

Kiama Open Coast Coastal Management Program Stage 3



KIAMA MUNICIPAL COUNCIL
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Reference	Proposed action title	Category
A	Introduce a Coastal Vulnerability Area (CVA), modify the LEP and introduce a new DCP to incorporate a risk-based land use planning approach to future development to adequately manage existing and future coastal risks.	Land use control and management
B	Manage existing built assets within the Kiama coastal management areas to cater for current and future coastal risks.	Infrastructure and asset planning and management
C	Control pests and weeds, and undertake targeted land, dune and marine revegetation and habitat restoration along the Kiama coastline to enhance environmental, community and cultural values.	Environmental, social and cultural
D	Develop a new Coastal Lands Public Access Strategy that identifies and prioritises coastal fringe lands proposed for acquisition or gaining easements to enable continuous public access along the entire Kiama LGA coastline.	Land use control and management
E	Support and encourage relevant landholders and lessees of public lands to prepare and implement short-term emergency response plans as well as longer term adaptation plans for on-going land use within the CVA.	Land use control and management
F	Improve coastal amenities and facilities on public land to reduce risks to the public from coastal hazards and reduce conflicts between users, whilst enhancing environmental, social and cultural values.	Infrastructure and asset planning and management
G	Ensure that infrastructure development and future management of the Kiama Boat Harbour adequately accounts for present and future coastal risks, along with future community demands and expectations, to provide a public facility that is resilient and economically sustainable.	Infrastructure and asset planning and management
H	Opportunistically gather information from the public to better understand community needs that place pressure on public coastal land, facilities, services and the natural environment as part of other community engagement activities.	Environmental, social and cultural
I	Monitor cliff stability and undertake further geotechnical investigations to provide a better understanding of unstable slopes, geotechnical risks and geodiversity along the coastline.	Infrastructure and asset planning and management
J	Expand Beachwatch water quality monitoring program, and continue to reduce pollutants discharged to the coast through stormwater outlets, ocean outfalls and high flow sewerage overflows (e.g. at pumping stations).	Operational delivery
K	Raise community awareness regarding Council's Vegetation and Tree Vandalism Policy to reduce illegal dune vegetation damage and removal.	Environmental, social and cultural
L	Review and update the Werri Lagoon Interim Entrance Management Policy and remove derelict drainage infrastructure from the entrance of Werri Lagoon to improve public safety and return it to a more natural state.	Operational delivery

M	Provide Traditional Owners a voice in CMP implementation, promote the cultural significance of the coastline, and support Indigenous Ranger Groups to help First Nations people care for their land and sea Country.	Environmental, social and cultural
N	Undertake community-led investigations to collate, identify and assess Aboriginal cultural heritage values along the Kiama coastline, assess threats and risks to these values and update culturally appropriate management measures.	Environmental, social and cultural
O	Establish a Coastal Management Program Advisory Committee for Kiama to provide effective governance and support the implementation of this CMP, and to facilitate future reviews and assessments of the effectiveness of this CMP.	Governance
P	Monitor beach conditions to help build knowledge and to guide the management of risks to the public following erosion events. Implement the Emergency Action Sub-Plan following coastal events.	Operational delivery
Q	Design and obtain relevant permits and approvals for coastal protection works (CPW) along Pacific Ave at South Werri Beach, along the North Bombo Beach carpark access road, and along the northern foreshore of Storm Bay, south of the Boat Harbour, in preparation for CPW construction when needed.	Infrastructure and asset planning and management

Proposed Action A

Introduce a Coastal Vulnerability Area (CVA), modify the LEP and introduce a new DCP to incorporate a risk-based land use planning approach to future development to adequately manage existing and future coastal risks.

Priority: Very high

Time frame: Short term (within 3 years)

Proposed Tasks under proposed Action A:

Task A.1	Prepare and submit a Planning Proposal to State Government for mapping the Coastal Vulnerability Area (CVA).
Task A.2	Undertake a thorough review of the LEP and supporting documents for consistency with the CMP and CVA.
Task A.3	Review options and propose changes to the LEP and other land use planning controls, including a new Coastal Hazards DCP.
Task A.4	Make recommended changes to the LEP and prepare the new DCP following appropriate legislated process, including consultation.
Task A.5	Update pre-lodgement DA checklist to include key elements of the Coastal Hazards DCP and the updated LEP.
Task A.6	Utilise the pre-lodgement checklist for all coastal infrastructure development proposed within a coastal risk area (being assessed through both Parts 4 and 5 of the EP&A Act 1979).

Further information:

Define a Coastal Vulnerability Area (CVA), as specified in the Coastal Management Act (2016) (CM Act) and Chapter 2 the Resilience and Hazards State Environmental Planning Policy (2021) (R&H SEPP), for the open coastline of Kiama Local Government Area (LGA) based on the detailed information presented as part of Stage 2 of the CMP. The CVA is to cover coastal lands affected by 1% exceedance of coastal erosion by 2120, or 5% exceedance of tidal inundation by 2120, or 5% exceedance of coastal inundation by 2120 (please see aerial images below).

Update existing Local Environment Plan (LEP) and supporting local policies, guidelines and strategies to incorporate:

- the outcomes of CMP Stage 2 hazards mapping and risk assessment, including the first-pass cliff instability assessment
- areas important for habitat protection/conservation, including areas to be earmarked/preserved to accommodate future habitat migration in response to climate change and sea level rise in particular (to be further updated once estuary-based CMPs are developed for the Kiama LGA)
- a Coastal Hazards Development Control Plan (DCP) to capture the provisions of the CVA following submission of a planning proposal, and other recommended requirements within the CMP
- best-practice coastal design guidelines for development and infrastructure
- regional plans and strategies that have been developed, or are underway, by all relevant stakeholders, including for example the Kiama Growth Planning Project and Illawarra Regional Masterplan by Sydney Water.

To accompany the updated LEP and new Coastal Hazards DCP, this Action proposes to update the pre-lodgement DA checklist to incorporate key elements of the Coastal Hazards DCP and the updated LEP. This checklist would be utilised for all coastal infrastructure development proposed within the identified coastal risk area to ensure that future development considers coastal hazards, including climate change

projections and future sea level rise scenarios, in a consistent manner. The updated checklist should be used for both Part 4 and Part 5 assessments under the EP&A Act 1979, including Council-proposed development.

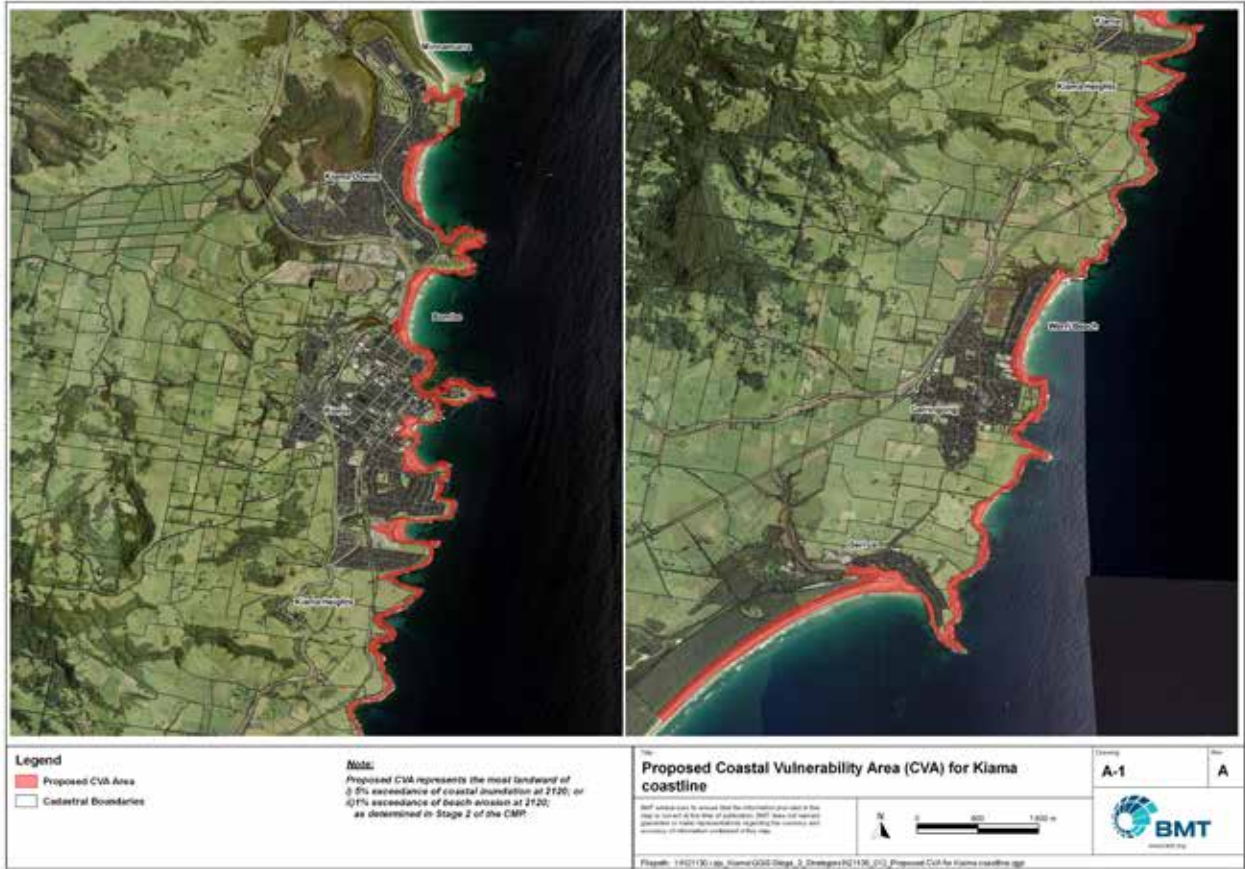


Figure A-1 Coastal Vulnerability map

Proposed Action B

Manage existing built assets within the Kiama coastal management areas to cater for current and future coastal risks.

Priority: Medium

Time frame: Short term (withing 3 years)

Proposed Tasks under proposed Action B:

Task B.1	Guided by the Stage 2 CMP risk assessment, conduct a detailed evaluation of each asset identified as being at risk of coastal hazards.
Task B.2	Modify existing asset management plans and/or develop new plans, where required, to address coastal hazards and risks.
Task B.3	Condition of existing coastal infrastructure and built assets to be monitored by owners/managers.

Further information:

Using the risk register developed as part of Stage 2 as a foundation, conduct an audit of existing built assets and infrastructure within the coastal zone (including stormwater and sewerage assets, rail infrastructure, foreshore paths and other amenities, coastal protection structures, breakwaters/walls, boat harbour infrastructure, etc.) to ascertain vulnerabilities to existing and future coastal hazards as defined in Stage 2 report.

Update existing asset management plans to redress asset vulnerabilities through proposed asset modifications, changes to maintenance regimes, etc. Routinely monitor future condition of assets, especially if impacted by coastal hazard events. All planned asset replacements/upgrades to factor in future coastal hazards and risks. This may include resilient design, re-positioning, future maintenance regime, etc.

Some asset owners, such as Sydney Water, have already commenced internal audits of assets and identified vulnerabilities to climate change. Improvements works to existing Sydney Water assets aim to stop ingress from infiltration prevent flood/tidal inundation. With respect to the Kiama coastal area, this includes the Easts Beach – Emergency Relief Structure (ERS) upgrade and valve installation, and Kiama Surf Beach – Decommissioning of existing ERS and relocating a new ERS and stormwater diversion works.



Bombo beach/South Werri washout

Proposed Action C

Control pests and weeds, and undertake targeted land, dune and marine revegetation and habitat restoration along the Kiama coastline to enhance environmental, community and cultural values.

Priority: Medium

Timeline: Medium term (within 6 years)

Proposed Tasks under proposed Action C:

Task C.1	Prepare a coastal habitat restoration and revegetation works plan that identifies and prioritises specific works locations, along with works details suitable for implementation, such as species to be used, including species, habitats and places that have cultural significance to the local community.
Task C.2	Engage field teams, including existing Landcare groups and Aboriginal community organisations, and undertake pest and weed control works, revegetation and habitat restoration works.
Task C.3	Monitor the success of habitat restoration works and refine coastal habitat restoration and revegetation works plan as required.

Further information:

In conjunction with Illawarra Shoalhaven Joint Organisation (ISJO), undertake environmental land management of public lands along the Kiama coastline covering the control of pests and weeds, as well as enhancement of habitats and ecological communities through targeted revegetation in accordance with the Illawarra Biodiversity Strategy. Works can be completed by Council staff, specialist bush regeneration contractors where required, volunteer groups (e.g. Dunecare, Landcare) and other community organisations (including Green teams and future Indigenous Rangers groups (refer Action M). Collaboration will be required with agencies other than Council that have care and control over open coastal land, such as Sydney Water and DPE (at Bombo Headland).

Some works, such as dune revegetation, may require an Aboriginal Heritage Impact Permit (AHIP), issued by NSW Heritage, and may need to be preceded by an Aboriginal cultural heritage assessment report, depending on the location and scope of proposed works and the presence of known sites of cultural significance (see also Action N).



Beach restoration and Tree planting, Robert East Reserve

Proposed Action D

Develop a new Coastal Lands Public Access Strategy that identifies and prioritises coastal fringe lands proposed for acquisition or gaining easements to enable continuous public access along the entire Kiama LGA coastline.

Priority: Medium

Time frame: Short term (within 3 years)

Proposed Tasks under Action D:

Task D.1	Consult with private landholders along the coast where new public access is sought.
Task D.2	Confirm and prioritise coastal fringe land to be acquired or easements established.
Task D.3	Prepare Coastal Land Public Access strategy, guided by Council's Acquisition and Disposal of Land and Easements Policy.
Task D.4	Incorporate provisions within the proposed Coastal Hazards DCP or other relevant local plans requiring dedication of priority coastal fringe lands for public access if associated lots are developed in the future (e.g. subdivision of land).

Further information:

Providing continuous public access along the cliff tops of Kiama Local Government Area has been an ambition of Council for many years. The coastline between Kiama and Gerringong is fully accessible to the public; however, the stretch from Gerringong to Gerroa is constrained by some private lands.

This Action involves developing a Coastal Lands Public Access Strategy that provides Council and the broader community a clear direction regarding future intent for public access along the coastline. The Strategy would outline the preferred locations for access, easements required, or land parcels for acquisition.

Development of the Coastal Lands Public Access Strategy will require consultation with affected land owners so that a mutually agreeable outcome can be achieved in the future.

Given the intent of the Strategy, Council can also consider modifications to the Development Control Plan to provide a mechanism for accelerating strategy implementation.

Implementation of the Coastal Lands Public Access Strategy, that is, acquisition of land or securing of easements along the coastal fringe, should be pursued opportunistically, subject to funding (e.g. through the NSW Coastal Lands Protection Scheme). It is anticipated that some progress of the Strategy would be made within the 10 year time frame of the CMP, as guided by priorities set out in the Strategy.

Proposed Action E

Support and encourage relevant landholders and lessees of public lands to prepare and implement short-term emergency response plans as well as longer term adaptation plans for on-going land use within the CVA.

Priority: High

Time frame: Medium term (within 6 years)

Proposed Tasks under proposed Action E:

Task E.1	Consult with relevant landholders regarding existing and future coastal hazards, and implications for CVA declaration on land use and future development.
Task E.2	Incentivise and support relevant landholders and lessees of public land in hazard-affected coastal areas to engage with local emergency services including the NSW SES, and prepare an appropriate emergency plan that takes into account response to coastal hazards, such as severe storm surge inundation.
Task E.3	Amend Council's Public Land Management Policy to incorporate a requirement for an appropriate emergency plan into future leasing agreements of public coastal land at risk of coastal hazards.

Further information:

Land within the Coastal Vulnerability Area (CVA) is subject to coastal hazards. When this land is utilised for various purposes, potential coastal hazards create risks to the users. For certain land parcels, specific land use results in high concentration of people on the land, e.g. at Holiday Parks and schools.

This Action aims to ensure that people potentially impacted by a coastal hazard event are evacuated from impacted areas efficiently and effectively, without creating undue burden on emergency response agencies, such as the NSW State Emergency Service. For the Holiday Parks and the Catholic School (St Peter and Paul School), this involves development of an emergency response plan that can be implemented when necessary to keep people safe from coastal hazards.

In the longer term, the frequency of coastal hazard impacts on some lands within the CVA may require reconsideration of suitable land use. Owners and occupiers of these lands should develop a long term adaptation plan for these lands so that risks to people are not exacerbated in the future, due to climate change and sea level rise in particular.

Proposed Action F

Improve coastal amenities and facilities on public land to reduce risks to the public from coastal hazards and reduce conflicts between users, whilst enhancing environmental, social and cultural values.

Priority: High

Time frame: Long term (within 10 years)

Proposed Tasks under proposed Action F:

Task F.1	Assess the condition of all existing access tracks and other community facilities and amenities on coastal lands.
Task F.2	Review existing Council policies and asset plans, and consult with Council's Walking Tracks and Cycleways Committee, to prioritise works for improving coastal access tracks, amenities and facilities.
Task F.3	Undertake on-ground works to improve coastal access tracks, amenities and facilities.

Further information:

This action involves upgrading existing facilities or constructing new facilities and other amenities that will improve public access to the coast and reduce conflicts that are sometimes experienced between different user groups (including conflicts between environmental, social and cultural values). This action should also aim to discourage inappropriate access/use/activities/behaviour, including through physical barriers, if necessary.

Community engagement undertaken during Stage 1 of the CMP identified several opportunities for improvement of management of community land including:

- Signage for coastal walk
- Improving the surface condition and grade of the coastal walk, to enable more accessible use by community members
- Provision of formal track access across coastal dunes
- Repairs and upgrades to existing access and boardwalks, including at Seven Mile Beach
- Sufficient parking amenities to support user demands
- Facilities to support high usage (over-usage), including toilets rubbish bins, picnic tables
- Additional viewing platforms for whale watching (e.g. at Black Head).

Plans for improving facilities and amenities along the coast should be preceded by first considering proposed actions under the Kiama Assets Management Plan (Buildings) 2016 and the Kiama Asset Management Plan (Recreation) 2016, along with the Kiama Open Spaces and Recreation Strategy that is currently under development. Consideration should also be given to Council's Disability Inclusion Action Plan, Council's Tourism Opportunities Plan 2018, the NSW South Coast Marine Based Tourism Strategy, and the Kiama Strategic Tourism & Events Plan 2017-2021.

Proposed Action G

Ensure that infrastructure development and future management of the Kiama Boat Harbour adequately accounts for present and future coastal risks, along with future community demands and expectations, to provide a public facility that is resilient and economically sustainable.

Priority: Medium

Time frame: Long term (within 10 years)

Proposed Tasks under proposed Action G:

Task G.1	TfNSW to be included in the CMP Advisory Committee.
Task G.2	TfNSW and Council to work collaboratively in delivering specific actions within the Kiama Harbour Revitalisation Plan that are aligned with the objectives and time frame of this CMP subject to approved funding and environmental planning approvals.

Further information:

This Action involves stakeholders working collaboratively with Transport for NSW (TfNSW) and Maritime Infrastructure Delivery Office (MIDO) as they implement the Kiama Boat Harbour Revitalisation Plan. By working collaboratively with TfNSW and MIDO, all coastal stakeholders have the opportunity to ensure that the aims and objectives of this CMP are maintained during the infrastructure development phase and the on-going future management of the Boat Harbour as outlined in the Kiama Boat Harbour Revitalisation Plan.

Importantly, future investments associated with the development need to be cognisant of the current and future coastal hazards and risks identified during the CMP Stage 2, and design specifications for the development to be established accordingly. This would include for example the design of new or upgraded seawalls, revetments, pontoons, boat ramps and all other maritime infrastructure.



Proposed Action H

Opportunistically gather information from the public to better understand community needs that place pressure on public coastal land, facilities, services and the natural environment as part of other community engagement activities.

Priority: Medium

Time frame: Long term (within 10 years)

Proposed Tasks under proposed Action H:

Task H.1	Maintain awareness of potential community engagement programs that relate to coastal lands, such as engagement for future Local Strategic Planning Statements (LSPS).
Task H.2	Where suitable, expand planned community engagement programs to capture community input regarding use and demand of coastal lands, facilities and services, and potential conflicts, including issues with the natural environment.

Further information:

The CMP Stage 2 identified the need to better understand future needs and pressures on coastal lands and environments. This Action aims to help fill the knowledge gap regarding community expectations and perspectives of the coastline through direct engagement with the community. Council periodically undertakes community consultation on a range of topics, many involving use of open space and public lands (e.g. the Open Spaces and Recreation Strategy, and the recent Local Strategic Planning Statement that established a 20 year vision for land use in the Kiama Local Government Area).

While it is not proposed to undertake community engagement for the sole purpose of gathering this information, this Action involves utilising community consultation programs that will be developed for other purposes, and modifying those programs slightly to capture the additional information relating to usage and conflicts of coastal public land.



Proposed Action I

Monitor cliff stability and undertake further geotechnical investigations to provide a better understanding of unstable slopes, geotechnical risks and geodiversity along the coastline.

Priority: High

Time frame: Medium term (within 6 years)

Proposed Tasks under proposed Action I:

Task I.1	Undertake additional site specific geotechnical investigations.
Task I.2	Monitor cliff and slope instability at key locations identified within the Stage 2 report.
Task I.3	Undertake a research study into the geodiversity of the Kiama coastline to support future conservation and management of key geological features.

Further information:

The CMP Stage 2 identified gaps in knowledge relating to cliff instability, which is a defined coastal hazard in the CM Act. This Action involves undertaking further specific investigations and periodic monitoring to provide a better definition of the slope and cliff instability risks along the Kiama coastline, as well as investigations to support the design of coastal protection works proposed at South Werri Beach and Storm Bay (Action Q), and the promenade seawall at Black Beach (Action G). As appropriate, the additional information gathered through the monitoring may lead to an update of the Coastal Vulnerability Area to recognise those risks within the statutory planning framework.

Kiama has a rich and varied coastal landscape with significant cliffs, rock shelves and nearshore rocky outcrops, including the well-known and regionally significant Cathedral Rocks and the Kiama Blowhole. A better appreciation of the significance of the geodiversity of the Kiama coastline can help inform future land use planning decisions and help guide future coastal planning. A deeper understanding of the Kiama coastline geodiversity would be best pursued through engagement with academia and support for targeted higher education investigations



Proposed Action J

Expand Beachwatch water quality monitoring program, and continue to reduce pollutants discharged to the coast through stormwater outlets, ocean outfalls and high flow sewerage overflows (e.g. at pumping stations).

Priority: Medium

Time frame: Medium term (within 6 years)

Proposed Tasks under proposed Action J:

Task J.1	Expand the current Illawarra Ocean beaches Beachwatch program to other areas of high primary contact with coastal waters.
Task J.2	Where deemed inadequate, increase maintenance of stormwater quality improvement devices.
Task J.3	Sydney Water to provide periodic updates to the CMP Advisory Committee on proposed sewer network improvements.

Further information:

Coastal water quality can be affected by treated sewage discharged from ocean outfalls, such as at Bombo Headland. Water quality in coastal areas can also become degraded following rainfall due to runoff from the local catchment and potential cross-contamination of sewage into the stormwater system (e.g. if a sewage pumping station capacity is exceeded, typically exacerbated by illegal connections of stormwater to the sewerage system).

Weekly monitoring of water quality at Boyds/Jones Beach, Bombo Beach, Surf Beach, Werri Beach and Seven Mile Beach provides assurance to the community regarding the safety of recreational activities, such as swimming, at those beaches. Sydney Water is currently responsible for collecting water samples at Boyds/Jones Beach, Bombo Beach, Surf Beach and Werri Beach, while Council is responsible for collecting water samples at Seven Mile Beach.

The Beachwatch program should be expanded to include other beaches that are utilised for swimming, including Kendalls Beach and Easts Beach (which are both fringed by Holiday Parks), the entrance of the Minnamurra River (adjacent to the boatramp, where there is high primary contact usage of the river) and the entrance of the Crooked River (which is also highly utilised for recreation with multiple Holiday Parks nearby). These new sites should be confirmed following a review of the updated WQ Objectives primary recreation locations, which are currently in development.

Sydney Water currently undertakes sewerage improvements as directed by their Illawarra Regional Master Plan, and more specifically their Kiama Growth Servicing Plan, which outlined targeted Pollution Reduction Programs (PRPs). Sydney Water engages with Council on a regular basis to ensure that water and sewage services within the Kiama Local Government Area are cognisant of broader land use and demographic needs and demands.

Kiama Municipal Council is responsible for maintaining stormwater assets, which includes cleaning of stormwater pollution collection devices, such as gross pollutant traps.

Proposed Action K

Raise community awareness regarding Council's Vegetation and Tree Vandalism Policy to reduce illegal dune vegetation damage and removal.

Priority: High

Time frame: Medium term (within 6 years)

Proposed Tasks under proposed Action K:

Task K.1	Install signage at strategic locations regarding value of dune vegetation along with actions and penalties that are enforceable under Council's Vegetation and Tree Vandalism Policy.
Task K.2	As appropriate to the circumstances, pursue one or more elements of Council's Vegetation and Tree Vandalism Policy as a deterrent for on-going dune vegetation damage and removal.

Further information:

Coastal dunes form an important natural defence for the coastline against the hazards generated by coastal storms. The dunes provide a 'reservoir' of sand that can be released during erosion events, protecting land and properties behind. This lost sand generally returns to the dune after the storms during 'quieter' times. Natural vegetation on coastal dunes helps to stabilise the sand, preventing it from being lost to wind (aeolian transport) or prematurely lost by regular ocean movements (tides, waves). In addition, vegetated coastal dunes provide an important ecological habitat (including nesting and roosting grounds for many migratory and threatened shorebirds), and form part of a critical wildlife corridor that has regional significance for many species. The coastal dunes along the Kiama coastline also hold significance to the Wodi Wodi, Jerrinja and D'harawal people, and contain many middens and other sacred sites.

Community consultation during the CMP Stage 1 division within the community regarding dune vegetation found that while community members generally recognised the importance of dune vegetation, some community members were of the firm opinion that vegetation should only be 'low shrubs'. It is understood from the Stage 1 consultation and through additional stakeholder engagement that taller trees that are planted or naturally germinate within some coastal dunes become vandalised, poisoned and physically removed by community members.

Kiama Municipal Council adopted a Tree and Vegetation Vandalism Policy in December 2018. The policy outlines the actions that Council may take in response to tree or vegetation vandalism on public land and provides guidelines for a consistent and appropriate response to acts of tree or vegetation vandalism.

Targeted measures outlined in Council's Tree and Vegetation Vandalism Policy to prevent on-going vandalism of highly sensitive areas, such as coastal dunes, include:

- Targeted community education in a localised area
- Increasing Council Officer presence in the area
- Implementing CCTV surveillance
- Monitoring site condition through photographs and aerial photographs
- Engage community groups in the targeted area
- Developing, reviewing and implementing plans of management for high risk or sensitive areas
- Installation of signage.

Where tree and vegetation vandalism continues to occur, the Policy stipulates that Council may pursue

other response measures as detailed in the policy here.

Attempts at targeted community education in the past have had limited benefit, as coastal dune vegetation continued to be vandalised and removed. This Action involves clearly advising the relevant communities of the scope and content of Council's Tree and Vegetation Vandalism Policy, and then pursuing one or more of the avenues outlined in the policy in order to reduce the future incidents of coastal vegetation and tree vandalism.



Proposed Action L

Review and update the Werri Lagoon Interim Entrance Management Policy and remove derelict drainage infrastructure from the entrance of Werri Lagoon to improve public safety and return it to a more natural state.

Priority: High

Time frame: Long term (within 10 years)

Proposed Tasks under proposed Action L:

Task L.1	Maintain automated water level gauges at the Werri Lagoon and in the Crooked River.
Task L.2	Work with DPI Fisheries to investigate removal options, assess potential impacts, seek necessary approvals, conduct public engagement and undertake necessary on-ground works to remove the derelict concrete drainage channel located within Werri Lagoon entrance.
Task L.3	Review and update the Werri Lagoon Interim Entrance Management Policy.

Further information:

Council adopted an Interim Entrance Management Policy for Werri Lagoon in 2005. Council also adopted a Policy Position pertaining to the Crooked River Entrance, also in 2005.

Werri Lagoon

The Interim Entrance Management Policy permits artificial opening of the entrance to minimise impacts of inundation on private and public lands and roads when the entrance is closed and when water levels in the lagoon rise. The lagoon entrance can be opened immediately once it reaches a Relative Level (RL) 1.8m AHD, or it can be opened on the top of the first available high tide if it reaches a RL of 1.65m AHD. Council staff are responsible for artificially opening the entrance when it is required.

In addition to permitting opening of the entrance, the Interim Policy calls for monitoring of the data relating to the entrance during each opening event as well as during any natural entrance break out events.

Further, the Interim Entrance Management Policy requires a review and update of the Interim Policy. It calls for the policy to be reviewed as part of the Werri Lagoon Estuary Management Plan or Floodplain Management Plan. In the absence of either Plan, the policy was to be reviewed in 2006-07.

An Estuary Management Plan for Werri Lagoon has not been developed, while the Ooaree Creek and Werri Lagoon Catchment Flood Study was only completed in 2019. This has not yet been followed by a floodplain management plan for the waterway. It is understood that the Werri Lagoon Interim Entrance Management Policy has therefore not been formally reviewed since it was developed in 2005.

This Action involves continuing to implement the Werri Lagoon Interim Entrance Management Policy as documented, including a review of the policy. The Ooaree Creek and Werri Lagoon Catchment Flood Study provides sufficient information to critically review the Interim Policy and revise the strategic position of the document to accord with the objects of the CM Act and the overall objectives and outcomes sought by this Kiama Coastline CMP.

In addition to continuing to implement the Interim Policy, this Action includes the removal of redundant drainage infrastructure within the entrance of Werri Lagoon that was installed in the past as an early attempt to help manage lagoon water levels. This infrastructure has been inoperable for many decades and remains derelict within the entrance berm. Removal of this derelict drainage infrastructure will help to return the entrance to a more natural environment. Removal of the entrance structure is recommended in the recent government report "Audit of trained river entrances, armoured harbours and groynes and the multi-use and eco-features in NSW: Shellharbour to the Victorian border (illustrated volume III)" (MEMA, 2021).

Crooked River

The Policy Position for the Crooked River Entrance states that the entrance is to be allowed to open naturally, unless there are extenuating circumstances. This position was taken because there are no permanent dwellings that would be impacted when the entrance closes and water levels in the river rise (only on-site caravans in Discovery Holiday Park at Gerroa would be impacted). This holiday park is located outside of the study area of the Open Coast CMP.

This Action does not propose any works or further investigations in respect of the Crooked River entrance, remaining consistent with the Policy Position of 2005. It is envisaged that Council's Crooked River Entrance Policy Position would be reviewed as part of a future Crooked River CMP, to be prepared under the provisions of the CM Act.



Proposed Action M

Provide Traditional Owners a voice in CMP implementation, promote the cultural significance of the coastline, and support Indigenous Ranger Groups to help First Nations people care for their land and sea Country.

Priority: Very high

Time frame: Medium term (within 6 years)

Proposed Tasks under proposed Action M:

Task M.1	Engage with the local Aboriginal community to understand their preferences for participation in land and sea management along the Kiama coastline.
Task M.2	Invite Traditional Owner representation onto the CMP Advisory Committee.
Task M.3	Consult with Aboriginal cultural knowledge holders to gain an understanding of the cultural and heritage significance of the coastline and culturally appropriate ways to better acknowledge and share, if appropriate, the indigenous cultural heritage of the Kiama coastline.
Task M.4	Support the development of an Indigenous Rangers group for the Kiama / Illawarra area under the National Indigenous Australians Agency's National Indigenous Rangers Program and/or any other funding, legislative or hand back arrangements.

Further information:

This Action involves increasing the engagement and active participation of Traditional Owners in the governance and management of land and sea Country along the Kiama coastline. As Council establishes a formal committee to oversee the implementation of the CMP, Traditional Owners should be represented on that committee (Action O). Traditional Owners will therefore be included and involved in directing and prioritising implementation of Actions, and working with Lead Agencies and Supporting Organisations to secure funding, as well as helping to implement some of the on-ground works.

This Action also involves working with the Aboriginal community to identify culturally appropriate ways to better acknowledge and share, if appropriate, the indigenous cultural heritage of the Kiama coastline. This could include informative signage at high traffic and prominent locations that helps explain the significance of locations and the connection to country by the Wodi Wodi, Jerrinja and D'harawal people. Signage can include, for example, information on traditional cultural names for locations, or species that are commonly found at those locations (for example, whale stories adjacent to formal whale watching platforms at Minnamurra and Gerringong). Signage can also be used in support of more creative information and engagement activities, such as a bush tucker trail along the coastline. Other ways of sharing Aboriginal culture and knowledge would also be explored, including participation in community events, cultural immersion training and re-naming/shared naming of sites of cultural value.

Further, this Action supports the establishment of Indigenous Rangers Groups for the Kiama areas to complement existing Illawarra LALC Green Teams. Facilitated through the National Indigenous Australians Agency (NIAA), Indigenous ranger projects enable Indigenous people to combine traditional knowledge with conservation training to protect and manage their land, sea and culture. This includes activities such as bushfire mitigation, protection of threatened species, and biosecurity compliance. Indigenous ranger groups also develop partnerships with research, education, philanthropic and commercial organisations to share skills and knowledge, engage with schools, and generate additional income and jobs in the environmental, biosecurity, heritage and other sectors. While the creation of Indigenous Ranger Groups in the Kiama/Illawarra area could provide significant value to the regional overall, the Actions presented in the Kiama CMP provide a series of tangible projects that Indigenous Ranger Groups can be involved in, and hence would provide direct benefit to the Kiama Coastal Management Areas.

Proposed Action N

Undertake community-led investigations to collate, identify and assess Aboriginal cultural heritage values along the Kiama coastline, assess threats and risks to these values and update culturally appropriate management measures.

Priority: High

Time frame: Long term (within 10 years)

Proposed Tasks under proposed Action N:

Task N.1	Undertake a Kiama coastline Aboriginal cultural values, threats and resilience study.
Task N.2	Update relevant aspect of the LEP, as required, to recognise Aboriginal cultural values of the Kiama coastline.

Further information:

Undertake a study to identify coastal Aboriginal cultural heritage values, their current status and potential threats and community-led management solutions to mitigate these threats.

Taking a community-led approach this project would build on First Nation people's knowledge and connections to the Kiama region's coastal waters. This strategy involves collating and auditing existing cultural heritage information (including AHIMS database, historical and ethnographic research), community workshops and on-ground surveys to identify Aboriginal cultural values within the Kiama Coastal Management Area (CMA).

The current status and potential risks for Aboriginal cultural values will be assessed and appropriate management actions will be determined by the Aboriginal community.

Proposed Action O

Establish a Coastal Management Program Advisory Committee for Kiama to provide effective governance and support the implementation of this CMP, and to facilitate future reviews and assessments of the effectiveness of this CMP.

Priority: High

Time frame: Short term (within 3 years)

Proposed Tasks under proposed Action O:

Task O.1	Engage with agencies and potential committee members to gauge interest and scope.
Task O.2	Prepare Terms of Reference for the Advisory Committee.
Task O.3	Seek expressions of interest for community participation in the Advisory Committee.
Task O.4	Formally establish the Advisory Committee in accordance with Council procedures.

Further information:

There are multiple stakeholders regarding the management and governance of lands, water, infrastructure and the community within the Kiama coastal areas. At this point in time, there is no committee or other body that provides a regular forum for communications or integrated and collaborative planning regarding the interests of the coast.

This Action involves establishing a Coastal Management Program Advisory Committee (effectively re-establishing part of Council's previous Floodplain and Coastal Committee) with the specific remit of overseeing implementation of the CMP, and to advise on issues pertaining to the Kiama coastline. Although the Advisory Committee would not be a decision-making body, it could nonetheless shape, and influence decisions made by individual stakeholders through coordinated discussions and knowledge sharing.

The Advisory Committee could hold special knowledge sharing meetings/forums to cover topics relevant to the Coastal Management Area (CMA), such as Intermittently Closed and Open Lake and Lagoon (ICOLL) management, infrastructure planning and cultural heritage. The Committee provides a mechanism for consistent communications between key stakeholders of the Kiama coastal zone and allow all stakeholders to share important information on their strategic intents and plans for land and assets along the Kiama coastline. From this, the Committee can identify and explore opportunities for managing multi-use lands with shared values and land use outcomes.

This Action should be the highest priority of all actions in this CMP, so that the remainder of the CMP can be implemented more effectively and within a framework of stakeholder engagement and consultation, and with a sound governance structure in place that will ensure delivery and outcomes are achieved.

Proposed Action P

Monitor beach conditions to help build knowledge and to guide the management of risks to the public following erosion events. Implement the Emergency Action Sub-Plan following coastal events.

Priority: Medium

Time frame: Short term (within 3 years)

Proposed Tasks under proposed Action P:

Task P.1	Use Coastsnap, or similar, to undertake citizen science beach monitoring and to assess beach condition change based on image comparisons.
Task P.2	When beach erosion scarps are high, install temporary fencing / barricades and/or close beach access to reduce dangers to the public from these unstable slopes.
Task P.3	Implement the Emergency Action Sub-Plan when erosion events potentially compromise the integrity and safety of the public, public infrastructure and cultural sites and artefacts.

Further information:

Dune revegetation works are captured under Action C. This Action involves the monitoring of beach and dune conditions via the use of citizen science photographic data, collected through Coastsnap or similar. Monitoring sites need to be in elevated locations and could include:

- Jones Beach (possibly from the Kiama Downs SLSC)
- Bombo Beach (from the North Bombo Beach carpark)
- Surf Beach (from the coastal path on the northern side of the beach)
- Kendalls Beach (from Chapman Point Reserve to the north of the beach)
- Easts Beach (from the coastal path on the southern side of the beach)
- Werri Beach (from the coastal path on the headland to the north of the beach)
- Werri Beach (from the South Werri Beach carpark)
- Seven Mile Beach (from Burke Parade road reserve).

Coastsnap (or similar) provides a mechanism to use image comparison for shoreline tracking, time-lapse videos of beach change and delivery of coastal data via a community-accessible on-line dashboard. Images can also be stored for future reference.

In addition to monitoring, this Action involves erecting temporary fencing and barricades around areas of high erosion scarps on beaches following erosion events to keep the public safe. If necessary, a section of beach could be closed entirely to public access, including access tracks leading to those parts of the beach. Dunes that may be susceptible to high erosion scarps are limited along the Kiama coastline, confined mostly to North Werri Beach.

Where beach erosion threatens existing public infrastructure, the Emergency Action Sub-plan is to be implemented. The key locations where public infrastructure may be compromised by sudden coastal hazards include:

- Pacific Avenue at South Werri Beach
- North Bombo Beach carpark access road.

Both of these locations are also to be considered for more permanent protection works, as outlined in Action Q.

Proposed Action Q

Design and obtain relevant permits and approvals for coastal protection works (CPW) along Pacific Avenue at South Werri Beach, along the North Bombo Beach carpark access road, and along the northern foreshore of Storm Bay, south of the Boat Harbour, in preparation for CPW construction when needed.

Priority: Medium

Time frame: Medium term (within 6 years)

Proposed Tasks under proposed Action Q:

Task Q.1	Prepare concept designs for the CPW and develop measurable triggers for initiating on-ground works, and seek input from all relevant stakeholders, including the community.
Task Q.2	Prepare detailed design and technical specifications and prepare and submit necessary documentation (including environmental assessment) for approval for proposed CPW at South Werri Beach.
Task Q.3	Prepare detailed design and technical specifications and prepare and submit necessary documentation (including environmental assessment) for approval for proposed CPW at North Bombo Beach.
Task Q.4	Prepare detailed design and technical specifications and prepare and submit necessary documentation (including environmental assessment) for approval for proposed CPW at Storm Bay.

Further information:

This Action involves undertaking all works and investigations required to support future implementation of coastal protection works (CPW) to reduce risks of erosion at selected locations along the coastline. Coastal protection works (CPW) are specifically flagged within the CM Act and the R&H SEPP to mean:

- Beach nourishment activities or works
- Activities or works to reduce the impacts of coastal hazards on land adjacent to tidal waters, including (but not limited to) seawalls, revetments and groynes (as per the intent of this Action).

Construction of the CPW is not covered under this CMP Action; however, the Action involves all of the preparatory work for the CPW including design, assessment, consultation and approvals. Importantly, this Action defines a trigger (or series of triggers) that flags the need to source funding and undertake the CPW construction works.

Clause 2.16(2) of the R&H SEPP specifies that a public authority may carry out coastal protection works without development consent if the works are:

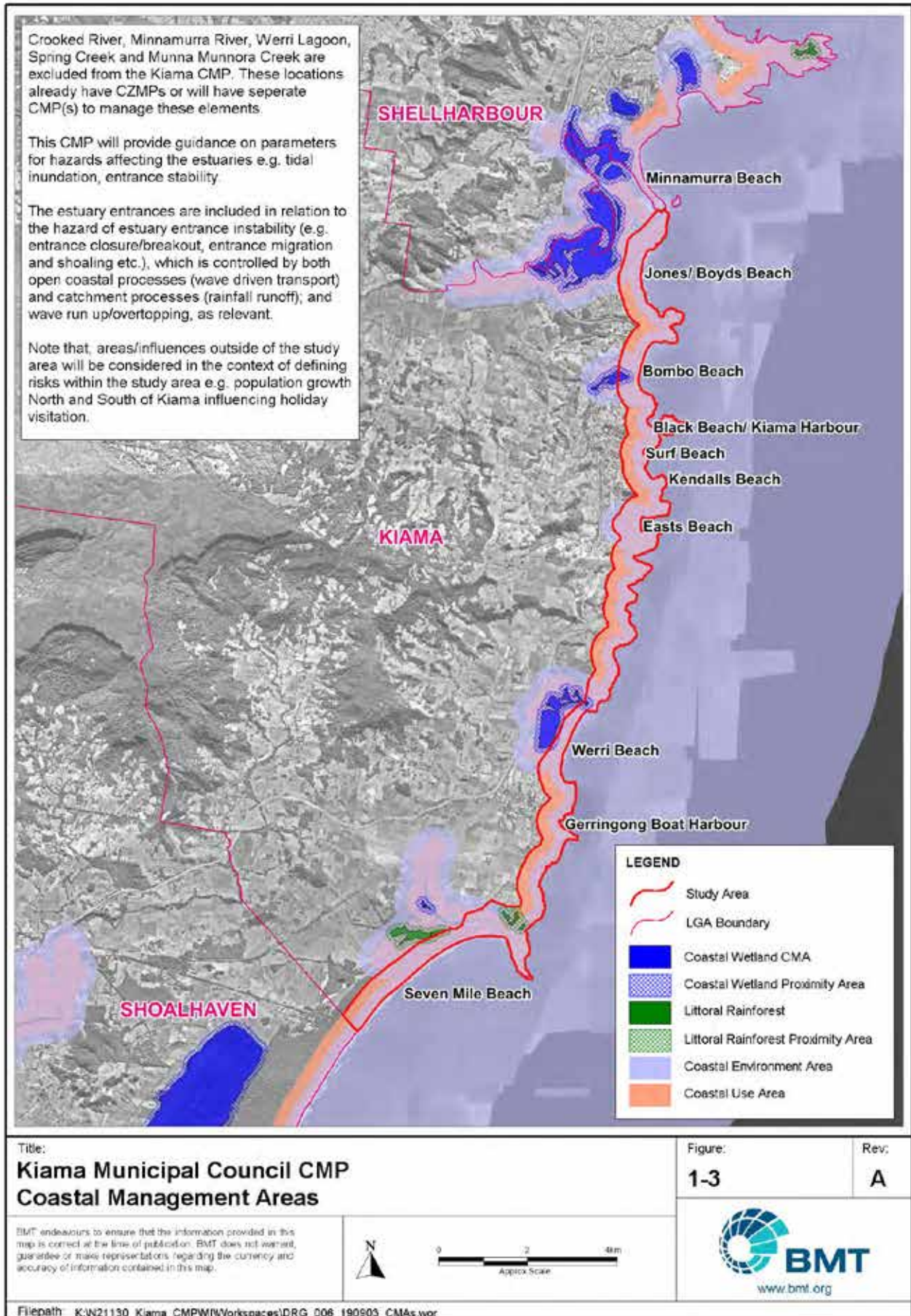
- identified in the relevant certified CMP
- beach nourishment
- placing sandbags for not more than 90 days
- routine maintenance works or repairs to existing coastal protection works.

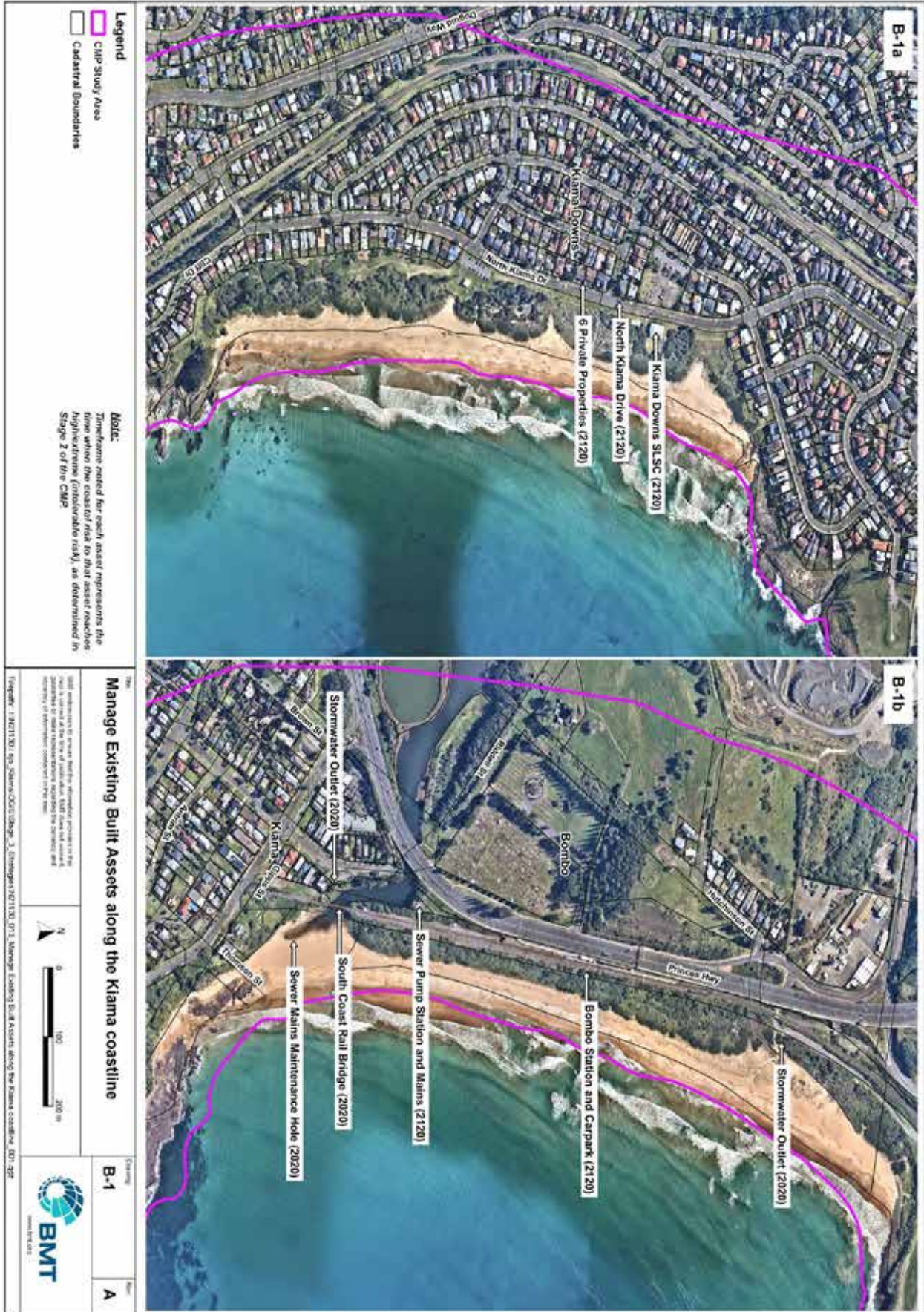
While these provisions in the R&H SEPP will facilitate the CPW construction process, it would still be appropriate for community and agency consultation relating to the proposed works, so that an agreeable and acceptable solution can be 'pulled off the shelf' when needed.

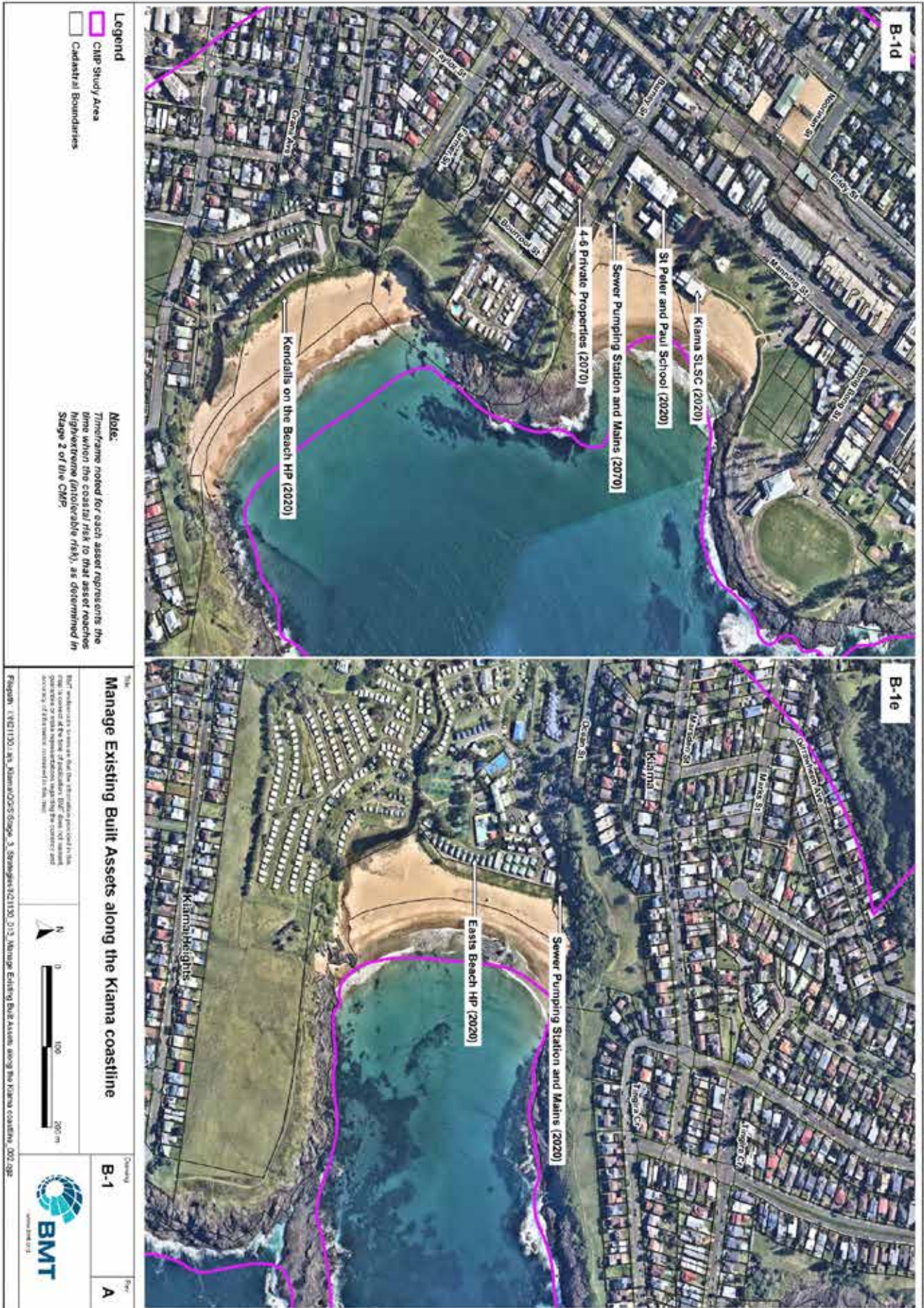
With respect to Pacific Avenue, geotechnical investigations are required to understand bedrock location to ensure an appropriate design. Similarly, the northern foreshore of Storm Bay requires further geotechnical assessment to support an appropriate design for a revetment to stabilise on-going erosion at this location. These geotechnical investigations are identified in Action I.

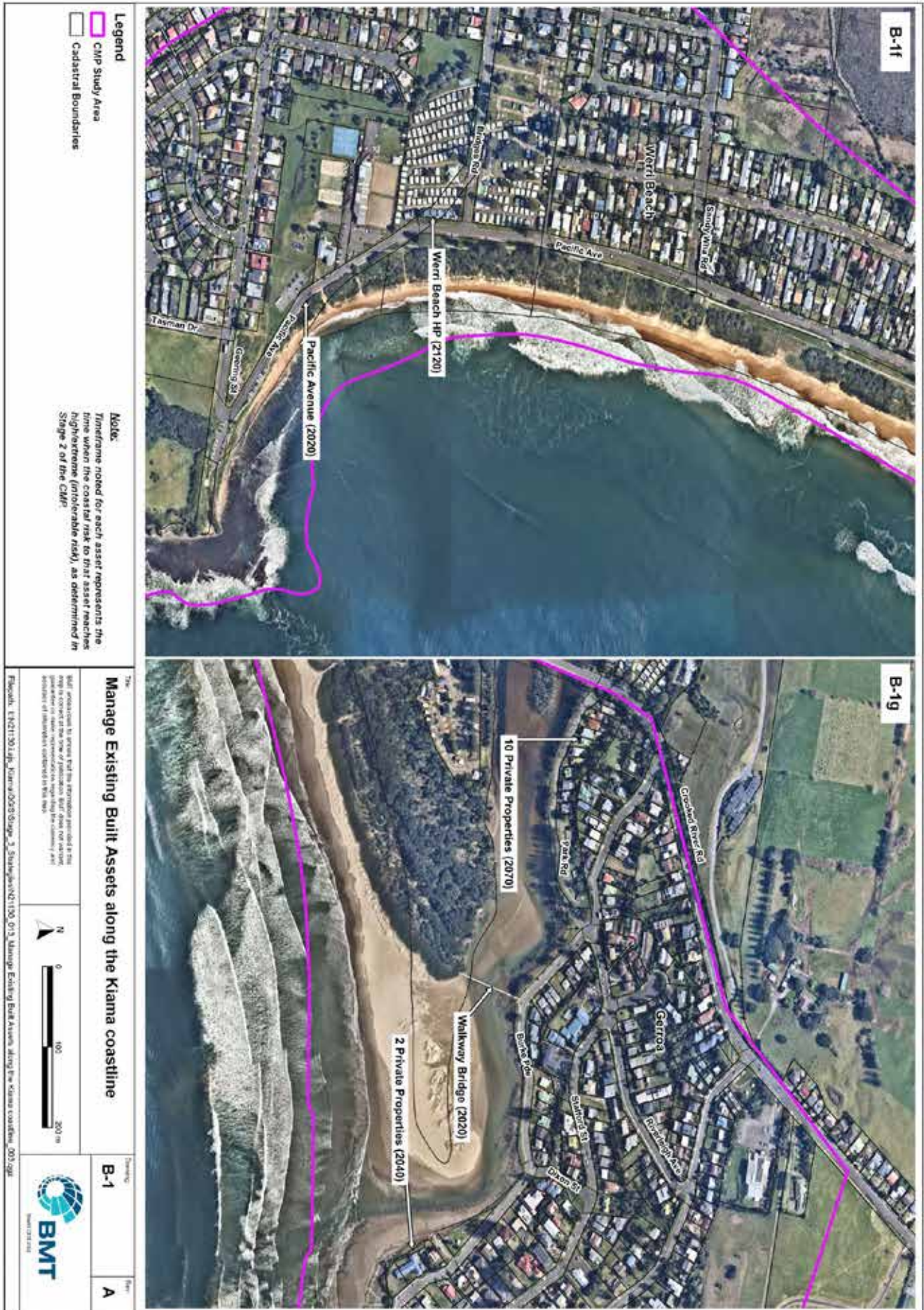
With respect to North Bombo Beach carpark access road, the location is very close to the South Coast Rail line embankment (in fact the access road passes under the rail line immediately behind the beach). Prior to committing funding and resources to implementation of CPW along the carpark access road, consideration should be given to a more integrated works package that may provide protection to multiple assets in this location including the rail embankment as well as the access road.

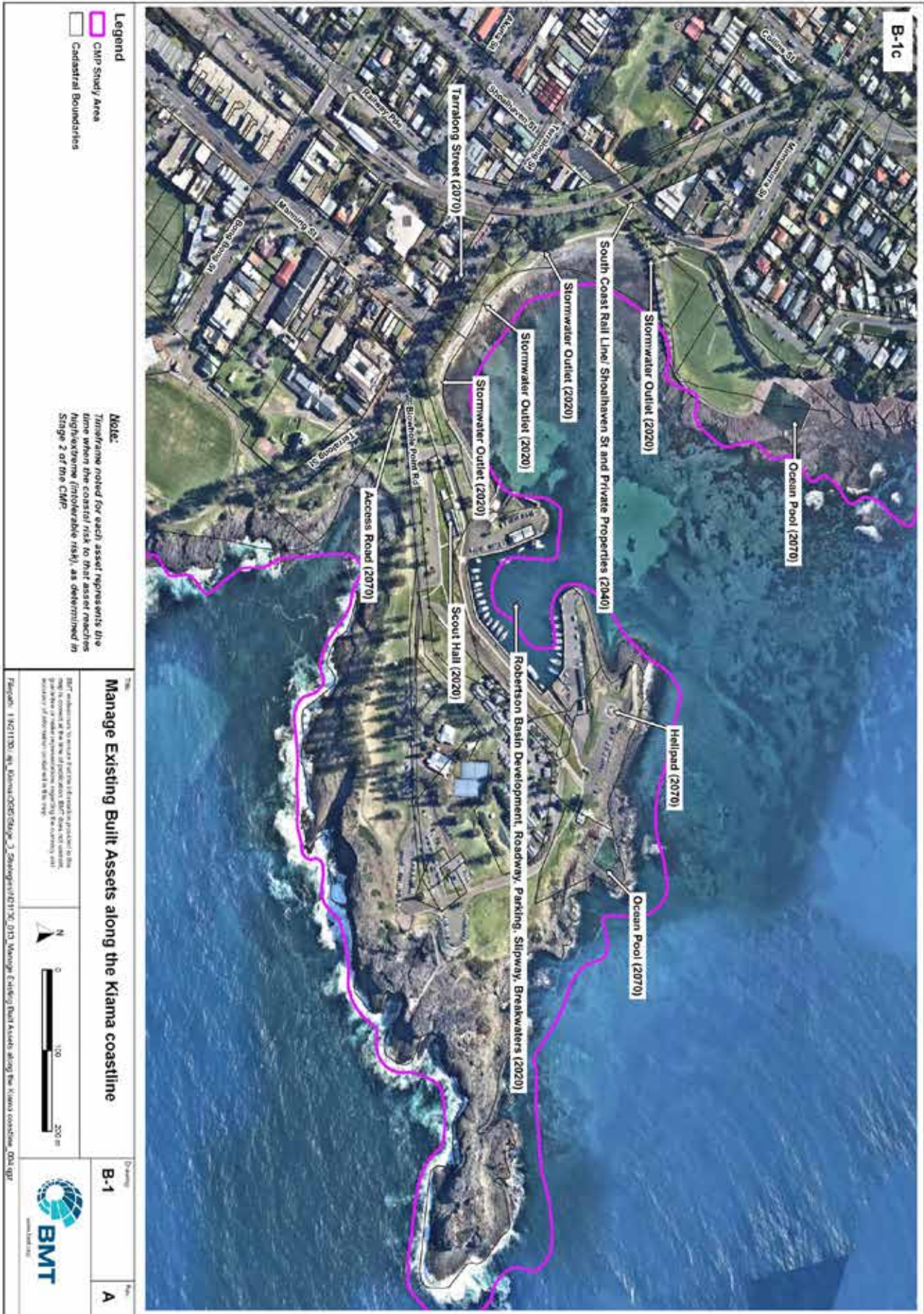


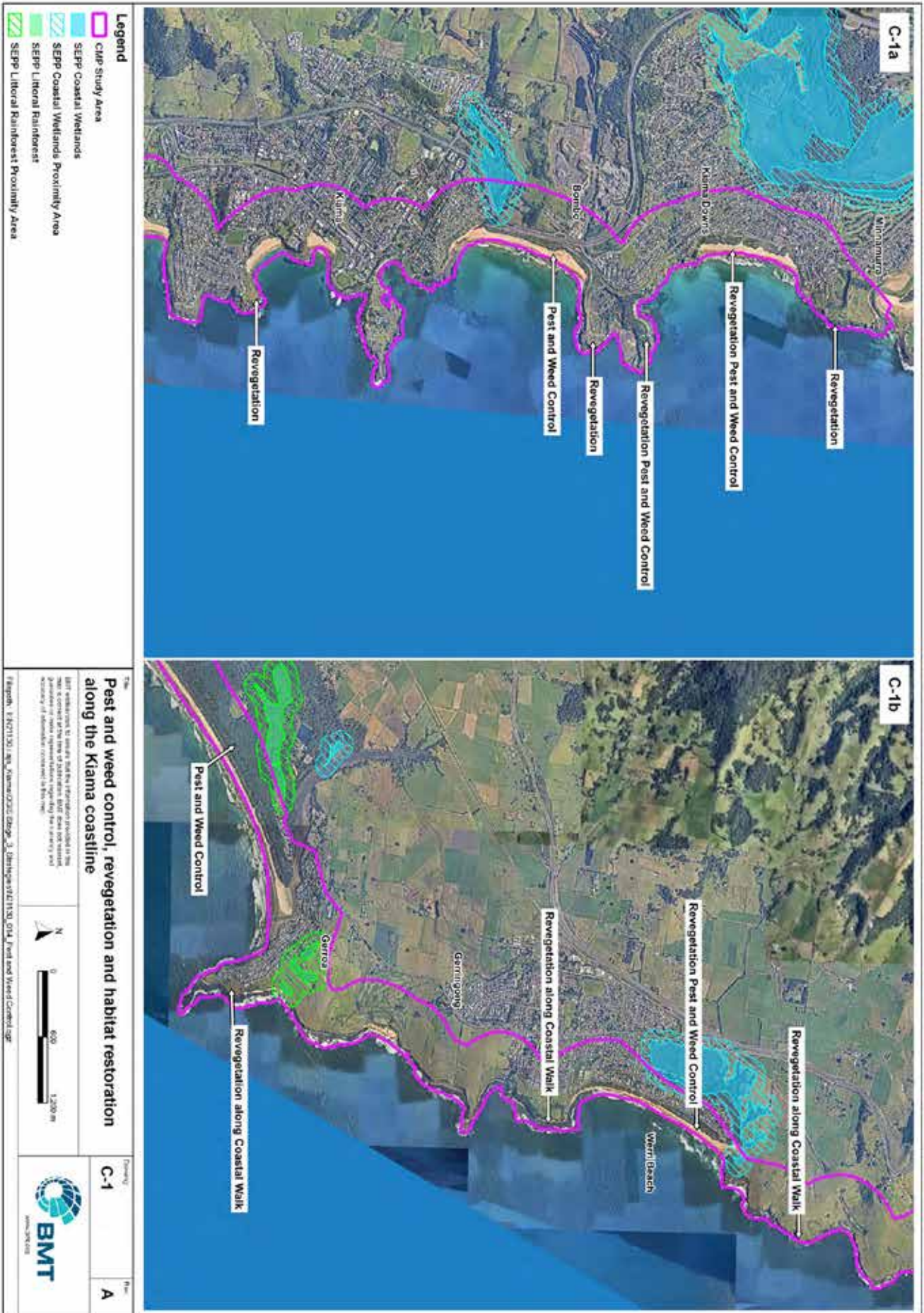


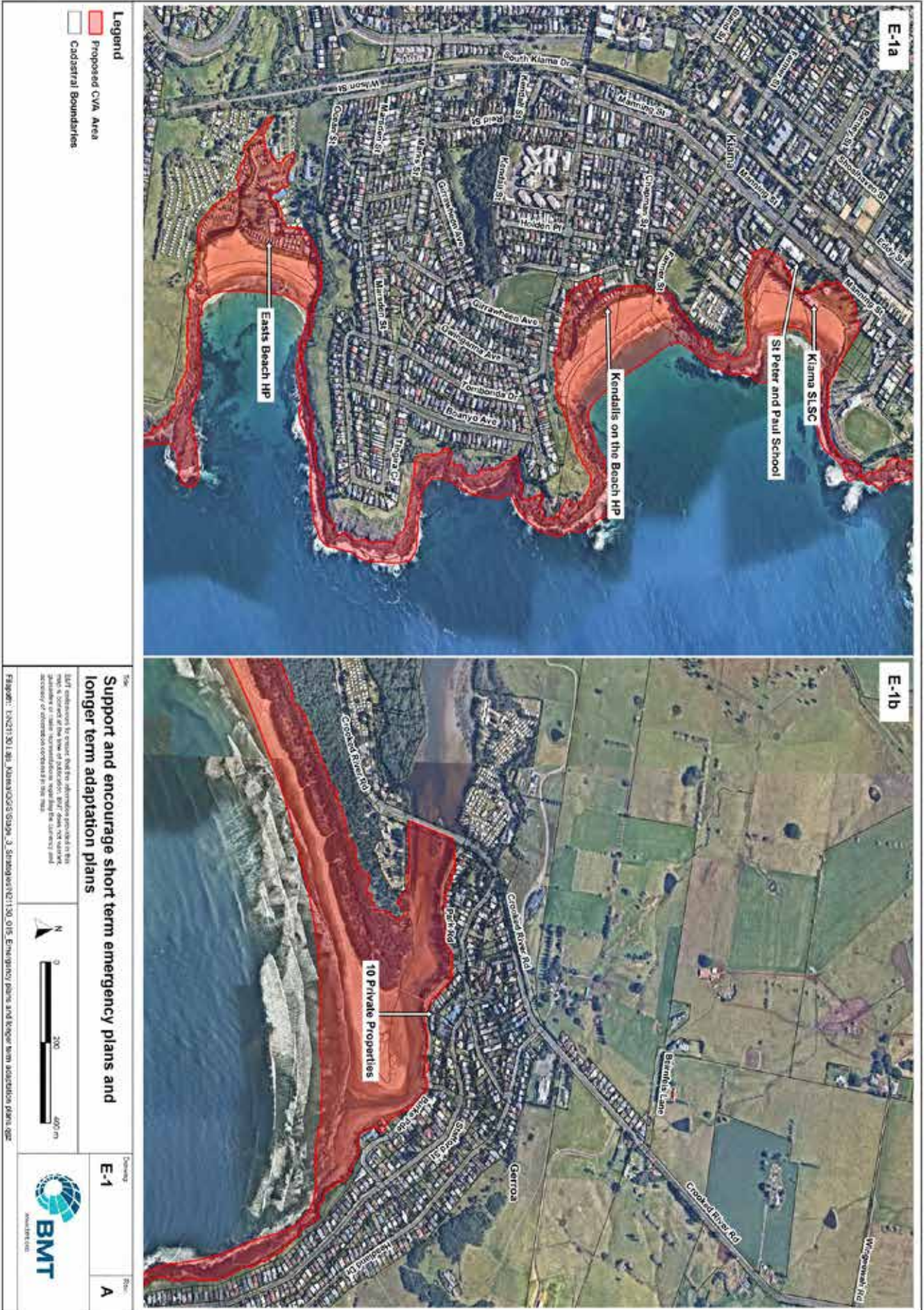


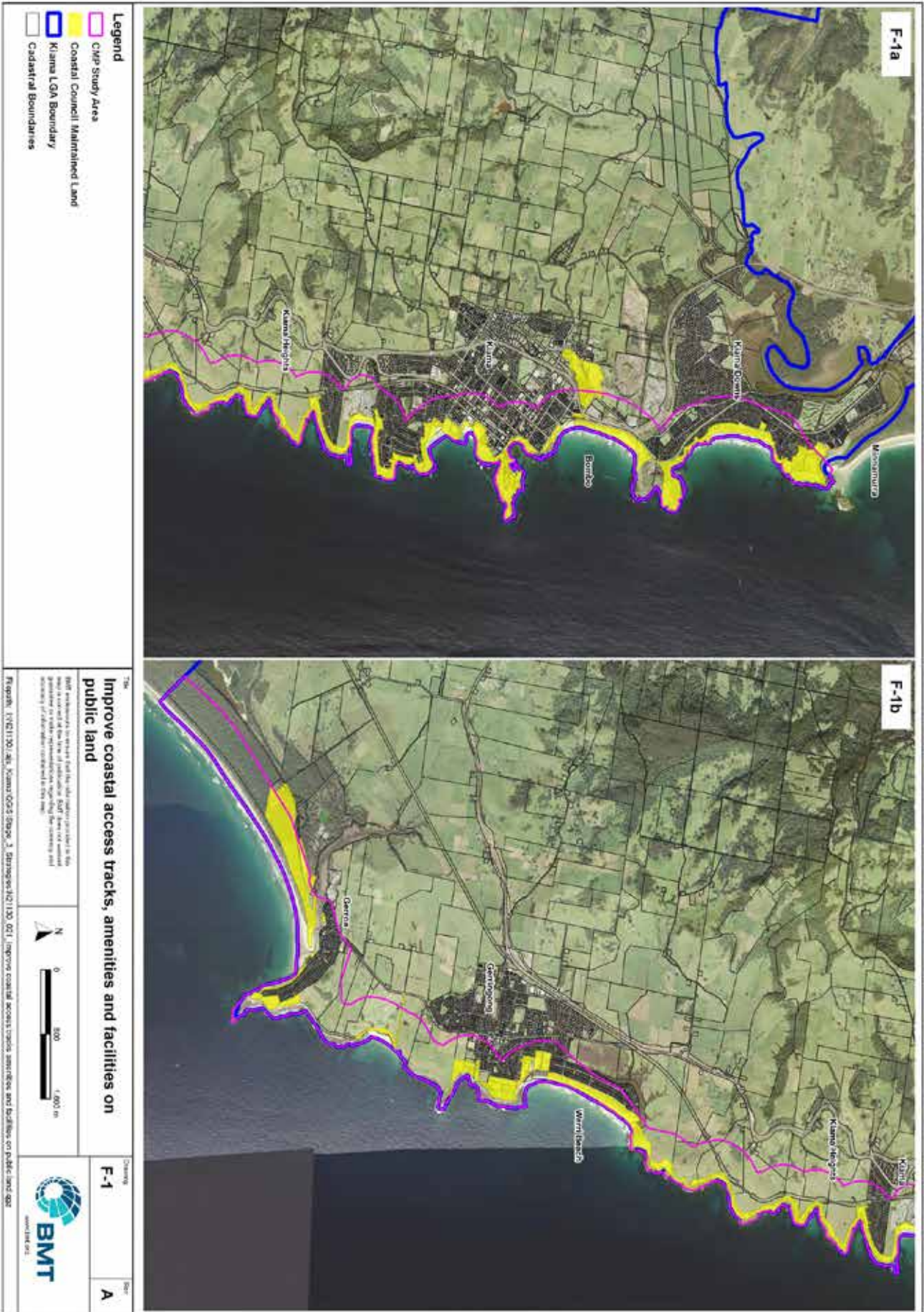


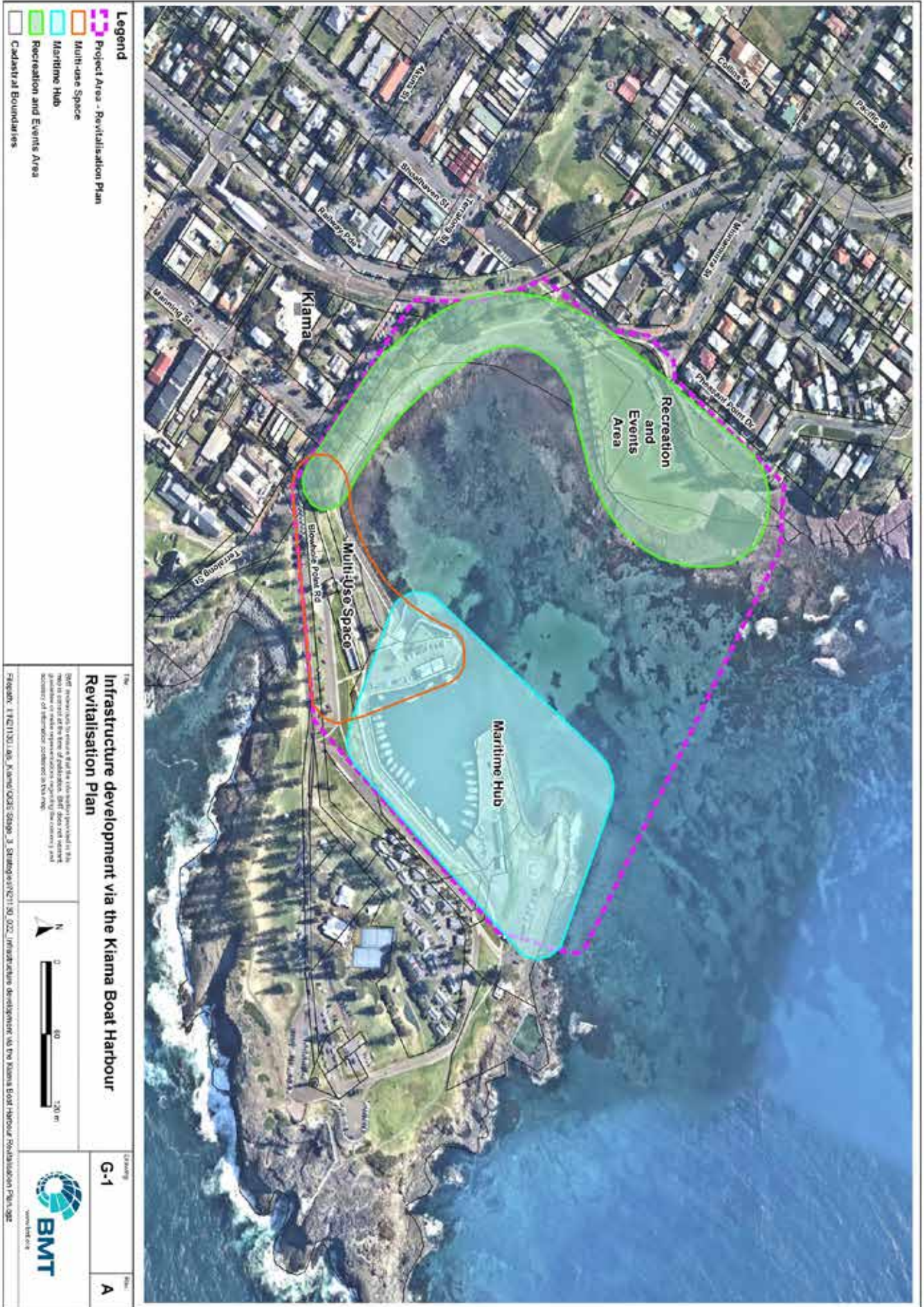


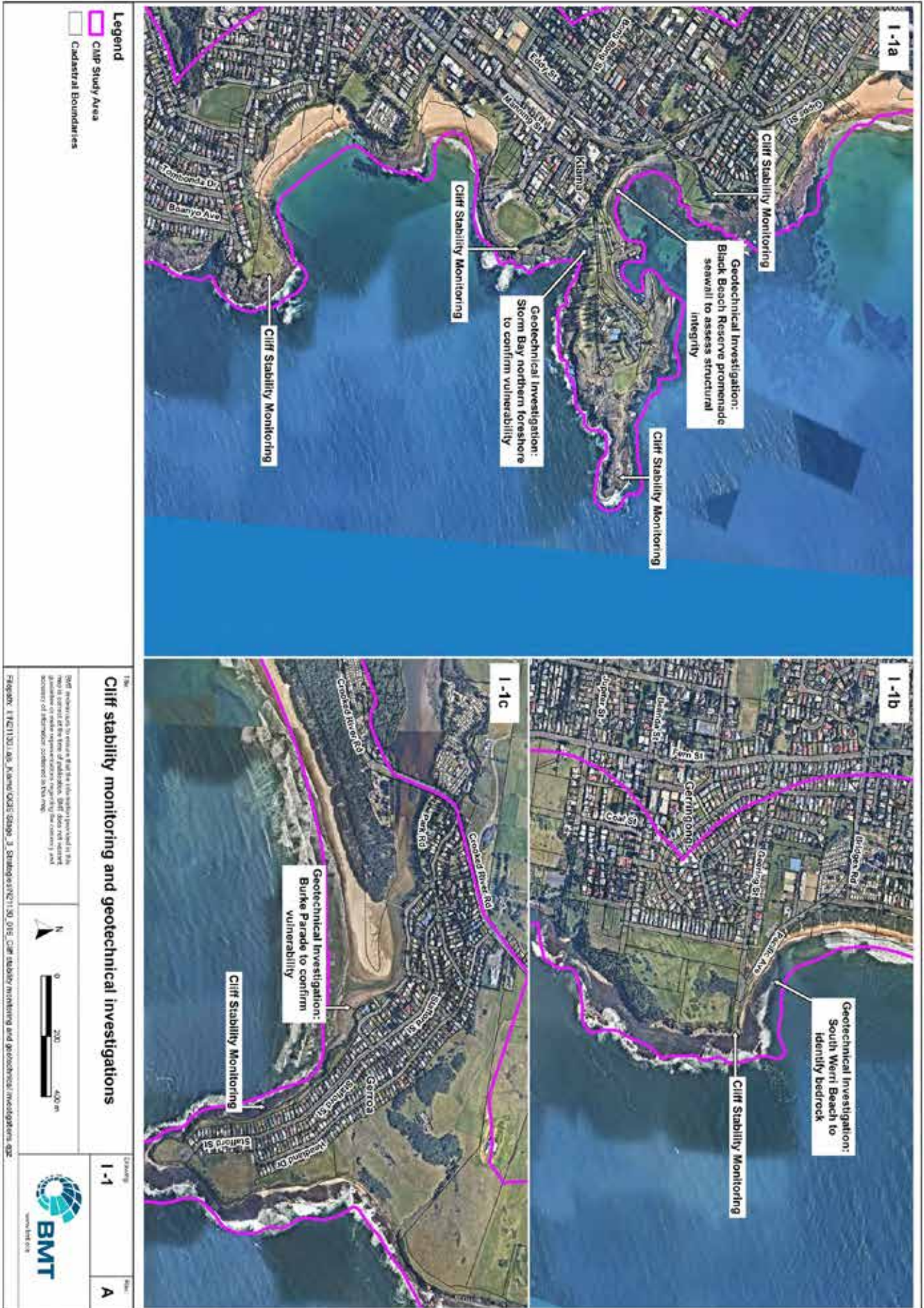


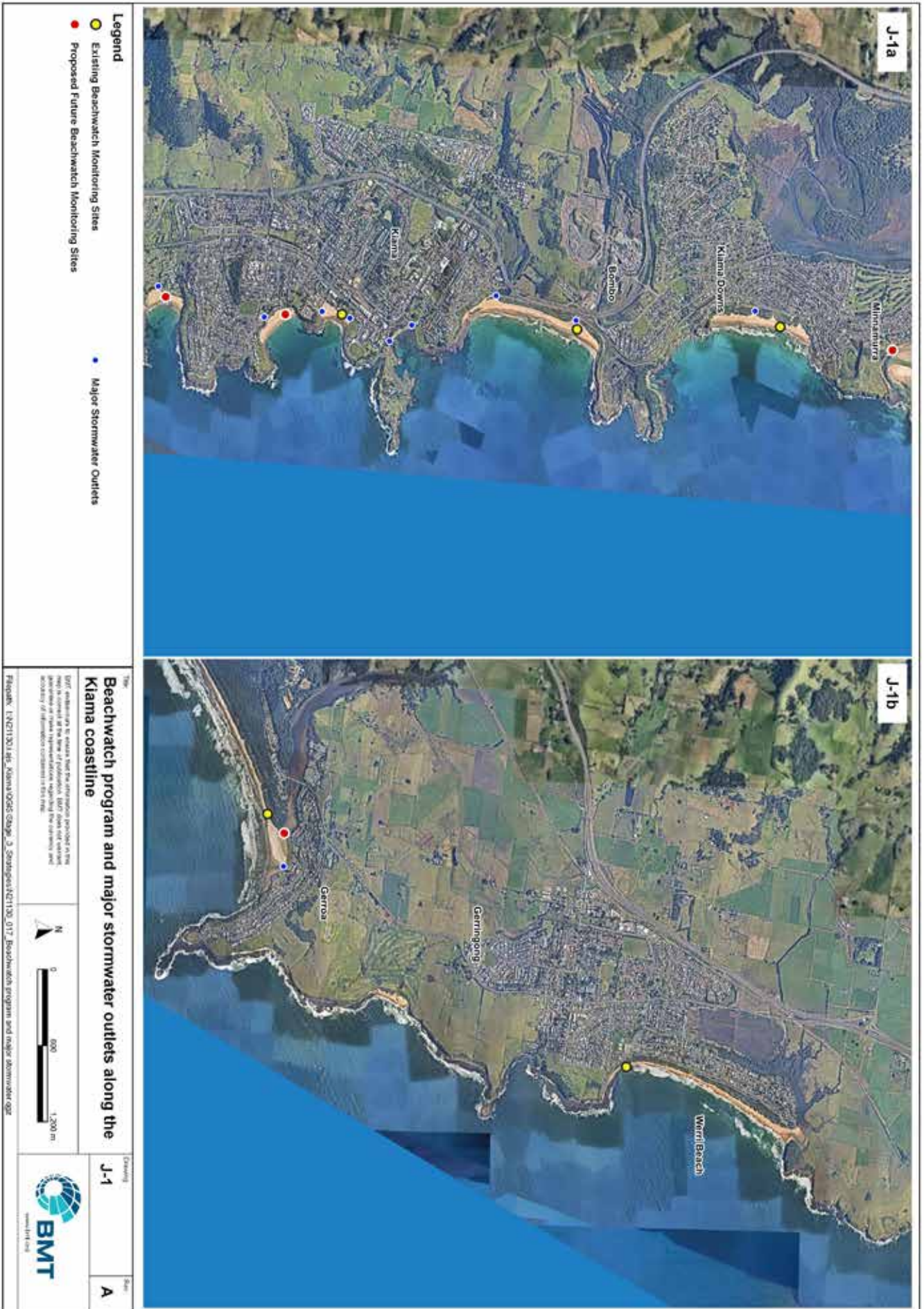


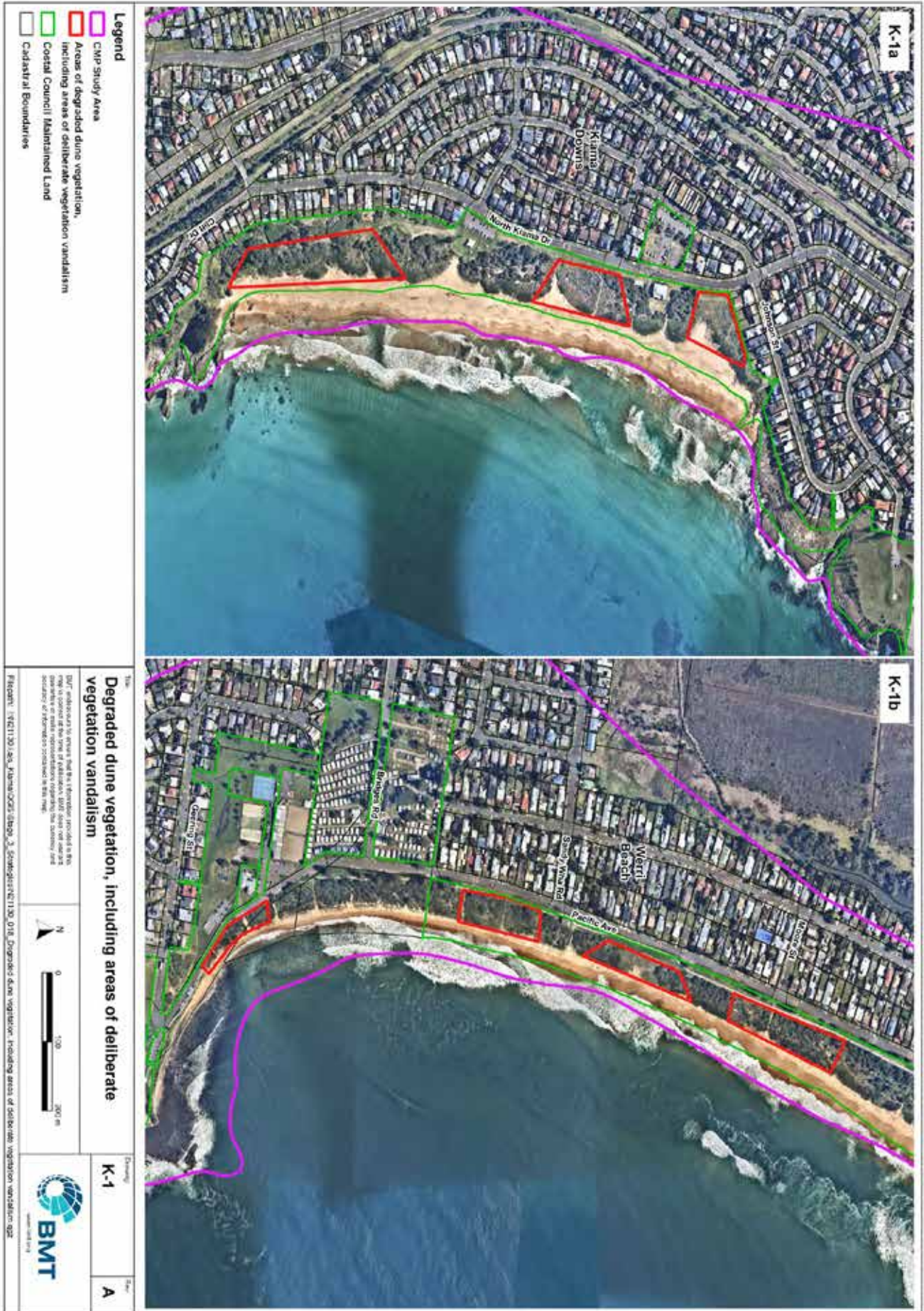


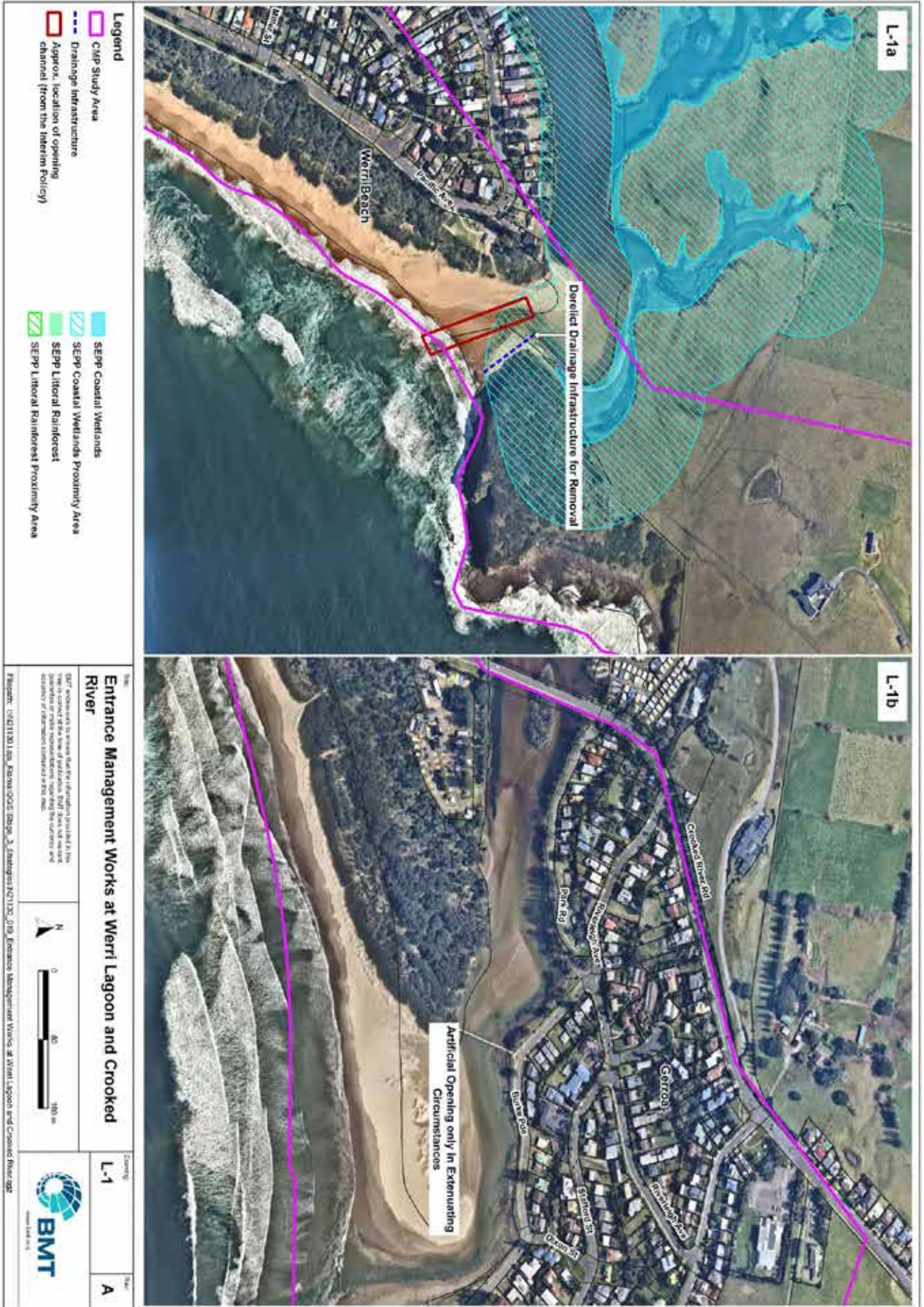


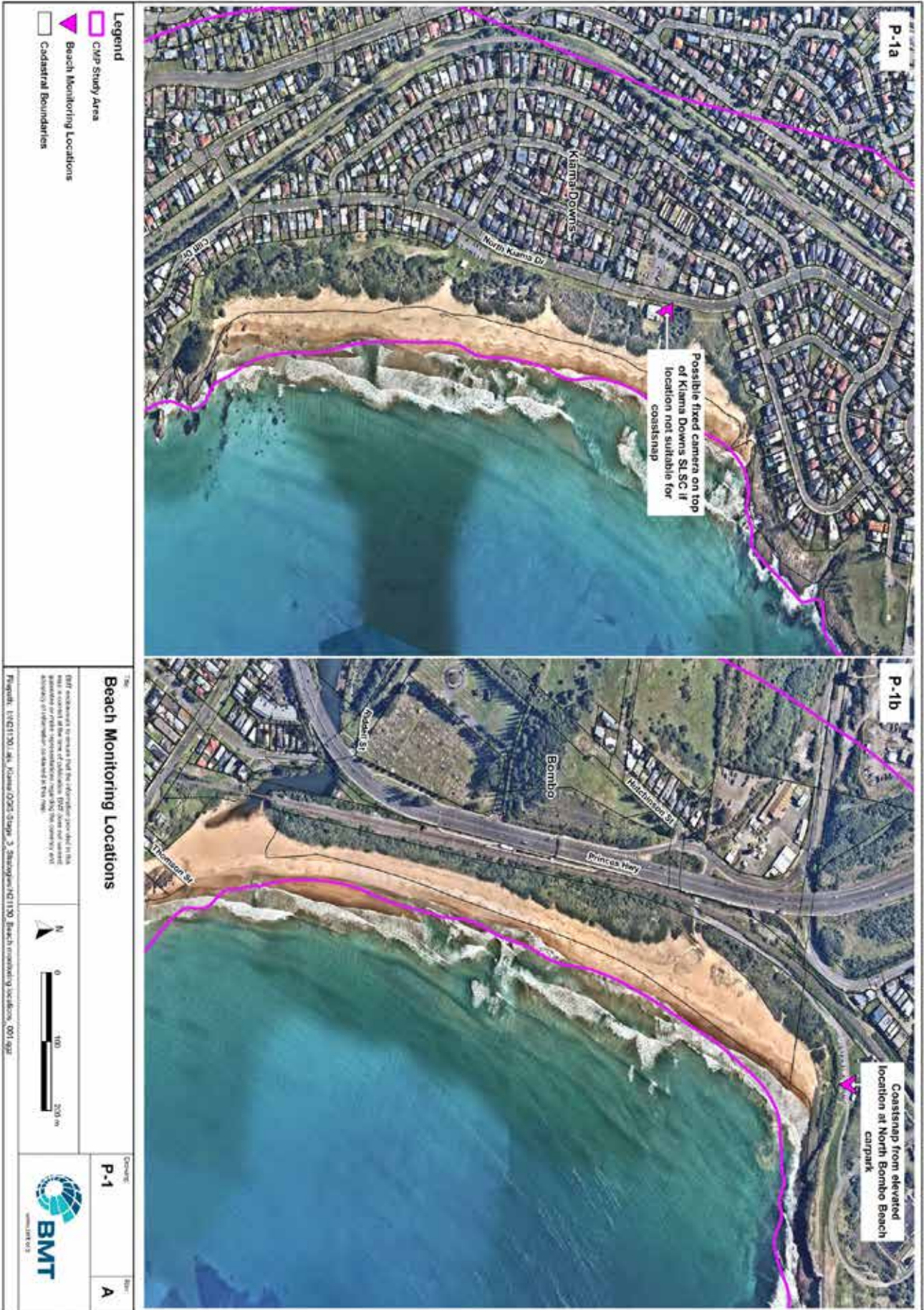


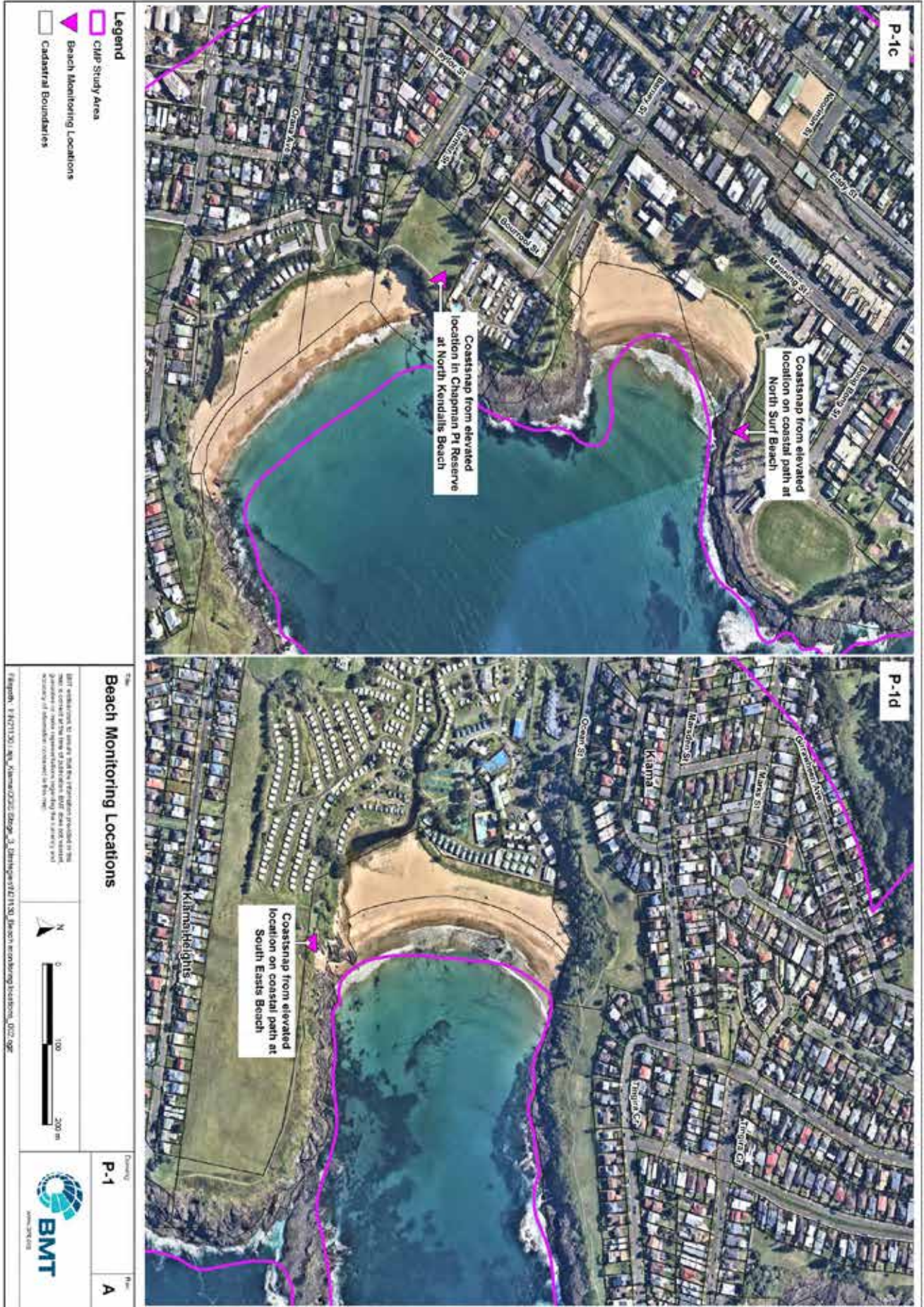


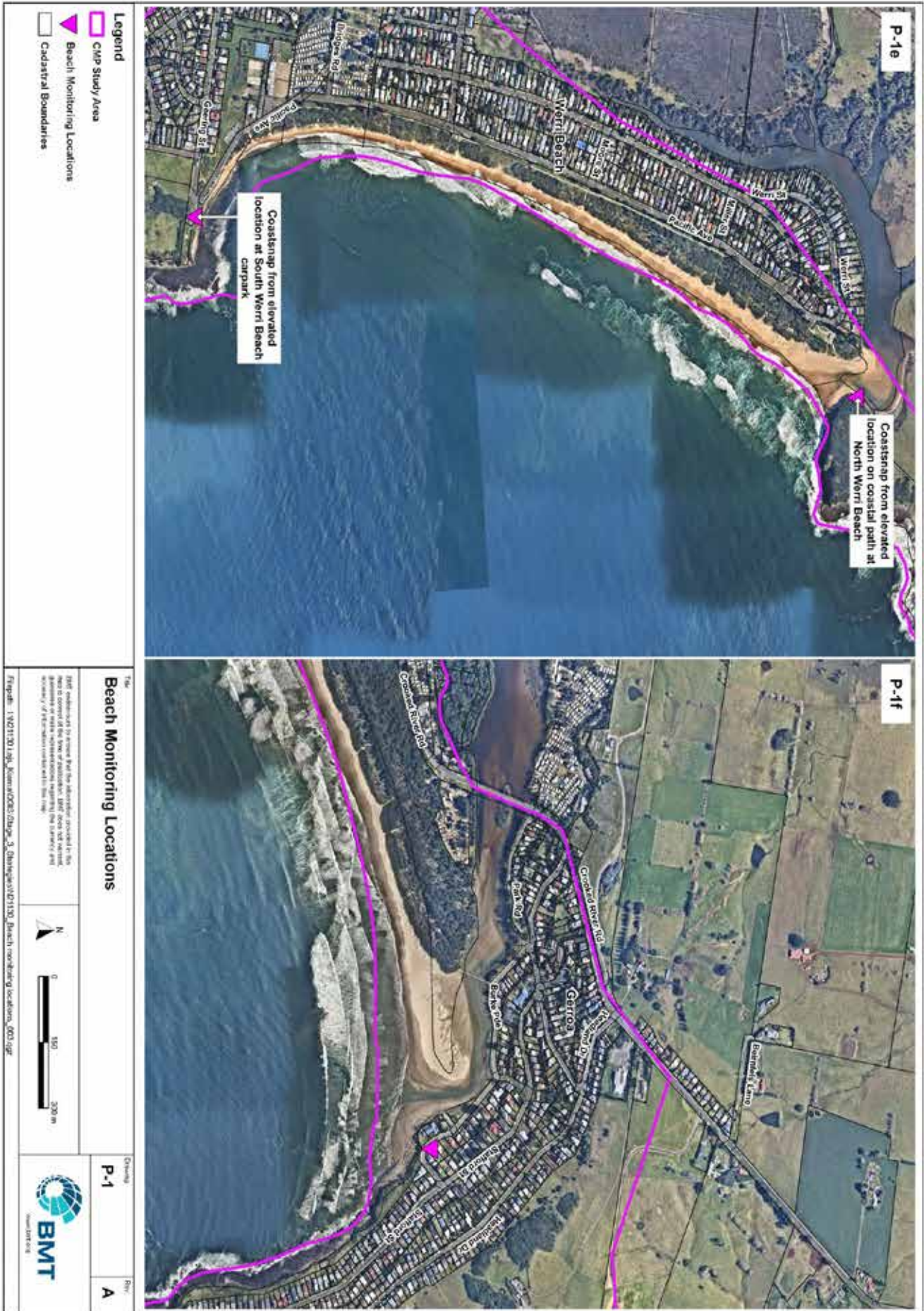


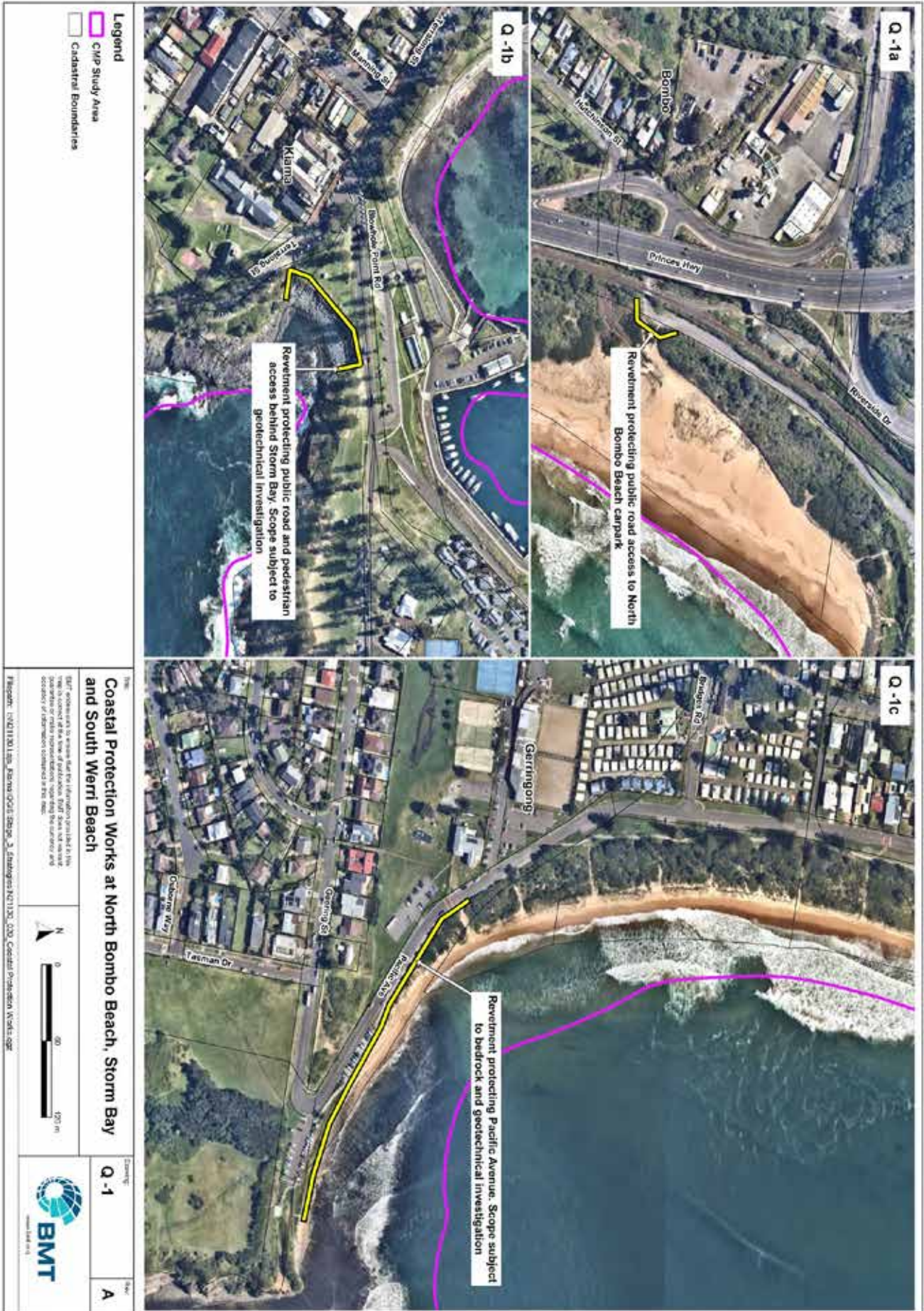














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