PORT STEPHENS COUNCIL

Environmental Assessment

Level 4

ENVIRONMENTAL IMPACT STATEMENT

East Seaham Road Stages 5 & 6, East Seaham

CHAPTER ONE THE PROJECT

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1. PROJECT

1.1. Location of the proposed development

The project area is located approximately 1.4 kilometres (km) southeast of Clarence Town and approximately 34.3 km north of the Newcastle central business district. The project area, defined by the area of impact of the proposed works, encompasses a 3.2 km stretch of East Seaham Road beginning 1.26 km south from its intersection with Limeburners Creek Road. The location of the works within the locality is illustrated in **Figure 1-1**.

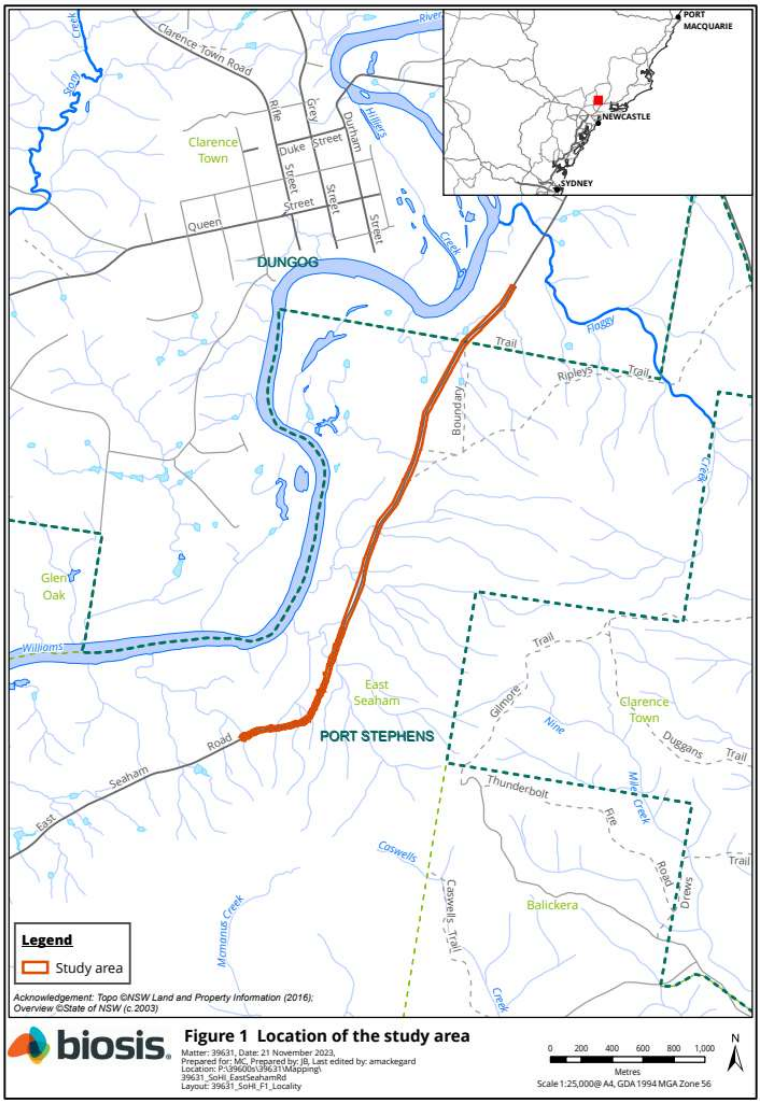

Figure 1-1 Location of works

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1.2 Locality context

The existing land uses in and around the project include:

- rural and agricultural uses including land used for grazing, and animal production, and rural residential uses
- environmental areas including conservation areas including Wallaroo National Park to the east and watercourses including the Williams River approximately 300 metres (m) to 1 km to the west
- utility infrastructure
- roads and associated road infrastructure.

Generally, existing land uses near the project are characterised by rural properties and grazing land to the west and Wallaroo National Park to the east.

1.3 Project description

1.3.1 Overview

Port Stephens Council (PSC) is planning to rehabilitate East Seaham Road, East Seaham, New South Wales, referred to as the 'project' herein, to improve road safety. PSC is proposing to widen and seal the existing gravel road, install safety barriers and provide appropriate clear zones. Trees and other vegetation will be removed and drainage will be upgraded as part of the works.

The project length covers Stages 5 and 6 of East Seaham Road and is approximately 3.2 km in length (**Figure 1-1**).

The project area is bounded to the east by Wallaroo National Park and to the west by rural lands and residential properties. The project will include the following key features:

- sealed road with one lane in each direction with line marking
- structures along the road to allow for drainage
- tie in with previous upgrades along East Seaham Road and road connectivity into Dungog Local Government Area (LGA)
- minor cut and fill embankments due to undulating terrain.

Ancillary work to facilitate construction of the project includes:

- adjustment, relocation and/or protection of public utilities and services
- temporary construction facilities, including compounds and stockpile sites
- temporary and permanent access tracks.

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Approval for the project is being sought under Division 5.1 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act).

This Environmental impact Statement (EIS) was prepared based on the design set out in **Attachment 2**.

1.3.2 Objectives

The project objectives are to:

- improve road safety and reduce road crashes and potential resultant fatalities and injuries
- improve travel times
- reduce the potential for vehicular damage
- improve reliability and accessibility for services accessing the road such as buses, emergency services and waste services etc
- reduce ongoing maintenance needs for regrading and repair of wash outs.

In doing so it is intended that during construction and operation and maintenance phases, impacts on the natural and built environment will be minimised as much as practically possible.

1.3.3 Justification

The project is needed due to a long history of crashes, some of which resulted in severe injuries or fatalities, as well as poor road surface performance during wet weather events and continual need for regrading and other maintenance activities.

The project would support the objectives and needs by providing an improved road surface that provides improved connectivity for local regional communities such as Seaham and Dungog. The project will provide sufficient road capacity to cater for future increases in traffic volumes. Following construction, the traffic would travel with increased average speeds along the short section of road due to the improved road surface, enabling motorists to travel safely at the designated speed limit.

1.3.4 Design considerations

To support the project objectives, the design has been developed by:

- considering the environmental constraints and where possible, avoiding and minimising environmental impacts
- satisfying the technical requirements for the design
- designing the road to link the works into the existing road network and previously completed works along the road
- carrying out appropriate community and stakeholder consultation

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- planning temporary arrangements which minimise disruption to local and through traffic and maintain access to adjacent properties during construction.

1.3.5 Project funding

Project funding is detailed in **Table 1**.

Table 1-1 Funding Sources

Source	Value
Federal Black Spot program Funding	$842,000
NSW Local Roads and Community Infrastructure Program	$323,527
$10m Election Promise through the NSW Regional Roads Fund	$2,832,000
Port Stephens Council	$2,268,538
Developer Contributions	$1,537,353
Total Funding	**$7,803,418**

1.3.6 Scope of works

Early works

Site investigations have included:

- property acquisition and adjustments
- detailed investigation and survey work including geotechnical investigation
- material testing for material reuse and waste classification
- utility location identification or surveys
- biodiversity and heritage studies
- flood modelling and drainage studies
- water quality modelling.

There would be some mobilisation and site establishment activities before the main construction activities begin. The purpose of these activities would be to prepare the site, gather additional information and install any environmental controls required during construction

Pre-construction activities for the project would generally include:

- installation of construction and advisory signs
- installation of environmental controls including erosion and sediment control measures

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- adjustment, relocation and protection of public utilities and services
- site establishment activities, such as establishment of:
    - temporary stake and tie to delineate the extent of works
    - construction ancillary facilities, including installation of site offices and amenities and other facilities
    - construction site fencing, signage and lighting
    - construction site access points, traffic management measures, alternative public access routes and diversions, including any minor road modifications
- land acquisition and relocation or removal of farm infrastructure (including farm fencing) as required and in consultation with affected landowners
- stockpiling of fill and materials that may be available before construction starts (such as fill available from other projects)
- activities prior to vegetation clearing.

During construction operation of ancillary facilities would include activities such as stockpiling, managing deliveries and loading and unloading of materials, storage of materials and worker parking.

Traffic management and control

Traffic management and control would be performed by suitably qualified and experienced personnel and would include the installation of temporary traffic barriers, and temporary road closure and diversions. **Figure 1-2**, **Figure 1-3** and **Figure 1-4** illustrate the road closure and diversions that would be implemented. The following tables illustrate the variance on key routes in kilometres and minutes.

Clarence Town Brig O'Johnston Bridge is load limited to 22 tonnes (T). Dungog Council are undertaking a project to construct a new bridge structure adjacent to the heritage listed bridge. For construction vehicles associated with the project, any vehicles 15 T or less may use the existing bridge, whereas any vehicles exceeding 15 T will need to detour around the existing bridge. This detour will apply to any truck movements hauling material from one side of the bridge to the other.

Options considered for traffic management include full road closure and one lane closure allowing for one lane, two way traffic.

Road Closure would include no through traffic and resident access only. By closing the road at the PSC/ Dungog boundary to no through traffic and allowing resident access/ construction access from the south, it is expected to provide efficiencies in time and cost in construction as well as providing a safer environment for both workers and road users. There would be anticipated cost savings and potentially weeks saved

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from the construction duration. The impact to motorists will be detours in place as per below.

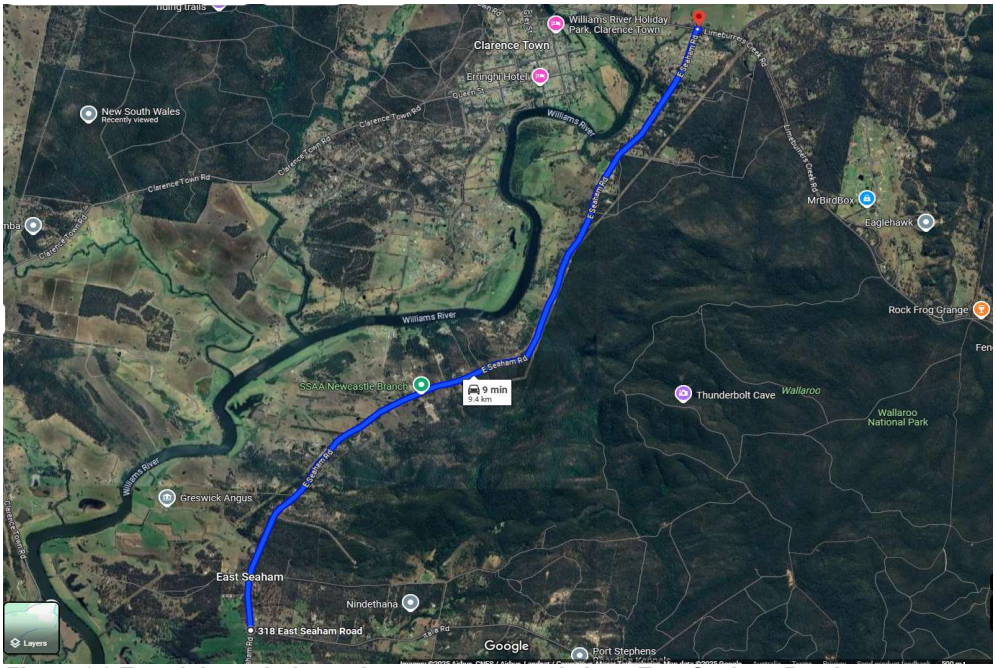

Figure 1-2 Travel through the project area as normal along East Seaham Road

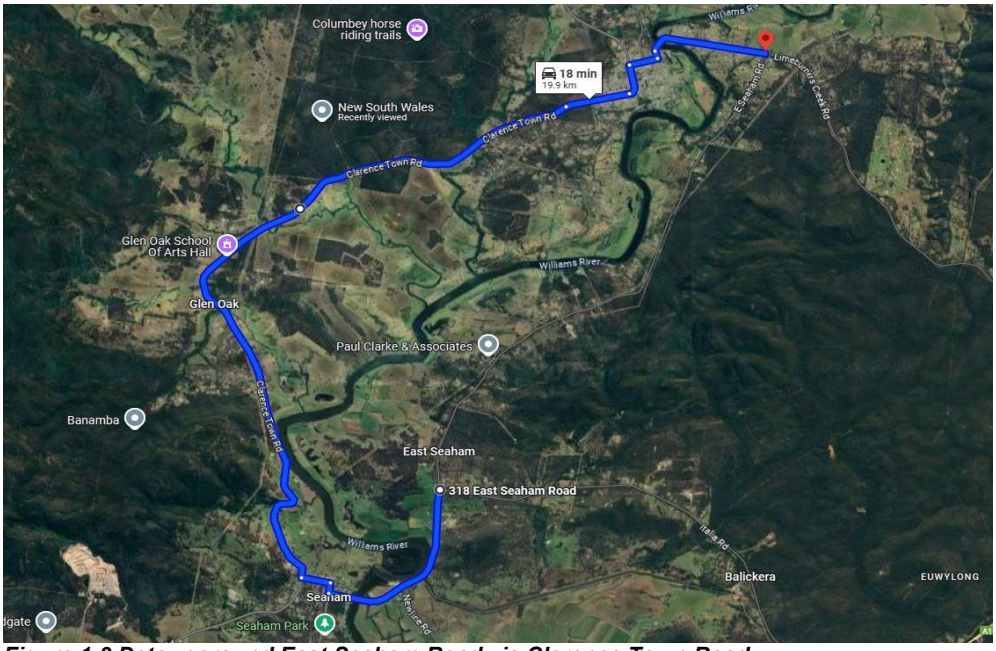

Figure 1-3 Detour around East Seaham Road via Clarence Town Road

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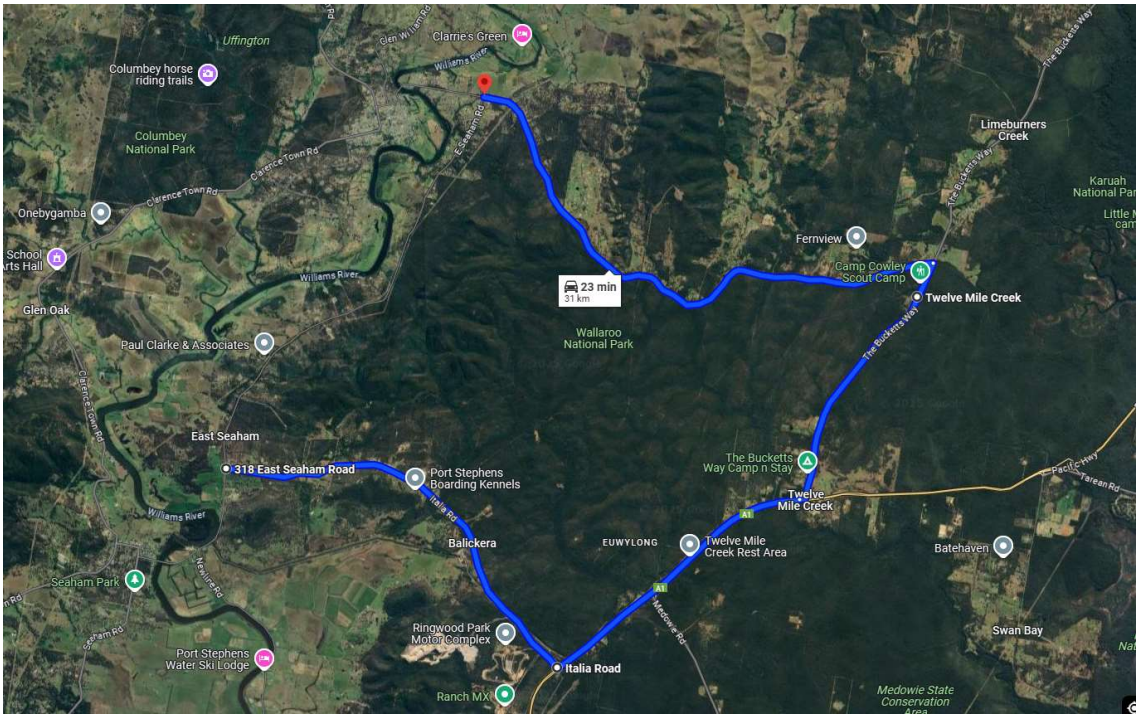

Figure 1-4 Detour around East Seaham Road via Italia Road, Pacific Highway, Bucketts Way and Limeburners Creek Road

Table 1-2 and **Table 1-3** provide an indication of variance in typical travel routes in kilometres and minutes.

Table 1-2 Road closure variance (km)

Location	ESR Closure (North)	Clarence Town	Italia Road	Glen William	Glen Martin	Limeburners Creek Road (midpoint or around number 508)	Brookfield
Seaham	8.1				4.3	4.4	
Maitland	6.9				3.5	3.5	
Medowie	3.6						0.1
Raymond Terrace	9.1	0.8		1.2	5.7		0.8
Newcastle	4.3			5.6	3.7		
Clarence Town			5.6				
ESR closure (South)	22.6	14.2		12.7	19.1	17.8	14.3

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Table 1-3 Road closure variance (minutes)

Location	ESR Closure (North)	Clarence Town	Italia Road	Glen William	Glen Martin	Limeburners Creek Road (midpoint or around number 508)	Brookfield
Seaham	7				3	3	
Maitland	5				2	2	
Medowie	7						5
Raymond Terrace	8			1	9		
Newcastle	8			2	1		
Clarence Town			3				
ESR closure (South)	19	10		10	16	15	10

The other option is to undertake works under traffic control allowing traffic to move through the site in both directions via a one lane arrangement. This may be implemented during construction hours only or permanently throughout the project depending on the nature of the work being undertaken. Wait times are expected for motorists due to the stop and go nature of the traffic control. Undertaking the work with this methodology will increase costs of the project, increase the duration of the project and pose a higher risk to workers and motorists.

Both options are included in the EIS, due to the works proposed by Dungog Council for construction of the Clarence Town Bridge. Bridge construction is due to commence in mid-2025, which will coincide with the road reconstruction of East Seaham Road. PSC has been liaising with Dungog Council to ensure traffic impacts for both projects are adequately considered in the traffic management plans for the respective projects.

Clearing, grubbing and removal of vegetation and landscaping

Activities prior to vegetation clearing and clearing, grubbing and removal of vegetation would be undertaken in accordance with the Biodiversity Management Guideline (Transport for New South Wales (TfNSW), 2024). The pre-clearing process would be documented within the Construction Environmental Management Plan (CEMP). All works would be supervised by an appropriately skilled and licenced ecologist.

Activities prior to and during vegetation clearing would include:

- ecological pre-clearance survey and establishment of exclusion zones for environmentally sensitive areas and extent of works (or check extent of works fencing erected in early stages of the activity)

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- clearing of weeds and non-woody vegetation and stockpiling of materials
- staged habitat removal including clearing of vegetation except for marked habitat trees and features, leaving remaining habitat trees and features for a minimum of 24 hours, then felling the habitat trees via sectional dismantling and features onsite. Trees would be felled to avoid damage to surrounding vegetated areas and injury to fauna. Felled habitat trees/ limbs would be left for a further 24 hours to allow fauna to vacate.

Landscaping would be completed progressively during works with hydromulch and mulch from the vegetation cleared from onsite.

Stockpiling and material management

Stockpile and laydown areas would be required to temporarily store:

- construction materials, fill material and storage of select material, rock or other material
- spoil resulting from excavation of existing ground and road surfaces which would require stockpiling
- stockpiles of topsoil and mulch created from clearing and chipping of vegetation for later reuse.

The laydown and spoil stockpile areas would be located within the ancillary facilities identified in **Section 1.7**.

Plant and equipment

Indicative equipment for the different construction components is listed below. The final plant and equipment profile would be determined by the construction contractor and may vary to what is listed.

- crane to lift precast pipes, headwalls and culverts
- backhoe
- bulldozer
- chainsaw
- concrete pump
- concrete saw
- concrete truck
- concrete vibrator
- dump trucks
- delivery trucks
- diamond grinder
- front end loader
- generator
- grader
- small, medium and large hydraulic hammer
- Jack hammer
- light vehicles
- profiler
- pneumatic jack hammer
- pneumatic tyned roller
- power generator
- roller
- small hand tools
- steel drumroller

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- tracked excavators
- site trucks
- tub and grinder mulcher
- vacuum trucks
- vibratory roller
- vibroplates
- watercart.

Earthworks and materials

Earthworks would be required along the entire length of the project and would occur in relation to:

- topsoil stripping
- bulk earthworks and establishment of batters
- construction of V drains and batters
- haulage of material to and from excavation works, borrow sites and external sources as required.

Material excavated during project earthworks would be reused in construction where possible.

Table 1-4 Materials list

Material Type	**Import source**	**Amount**
Imported materials		
Type (e.g. Densely Graded Base (DGB), Concrete)	**Import source**	**Amount**
DGB20	Quarry	9,273 T
DGS40	Quarry	16,040 T
Reinforced Concrete Pipe 375 mm diameter	Supplier	48.2 m
Reinforced Concrete Pipe 450 mm diameter	Supplier	12.4 m
Reinforced Concrete Pipe 600 mm diameter	Supplier	92.44 m
Reinforced Concrete Pipe 750 mm diameter	Supplier	40.2 m
Reinforced Concrete Pipe 900 mm diameter	Supplier	96.75 m
Reinforced Concrete Pipe 1200 mm diameter	Supplier	36 m
Reinforced Concrete Pipe 1650 mm diameter	Supplier	45.6 m
Reinforced Concrete Boxed Culvert 1800 mm x 1200 mm	Supplier	36.9 m

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Reinforced Concrete Boxed Culvert 2400 mm x 900 mm	Supplier	23.74 m
Reinforced Concrete Boxed Culvert 600 mm x 300 mm	Supplier	15.3 m
Reinforced Concrete Boxed Culvert 900 mm x 300 mm	Supplier	7.3 m
Reinforced Concrete Boxed Culvert 1200 mm x 300 mm	Supplier	7.3 m
Precast Concrete Headwalls	Supplier	46
Cast Insitu Concrete Headwalls including steel	Supplier	3
Rock scour protection (varying thickness) with geofabric	Quarry and supplier	1,646 m^2
Concrete kerb and gutter	Concrete batch plant	327 m
Concrete dish drain	Concrete batch plant	91 m
Subsoil drainage with geofabric and aggregate backfill	Supplier and quarry	329 m
Spray Seal 14/7	Supplier and quarry	27,634 m^2
Guide posts	Supplier	160
Signage and galvanized posts	Supplier	56
Linemarking	Supplier	9,491 m
Audio Tactile Linemarking	Supplier	3,048 m
Guardrail Safety Barrier and End Terminals	Supplier	643 m
Reinforced concrete footing for guardrail	Concrete batch plant and supplier	57 m
Hydromulching	Supplier	10,809 m^2
Exported materials		
Type (e.g. Excavated Public Road Material (EPRM), General Waste, Green Waste, Concrete)	**Export Destination**	**Amount**
Removal existing concrete drainage lines	Recycling Facility	236 lineal metres
Excess cut removed from site	Council stockpile for reuse within road reserve or GNAPL under MOU agreement	5719 m^3
Mulch	Council stockpile and reuse onsite	Unknown

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Stumps	Waste management facility	Approx 600
Signage	Waste management facility	1

The overall amount of material to be disturbed onsite is 5,917m^3. This disturbance however, would be lineal and staged, over the project delivery period.

Drainage works

Drainage infrastructure that would be installed or modified during the project would include:

- removal of existing twin 750 mm culvert and replacement with new 900 mm RCP at chainage 3190
- removal of existing 525 mm culvert and replacement with new twin 900 mm RCP at chainage 3420
- extension of existing twin 750 mm culvert at chainage 3590 on southern side of the road only
- removal of existing 450 mm culvert and replacement with twin 600 mm RCP at chainage 3640
- removal of existing twin 1500 mm culvert and replacement with triple 1650 mm RCP at chainage 4050
- removal of existing 450 mm culvert and replacement with new 900 mm RCP
- removal of existing and construction of new twin 600 mm RCP at chainage 4825
- removal of existing and construction of new triple 1200 mm RCP at chainage 4920
- removal of existing and construction of new twin 600 mm culvert at chainage 5070
- removal of existing and construction of new twin 900 mm culvert at chainage 5280
- removal of existing and construction of new triple cell 750 mm culvert
- removal of existing and construction of new double cell 2400 mm width x 900 mm high RCBC culvert.

Culvert crossing upgrades have been investigated to achieve a design standard to convey the 5% Annual Exceedance Probability (AEP) local flood event without overtopping with the 1% AEP surface water flow over East Seaham Road also considered to be safe. Appropriate scour protection and energy dissipation measures (such as rock rip rap, geotextile layers) would be provided on both upstream and downstream ends of all structures where increased velocities have the potential to cause scour.

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Roadworks

Roadworks would include:

- construction of pavement and subsurface drainage (where required)
- construction of pavement layers including wearing surface
- construction of roadside open swale drains.

Roadside infrastructure, fencing and signage

Roadside infrastructure installed would include:

- safety barriers in strategic sections of the road to improve road safety and may include wire rope barriers of guard rail
- signs along the length of the road where the works would occur to enforce road rules and regulation, posted speed limit and alert drivers to possible fauna encounters
- fencing including installation of 300 m of fencing
- line marking would be provided in accordance with the design and construction specifications.

Site disestablishment and rehabilitation

Upon completion of works activities would include:

- general site clean up
- removal of temporary environmental controls
- removal of traffic controls and reopening of road.

1.3.7 Utility services

The following existing utilities are located within the operation footprint:

- electricity supply by Ausgrid and Essential Energy
- telecommunications by Telstra

A Transgrid easement is located adjacent to the project area within the national park, but not within the construction or operational footprint of the project, access to the easement, however, is located within the operational footprint and correspondence with Transgrid has resulted in supply of design requirements for access points along East Seaham Road.

No sewer and water services are located along East Seaham Road, with properties managing sewerage through onsite waste management systems and harvesting rainwater for domestic and stock use.

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Telecommunications by Telstra would need to be relocated, adjusted or protected where they may be affected by project construction, particularly in areas where ground disturbance is required. The location of existing utility services and any changes required would be confirmed by the construction contractor during the detailed design in consultation with the relevant utility provider. Utility work during construction would be carried out in consultation with asset owners.

No relocation of power poles operated by Ausgrid and Essential Energy will be required by the works. Notification to the utility providers however, will be provided prior to works commencing.

1.4 Property acquisition and access

The project has been designed and aligned to minimise fragmentation of land and property acquisition where reasonably practicable. Where land acquisition is required for the project, it would be carried out in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*, the Land Acquisition Information Guide (NSW Government 2014b) and the land acquisition reforms announced by the NSW Government in 2016. It is PSC's preferred approach to complete all acquisitions by negotiation without the need for compulsory acquisition.

Only 2 properties would have land acquired (see **Figure 1-5**) including:

- part of 747 East Seaham Road, East Seaham which has land identified for acquisition within Lot 59 DP 1312702 and is 140.2 m^2
- 775 East Seaham Road, East Seaham which has land identified for acquisition within Lot 58 DP 1312702 and is 228.7 m^2.

Property access if road closure occurs would be provided for residents only during the construction phase. Post construction, property access would be reinstated as per original or alternative in agreement with the property owner.

The project would also require adjustments to existing tracks and trails, including access and easement tracks to utility infrastructure and New South Wales National Parks and Wildlife Service (NPWS) lands. Correspondence with relevant utilities and NPWS has ensured access points have been designed in accordance with the stakeholder's requirements.

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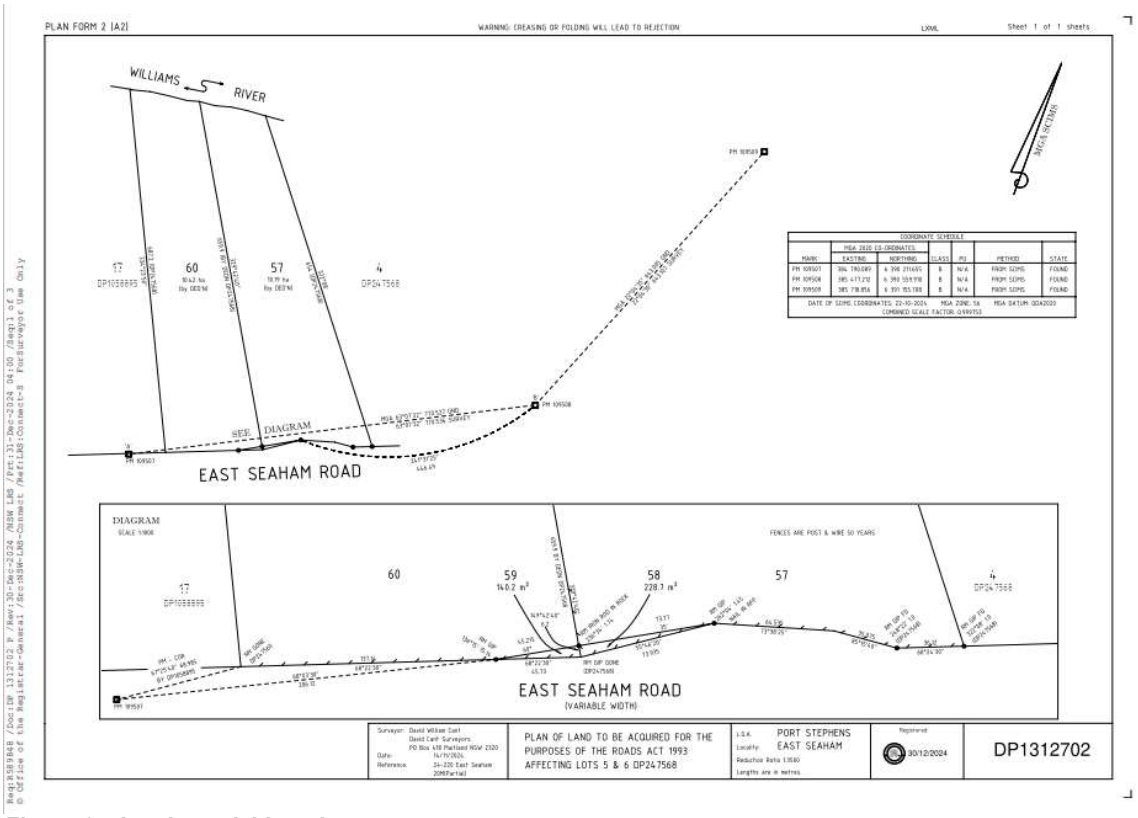

Figure 1-5 Land acquisition plan

1.5 Timing

The project constitutes Stages 5 and 6 of the upgrade of East Seaham Road, East Seaham. Works are expected to commence in June 2025 and continue for a duration of 11 to 13 months, weather dependant.

1.6 Proposed construction hours

Permissible work hours will include standard operating hours only; Monday to Friday 7am to 6pm and Saturday 8am to 1pm with no night works, works on public holidays or Sundays.

1.7 Ancillary facilities

Ancillary facilities would be required to support the construction of the project. They would include material and earthworks stockpiling areas, a main project office and compound area and laydown areas.

The ancillary facilities would generally comprise:

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- temporary site office, amenities and first aid facilities
- parking areas with sufficient space to accommodate the numbers of construction workers expected within the project area
- materials laydown, storage and handling areas, including purpose-built temporary structures as required and appropriately bunded storage for hazardous and non-hazardous substances if required
- secure perimeter fencing of site compound and laydown areas as required.

Temporary ancillary facilities would be located within cleared areas, and the areas rehabilitated once works are complete to minimise soil exposure and the potential for dust generation, erosion and sedimentation, and visual impacts. The location of the temporary ancillary areas is shown in **Figure 1-7**, **Figure 1-8** and **Figure1-9**.

The road corridor where the works are occurring is restricted with vegetation, topography and drainage. The sites for ancillary facilities were selected based on their proximity to the works and potential for environmental impacts.

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Figure 1-6 Location of ancillary facilities adjacent 526 East Seaham Road

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Figure 1-7 Location of ancillary facilities adjacent 735 East Seaham Road

Figure 1-8 Location of ancillary facilities adjacent 651 East Seaham Road

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Ancillary facilities identified in this EIS are nominated in locations that:

- are more than 50 m from a waterway
- are within or adjacent to land where the project is being carried out
- have ready access to the road network
- are on relatively level land
- are separated from nearest residences by at least 140 m
- do not require vegetation clearing beyond that already required for the project
- do not unreasonably affect the land use of adjacent properties
- are above the one in 20 year Average Recurrence Interval (ARI) flood level
- provide sufficient area for the storage of raw materials.

1.8 Project justification and site suitability

East Seaham Road is a local rural road which has a daily vehicle count of 400 vehicles with approximately 9% heavy vehicles. The road is an important linkage between the towns of Dungog and East Seaham.

1.9 Evaluation of alternatives

The project development process included the consideration of possible alternative ways of meeting the project objectives. Alternatives considered include:

- Alternative 1 Do nothing.
- Alternative 2 Gravel resurfacing i.e. maintain existing status quo.
- Alternative 3 Sealing of existing surface.
- Alternative 4 Road reconstruction.

Table 1-5 Evaluation of alternatives

Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Ability to satisfy the proposal objectives.	Objectives relating to improving road safety not achieved.	Objectives relating to improving road safety minimally achieved through improved regraded road surface with no improvement in clear zones distances.	Objectives relating to improving road safety minimally achieved through improved sealed road surface, with no improvement in clear zones distances.	Achievement of objectives achieved through improved sealed road surface and improved drainage and improvement in clear zones distances.
Relative financial costs.	No short term cost, however, possible high maintenance costs for rectification works or road not being in a serviceable condition	Ongoing maintenance cost. Known cost. High maintenance costs.	Moderate short term cost for resealing, higher long term cost due to likely damage to road surface due to no drainage being installed. Moderate end of life replacement costs.	Higher cost for construction, however, likely lower cost over longer term due to reduced maintenance costs. Higher end of life replacement costs.

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Relative other costs such as environmental and safety.	Unsafe conditions degrading over time. Heritage and biodiversity values unchanged. Community expectations not met and does not cater for possible future growth/ road usage.	Unsafe conditions being maintained over time. Heritage and biodiversity values relatively unchanged to current status quo. Community expectations not met and does not cater for possible future growth/ road usage.	Road conditions improved, however, no improvement in clear zones distances resulting in compromised road safety standards. Community expectations not met and does not cater for possible future growth/ road usage.	Higher environmental costs with a significant impact on local heritage and threatened biodiversity. Improvement in road safety through improvement in road surface conditions and improved clear zone distances. Community expectations met and caters for possible future growth/ road usage.
Acceptability of environmental impacts, risks, uncertainties and/ or any identified environmental objectives.	High acceptability short term, due to no disturbance and retention of biodiversity and heritage values, however, long term environmental impacts from damage from vehicles utilising the road e.g. wash outs and future rectification works likely to result in higher environmental impacts.	Existing dust smothering surrounding vegetation would continue and erosion and heavy metals and chemical as well as erosion and sedimentation from road surface draining into local waterways with potential for environmental harm.	Improvement in dust emissions. Sealed surface may result in minor volume, frequency and duration of flows from road surface and within V drains.	Low acceptability of significant impacts on heritage and biodiversity values. Biodiversity impacts avoided, minimised and offset. Reduction in dust emissions. Increase in speed limit may increase risk to fauna, however, increased visibility on road shoulder and clear zone may counteract potential impacts. Sealed surface may result in minor volume, frequency and duration of flows from road surface and within V drains.
Reliability of proposed environmental impact mitigation measures.	N/A	Environmental impacts during operation and maintenance to be controlled through physical and process mitigation measures in accordance with approved Environmental Assessment for the activities.	Environmental impacts during operation and maintenance to be controlled through physical and process mitigation measures in accordance with approved Environmental Assessment for the activities.	Environmental impacts during operation and maintenance to be controlled through physical and process mitigation measures in accordance with approved Environmental Assessment for the activities.
Efficient use of land, raw materials, energy and resources.	Less material, energy and resource usage in short term, and minimal expenditure of natural resources. Likely higher longer term material, energy and resource usage due to likely need for road rehabilitation works.	Likely higher longer term material, energy and resource usage due to need for continual regrading.	Increased material, energy and natural resource usage in short term. Immediately following works, likely reduced material, energy and natural resource usage with continual regrading not required, however likely higher longer term material, energy and resource usage due to likely need	Increased material, energy and natural resource usage in short term. Immediately following works, likely reduced material, energy and natural resource usage with continual regrading not required. Period of usage reductions longer. Increased material, energy and natural

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			for road rehabilitation works.	resource usage, however, required for asset renewal.

Alternative 4 was selected as the preferred option to progress further due to the improvements in road safety and support for possible future increases in traffic generation and ability to meet community expectation standards for service provision and road safety.

During the design process for full road rehabilitation, design considerations included:

- partial minor realignment to avoid impact on the threatened flora species *Pterostylis chaetophora*
- partial minor realignment to avoid impacts to biodiversity, improved road sight lines and reduced impacts on local heritage item (through removal of vegetation)
- Road design in accordance with Austroads standards with the following minor amendments:
    - some crest curves along the alignment do not meet Austroad standards. Appropriate signage has been proposed where this occurs. If crest curves were compliant, further cut would be required and design grades for driveways would not allow egress. Potential additional clearing would also be required, land acquisition and boundary adjustments would be required, which would result in additional impacts due to increase batter widths, and alternatively if we were to avoid these, retaining walls would be required which would have a considerable impact on project costs and duration
    - hazards exist within the clear zone as defined by Austroads standards in the final design including trees and culverts. The clear zone will be substantially improved compared to existing due to tree removal. In order to meet Austroads standards clear zone requirements further substantial tree removal would be required which would produce an unacceptable impact on biodiversity and further significant impact on local heritage. Clearing is set 3m from edge line of travel lane or toe of batter whichever is greater, Austroad standard is approximately 7 m. Travel lane widths and shoulder widths and shoulder are compliant with Austroad standards which is an approach that is consistent with previous stages
    - safety barrier has been introduced on curves and steep batters where required to reduce the extent of clearing and improve safety in these localities.

Overall, these design considerations helped balance the project impacts including impacts on land use, endangered ecological communities and threatened flora and fauna, heritage, utilities, adjacent landholders, community and road users. This

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refinement of the design and consideration of impacts through an assessment and review process helped ensure that the project best addresses the project objectives, and meets the key performance criteria of function, environmental and socio-economic considerations, and provides value for money.

1.10 Historical works on East Seaham Road

1.10.1 Stages 1 to 4

Historically, works have been completed along East Seaham Road over the past 10 years in 4 stages (see **Figure 1-9** and **Figure1-10**). The road was on average 5 to 6 m wide and will be increased to a width through all stages of approximately 8 m and sealed. Works also involved construction of batters and V drains and clearing of vegetation to enable the roadworks and create a safer road environment.

- Stage 1 was constructed in September 2015 between the chainage 0 to 1200. The works took approximately 6 months to complete
- Stage 2 was constructed in October 2015 between the chainage 1200 to 1450
- Stages 3 & 4 works involved the widening and sealing of approximately 2 km of a gravel road and the upgrading of existing drainage culverts on East Seaham Road between chainages 1450 to 2500 and chainages 2500 to 3180 respectively.

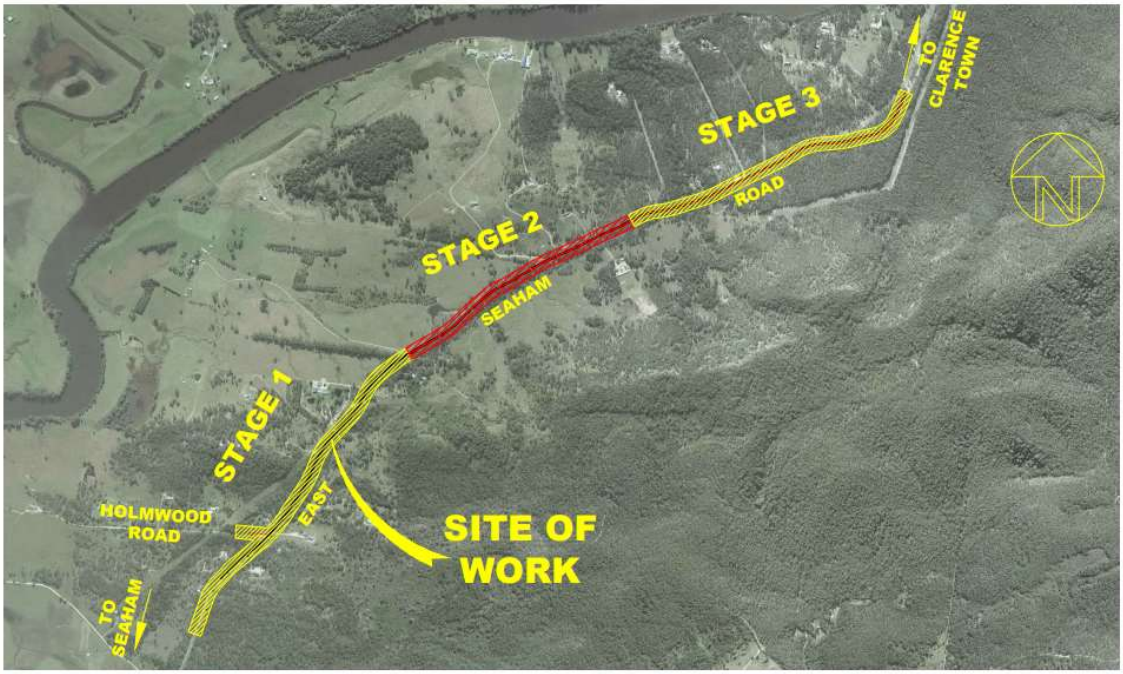

Figure 1-9 Location of Stage 1, 2 and 3 works on East Seaham Road

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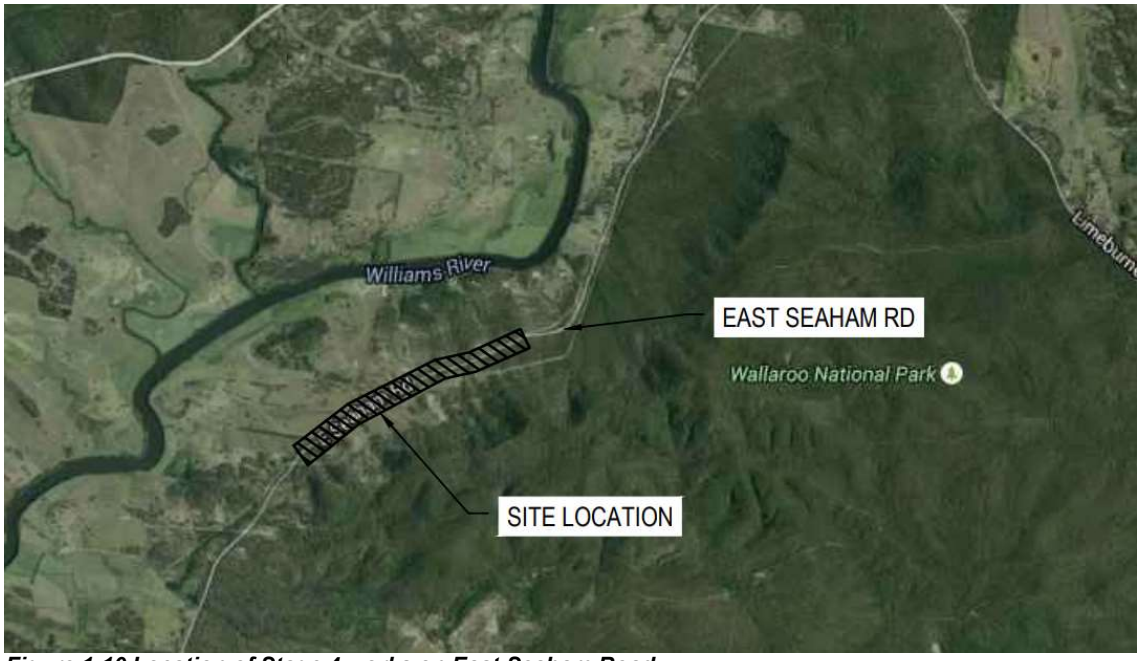

Figure 1-10 Location of Stage 4 works on East Seaham Road

Due to the period between the activities, and distances between the activities, localised impacts such as dust, odours, noise, vibration, water pollution, erosion and sedimentation, community disturbance, public access, traffic and aesthetics are likely to be minimal, due to the impacts being predominately contained within the construction period.

The works removed and impacted threatened biodiversity with the first 4 stages; however cumulatively was determined not to have a significant impact on threatened biodiversity. The importance of the heritage values of East Seaham Road were considered in the first 4 stages with no significant impact on local heritage as a result of the works. The activity has cumulatively included minor hydrology changes through sealing of the road and changing the surface from pervious to impervious, creating V drains and upgrading stormwater culverts.

Other cumulative impacts include:

- emissions: due to short duration and minor nature of the cumulative activities, and provided the mitigation measures are implemented, impacts are likely to be minor
- land use: the activities will have a long-term transformative impact by improving accessibility and safety of the road environment
- waste: all waste from previous activity was disposed of at verified waste disposal facilities. Due to the short duration and minor nature of the cumulative works and provided the mitigation measures are implemented, the pollution and

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safety risks will be minimised and any affects are likely to be minor. Once the activity is complete and due to the nature of use of the site, minimal waste generation is expected

- use of hazardous and dangerous goods and other chemicals: due to the short duration and minor nature of the cumulative activities and provided the mitigation measures are implemented to minimise pollution and safety risks, any impacts are likely to be minor
- natural resource use: due to short duration and minor nature of the cumulative works and provided the mitigation measures are implemented, impacts are likely to be minor.

1.10.2 Installation of guardrail

Minor works over a two day period in May 2024 included the installation of 240 m of guardrail and 4 signs along an existing section of sealed road at East Seaham Road. The guardrail will be aligned along the existing edge of bitumen. The guardrail was installed due to a history of high speed accidents resulting in serious harm primarily due to the proximity of the trees to the road and lack of adequate shoulder width. These works were funded through the Federal Black Spot Program. An environmental assessment was completed for the works, see **Attachment 3**.

1.10.3 Stockpiling of drainage materials

Due to lead times with delivery of drainage materials, stockpiling was required onsite prior to works commencing. Delivery of the materials occurred in October 2023. Twenty six concrete pipes ranging in size from 600 mm x 2.4 m to 450 mm x 2.4 m were stored in the location shown below. The cumulative impacts would be minor but have been considered as part of this assessment.

Storage of the drainage materials was positioned to be in a cleared area. Exclusion fencing was installed to delineate the storage area and prevent harm to surrounding vegetation from storage of material in inappropriate locations or accidental harm from vehicle movements.

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Figure 1-11 Location of stockpiled drainage material adjacent 735 East Seaham Road

1.11 Relationship to other works

There are concurrent works occurring within the locality that have the potential to result in cumulative traffic impacts. **Table 1-6** summarises the works and potential overlapping project delivery timeframes. The location of the concurrent works are illustrated in **Figure 1-12**.

Table 1-6 Concurrent capital works within the locality

Project	Timing and duration	Traffic management arrangement	Overlap with the project
Buckets Way, Twelve Mile	Current works due for completion at the end of June	Single lane managed by traffic lights during construction hours only	1 month only for June 2025
4 road sections along Clarence Town Road in the suburbs of Seaham and Glen Oak	July to December 2025	Single lane managed by traffic lights during construction hours only	6 month period from July to December 2025
Italia Road, East Seaham	July to October 2025	Single lane managed by traffic lights during	4 month period from July to October 2025

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		construction hours only	
New Clarence Town bridge, Clarence Town (within Dungog Shire Council)	Mid 2025 with expected 18 month timeframe	New bridge construction N/A	Overlap of entire East Seaham Road construction timeframe of June 2025 for a period of 11 to 13 months

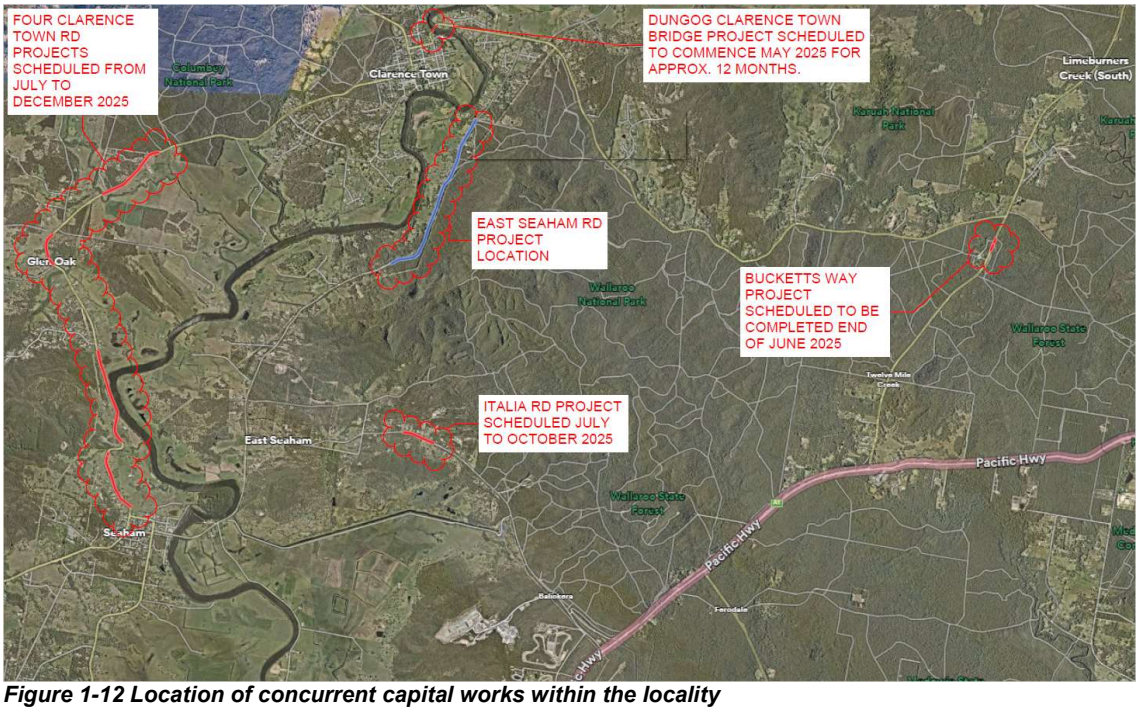

Figure 1-12 Location of concurrent capital works within the locality

Construction road traffic would be generated by vehicles associated with the construction of the project, including heavy vehicles transporting spoil and light vehicle movements generated by construction workers. Options considered for traffic management include:

- full road closure
- one lane closure allowing for one lane, two way traffic.

Full road closure would include no through traffic and resident access only. East Seaham Road would be closed at the PSC and Dungog LGA boundary to no through traffic and only allow resident and construction vehicle construction access from the south. This option is expected to provide efficiencies in time and cost in construction as well as providing a safer environment for both workers and road users. There would be anticipated cost savings and potentially time (weeks) saved from the construction duration.

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The option for one lane closure would permit one lane, two-way traffic to pass through the construction site may be implemented during construction hours only or permanently throughout the project depending on the nature of the work being undertaken. Wait times would be expected for motorists due to the stop and go nature of the traffic control. The option for one lane closure with one lane, two-way traffic has the potential to increase costs of the project due to increased traffic controls costs and to increase the duration of the project. This option also poses a higher risk to the safety of personnel working onsite and motorists.

Both options are included in the EIS, due to the works by Dungog Council for construction of the new Clarence Town Bridge. The new bridge will be built adjacent to the heritage-listed Brig O'Johnston Bridge on Limeburners Creek Road. Bridge construction is due to commence in mid-2025, which will coincide with the works on East Seaham Road. Due to load limits on the Brig O-Johnston Bridge heavy vehicles over 15 tonnes will likely be diverted through East Seaham Road when requiring access to and from the northern side of the new Clarence Town Bridge for the period of the 18 month construction period estimated to commence mid-2025. PSC has been liaising with Dungog Council to ensure traffic impacts for both projects are adequately considered in the traffic management plans for the respective projects.

These additional works will result in increased truck movements along East Seaham Road. Once the details of the extent of increased vehicle movements is known, this would be communicated to the community. PSC has assumed all vehicle movements associated with the new bridge construction by Dungog Council would be during standard construction hours. Dungog Council would be responsible for ensuring any increased impacts on sensitive receivers as a result of the new bridge works would be communicated to those impacted.

Historical road upgrades within the locality have involved minor road widening and drainage works. Vegetation removal has been completed where necessary to facilitate road construction and achieve road safety standards. These activities due to distance between the works, varying delivery times and impacts have not resulted in a significant impact on threatened biodiversity to date. Drainage works have included minor hydrology changes as a result of the construction of V drains and upgrading of stormwater culverts. The majority of these roadways are affecting different smaller sub-catchments of tributaries to the Williams River. In the scale of the catchment and size of the Williams River, the road works would comprise a small amount of change unlikely to cause significant hydrological change or impacts. Where works may have resulted in minor permanent increases in volume, frequency or duration of flows, works were undertaken to provide geomorphic protection.

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Other cumulative impacts would include:

- emissions: due to short duration and minor nature of the cumulative activities and provided the mitigation measures are implemented, impacts are likely to be minor
- land use: the activities would have a long-term transformative impact by improving accessibility and safety of the road environment
- waste: all waste is to be disposed of at verified waste disposal facilities. Due to the short duration and minor nature of the cumulative works, and provided the mitigation measures are implemented, the pollution and safety risks would be minimised and any affects are likely to be minor. Once the activity is complete and due to the nature of use of the site, minimal waste generation is expected
- use of hazardous and dangerous goods and other chemicals: Due to the short duration and minor nature of the cumulative activities and provided the mitigation measures are implemented to minimise pollution and safety risks, any impacts are likely to be minor
- natural resource use: Due to short duration and minor nature of the cumulative works, and provided the mitigation measures are implemented, impacts are likely to be minor.