWP)
Zoning	PPRZ (Public Park & Recreation Zone)	PCRZ (Public Conservation & Recreation Zone)
Overlays	Bushfire Management Overlay (BMO), Environmental Significance Overlay – Schedule 24 (ESO24), Heritage Overlay – HO165 (VHR H2030)	Environmental Significance Overlay – Schedule – Schedule 25 (ESO25), Heritage Overlay – HO165 (VHR H2030)

The site is within an area of identified Cultural Heritage Sensitivity. The site is also within the Bushfire Prone Area.

The Field Station site is included on the Victorian Heritage Register as place number H2030 (Point Nepean Defence and Quarantine Precinct) and Victorian Heritage Inventory as site numbers H7821-0054 (Limestone Cottage, Point Nepean) and H7821-0122 (Point Nepean Limestone Quarry).

The site is subject to Parks Victoria's *Point Nepean Master Plan* (2017), and the *Point Nepean National Park and Point Nepean Former Quarantine Station Conservation Management Plan* (Lovell Chen, 2008)(CMP). The CMP notes Badcoe Hall is of secondary heritage significance.

Importantly, while the Quarantine Station area is nationally significant (and included on the National Heritage List, Place ID: 105680/105756), the Point Nepean Master Plan contemplates and supports new built form in the project area, as well as broadly introducing adaptive re-uses, specifically education and research.

Approximately 800m east of the area of works is residential land within Portsea township. The residential area is covered by a Vegetation Protection Overlay Schedule 1 (VPO1 'Township Vegetation') and Design and Development Overlay Schedule 3 (DDO3 'Coast and landscape design'). These two planning overlays seek to control subdivision and residential development and protect vegetation on residential sites.

Local government area(s):

Mornington Peninsula Shire Council.

8. Existing environment

Overview of key environmental assets/sensitivities in project area and vicinity
*(cf. general description of project site/study area under section 7)**:***

The Project Area is within the Point Nepean Quarantine Station complex, as described in Question 7. The site and surrounding area contains sites and areas of environmental, cultural and historic sensitivity.

The surrounding area outside the Quarantine Station complex includes national parks with significant ecological and biodiversity value: Point Nepean National Park, Ticonderoga Bay Dolphin Sanctuary and further west the Port Phillip Heads Marine National Park.

A range of studies have been undertaken to assess:

Cultural Heritage:

A Cultural Heritage Management Plan (CHMP) is currently in preparation, as well as a Cultural Values Assessment (CVA). The Project Area is within a broad area of known Cultural Heritage Sensitivity. One registered Aboriginal place occurs across a large part of the Point Nepean National Park, and covers most of the Project Area, comprising a multicomponent shell midden, artefact scatter and earth feature. Within the Project Area (area of works), this Aboriginal place comprises only the shell midden component which has been subject to varying levels of disturbance from past land use activities. See Appendix H for more information.

Historic Heritage:

The Project Area is within the historic Former Quarantine Station complex in Point Nepean National Park. The project intersects with the registered extent of one place included on the VHR and the mapped extent of two sites listed on the VHI.

The whole of the project area is included within the VHR extent of registration for the Point Nepean Defence and Quarantine Station, designated as place number H2030. The VHR

statement of significance states that the Point Nepean Defence and Quarantine Precinct is of archaeological, aesthetic, architectural, historical, scientific and social significance to the State of Victoria.

The project area intersects the mapped extent of two VHI sites as follows:

- Limestone Cottage, Point Nepean (H7821-0054): The VHI site card describes this site as a one roomed limestone cottage with underground cellar. Archaeological remains include step access to the cellar entry and cellar with fireplace, dated to c.1848.
- Point Nepean Limestone Quarry (H7821-0122): The Heritage Inventory description for the site is as follows: Sandstone and limestone cliff-face with evidence of past quarrying activities.

However, the proposed new buildings and tanks are not located in an identified area of high or moderate historical archaeological potential as identified in the Conservation Management Plan or as reflecting in the VHI listings. The Project will modify Badcoe Hall (a non-registered building) yet presents a considered response to the heritage values of the former Quarantine Station. See Appendix I for more information.

Terrestrial Flora & Fauna:

A Terrestrial Flora & Fauna assessment has been completed. The Project Area is within the Point Nepean National Park and is situated opposite a large patch of protected native vegetation.

Within the Project Area (area of works – terrestrial) there is no native vegetation or habitat for threatened flora and fauna.

Within the broader Study Area (but outside the impact area) there are:

- Three patches of Coastal Alkaline Scrub ecological vegetation class (EVC), which is also the FFG Act listed Costal Moonah Woodland Community.
- One EPBC Act listed species, White-throated Needletail with potential to occur. This species is not expected to be impacted by the Project.
- Eleven FFG Act listed species with potential to occur. These species are not expected to be impacted by the Project.

See Appendix E and Appendix J (Arborist report) for more information.

Coastal and Marine Setting:
The project area, within the Point Nepean Quarantine Station and surrounding lawns of the “Parade Ground”, sits on the backshore of a sandy beach shoreline, this backshore is generally flat through the lawns areas, further to the backshore (where the buildings of the PNREFS) the area slopes up with some relief from the beach level (to terrain elevation of generally less than 10mAHD). Geomorphologically, the area is described as prograded Holocene dunes which formed at times of lower sea level shoreward of a former sea cliff in the calcarenite dunes and cliffs that otherwise extend along the broader region (on a general southeast-northwest direction, indicatively from Point Police to the tip of Point Nepean). Erosion of the Holocene dunes and beaches in the area has historically been an issue which has led to the construction of various coastal protection structures such as seawalls. This is the case of the seawall at the back of the beach in front of the Parade Ground. whereas more naturalised dune systems exist to the west of this. On the marine side, i.e., offshore from the shoreline, the area is predominantly characterised by strong tidal currents which run through Port Phillip Heads, where the tidal regime is mainly semidiurnal. Predominant winds at the site vary seasonally with predominant southerly – southwesterly winds in summer and predominant northerly – northwesterly winds in winter. Both long period swell waves and short period wind waves reach the site with, varying magnitudes. Ocean swells propagate through the Heads in some instances reach the beaches at the Quarantine Station through to Portsea, however the Project area is largely protected from ocean wave action in comparison to the ocean/open coast beaches to the south of the peninsula.

Marine Flora & Fauna:
The proposed seabed structures would be installed in a sandy channel affected by strong tidal streams, at 19 m depth. This area is largely bare fine sand habitat depauperate of infauna and epibiota. The installations would be at the western end of the Triconderoga Bay dolphin

sanctuary, which is a common habitat use area for Burrunan dolphins *Tursiops australis* (FFG Act listed as critically endangered). Tursiops australis ranges widely through the Port Phillip Heads region however the Triconderoga Bay Sanctuary provides an area of reduced boating activity disturbance. There is a heavy level of boating activity during the summer months along the Police Point and Portsea coasts.

There are considerable areas of bare sand habitats to the west and north of the project site and these do not support seafloor biotopes. The sandy channel extends northeast to pass into and through Portsea Hole. Portsea Hole is part of the Port Phillip Heads Marine National Park and has a rock scarp that supports a unique and diverse sponge community. This community is associated with the Entrance Canyon community, which is listed under the FFG Act as threatened (Port Phillip Bay Entrance Deep Canyon Marine Community). Rocky platform reef with a sandy veneer extends southward from Portsea Hole to Weeroona Bay, Portsea. This sandy veneer reef supports clumps of sponges and seaweeds (lower infralittoral habitat). Although not surveyed properly, this veneer community has considerable species diversity and may be stepping-stone habitat for migrating spider crabs *Leptomithrax gaimardii*.

Inshore of the proposed seabed installations, there is a steep sand slope and shallow near-shore platform. The sandy slope is mostly bare sand but has some patches of epibiota that would be avoided by the project. The nearshore platform includes low-profile platform and stepped reef inhabited by reef-seagrass *Amphibolis antarctica*, predominantly along the coast of Police Point, Weeroona Bay and Point Franklin. This seagrass is highly productive, extremely long-lived and slow to establish or recover from disturbance. This habitat is not present in the immediate project area. The *Amphibolis* beds and other seaweed beds of Weeroona Bay support colonies of common seadragon *Phyllopteryx taeniolatus*. Also in the shallow nearshore waters are subcanopy brown seaweeds emergent from the sand, such as *Sargassum* spp and *Caulocystis cephalornithos*. These seaweeds support short headed seahorse colonies *Hippocampus breviceps*. *Hippocampus breviceps* colonies occur in the Sorrento area, but have not been documented in the Police Point and Quarantine areas. The Portsea Pier, to the east of the project site, supports a diversity of sessile biota and is habitat for the large sea horse *Hippocampus abdominalis*. Fishes of the Family Syngnathidae, including *Hippocampus* spp and *P. taeniolatus*, are listed under the Commonwealth EPBC Act as Listed Marine Species.

There is only limited littoral rock habitat in the eulittoral zone. There are occasional outcrops amongst sand along the Police Point coast, to the east of the project site. This support small populations of gastropods, mostly limpets, and seaweed *Hormosira banksii* (small vesicle morph). There is considerable vertical supralittoral bluff habitat along Police Point with simple bandings of littorinid snails and two lichen communities. The littoral habitat at Quarantine is highly modified, with a short sandy beach, seawalls and remnant structures. The beach broadens well to the west of Quarantine and has a supralittoral berm making it more suitable habitat for shore birds.

The study area sits within the annual migration area of spider crab *Leptomithrax gaimardii* (unlisted), which forms dense mating aggregations in shallow habitat, including Point Nepean, Sorrento Bank, Camerons Bight, Capel Sound and Rye. Little is known of the migration behaviour and habitat use of this species. While it is sometimes observed in strong tidally-affected channels, it is mostly observed associated with epibiota, including sponge and ascidian clumps, when not in mating aggregations on shallow sands. As such, the proposed installation and discharge is unlikely to directly affect *L. gaimardii*, and is unlikely to interfere with migration routes. The near-shore shallow habitats and the area in and around Portsea Hole are likely stepping-stone habitats for their migration.

The broader Port Phillip Heads marine region has a high number of other ecological, flora and fauna values, the most important being the Entrance Canyon and its sponge garden communities. The general region is used by a variety of seabirds, wetland birds, marine mammals and sharks of various FFG and EPBC listings, but infrequently occur in the project location, or occur as vagrants. The EPBC listed community Giant Kelp Marine Forests of South East Australia once occurred in the region, but have been locally extinct since the millennial drought. The whole Port Phillip Heads region is one of high production, biodiversity and multiple types of priority features and is listed as a Victorian Marine Asset Area.

The construction, placement and operation of the intake and outlet on tidal-stream bare sand habitat on the channel floor avoids disturbance to the natural values in the nearshore, Portsea

Hole and wide region.

A Marine Impact Assessment (Appendix G) and a Coastal Processes and Marine Ecology Assessment (Appendix F) have been completed to assess (among other matters) the potential impacts of the project to the local Coastal Processes and Marine Flora & Fauna.
See Appendix F & G for more information.

See Questions 12, 13, 14 & 15 for further information.

9. Land availability and control

Is the proposal on, or partly on, Crown land?

☐ No ☒ Yes If yes, please provide details.

The Project Area includes (terrestrial) Reserved Crown land, and (marine) Unreserved Crown Land.

Current land tenure *(provide plan, if practicable):*

Management of the terrestrial Reserved Crown Land is Parks Victoria and Point Nepean Community Trust. Management of the marine Unreserved Crown Land is DELWP.

Intended land tenure *(tenure over or access to project land):*

No change proposed. A 42-year lease agreement with Parks Victoria is being finalised.

Other interests in affected land *(eg. easements, native title claims):*

The Certificate of Title for 2039\PP3297 does not indicate any easements or encumbrances (beyond its reservation for Point Nepean National Park). The thin strip of shoreline formally known as parcel 2042\PP3297 similarly does not indicate any easements or encumbrances beyond its reservation.

Native Title is not resolved on the sea side of the development (Unreserved Crown Land) where the water inlet and outlet pipes are to reside.

10. Required approvals

State and Commonwealth approvals required for project components *(if known):*

A number of approvals are required, some are yet to be confirmed. A list of known and potential approvals is provided in the table below.

Legislation	Requirement / Approval	Responsible Authority
Planning & Environment Act 1987 *(PPRZ, PCRZ, ESO24, ESO25, HO165, BMO)*	Planning Permit	Council (Mornington Peninsula)
Heritage Act 2017 *(VHR H2030, VHI H7821-0054, VHI H7821-0122)*	Heritage Permit/Consent	State (Heritage Victoria)
Marine and Coastal Act 2018	MaCA Consent	State (Minister for Energy, Environment & Climate Change)
Environmental Protection Act 2017	Seawater extraction and discharge approval	State (EPA)

	(Development and Operation Licences)	
EPBC Act 1999	*Controlled Action Approval**	Commonwealth
Flora and Fauna Guarantee Act 1988	*Flora & Fauna Permit**	State (DELWP)
Aboriginal Cultural Heritage Act 2006	Cultural Values Assessment & CHMP	State, Bunurong RAP
Commonwealth Native Title Act 1993	Native Title Validation below high-water mark	Commonwealth Government, multiple TOACs.

**To Be Confirmed – considered unlikely*

While the range of matters warrant the need to seek a determination on the requirement of an EES process (see Question 11), based upon the technical investigations and design development, we believe the matters are primarily avoided or mitigated and therefore below the threshold that would require an EES. Furthermore, the range of statutory approvals listed above provide an appropriate suite of controls over the Project.

Have any applications for approval been lodged?

☒ No ☐ Yes If yes, please provide details.

(Note: a Cultural Heritage Management Plan and Cultural Values Assessment are underway)

Approval agency consultation *(agencies with whom the proposal has been discussed):*

Mornington Peninsula Shire Council: Meeting 20/05/22 with Development Manager.
DELWP (Planning): Multiple meetings – 8/3/22 & 4/5/22
Commonwealth Dept Agriculture Water and Environment – 8/4/22 re: EPBC Act.
DELWP (Port Phillip Region): meetings – 08/03/22 & 08/09/22, emails August 2022
Victoria EPA (submission of a Permissions Pathway Form) (via email: April and August 2022)
Heritage Victoria: two pre-application meetings and site inspection (September, November and December 2021)
Parks Victoria – as coastal land manager as well as Local Port Authority, in conjunction with the DELWP (Port Philip Region) meetings referenced above

Other agencies consulted:
Bunurong Land Council Aboriginal Corporation (BLCAC): meetings 16/03/21, 12/08/21 & 02/08/22

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

Overview of potentially significant environmental effects *(identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):*

Of the referral criteria listed on page 7 of the Ministerial Guidelines for Assessment of Environmental Effects (2007, DSE), the following are considered relevant to this project:

Referral criteria: individual potential environmental effects	**Referral criteria: a combination of potential environmental effects**
Potential extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term	Matters listed under the Flora and Fauna Guarantee Act 1988: ▪ potential loss of a significant area of a listed ecological community; or ▪ potential loss of a genetically important population of an endangered or threatened species (listed or nominated for listing), including as a result of loss or fragmentation of habitats; or ▪ potential loss of critical habitat; or ▪ potential significant effects on habitat values of a wetland supporting migratory bird species
	Potential extensive or major effects on landscape values of regional importance, especially where recognised by a planning scheme overlay or within or adjoining land reserved under the National Parks Act 1975
	Potential extensive or major effects on Aboriginal cultural heritage
	Potential extensive or major effects on cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the Heritage Act 1995 [2017].

Overall, potential impacts are considered to be limited, with most impacts avoided. See detailed responses to questions further below.

Potential effect	**Significance**	**Likelihood / Impact**	**Comment**	**Uncertainties**
Aquatic, estuarine or marine ecosystems (including marine flora and fauna)	Marine ecosystem (flora & fauna)	**Limited** *Construction:* HDD technique & detailed siting of pipeline to avoid disturbing any epibenthic biotopes with construction and operation only on bare sand habitats. Discharges from drilling to be minimised and controlled. Underwater noise from marine works to be minimised and controlled. Environmental Management Plan (EMP) and marine traffic management plan (TMP) to be developed and implemented during construction to control the works and avoid/minimise impacts. *Operation:* Discharge of	Management protocols will apply. *EPA Development and Operation Licenses required.* *Coastal and Marine Act Consent required.*	-

		seawater effluent to marine environment under strict controls. Operation of facility to avoid use and release of biological agents or contaminants.		
Terrestrial flora & fauna	Potential (Point Nepean National Park)	**Avoided**	The project development area does not contain significant flora or fauna. No off-site impacts.	-
Landscape values	Point Nepean National Park	**Low**	Single storey built form recessed in landscape behind existing built form. *Heritage Victoria consent required.*	-
Aboriginal cultural heritage	Cultural values and archaeology	**Limited** A CHMP is being undertaken, impacts will be limited via boring techniques and reduced footprint on building works	CHMP conditions will be formulated with the Registered Aboriginal Party to mitigate impacts	A Cultural Values Assessment is underway to further inform the CHMP
Non-Aboriginal heritage	VHR listing VHI listing (archaeological)	**Unlikely/Limited** Based on the project information provided to date, the potential impacts of the project on cultural heritage places are unlikely to be extensive or major	The potential for impacts from the project will be mitigated and heritage values protected through compliance with any required heritage permit and conditions under the *Heritage Act 2017*.	Further archaeological assessment will be undertaken under the *Heritage Act 2017*.

To date, engagement with authorities has included Heritage Victoria, DELWP Port Phillip Region, the EPA, Mornington Peninsula Shire Council and Parks Victoria.

12. Native vegetation, flora and fauna

Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?

☐ NYD ☒ No ☐ Yes If yes, answer the following questions and attach details.

What investigation of native vegetation in the project area has been done? *(briefly describe)*

An on-ground flora assessment was undertaken on 1 December 2021 by a qualified botanist. A list of all flora species identified was recorded. See Appendix E for the full report.

What is the maximum area of native vegetation that may need to be cleared?

☐ NYD Estimated area: 0 hectares – all proposed works associated with the project are away from any native vegetation recorded on site

How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?

☒ N/A …… approx. percent (if applicable)

Which Ecological Vegetation Classes may be affected? *(if not authorised as above)*

☐ NYD ☒ Preliminary/detailed assessment completed. If assessed, please list.

The study area contains patches of Coastal Alkaline Scrub however, the proposed works are not expected to impact on these areas of native vegetation as they are outside the area of works.

Have potential vegetation offsets been identified as yet?

☒ NYD ☐ Yes If yes, please briefly describe. – *Not applicable*

Other information/comments? *(eg. accuracy of information)*

The patches of native vegetation identified with the study area are outside the area of works.

Based on the project plans, the proposed works are not expected to directly or indirectly impact on any areas of native vegetation. Therefore, there are no native vegetation offset requirements for the project.

NYD = not yet determined

Flora and fauna

What investigations of flora and fauna in the project area have been done?
(provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)

Biosis Pty Ltd was commissioned by The University of Melbourne to undertake a terrestrial flora and fauna assessment of Point Nepean Research and Education Field Station, located on Jacksons Road on the Point Nepean Peninsula (the 'study area').
The study area was assessed for flora values on 1 December 2021 and for terrestrial fauna values via a desktop assessment (Biosis 2022, see Appendix E). The assessment considered the likelihood of species and ecological communities, listed under the FFG Act and EPBC Act, being present within the study area. Based on the values present, an assessment of proposed impacts on the flora and fauna within the terrestrial environments of the study area was completed.

An assessment of marine environments and any impacts on the marine environment as a result of the construction or operation of the facility was outside Biosis' scope of the project.

Have any threatened or migratory species or listed communities been recorded from the local area?

☐ NYD ☐ No ☒ Yes If yes, please:

- List species/communities recorded in recent surveys and/or past observations.
- Indicate which of these have been recorded from the project site or nearby.

There are no EPBC Act threatened ecological communities recorded within the study area. Coastal Moonah (*Melaleuca lanceolata* subsp. *lanceolata*) Woodland community is listed as threatened under the FFG Act. Intact areas of Coastal Alkaline Scrub EVC 858 within the study area are consistent with the description of this community, although they are in a low-moderate condition state due to the high cover of high threat woody weeds. This ecological community/EVC is located outside the Project Area and is therefore not expected to be directly or indirectly impacted by the works.

A total of one EPBC Act listed flora species and 21 EPBC Act listed fauna species have been recorded within 5 km of the study area.

A total of 17 FFG Act listed flora species and 36 FFG Act listed fauna species have been recorded with 5 km of the study area.

Thirty-three migratory fauna species have been recorded within 5 km of the study area.

Please see Appendix E for the full report and species list.

Of these species, Caspian Tern is the only threatened species with a known record on the

boundary of the study area.

If known, what threatening processes affecting these species or communities may be exacerbated by the project? *(eg. loss or fragmentation of habitats) Please describe briefly.*

Threatening processes affecting these species and community that are relevant to the Project may include vegetation clearing; modification or fragmentation of habitat; introduction or spread of pest animals, weeds and pathogens; disturbance from human occupation; disruption to breeding cycles.

The on ground proposed works will be limited to a small impact area away from native vegetation and potential fauna habitat.

The adjacent habitat within the study area is degraded and of limited value for native flora and fauna. Therefore, it is unlikely to provide important habitat for threatened species. Additionally, disturbance from the construction activity is expected to be temporary and is not expected to exacerbate threatening processes for terrestrial species.

Further harm mitigation techniques could include the avoidance or minimisation of night-works, limitation of dust and pollution expulsion from site and employing a hygiene protocols during construction.

Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?

☒ NYD ☒ No ☒ Yes If yes, please:

- List these species/communities:
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

Based on our assessment of terrestrial habitat and impacts, there are no threatened species/communities or migratory species likely to be impacted by the project.

Is mitigation of potential effects on indigenous flora and fauna proposed?

☒ NYD ☒ No ☒ Yes If yes, please briefly describe.

Other information/comments? *(eg. accuracy of information)*

Biosis was commissioned to undertake an assessment of values and potential impacts as they relate to the terrestrial environment. An assessment of marine environments and any impacts on the marine environment as a result of the construction and operation of the facility was outside the scope of the project undertaken by Biosis.
(*Note: This marine work has been undertaken by BMT and Australian Marine Ecology – see next section*).

13. Water environments

Will the project require significant volumes of fresh water (eg. > 1 Gl/yr)?

☐ NYD ☒ No ☐ Yes If yes, indicate approximate volume and likely source.

Will the project discharge waste water or runoff to water environments?

☐ NYD ☐ No ☒ Yes If yes, specify types of discharges and which environments.

The operation of the research facility will include the discharge of seawater effluent (wastewater) from seawater tanks and aquaria into the marine environment. This effluent in the outfall will be seawater with slightly increased nutrient levels (the key potential pollutant in the effluent), from excess feedstock, biota excrement and decaying vegetation from the fish and other marine organism species kept within aquaria

Furthermore, regarding research, this facility is a field station which provides observational and teaching research activities for the universities.

The typical flow rate of the outfall is expected to be between 5-8L/s, designed for a maximum capacity of 10L/s. Operations will be intermittent. The research station will hold only a limited number of organisms. The effluent to be discharged is expected to be certainly below the volumes and water quality commonly associated with sewage, wastewater and trade waste disposal.

It is further noted that given that the activities to be carried out in the proposed facilities are research based and involving marine organisms, the seawater system will be managed with careful operational controls in place. It is recognised that there are risks from the release of biological (e.g., pathogens, exotic species, genetic material) and/or chemical components into the marine environment that could potentially cause some impact on the marine environment. This risk will be nullified through implementation of strict operational controls within the facility, including close supervision of researchers, postgraduates and students working/studying at the field station. This will be set out in strict operational guidelines.

Discharges will occur at the seabed or within the water column in the marine environment via an ocean outfall. The design and siting of the outfall will be placed in sufficient depth of water and at in appropriate location and a sufficient direction to allow for a high level of plume mixing within the water column, as well as maximising dispersion and dilution within minimal distance of the outlet.

Effluent discharge dispersion modelling assessments, with consideration of the concentrations of nutrients in the effluent that will be relatively low to background levels and given the highly dispersive capacity of the receiving marine environment where the outlet will be situated, indicate that no impact is expected neither as acute effect nor in terms of accumulation.
Refer to Appendices F and G for further details.

Are any waterways, wetlands, estuaries or marine environments likely to be affected?

☐ NYD ☐ No ☒ Yes If yes, specify which water environments, answer the following questions and attach any relevant details.

Direct impacts to benthic communities from the pipeline infrastructure are not anticipated as infrastructure will be placed to avoid sensitive environments. Both the intake and outfall are situated on a sandy flat at the bottom of an offshore drop off (see profile on the sketch) at approximately 18m depth. There are no sensitive benthic habitats within 25-50m of either the intake or outfall (this is being confirmed via sub-tidal surveys; aerial imagery across many years demonstrates the area has been sandy with no vegetation (seagrass, macro algae, etc.).

The typical discharge from the outfall will be fully dispersed, to levels indistinguishable above background water quality, within 25m from the outlet point location. This has been modelled for a series of metocean conditions, including slack tide which is the lowest tidal hydrodynamic energy period. Dispersal of effluent is predicted to occur faster than this at all other times. Further, the potential risk of indirect impact (via advection of discharged effluent) on marine sensitive habitats further away from the outlet, i.e., marine invertebrates such as sponge garden in Portsea Hole - Point Nepean Marine National Park, will be controlled by strict operational controls, guidelines and supervision of research and teaching activities to ensure neither biological (e.g. pathogens) nor chemical agents of concern are released through the system.

Entrainment of marine organisms within the intake is considered a low risk as the intake structure will be screened but will be assessed further as part of field investigations, which will then further inform the final design. The capacity of the inlet (and outlet) will be 10L/s however, it is expected that most of the time the facilities will operate within a range of 5-8L/s.

Refer to Appendices F and G for further details.

Are any of these water environments likely to support threatened or migratory species?

☐ NYD ☐ No ☒ Yes If yes, specify which water environments.

There are no sensitive benthic habitats within 25-50m of either the intake or outfall, being bare sandy, high current habitat. This is known from various surveys, including lidar habitat mapping.

The threatened species that are predominantly in the area are the Burrunan dolphin *Tursiops australis* (FFG Act listed as critically endangered) and “The Entrance” sponge garden community (represented in Portsea Hole). The Burrunan dolphin ranges along Triconderoga Bay for feeding, resting and socialising. The proposed works is at the eastern end of the dolphin sanctuary and is in a channel also used as a vessel fairway.

EPBC listed Syngnathidae fishes are present on nearshore reef habitats. These include sea dragons and probably short headed sea horses; however, these do not occur on the sandy channel habitat of the proposed intake and outlet location.

Listed and migratory birds occur further in the Bay and on the seaward side of Quarantine Station, but the area is not a key usage area for consideration. Shorebirds are also expected to occur in low density within the littoral zone.

Transient listed cetaceans, seals, reptiles and fishes pass by through South Channel, some distance away. See Appendix F for full species list of potential transient species, note these are transient through the broader Port Phillip Heads region and not exclusive to the Project area.

There are no significant potential impacts to threatened or migratory species in the project area, neither from the proposed construction works nor from the ongoing operation of the proposed facilities. The potential impacts from the seawater system effluent discharge are described above and are expected to be low to very-low and not specific to any species. The proposed intake and outfall pipeline design and associated horizontal directional drilling (HDD) construction method proposed, minimise the potential impacts of construction activities on the water environment and marine organisms. The HDD of pipelines of relatively small diameter (225mm) will allow for the pipelines to be thrusted from the landside end (rather than having to pull these from the marine end), which will reduce substantially the duration of marine works campaign. The shorter duration of marine works will also minimise underwater noise potential impacts. Further the HDD method and designed structures nullify the potential of percussive noise (produced by other methods such as pile driving). Moreover, before construction, an environmental management plan (EMP) and a marine traffic management plan (TMP) shall be developed which will include provisions for managing underwater noise specifically with respect to dolphins. The EMP may include provisions such as prior and during observers, soft noise starts, shut-downs within distance thresholds, etc. The TMP shall apply to the construction vessels (as well as other vessels in the marine works area) and will reflect the existing boating regulations for dolphins, with a conservative in engaging in any works or disturbance activity if/when dolphins are in the vicinity (i.e., shut-downs).

Refer to Appendices F and G for further details.

Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?

☐ NYD ☒ No ☐ Yes If yes, please specify.

Could the project affect streamflows?

☐ NYD ☒ No ☐ Yes If yes, briefly describe implications for streamflows.

Could regional groundwater resources be affected by the project?

☐ NYD ☒ No ☐ Yes If yes, describe in what way.

Could environmental values (beneficial uses) of water environments be affected?

☐ NYD ☐ No ☒ Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

Port Phillip Bay, please see response above regarding marine environments. Where the outfall discharge plume occurs in the marine environment, this may have an effect on environmental values, i.e. water quality objectives (WQOs), but only to the limited extent of the mixing zone of the plume; which is limited to within 25 metres distance from the outlet discharge point, as demonstrated through numerical modelling.

Refer to Appendices F and G further details.

Could aquatic, estuarine or marine ecosystems be affected by the project?

☐ NYD ☐ No ☒ Yes If yes, describe in what way.

See response above regarding marine environments and operational controls that are proposed to be implemented to minimise impacts on the surrounding environments. As previously stated, the design of the outfall will maximise dispersion and dilution to avoid and minimise any effects and is sited to avoid sensitive habitat. As the extent of the plume is anticipated to be small and the nutrient loads will be low overall, the extent of any such impact is expected to be null to limited and will not have broader nor significant effects on marine ecosystems.

Refer to Appendices F and G further details.

Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?

☒ No ☐ Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

As noted above, the extent of impacts is anticipated to be localised only and not anticipated to have major effects for broader ecosystems. The effects are also easily reversible if at any time the research facility ceases to undertake discharges.

Refer to Appendices F and G further details.

Is mitigation of potential effects on water environments proposed?

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Considering the relatively low flow rate and concentration off the effluent and based on the outcomes of numerical modelling of effluent discharge dispersion and subsequent environmental risk assessments, no further mitigation is required.

There will also be strict operational standards developed for the management of the facility to manage the education and research activities of the field station and to mitigate key risks during the operation of the facility.

However, pending on advice and outcome of Development and Operations Licences from the EPA Victoria, it may be proposed to mitigate discharges through further treatment of the effluent stream (i.e. to reduce suspended solids and/or nutrient loads), amendments to design of the outfall (e.g. extending distance to increase depth at which outfall occurs, use of diffusers), and/or applying an adaptive discharge strategy (e.g. releasing only on certain tides/wave conditions to encourage more rapid dilution/dispersion). These will be determined as part of the ongoing design and assessment of the project.

Other information/comments? *(eg. accuracy of information)*

14. Landscape and soils

Landscape

Has a preliminary landscape assessment been prepared?

☐ No ☒ Yes If yes, please attach.

Is the project to be located either within or near an area that is:

- ***Subject to a Landscape Significance Overlay or Environmental Significance Overlay?***

  ☐ NYD ☐ No ☒ Yes If yes, provide plan showing footprint relative to overlay.

The Project Area is within the ESO25 (Port Phillip Coastal Area) and ESO24 (Site of Scientific Significance). The two ESOs note archaeological, botanical, geological, zoological, cultural, aesthetic and landscape quality significance. No SLO is applied to the area.
ESO25 stretches some 60kms along the Port Phillip Bay coastline (approximately 760m wide).
ESO24 covers Point Nepean National Park as well as a 21km strip along the Bass Strait coast.

While both overlays protect significant environmental, cultural and landscape values, it is noted that the project footprint is very minor, within an already disturbed area, and visually nestled behind Badcoe Hall at the foot of a hill. It is therefore not prominently sited.

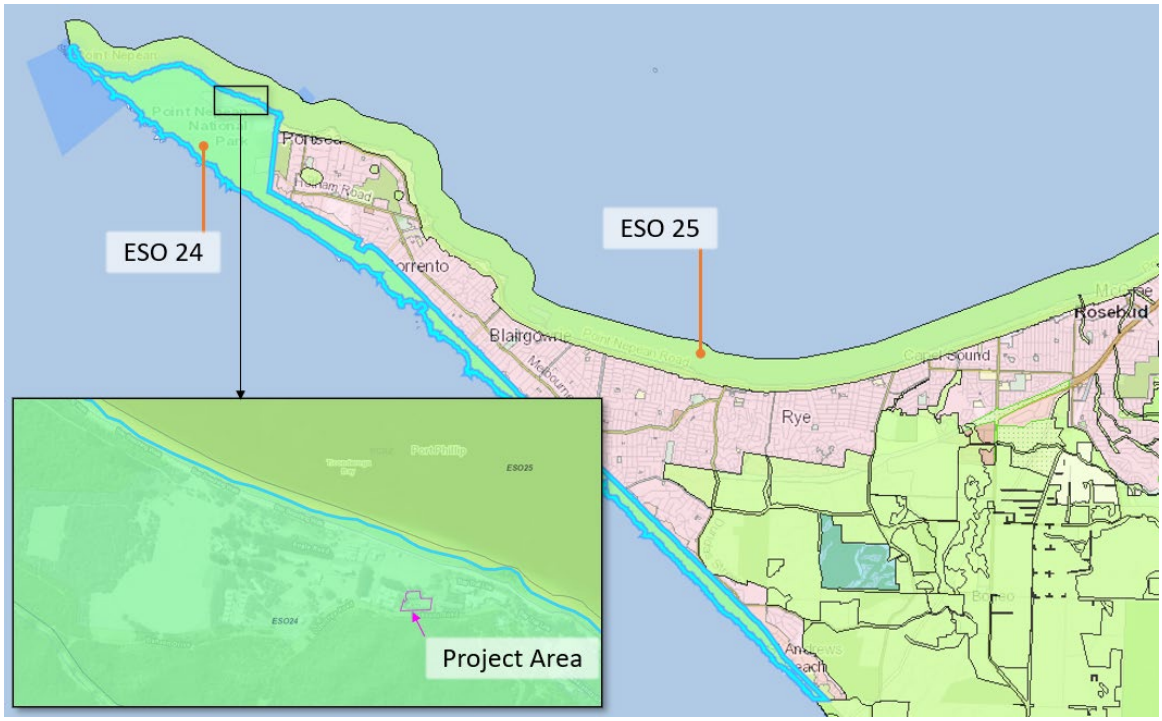


Figure 2 - Project Area relative to ESO overlays

- ***Identified as of regional or State significance in a reputable study of landscape values?***

  ☐ NYD ☒ No ☐ Yes If yes, please specify.

The Point Nepean National Park is not within a declared State Distinctive Landscape. Its natural and cultural landscape values are however noted within the ESOs.

- ***Within or adjoining land reserved under the National Parks Act 1975 ?***

  ☐ NYD ☐ No ☒ Yes If yes, please specify.

The Project is within the Point Nepean National Park.

- ***Within or adjoining other public land used for conservation or recreational purposes ?***

  ☐ NYD ☐ No ☒ Yes If yes, please specify.

The Project area is within the primary tourism area of Point Nepean National Park. Other areas of the National Park are for conservation. Notably, the Project aligns with the Parks Victoria Master Plan, that designates the site as appropriate for research and education development.

Is any clearing vegetation or alteration of landforms likely to affect landscape values?
☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

Is there a potential for effects on landscape values of regional or State importance?
☐ NYD ☒ No ☐ Yes Please briefly explain response.

Is mitigation of potential landscape effects proposed?
☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

The siting and design of new built form mitigates potential landscape effects by being low-scale and carefully located.

Other information/comments? *(eg. accuracy of information)*

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?
☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

The in-situ soils are clean sands with an angle of repose of approximately 30°. While that means that all excavations could potentially collapse if not supported and any batter exposed to water flow (e.g. rainfall) is likely to erode easily without adequate cover measures, the geology is well understood and construction contractors have indicated this is not an issue. The use of batters and trench shields are established control methods and will be conducted (if required) in line with Worksafe protocols.

No acid sulphate soils were encountered during the site investigation, and the site is not indicated as a problem area in the Acid Sulphate Soil Hazard maps of Victoria.

Excavation would be managed appropriately during the cultural heritage salvage program as per the standards for excavation of less than 1m depth. The geotechnical findings do not pose concern to the cultural heritage consultancy.

Are there geotechnical hazards that may either affect the project or be affected by it?
☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Loose, sandy soils and shallow water table, please see comments below.

Other information/comments? *(eg. accuracy of information)*

A comprehensive geotechnical investigation and report has been completed, which included a desktop review of historical environmental testing and new testing in an area of concern. No evidence of external soil contamination at the site has been uncovered. Elevated levels of pH are naturally occurring due to the calcareous natural subgrade (Silty SAND), which is typically alkaline in nature, with present levels classed as “Category C contaminated soil”. Previous testing undertaken as part of an Environmental Audit (CARMS No. 37914-2) of the Former Quarantine Station & Norris Barracks, which encompasses the site, also indicated pH was typically within the range of 8.5 to 9.7. Therefore these test results will not affect future land use. See Appendix L for further detail.

A shallow water table combined with sandy soils presents potential—but not insurmountable—difficulties for the construction of the proposed installation. The design of footings and foundations will have to take these conditions into account. However, these challenges are typical of coastal developments and should present no problem to the experienced structural engineer and civil contractor.

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation?

☐ NYD ☒ No ☐ Yes If yes, provide estimate of traffic volume(s) if practicable.

Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?

☐ NYD ☒ No ☐ Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?

☐ NYD ☒ No ☐ Yes If yes, briefly describe the hazards and possible implications.

Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?

☐ NYD ☒ No ☐ Yes If yes, briefly describe potential effects.

Are non-residential land use activities likely to be displaced as a result of the project?

☐ NYD ☒ No ☐ Yes If yes, briefly describe the likely effects.

Badcoe Hall is within a complex of buildings managed by Parks Victoria. Badcoe Hall is a bookable venue with meeting room space and toilet facilities. Badcoe Hall is infrequently booked (currently approximately one use per month), with typical users local clubs and organisations. Prior to the pandemic, school groups would also book the hall. Typically, bookings are made on weekends and school holidays. The various booking rates range from $120-$320 (dependent upon duration, spaces required, and group type).

Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?

☐ NYD ☒ No ☐ Yes If yes, briefly describe the potential effects.

There are similar bookable spaces within the Former Quarantine complex (also managed by Parks Victoria). Furthermore, the adaptive reuse of Badcoe Hall will include meeting spaces and will be open to bookings to the public (in the same fashion as main campus facilities). These bookings will be scheduled, prioritised and managed by the field station staff. There are also bookable community facilities nearby in Sorrento (Community Centre) and Blairgowrie (Hall).

Is mitigation of potential social effects proposed?

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

As above, the adaptive reuse of Badcoe Hall will provide similar bookable spaces, in addition to other bookable spaces (managed by Parks Victoria) within the Quarantine Station complex.

Other information/comments? *(eg. accuracy of information)*

Cultural heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?

☐ No If no, list any organisations that it is proposed to consult.

☒ Yes If yes, list the organisations so far consulted.

Bunurong Land Council Aboriginal Corporation (BLCAC) are the Registered Aboriginal Party (RAP) for the activity area. They have been consulted as part of the CHMP process. See Appendix H for more information.

What investigations of cultural heritage in the project area have been done?
(attach details of method and results of any surveys for the project & describe their accuracy)

A CHMP and Cultural Values Assessment (CVA) are underway as part of this Project. See Appendix H from Ochre Imprints for further detail. A number of previous investigations are also cited.
As part of the current CHMP assessment to date, a field survey and monitoring of eight geotechnical boreholes has been completed.

Is any Aboriginal cultural heritage known from the project area?

☐ NYD ☐ No ☒ Yes If yes, briefly describe:

- Any sites listed on the AAV Site Register
- Sites or areas of sensitivity recorded in recent surveys from the project site or nearby
- Sites or areas of sensitivity identified by representatives of Indigenous organisations

One Aboriginal place, VAHR 7821-1072 extends across most of the activity area. This Aboriginal place is a multi-component shell midden, artefact scatter and earth feature. Only the shell midden component occurs within the activity area, with the artefact scatter and earth feature components occurring >800 m to the north west.
Previous investigations have noted sites within the activity area and surrounds. Current investigations have noted archaeological material.
Through engagement with the BLCAC, a Cultural Values Assessment is being undertaken.
See Appendix H for further detail.

Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the Heritage Act 1995 [2017] within the project area?

☐ NYD ☐ No ☒ Yes If yes, please list.

The site is registered on the Victorian Heritage Register as place number H2030 (Point Nepean) and Victorian Heritage Inventory as site numbers H7821-0054 (Limestone Cottage Point Nepean) and H7821-0122 (Point Nepean Limestone Quarry).

Is mitigation of potential cultural heritage effects proposed?

☒ NYD ☐ No ☐ Yes If yes, please briefly describe.

Any extensive or major effect on cultural heritage places listed on the Victorian Heritage Register or the Archaeological Inventory (VHI) is not expected. See Appendix I for further information.

A more comprehensive assessment of the proposed Point Nepean Research and Education Field Station project will be prepared when the project and design details are finalised, and approval for the project will be sought under the requirements of the *Heritage Act 2017* for the VHR and VHI sites. The potential for impacts from the project will be mitigated and heritage values protected through compliance with any required heritage permit and the related conditions or consent under the *Heritage Act 2017*.

Related to the VHR place, these impacts would relate to the potential for the project to adversely affect the heritage values of the place as outlined in the VHR statement of significance, and the proposal has been developed with due regard to the known values and the relevant Conservation Management Plan policies for the registered place. The siting and scale of the new development will not present as overly prominent in views to heritage assets.

In relation to the VHI sites, the proposed new structures and tanks are not located in an identified area of high or moderate historical archaeological potential as identified in the CMP or as reflecting in the VHI listings. The potential for impacts on archaeological remains would be addressed, in consultation with Heritage Victoria, by way of careful planning with reference to identified areas of archaeological potential and appropriate management protocols. The Horizontal Direct Drilling and depth of the installation of the pipelines further ensures avoidance of disturbance.

Other information/comments? *(eg. accuracy of information)*

The CHMP is yet to be finalised. Therefore, consultation with the RAP is still ongoing, and management requirements for the cultural heritage have not yet been finalised.

16. Energy, wastes & greenhouse gas emissions

What are the main sources of energy that the project facility would consume/generate?

- ✓ **Electricity network**. If possible, estimate power requirement/output **180mWh** x year
- ✗ Natural gas network. If possible, estimate gas requirement/output ------
- ✗ Generated on-site. If possible, estimate power capacity/output ------
- ✗ Other. Please describe.

Please add any relevant additional information.

What are the main forms of waste that would be generated by the project facility?

- ✓ Wastewater. (There are three forms/streams of wastewater, see below comments)
- ✗ Solid chemical wastes. Describe briefly.
- ✓ Excavated material. Ground-breaking and excavation for new building foundation
- ✓ Other. Describe briefly.

Please provide relevant further information, including proposed management of wastes.

Wastewater:

There are three forms/streams of wastewater associated with this facility. The primary matter is the seawater discharge.

1. **Seawater return:** Seawater used in the aquaria facility will be returned into Port Phillip Bay, via an outfall pipeline and outlet diffuser system that will ensure relevant discharge standards are met.

   Used seawater will be discharged back into Port Phillip Bay, but this will be of very similar characteristics of the seawater source, potentially with increased suspended solids, organic matter and nutrient concentrations due to supply of feedstock and excretions from marine organisms that will be grown and maintained in the seawater tanks and aquaria.

   The design capacity of the seawater (intake and outlet) system is 10L/s. It is expected that it will operate over 2-3 cycles per day of 5-6hours each and within a range of 5-8L/s.

   Refer to question 13 for further details about the limited potential effects of the seawater effluent discharge.

   Development and Operation Licences by the Victoria EPA will be required (as advised by early engagement from this agency via the submission of a Permissions Pathway Form and subsequent discussions).

2. **Sewerage, drainage & sanitary plumbing:** system connected to reticulated sewer.

3. **Trade waste:** a Trade Waste agreement will be entered into with South East Water, for potential facility waste that will be appropriately filtered, before discharging into the sewer system.

Other: A high level estimation of 20 tons/an of waste per year. Repartition. Organic 22%. Recyclable 40% (Paper 22%: Glass 5%: Plastic 9%: Metal 4%) Other (landfill) 39%

What level of greenhouse gas emissions is expected to result directly from operation of the project facility?

- ✗ Less than 50,000 tonnes of CO_2 equivalent per annum
- ✗ Between 50,000 and 100,000 tonnes of CO_2 equivalent per annum
- ✓ **Between 100,000 and 200,000 tonnes of CO_2 equivalent per annum**
- ✗ More than 200,000 tonnes of CO_2 equivalent per annum

Please add any relevant additional information, including any identified mitigation options.

The estimates consider a non-optimistic option (connection to the Victorian grid 1.13 kgCo2.e/kWh). A Green Power Purchase agreement, and the incorporation of solar panels can reduce this amount by more than10 folds.

17. Other environmental issues

Are there any other environmental issues arising from the proposed project?

☒ No ☐ Yes If yes, briefly describe.

Of note, a preliminary bushfire risk assessment has been undertaken (see Appendix K). The advice recommended that a 13m clearance to the vegetation south (opposite Jacksons Road) should be achieved (original design was sited 8m at its closest point). Revised design siting has achieved this. Depending on detailed siting, BAL-19 (19m setback) or BAL-29 (13m setback) will need to be achieved in construction.

18. Environmental management

What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? *(if not already described above)*

☒ Siting: Please describe briefly

The concept design has been revised to achieve appropriate bushfire setback, as well as siting the new built form behind (south of) Badcoe Hall, to minimise visual appearance from the Bay and within its landscape.

☒ Design: Please describe briefly

The single-storey form and reduced footprint (from initial concept design) achieves a minimal impact on the landscape and heritage values. Detailed design and Heritage Victoria assessment will ensure visual heritage impacts are appropriately managed.

☒ Environmental management: Please describe briefly.

The seawater pipeline construction will be conducted via horizontal directional drilling (HDD) to avoid/minimise construction impact. The intake and outfall within the Bay will be sited to avoid sensitive marine areas, in design with a specialised marine consultant (BMT).
Removal of native vegetation and benthic habitats is avoided.
The construction and ongoing operation of the seawater system will require a *Development* and *Operation* licence by Victoria EPA, which will likely include appropriate management action to minimise and mitigate any potential environmental effects.
This will be summarised in a technical report that will be included with the applications for Marine and Coastal Act (MaCA) Consent and EPA licences, which are suitable controls for these issues.

With regard to historical archaeology, an assessment of archaeological potential would form part of the permit application to assist in preventing/appropriately managing potential impacts on archaeological remains within the site. The proposed new structures are not located in an identified area of high or moderate historical archaeological potential as identified in the Conservation Management Plan or as reflecting in the VHI listings.

It is recognised that there are risks from the release of research pathogens, genetic materials, and other potential agents that could potentially cause wider impact on the marine environment. This risk will be nullified through implementation of strict operational controls within the facility, including close supervision of students working/studying at the field station. This will be set out in strict operational guidelines.

☒ Other: Please describe briefly

A CHMP and Cultural Values Assessment are underway to address, mitigate and manage cultural heritage effects.

Add any relevant additional information.

19. Other activities

Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?

☐ ~~NYD~~ ☒ No ☐ ~~Yes If yes, briefly describe.~~

20. Investigation program

Study program

Have any environmental studies not referred to above been conducted for the project?

☐ No ☒ Yes If yes, please list here and attach if relevant.

Appendix I is a memo of advice prepared by Lovell Chen, addressing non-Indigenous cultural heritage. The Project is within VHR and VHI listed places, noted for archaeological, aesthetic, architectural, historical, scientific and social significance to the State of Victoria.

The advice notes that while new, visible built form is being constructed, it is appropriately sited and designed with due regard to the CMP and context, known values, and is contemplated in the Master Plan. As such, the proposal will not result in the loss or visual impact on the buildings which contribute to the architectural significance of the place. The conclusion of this preliminary assessment is that the potential impacts of the project are unlikely to be extensive or major.

Has a program for future environmental studies been developed?

☐ No ☒ Yes If yes, briefly describe.

Since the Draft Referral was submitted in June, intertidal and subtidal surveys have been completed (identifying biotopes, biodiversity values and water quality measurements). Furthermore, numerical modelling has been completed. (Appendices F & G).

Investigation of potential effects to coastal processes and on the marine environment (from the seawater system intake/outfall), including dispersion modelling, have been undertaken. Desktop reviews, supported by coastal and marine environment field investigations, indicate that with appropriate siting and management protocols for the facility, the effects are to be avoided, limited/minor.

Further archaeological study is expected, subject to CHMP and Heritage Victoria guidance.

Consultation program

Has a consultation program conducted to date for the project?

☐ No ☒ Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

Early community engagement has included:

- Project website (https://www.pointnepeanfieldstation.org.au/)
- Mailing list
- Community survey
- Point Nepean Market info stall
- Project postcards
- Stakeholder briefings (emails, phone calls, face-to-face)
- Newspaper notices
- E-news updates

As well as authority consultation described previously.

Has a program for future consultation been developed?

☒ NYD ☐ No ☐ Yes If yes, briefly describe.

A formal program has not been established, however, the proponents will be undertaking further community and key stakeholder engagement in line with expectations of a State significant project approval process, to be determined.

Authorised person for proponent:

I, ……Colin Reiter

(full name),

Director Campus Management……at the University of Melbourne(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature DocuSigned by: Colin Reiter 2BB548A127634F5...

29 September 2022 Date

Authorised person for proponent:

I, Michael Scott (full name),

Director Planning at Monash University (position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

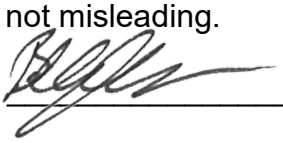
Signature DocuSigned by: Michael Scott 81C1FAF98F0A4BD...

29 September 2022 Date

Person who prepared this referral:

I, Billy Greenham (full name),

Associate Director, Planning at Urbis (position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature 

29 September 2022 Date