

TRAFFIC IMPACT ASSESSMENT

**Saxby Basketball Stadium
Proposed Court Expansion**

Prepared for:

Taree Basketball Association
Corner Bligh Street and Recreation Drive, Taree North

SLR Ref: 631.30350-R01
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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Taree Basketball Association (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
631.30350-R01-v2.0	27 April 2022	Matthew Creighton Kris Stone	Kris Stone	Kris Stone
631.30350-R01-v1.0	26 April 2022	Matthew Creighton Kris Stone	Kris Stone	Kris Stone

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1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Taree Basketball Association (TBA) to prepare a Traffic Assessment in association with the proposed refurbishment and expansion of the existing Taree Basketball and associated facilities, located at Lot 1 DP798539, Taree NSW 2430.

This report assesses the traffic and transport matters relevant to the development proposal, inclusive of:

- Vehicle site access performance and design.
- Car parking provision.
- Traffic impacts on the external road network.
- On-site circulation, movement and parking design.
- On-site servicing.

This assessment should be read in conjunction with the supporting information and plans of development prepared by Peddle Thorp that are included at **Appendix A**.

2 Assessment Scope and Background

2.1 Assessment Scope

The scope of this assessment has been determined based on feedback from the Hunter & Central Coast Regional Planning Panel briefing. This assessment provides additional information on the proposal, in relation to traffic and parking considerations.

2.2 Road Network Planning and Development Approvals

The following materials were provided by Council officers:

- 2007 Pitt Street Waterfront Precinct Rezoning – Phase 1 Transport Review.
- 2010 'Figtrees on the Manning' Voluntary Planning Agreement.
- 2020 'Figtrees on Manning' Stage 1 Functional Intersection Concept Plans (Hopkins).

From this information, it is understood that the *Figtrees on the Manning* development area illustrated in **Figure 1** was approved by Council in/around 2010.

Figure 1 Figtrees on the Manning Major Development Approval Site



Source: (QTraffic, 2007)

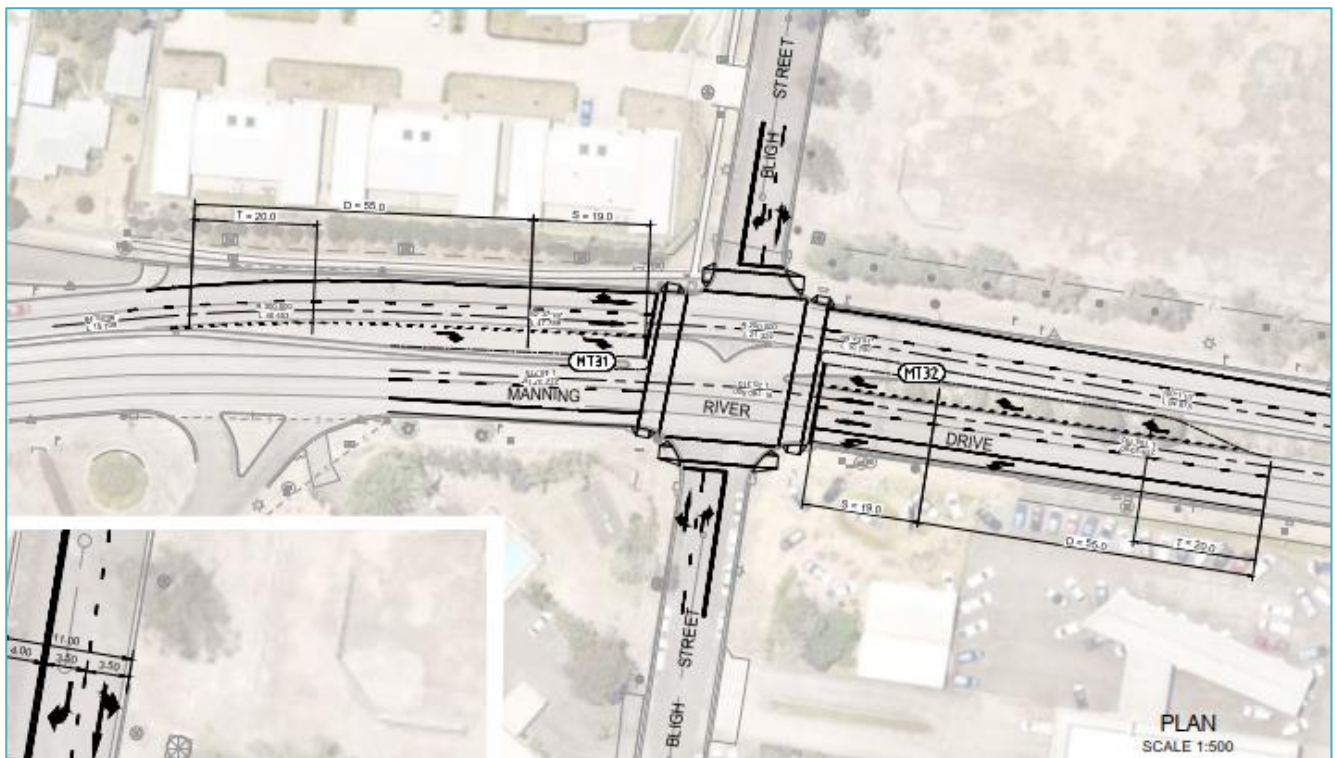
Schedule 4 of the associated Voluntary Planning Agreement (VPA) designated the following infrastructure upgrades necessary to accommodate the development:

- New road linking Bligh Street and Pitt Street.
- Upgrading of Manning River Drive/Bligh Street intersection (amongst others illustrated in Section 10 of the VPA).

The VPA does not appear to specify the form of the intersection upgrade; however, the 2020 functional layout plans (Hopkins) illustrate a signalised intersection formation (**Figure 2**). It is understood that this upgraded arrangement will be delivered in the immediate/short-term by the Figtrees development proponent.

The **Figure 2** upgrade will enable right turn movements to/from Bligh Street (north) where they are currently restricted by a raised median and signage. The signalisation will also significantly improve pedestrian connectivity and safety across Manning Drive.

Figure 2 Manning River Drive/Bligh Street – Signalised Intersection Upgrade



2.3 Other Relevant Planning

The Greater Taree S94 Contributions Plan includes a \$750,000 item to construct additional formalised car parking at the Taree recreation area on the land described as Lot 2/DP597577. The S94 Plan designates the upgrade as item GT21 and is planned to be delivered in the period 2026-31.

Figure 3 2/DP597577 S94 Planned Parking Expansion Site



SLR has not sighted layout plans for the planned car park, but the site dimensions have the potential to accommodate in the order of 400 parking spaces. This planned future car parking is not evaluated herein and should therefore be considered as additional supply over-and-above the results presented herein.

3 Existing Conditions

3.1 Site Location

The subject site is located on the northern side of Recreation Drive and forms a relatively small part of the broader Taree Recreational Area that is generally bound by Manning River Road and the Dawson River. **Figures 4 and 5** illustrate the subject basketball redevelopment site in the context of the broader sports precinct and the local surrounds respectively.

Figure 4 Site Location – Regional Context



Source: Six Maps

Figure 5 Site Location – Local Context



Source: Six Maps

3.2 Site Facilities

The subject site currently includes two indoor basketball courts with ancillary facilities. The site is located on the northern side of Recreation Drive and forms a relatively small part of the broader Taree Recreational Area that comprises the following sporting facilities:

- Two indoor basketball courts (subject site).
- Two outdoor basketball/netball courts.
- Eight sealed netball courts (another four grassed courts not used anymore)
- Three hockey fields.
- One recreational cycleway.
- Four cricket fields (only two can accommodate concurrent games).
- One soccer field.
- Four football/general purpose fields
- Manning Theatre (505 seats).

3.3 Site Use

The **Table 1** usage of the existing Taree recreation area facilities has been developed based on information sourced from Council officers and online sporting resources.

Table 1 Key Surrounding Roads

Facility		Months of Year	Days of Week	Time of Day
Basketball courts	Basketball	Oct-Apr	All weekdays (school sport) Tues, Thurs, Friday	9:00AM-3:00PM 4:00AM-9:30PM
	Indoor soccer (futsal)	-	Wed	4:00-9:30PM
Netball		Jan-Sep	Monday – competition Saturday	4:00-9:30PM -
Hockey		Mar-Sep	Mon, Tues, Wed – training Friday – junior competition Saturday - competition	5:00-9:30PM 5:00-6:30PM -
Cricket		Dec-Mar	Saturday	-
Soccer		Oct-Feb	Saturday	-

Currently, there are approximately up to five ‘major’ events per year for basketball and indoor soccer. It is understood that consultation occurs with other codes, as being a regional area there is significant crossover with players and organisers seek to ensure no competing events as this would impact the player participation.

3.4 Surrounding Road Network

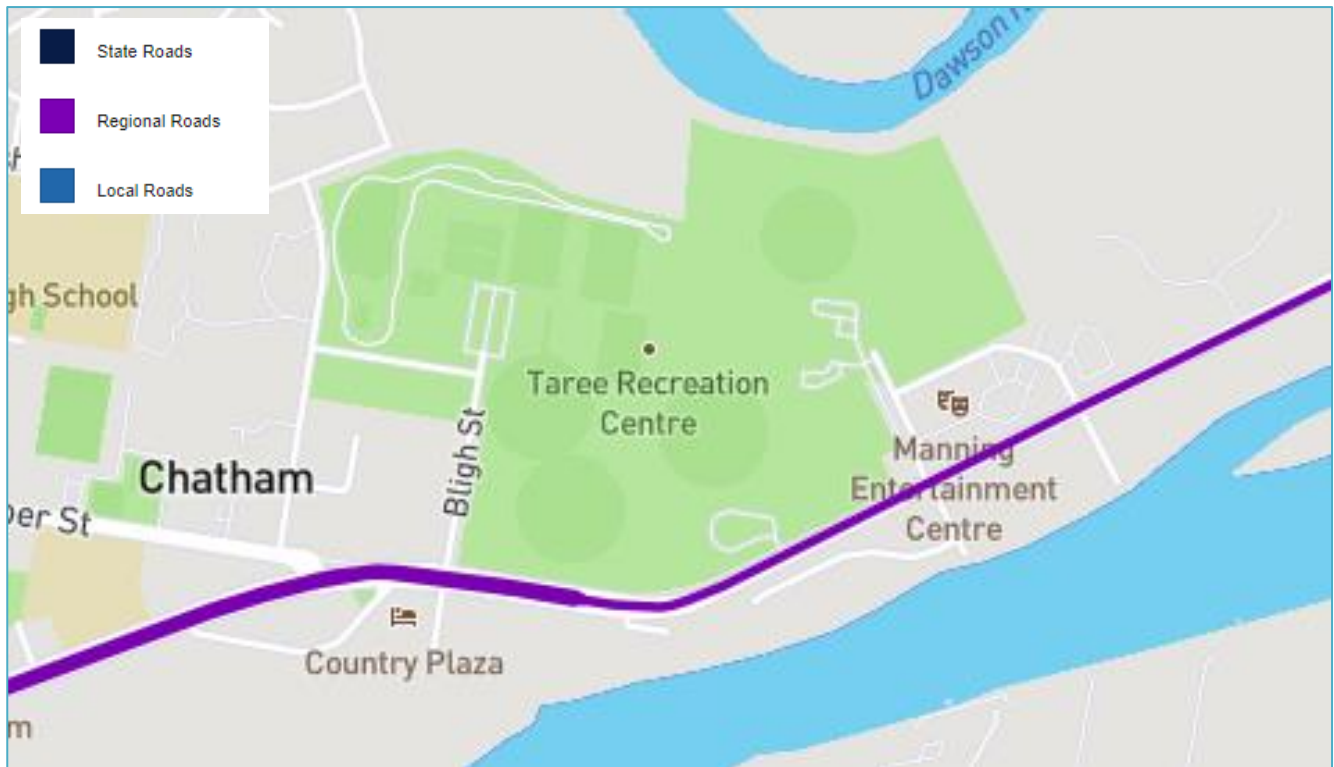
Details of the fronting roads and streets proximate to the subject site are summarised in **Table 2** and **Figure 6**.

Table 2 Key Surrounding Roads

Road Name	Classification	Existing Form	Posted Speed Limit *
Manning River Drive	Regional Road	Varies but generally multi-lane median divided	60km/h
Bligh Street	Local Street	Two-way, undivided, ~11m pavement	Not posted
Recreation Drive	Local Street	Two-way, undivided, ~9-12m pavement	Not posted
Gipps Street	Local Street	Two-way, undivided, ~11m pavement	Not posted

Based on available StreetView imagery

Figure 6 Fronting Road Classification



Source: TfNSW <https://roads-waterways.transport.nsw.gov.au/classification/map/cartomap>

3.5 Site Access

The broader Taree Recreational Area has multiple vehicular access routes; however, the subject site is best accessed via Bligh Street and Recreation Drive. The car park adjacent to the existing basketball facilities is accessed at the intersection of these two roads. It is possible to travel in any direction via the higher-order road network via either of these routes.

Based on a desktop review, sight distance to/from the existing access intersection appears reasonable for the posted speed limit on the fronting roads.

3.6 Car Parking

There are a number of existing off-street car parking areas that are sealed and available for use by patrons of the subject site and the broader sporting area as illustrated in **Figure 7**. The combined parking supply of these off-street areas is in the order of 522 spaces.

Based on desktop observations of Nearmap imagery, there are an additional 50+ overflow parking spaces that can be realised throughout the site.

Figure 7 Existing Off-Street Car Parking



An additional 200+ parking spaces are also available if consideration is made for the on-street parking along Keith Coleman Drive, Bligh Street, Recreation Drive, Centenarians Way and Gipps Street (north of Recreation Drive). Observations made by aerial imagery indicate that some of this parking is already used during larger events as patrons heavily prefer nearby parking opposed to formal parking that is located further away.

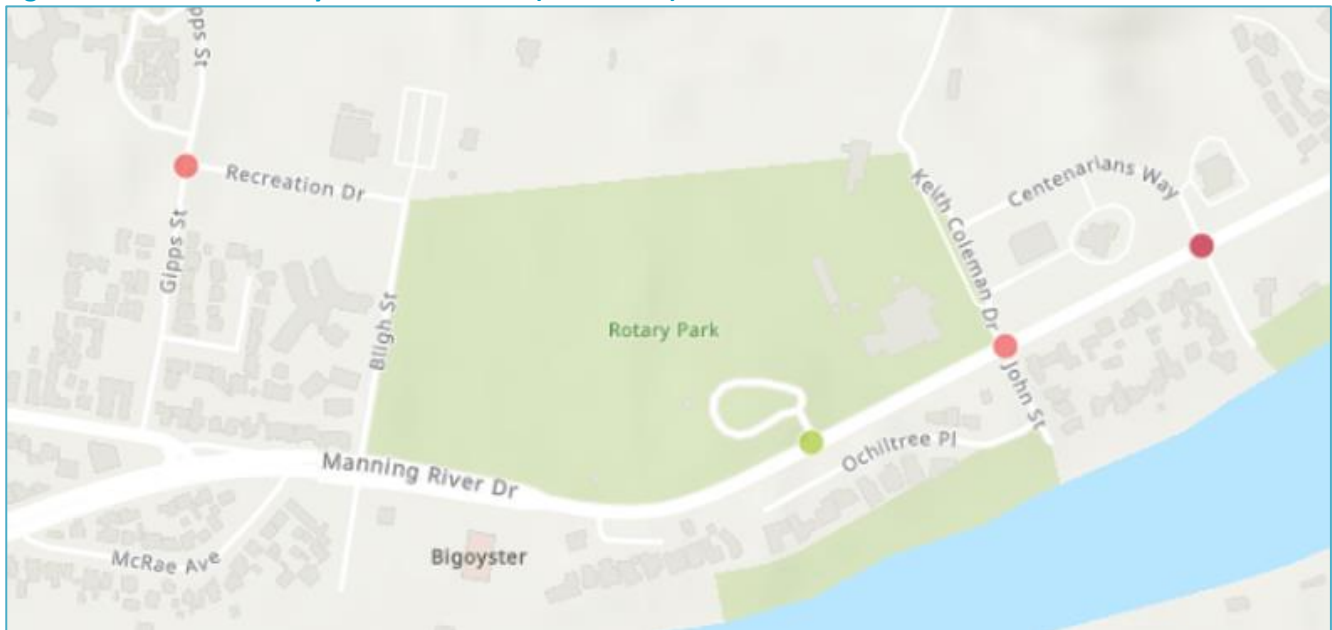
Figure 8 Existing Off-Street Car Parking



3.7 Road Crash Safety Assessment

A review of the historic crash record reported for the roads fronting the broader sport precinct was completed to understand any existing safety issues. Crash data was sourced from the online TfNSW information portal for the period 2016-2020 and is summarised in Figure 5 and Table 2.

Figure 9 Crash Summary Relevant to Site (2016-2020)



Source: TfNSW <https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats>

Table 3 Crash Summary Relevant to Site (2016-2020)

Location	Year	Crash ID	Injury Severity	RUM Description	Crash Time
Manning River Dr/ Rotary Park Access	2016	1096096	Serious Injury	Rear-end	Daylight
Manning River Dr/ Keith Coleman Dr/ John St	2017	1131113	Non casualty (tow away)	Rear-end	Daylight
Recreation Dr/ Gipps St	2019	1216160	Non casualty (tow away)	Off-end of road	Dawn
Manning River Dr/ Centenarians Wy/ Phillip St	2016	1109178	Non casualty (tow away)	Right and Through	Daylight
	2017	1132413	Moderate injury	Right and Through	Daylight
	2018	1175775	Minor/ other injury	Rear-end	Daylight
	2020	1241174	Moderate injury	Right and Through	Dusk

Source: TfNSW <https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats>

The crash information does suggest that there is a recurring crash occurrence at the Manning River Drive/Centenarians Way/Phillip Street intersection. Three of the four incidents reported in the five year period are summarised as the same crash type. Whilst there is not enough information presented online to confirm, it is expected that all of these involve a vehicle turning right into Keith Coleman Drive.

4 Proposed Development

4.1 Development Expansion and Refurbishment

The development proposal includes the following components:

- Refurbishment of existing basketball court building.
- Construction of three new indoor basketball courts via an expansion of the existing structure.
- Construction of new ancillary components including seating, change rooms, storage rooms, first aid rooms, ancillary food and drink, toilets, reception and foyer, and office space.

4.2 Background

Funding from the Bushfire Local Economic Recovery Fund has been granted to TBA for the design and expansion of the existing Taree Basketball Stadium (Saxby's Stadium). The project will provide a multi-purpose sports centre to enable the community and broader Mid North Coast to access state of the art sporting facilities.

4.3 Purpose

The purpose of the proposed development is to update the aging building and improve facilities for visitors, athletes, and staff. The expansion aims to enable regional events to take place in a more efficient and improved manner as these are currently limited by the low number of courts. Whilst the facility is proposed to be expanded, the day-to-day use and patronage of the site, which consists of local games and training, is not forecast to be altered in any meaningful way by the proposed development.

4.4 Vehicular Site Access

The subject site is currently accessed from the corner of Bligh Street and Recreation Drive and is proposed to be retained. The existing access provides direct access to the car parking area shared between the sports facilities located in proximity of the development site.

4.5 Car Parking

No new major car parking areas are proposed as part of the development. Only minor modifications to the existing arrangements for Persons with a Disability (PWD) directly in front of the building entrance are indicated on the plans of development.

The modifications will update the current 3.2m wide PWD design which has been superseded by a new Australian Standards AS2890 specification which relies on 2.4m parking and adjacent shared spaces. The modifications will actually increase the parking supply by one space.

5 Car Parking Considerations

There are three methods that can be used to evaluate the car parking requirement or demand for the subject development and the broader Taree Recreational Area:

1. Council DCP minimum statutory requirement.
2. Parking demand observations.
3. First principles traffic engineering approach.

Each of these approaches have limitations given the nature and scale of the broader facilities and how each of the component facilities are used. The cumulative consideration of all three approach does not provide a distinct parking requirement/demand, but the range of solutions is useful in establishing the appropriateness of the site supply and the distribution of risks that may remain.

5.1 Statutory Requirement

5.1.1 Existing Pre-Development Requirement

The existing, pre-development minimum Council DCP parking requirement applicable to the broader Taree Recreation Area is summarised in **Table 4**.

Table 4 Statutory DCP Parking Requirement – Broader Taree Sports Area

Facility	Yield	Minimum DCP Parking Requirement Rate	Minimum DCP Parking Requirement
Basketball courts	2 courts	15 spaces per court	30
Netball	10 courts	15 spaces per court	150
Hockey	3 fields	15 spaces per field	45
Cricket	2 fields*	15 spaces per field	30
Soccer/football	5 fields	15 spaces per field	75
Swimming Pool	8 lanes	3 spaces per lane	24
Entertainment Centre	505 seats	1 space per 5 seats	101
Total			<u>455 spaces</u>

* Based on concurrent use

Irrespective of the limitations of the DCP approach, the existing on-site supply is compliant and there is a surplus of approximately 67 parking spaces. As noted in **Table 1**, concurrent use is not reasonably or feasibly anticipated.

5.1.2 Post Development Requirement

Based on the proposed expansion of three basketball courts, the **Table 4** DCP calculation would increase by 45 spaces to 500 parking spaces. The existing supply would therefore still provide a parking surplus.

5.2 Demand Observations

5.2.1 Existing Pre-Development Requirement

Nearmap aerial imagery was reviewed as part of a desktop study of the recent and historic demands occurring throughout the broader Taree Recreational Area. During the period 2012-2022, there are 11 Nearmap observations as summarised in **Table 5** and **Appendix B**.

Table 5 Nearmap Parking Demand Observations

Observation Date and Time	Car Parking Demand (On and Off-street)
Friday 9/4/21 ~11:11AM	42 spaces
Sunday 24/1/21 ~11:47AM ⁽¹⁾	~275 spaces
Wednesday 29/4/20 ~9:44AM	7 spaces
Wednesday 27/11/19 ~1:00PM	45 spaces
Sunday 21/7/19 ~12:07PM	~81 spaces
Monday 30/7/18 ~10:52AM	~77 spaces
Tuesday 8/8/17 ~11:48AM	~49 spaces
Tuesday 6/9/16 9:08AM	~67 spaces
Friday 19/8/16 ~12:17PM	~28 spaces
Wednesday 5/8/15 ~2:04PM	~27 spaces
Saturday 24/3/12 ~3:00PM ⁽²⁾	~259 spaces

⁽¹⁾ Vast majority of observed demand appears related to a major event (carnival?) at the aquatic centre. Very little car parking elsewhere throughout the site, i.e. near the basketball or netball courts.

⁽²⁾ Vast majority of observed demand appears related to concurrent netball, basketball, hockey and cricket matches. Very little car parking elsewhere throughout the site, i.e. near the pool or soccer field.

It should be noted that the 11 Nearmap observations are singular 'snapshots' and are not confirmation of peak demand. The two highest demands were noted during the weekend of which there were only three observations made during the ten year period.

The following can be concluded from this limited dataset:

- Facility usage and associated parking demands are relatively low for the majority of the time and highest on weekends.
- Patron choice of parking location is highly specific to their destination and there are numerous observations of motorists parking on grass or road verge instead of a formalised car park that may require a longer walking trip to their destination.

Based on the limited dataset, the existing car parking supply is sufficient to accommodate existing demands.

5.2.2 Post Development Requirement

Based on the limited dataset, the existing supply is likely sufficient to accommodate the increase forecast in relation to the proposed three court expansion.

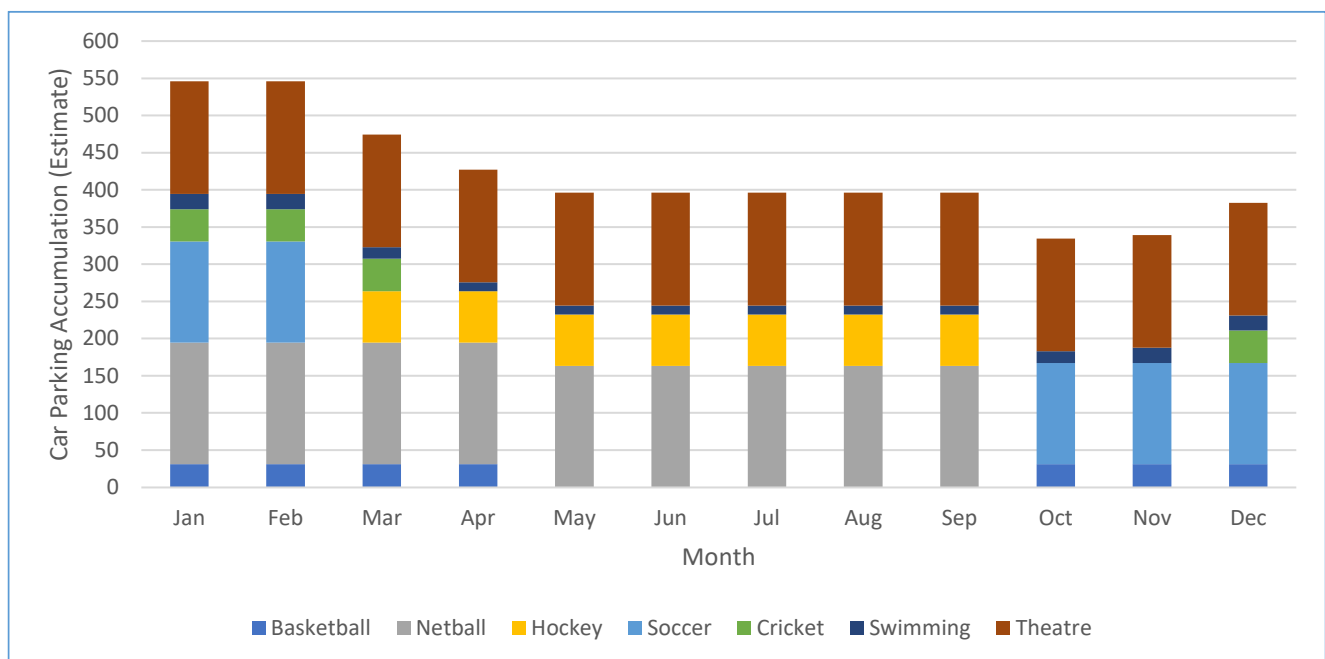
5.3 First Principals Approach

Finally, a first-principles approach was derived to forecast a ‘typical worst-case’ demand for car parking. A selection of some of the input assumptions developed by SLR are summarised as follows:

- 100% of players and officials travel via private and park.
- Player and official numbers were estimated based on each sport with provision for bench/reserves.
- 1.25 players per vehicle on average.
- 1 official per vehicle on average.
- 90% occupancy of the Manning Theatre.
- Various seasonal and ‘cumulative game and theatre’ factors, i.e. 85% cumulative probability of all January sports occurring at the same time.

The peak pre-development parking demand estimate is illustrated at **Figure 10**.

Figure 10 First Principles Parking Demand Estimate



It is noted that this first principles approaches has not been validated against actual travel behaviours for the site; however, the underlying process and assumptions is consistent with that observed at other similar recreational precincts. Some of the assumptions like those made for the Manning Theatre are considered very conservative given the Theatre’s website indicates that the vast majority of events are scheduled in the evenings.

Additionally, the assumed scenarios do not account for major events or carnivals; however, it is understood that a specific event management plan would be necessary for larger occasions.

The **Figure 10** findings indicate that the site parking would be fully used and there would be reliance on on-street and overflow parking. This is consistent with observations made 24/3/12 and 24/1/21. The incremental 47 space demand estimated using the first-principles approach for the three new courts could be accommodated via this on-street and overflow parking.

6 Operational Assessment

An operational analysis of the potential impact on the surrounding road network is not considered to be warranted given the relatively minor scale of the proposed three new courts in the context of the existing situation. Irrespective, some quantitative consideration of the traffic generation increase has been made herein for completeness.

6.1 Incremental Traffic Generation

Based on the car parking results presented earlier herein, the incremental traffic generation that could be attributed to the three proposed courts is estimated as being in the order of 45-90vph. This level of traffic generation is expected to only occur when the facility is in use and movements will be significantly lower throughout the remainder of the week. Importantly, any incremental traffic movements should be consistent with the current profile of traffic.

6.2 Network Upgrades

As noted in **Section 2.2**, it is understood that the Manning Drive/Bligh Street intersection will soon be upgraded to improve operational capacity and connectivity. The previously conditioned upgrade will permit right turning movements where they are currently restricted, and will also improve connectivity and safety for pedestrian movements to/from the recreation area.

Based on the analysis results presented in the *Pitt Street Waterfront Precinct Rezoning – Phase 1 Transport Review (QTraffic, 2007)*, the subject intersection was forecast to operate satisfactorily without capacity upgrades. Accordingly, the signalisation should further improve operations, both for the pre and post-development recreational area.

Importantly, the signalisation should bolster Bligh Street as the primary vehicular access to the main parking areas which in turn should limit or reduce traffic travelling via other, lower order residential streets.

6.3 Existing Network

The majority of existing and proposed incremental traffic movements associated with the basketball component of development are assumed to travel via Bligh Street. This connection has been constructed with an approximate 11m road pavement and vehicular access is consolidated to the aged care developments on the western side.

Based on the existing built form and function of Bligh Street, a daily traffic threshold in the order of 3-10,000vpd would be reasonable and there is sufficient capacity to accommodate the forecast minor increase in traffic.

7 Servicing Arrangements

The existing servicing arrangements will be retained and the additional three new courts do not necessitate new or substantially different servicing arrangements.

8 Design Considerations

A detailed review of the existing car parking design and its consistency with relevant standards including AS2890 was not conducted as part of this assessment; however, a desktop review using Nearmap imagery does indicate that the arrangements are reasonable and fit-for-purpose.

The proposed redevelopment does not propose any material change to the existing car parking arrangements, except for the redesign of some of the existing PWD parking. It is understood that these localised changes will increase the parking supply and ensure that the spaces accord with current AS2890 standards.

Whilst not strictly necessary to mitigate the impacts of the proposed development, some formalisation of the intersection priority at the Bligh Street/Recreation Drive intersection is recommended. At present, there is no signage or linemarking guidance to indicate which movement/s have priority. The priority arrangement would ideally be confirmed by actual demand and behaviour observations.

9 Events Management

The additional spectator and court capacity aims to facilitate regional events. Large scale regional tournaments are likely to be infrequent, and acceptance and preparation of the event will be undertaken in consultation with Council.

Notwithstanding that the additional space is being sought, it is noted that the current facility is already hosting regional events, however that the facilities do not adequately cater for these events. Regarding larger events, to manage any requirements such as requests for additional operation hours, overflow car parking on Council land and other impacts, an Event Management Plan (EMP) is to be submitted to Council to govern a particular event during the coordination phase.

Any EMP is to address how overflow car parking is to be managed within the site, how to manage visitor/patron movements, safety and security, and a number of other items.

10 Summary and Recommendations

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Taree Basketball Association (TBA) to provide transport engineering input and prepare a Traffic Impact Assessment (TIA) in association with the proposed refurbishment and expansion of the existing Taree Basketball and associated facilities, located at Lot 1 DP798539, Taree NSW 2430.

The proposed site layout plans are included at **Appendix A**.

The following conclusions and recommendations are made within this report:

- The existing car parking that is available near the specific development site, and throughout the broader Taree Recreational Area, is considered sufficient to accommodate typical sporting event scenarios based on the Council DCP, actual observations, and a first-principles assessment.
- The existing car parking is considered sufficient to also accommodate the forecast incremental parking demand arising from the proposed development.
- Although not strictly necessary to facilitate the proposed development, the delivery of the car parking planned as part of The Greater Taree S94 Contributions Plan (Lot 2/DP597577) should be explored and resolved as it would mitigate impacts during major events and could also benefit the broader community.
- Regardless of the car parking findings for typical sporting scenarios, an Event Management Plan should be prepared that addresses larger atypical events where car parking may be a concern and necessitate special provisions.
- The incremental traffic demand generated by the proposed three new courts is forecast to be minor in the context of the existing site and surrounds. Traffic increases are expected to be very low during the majority of the week and potentially increase to 45-90vph depending on the concurrent and consecutive use of the courts.
- Based on a desktop review and consideration of the pre and post-development site usage and traffic characteristics, the existing network capacity is considered sufficient, and no critical issues requiring remediation were noted.
- It is understood that the Manning Drive/Bligh Street intersection will be upgraded by others as part of other approved development. The signalisation is forecast to significantly improve vehicle and pedestrian movement capacity and safety to/from the subject site and the broader precinct.
- The existing car parking and vehicle circulation arrangements will be retained with only minor revisions to parking for persons with a disability. These changes will increase the number of spaces and ensure that they are in accordance with current AS2890 design standards. Otherwise, the existing arrangements are considered appropriate and fit-for-purpose.

APPENDIX A

Plans of Development



IRON ARENA, TAREE

TOWN PLANNING
STAGES 1 & 2



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IRON ARENA
CORNER BLIGH STREET AND RECREATION DRIVE
TAREE NORTH NSW 2403
PROJECT NO: 3-20-0140
PROJECT DATE: DECEMBER 2020
REASON FOR ISSUE: APPROVAL

COVER PAGE
NORTH COAST REGION NEW SOUTH WALES

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SHEET DATE:
09/02/22

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TP000

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LEGEND
--- ITEMS TO BE REMOVED / REALIGNED

EXISTING CYCLE
PATH ALIGNMENT TO
REMAIN

EX
LIGHTPOLE

EXISTING CYCLE
PATH TO BE
REALIGNED BY
OTHERS

EX
LIGHTPOLE

EXISTING
TREE TO BE
REALIGNED

EXISTING LIGHT POLES
TO BE REALIGNED

EX
LIGHTPOLE

NOTE:
EXISTING CYCLE PATH DEMOLITION
SHOWN FOR INTENT PURPOSES.
PATH REALIGNMENT IS TO BE DONE
BY OTHERS

EXISTING GRASSED AREA

EXISTING TREES TO BE
DEMOLISHED

EXISTING STADIUM

EXISTING NETBALL
FACILITIES

EXISTING RAMP AND STAIR TO
BE DEMOLISHED

EXISTING PATH TO BE DEMOLISHED

EXISTING AWNING TO
BE DEMOLISHED

EXISTING STAIRS TO BE DEMOLISHED

EXISTING TREES TO BE
DEMOLISHED

EXISTING CAR PARK

EXISTING NETBALL OUTDOOR COURTS

RECREATION DRIVE

1 EXISTING SITE PLAN AND DEMOLITION PLAN
Scale 1:200



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IRON ARENA
CORNER BLIGH STREET AND RECREATION DRIVE
TAREE NORTH NSW 2403

PROJECT NO:
3-20-0140

PROJECT DATE:
DECEMBER 2020

REASON FOR ISSUE:
APPROVAL

EXISTING SITE PLAN AND DEMOLITION PLAN
NORTH COAST REGION NEW SOUTH WALES

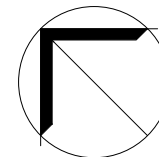
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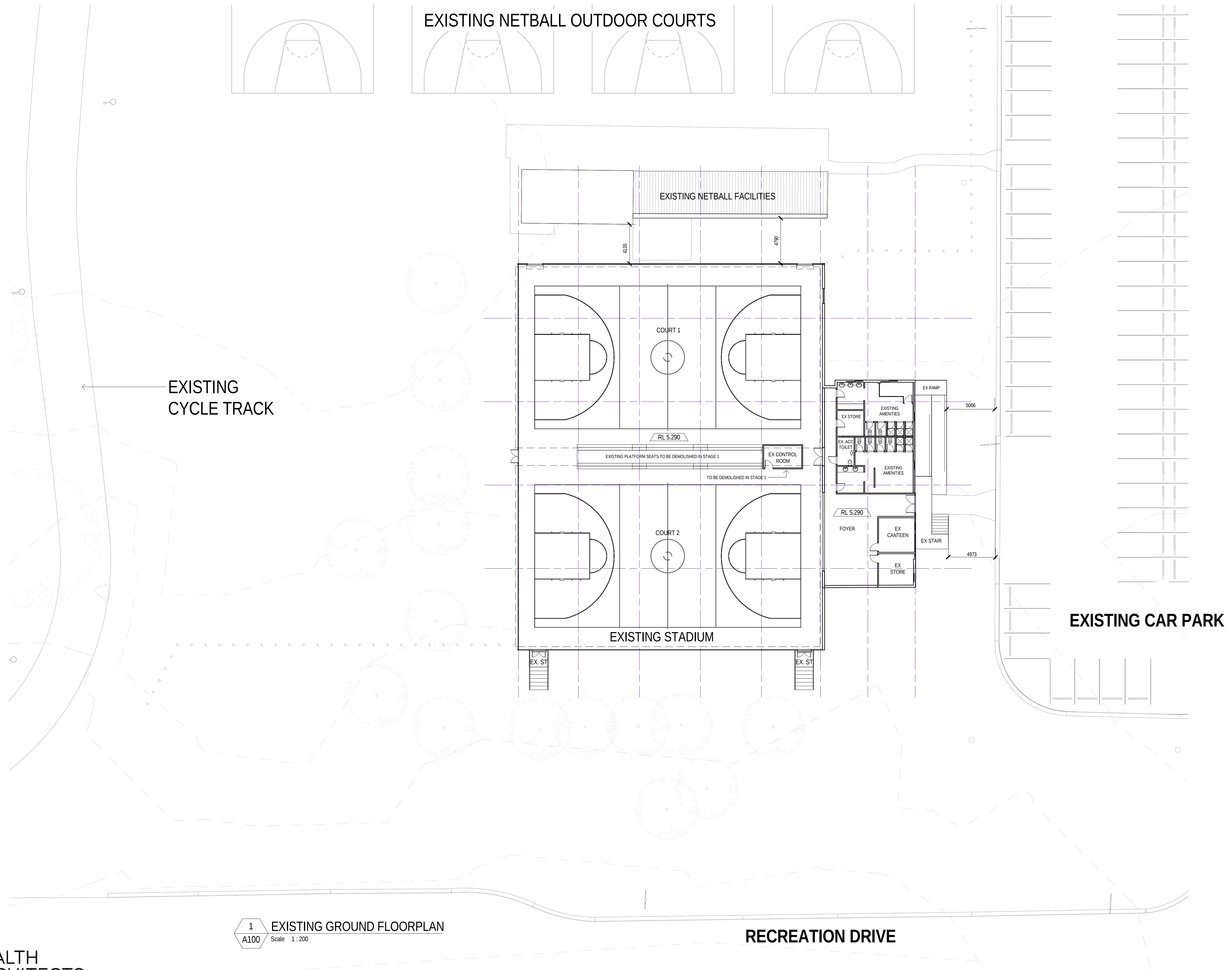
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09/02/22

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TP001

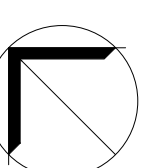
NORTH:





1 EXISTING GROUND FLOORPLAN
A100 Scale 1:200

RECREATION DRIVE

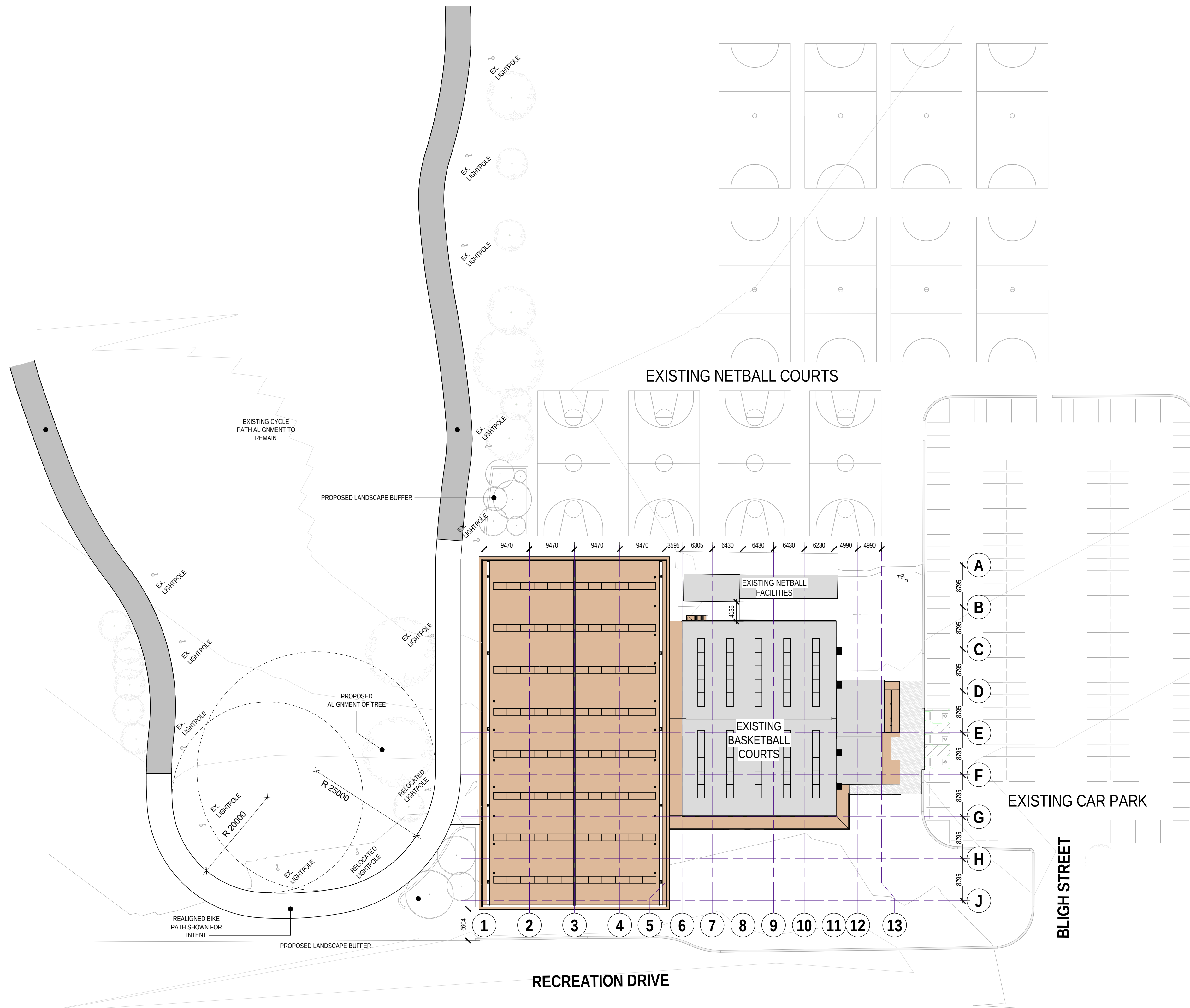


STAGING LEGEND:

EXISTING

STAGE 1

STAGE 2



STAGE 1



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1

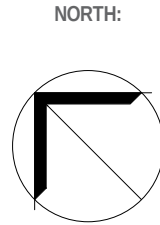
SITE PLAN - PROPOSED STAGE 1

Scale 1 : 500

IRON ARENA
CORNER BLIGH STREET AND RECREATION DRIVE
TAREE NORTH NSW 2403
PROJECT NO: 3-20-0140
PROJECT DATE: DECEMBER 2020
REASON FOR ISSUE: APPROVAL

PROPOSED SITE PLAN - STAGE 1
NORTH COAST REGION NEW SOUTH WALES
REVISION: B
SHEET DATE: 09/02/22
SCALE: 1 : 500 @ A1

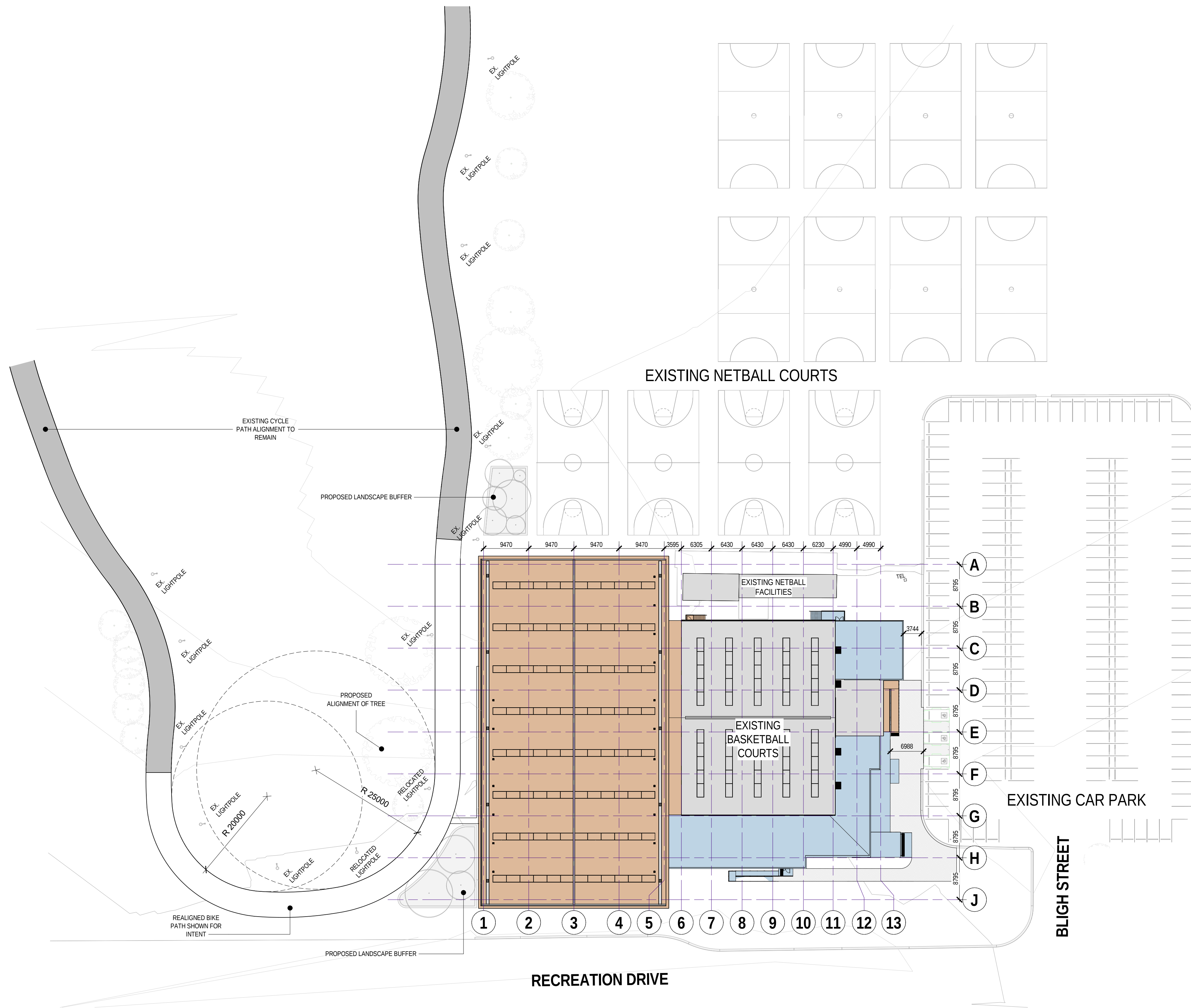
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STAGING LEGEND:

EXISTING	
STAGE 1	
STAGE 2	



STAGE 2



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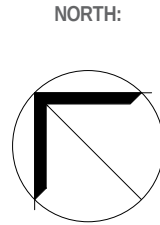
ACN 006 975 666

1 SITE PLAN - PROPOSED STAGE 2
Scale 1:500

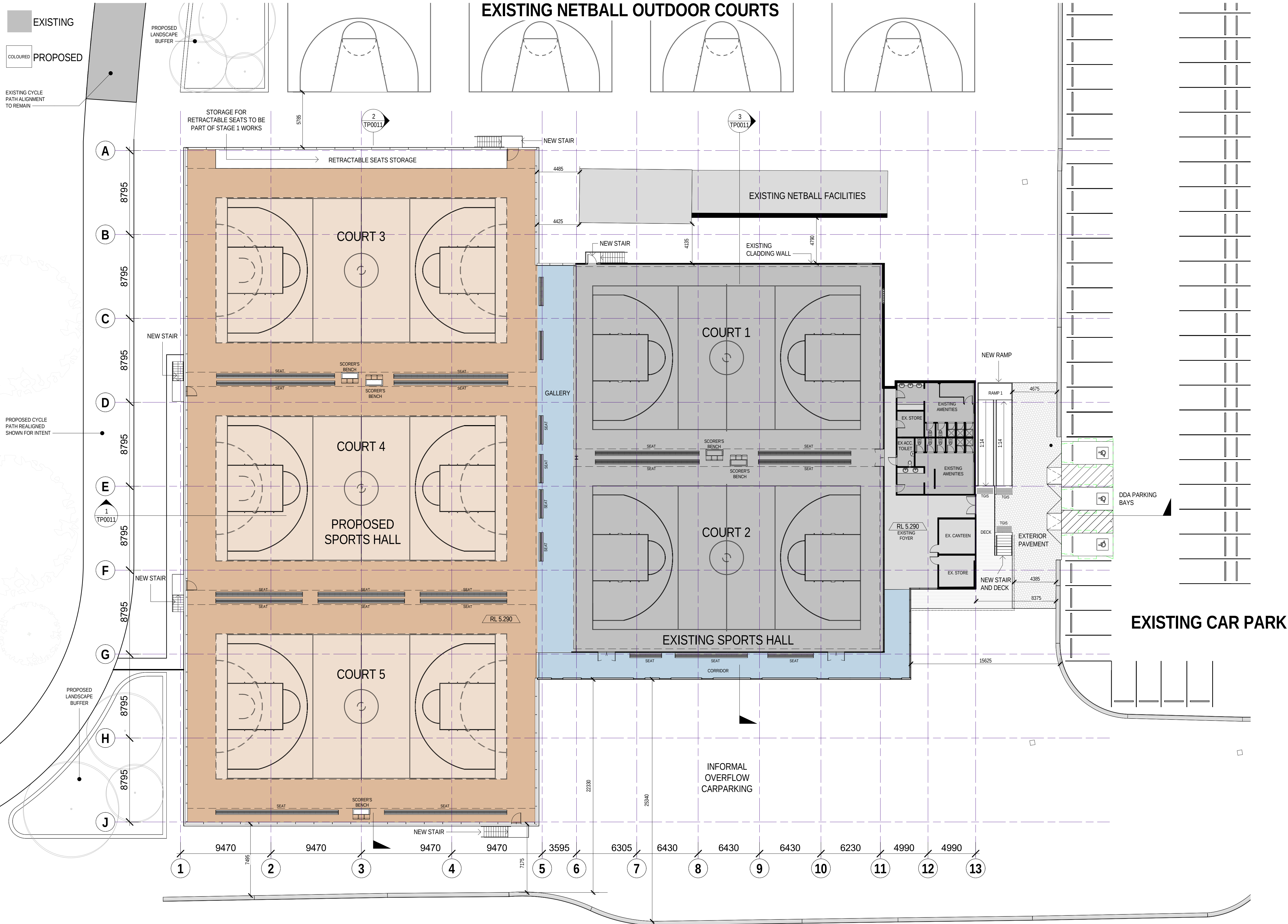
IRON ARENA
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TAREE NORTH NSW 2403
PROJECT NO: 3-20-0140
PROJECT DATE: DECEMBER 2020
REASON FOR ISSUE: APPROVAL

PROPOSED SITE PLAN - STAGE 2
NORTH COAST REGION NEW SOUTH WALES
REVISION: B
SHEET DATE: 09/02/22
SCALE: 1:500 @ A1

DRAWING NO:
TP004



10/02/2022 6:27:01 AM



AREA SCHEDULE - STAGE 1

GALLERY	152 m²
PROPOSED SPORTS HALL	2,594 m²
EXISTING AMENITIES	26 m²
EXISTING AMENITIES	40 m²
EX. CANTEN	14 m²
EX. ACC. TOILET	5 m²
EX. STORE	8 m²
EX. STORE	13 m²
EXISTING FOYER	77 m²
CORRIDOR	123 m²
EXISTING SPORTS HALL	1,315 m²

STAGE 1



1 GROUND FLOOR PLAN STAGE 1
Scale 1:200

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APPROVAL

RECREATION DRIVE

PROPOSED GROUND FLOORPLAN - STAGE 1
NORTH COAST REGION NEW SOUTH WALES

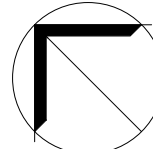
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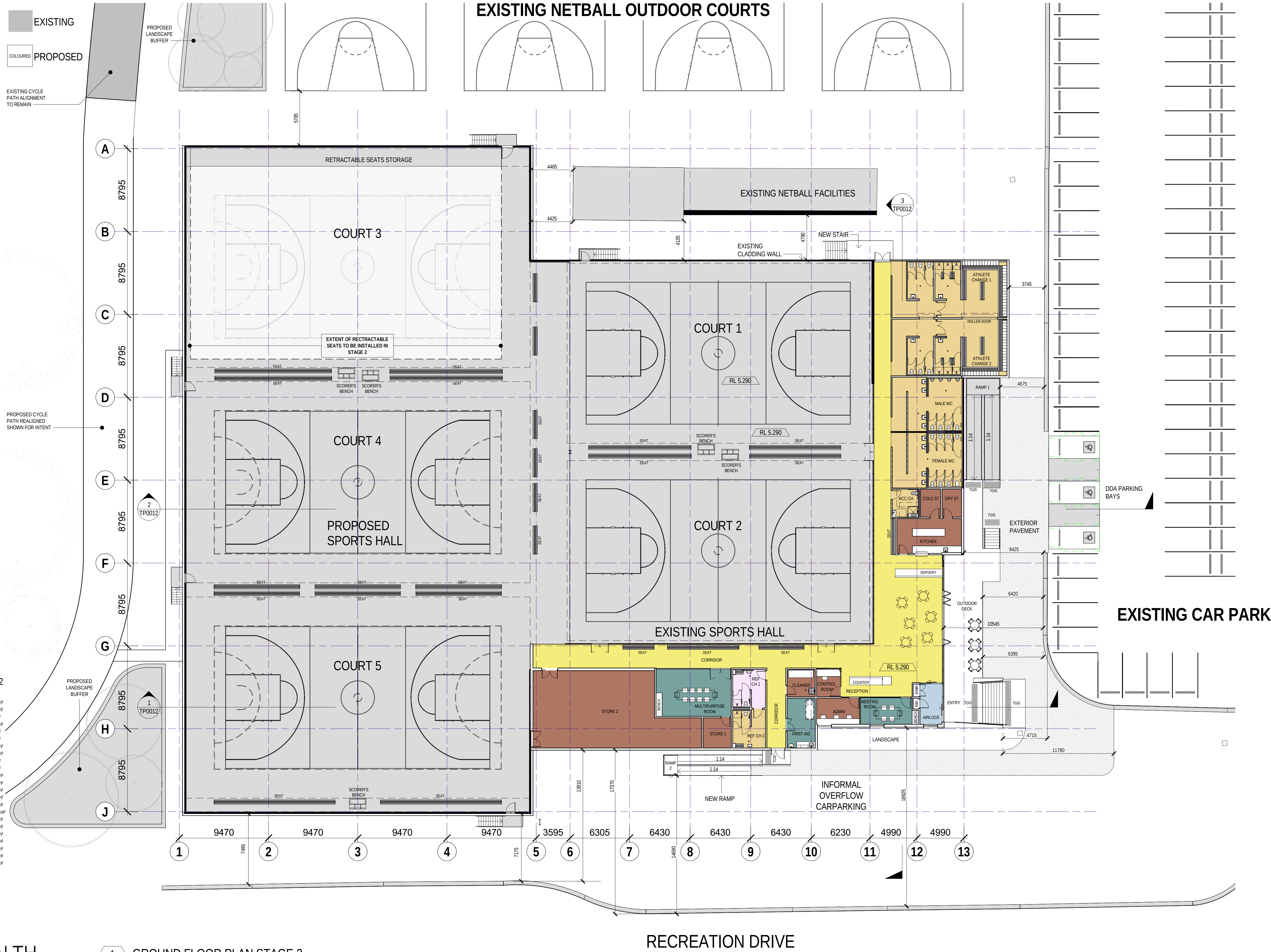
SHEET DATE:
09/02/22

SCALE:
1:200 @ A1

DRAWING NO:
TP005

NORTH





AREA SCHEDULE - STAGE 2

ATHLETE CHANGE 1	71 m²
ATHLETE CHANGE 2	71 m²
ACC CH	8 m²
KITCHEN	25 m²
COLD ST	6 m²
DRY ST	6 m²
MEETING ROOM	16 m²
ADMIN	13 m²
CONTROL ROOM	7 m²
CLEANER	9 m²
FIRST AID	16 m²
REF CH 2	14 m²
REF	14 m²
MULTIPURPOSE ROOM	40 m²
STORE 1	10 m²
STORE 2	122 m²
AIRLOCK	10 m²
MALE WC	41 m²
FEMALE WC	41 m²
CORRIDOR	99 m²
ENTRY FOYER	55 m²
CAFE	68 m²
CORRIDOR	58 m²

STAGE 2



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REASON FOR ISSUE: APPROVAL

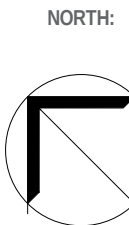
PROPOSED GROUND FLOORPLAN - STAGE 2
NORTH COAST REGION NEW SOUTH WALES

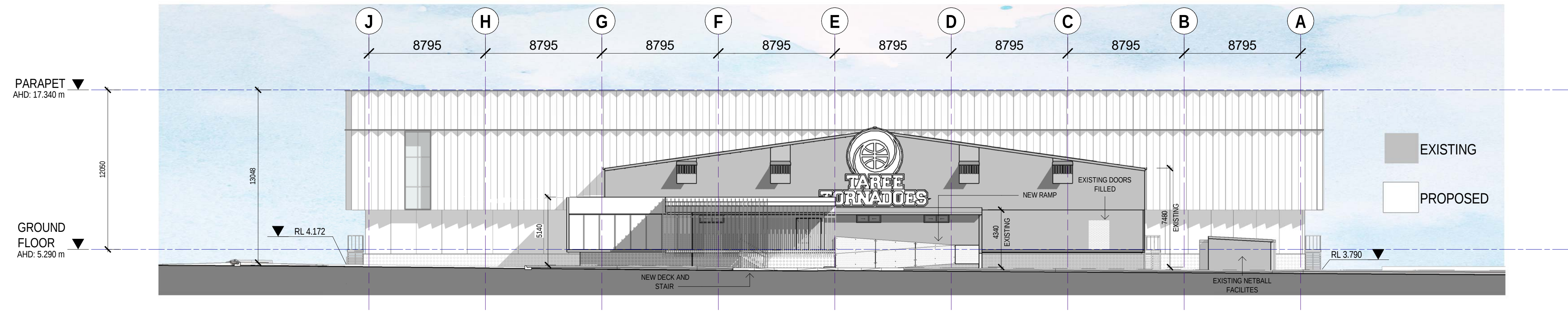
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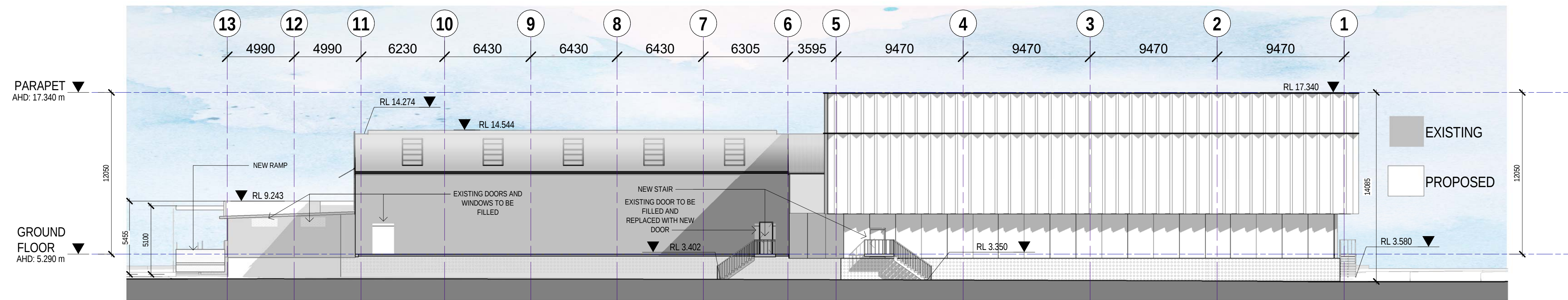
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DRAWING NO: TP006





1 EAST ELEVATION - STAGE 1
Scale 1:200



3 NORTH ELEVATION - STAGE 1
Scale 1:200

STAGE 1



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TAREE NORTH NSW 2403

PROJECT NO:
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PROJECT DATE:
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REASON FOR ISSUE:
APPROVAL

PROPOSED ELEVATIONS - STAGE 1 NORTH - EAST
NORTH COAST REGION NEW SOUTH WALES

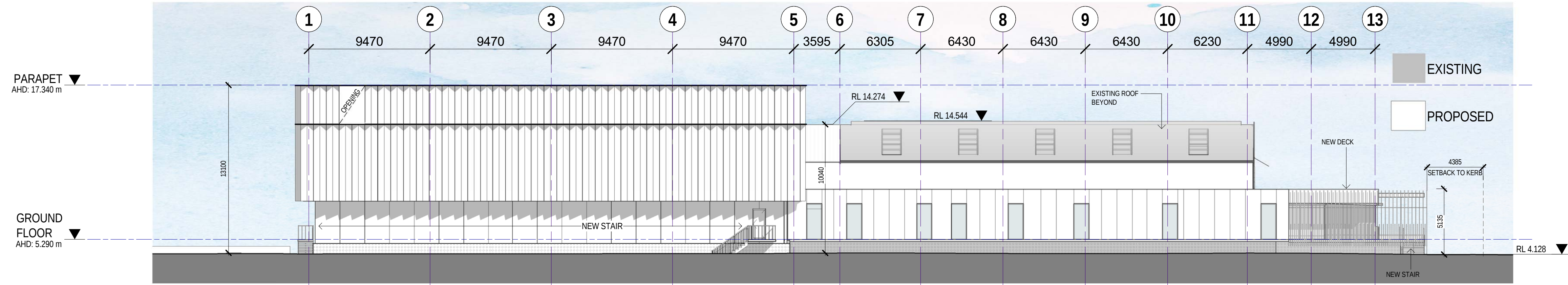
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SHEET DATE:
09/02/22

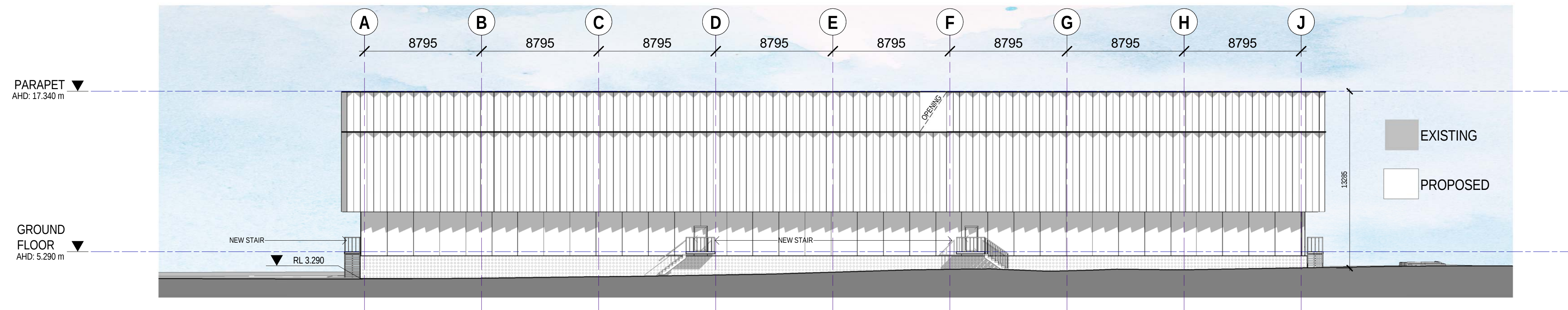
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1 SOUTH ELEVATION - STAGE 1
Scale 1:200



2 WEST ELEVATION - STAGE 1
A007 Scale 1:200

STAGE 1



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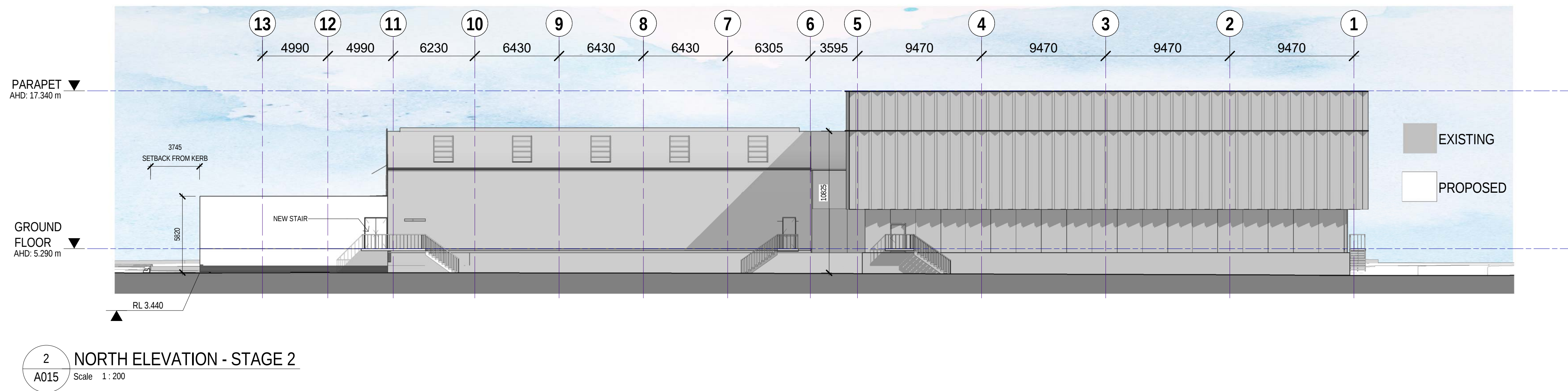
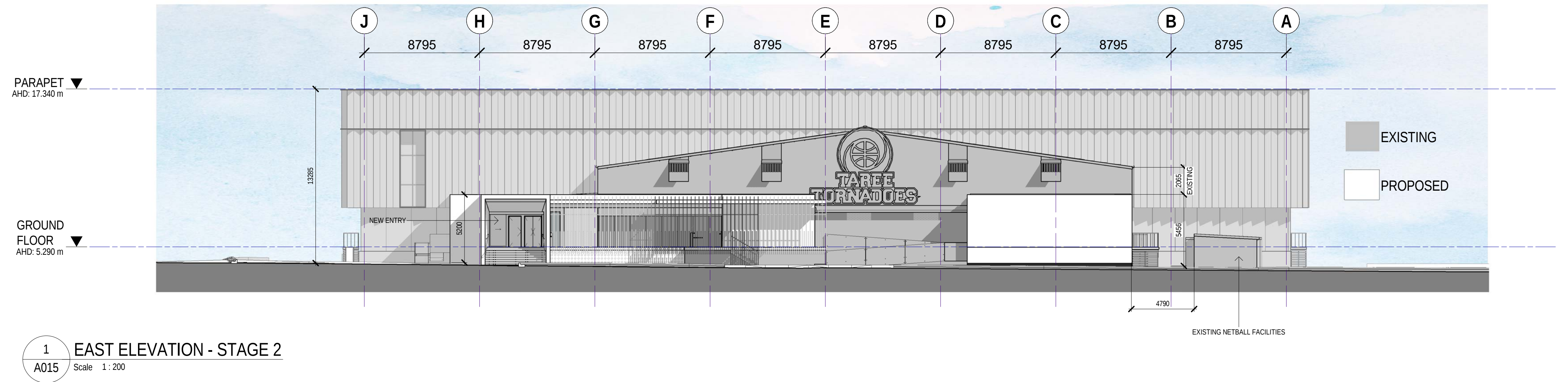
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PROJECT DATE: DECEMBER 2020
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PROPOSED ELEVATIONS - STAGE 1 SOUTH - WEST
NORTH COAST REGION NEW SOUTH WALES
REVISION: B
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TP008



STAGE 2



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PROJECT DATE:
DECEMBER 2020

REASON FOR ISSUE:
APPROVAL

PROPOSED ELEVATIONS - STAGE 2 NORTH-EAST
NORTH COAST REGION NEW SOUTH WALES

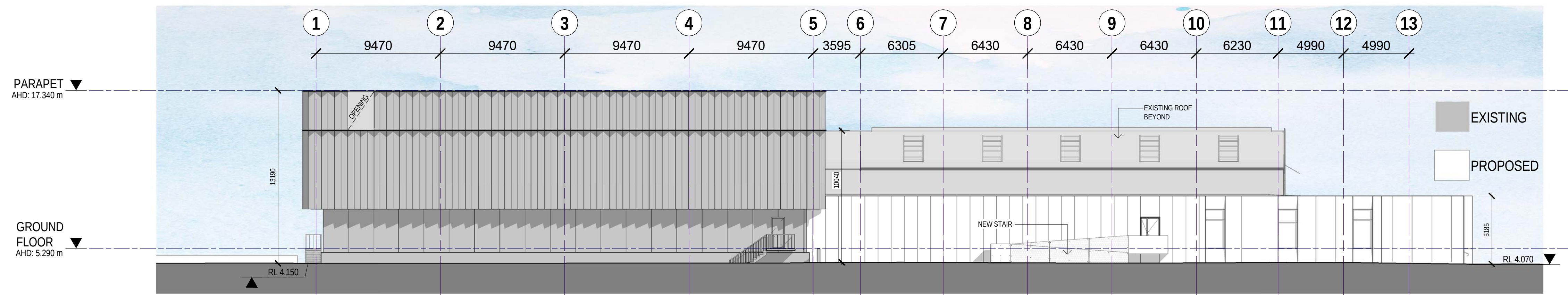
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SHEET DATE:
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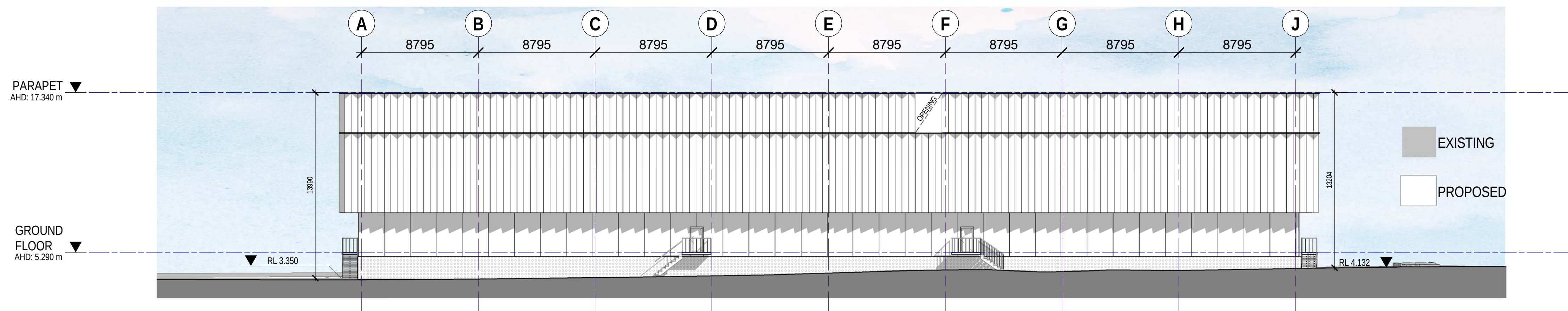
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1 SOUTH ELEVATION - STAGE 2
A015 Scale 1:200



2 WEST ELEVATION - STAGE 2
A015 Scale 1:200

STAGE 2



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PROJECT NO:
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PROJECT DATE:
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REASON FOR ISSUE:
APPROVAL

PROPOSED ELEVATIONS - STAGE 2 SOUTH-WEST
NORTH COAST REGION NEW SOUTH WALES

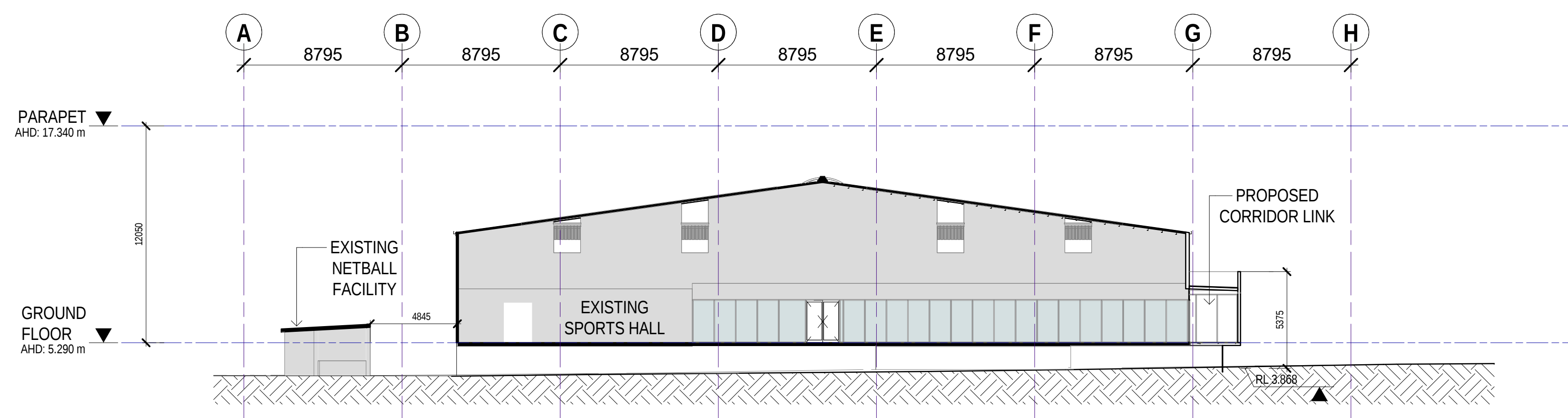
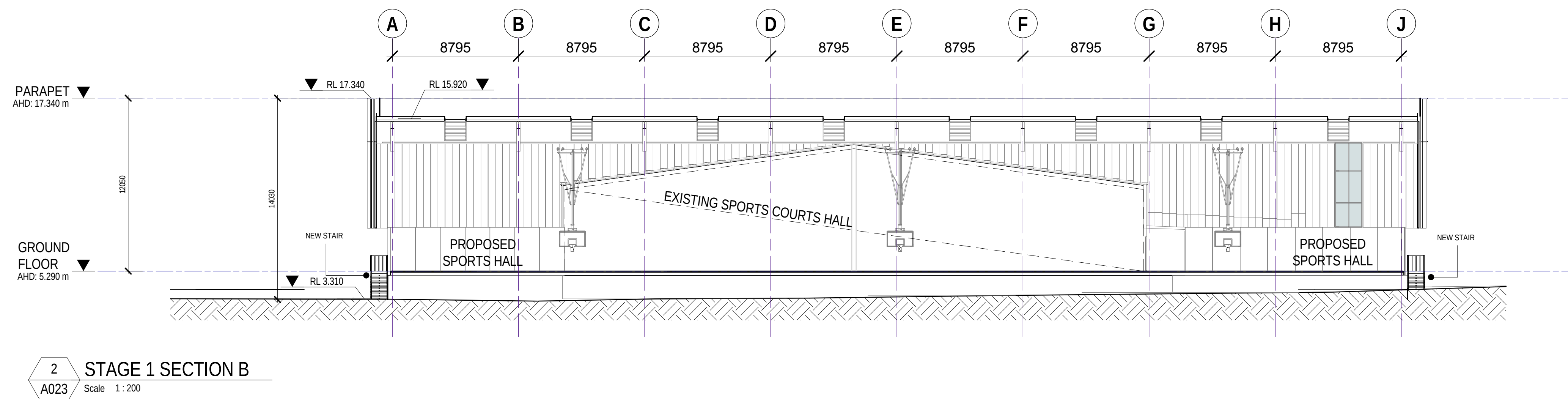
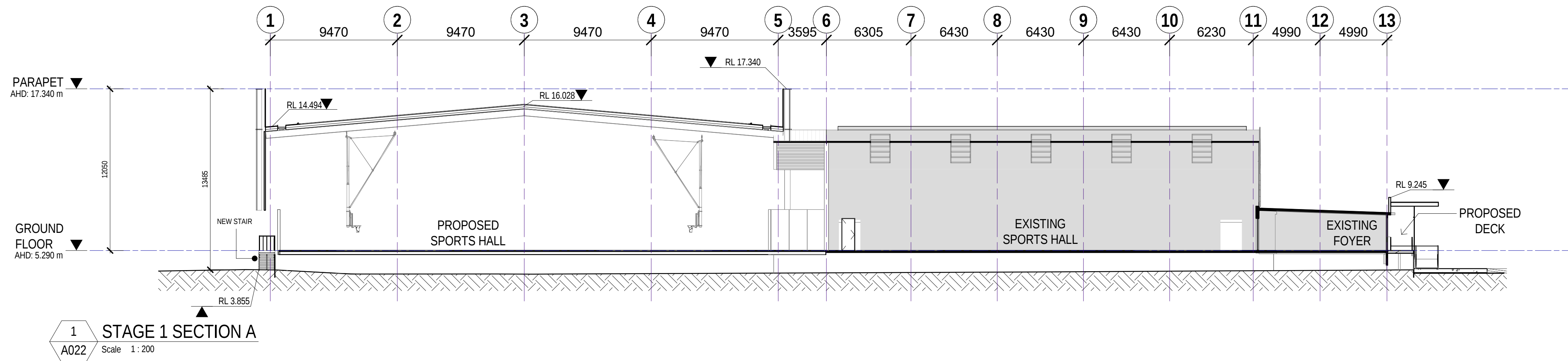
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PROJECT NO:
3-20-0140

PROJECT DATE:
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PROPOSED SECTIONS - STAGE 1- A & B & C
NORTH COAST REGION NEW SOUTH WALES

REVISION:
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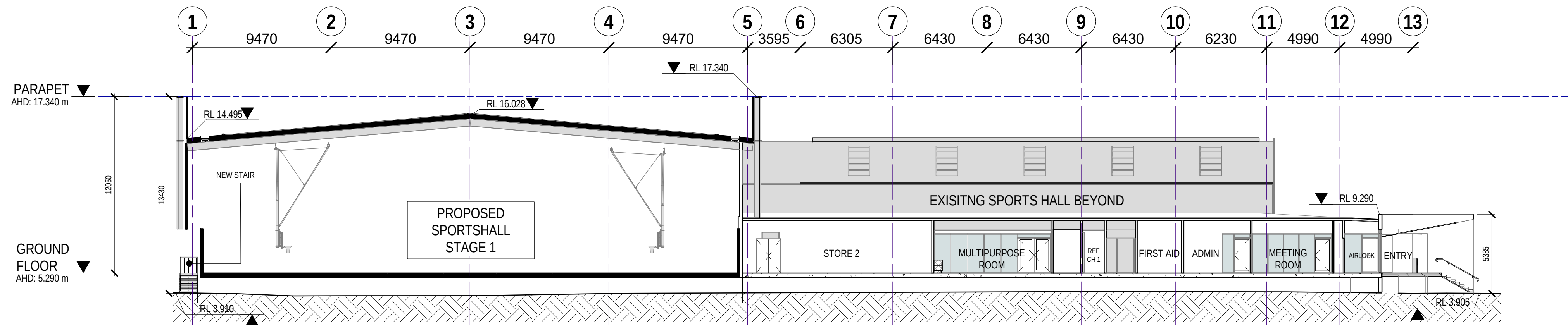
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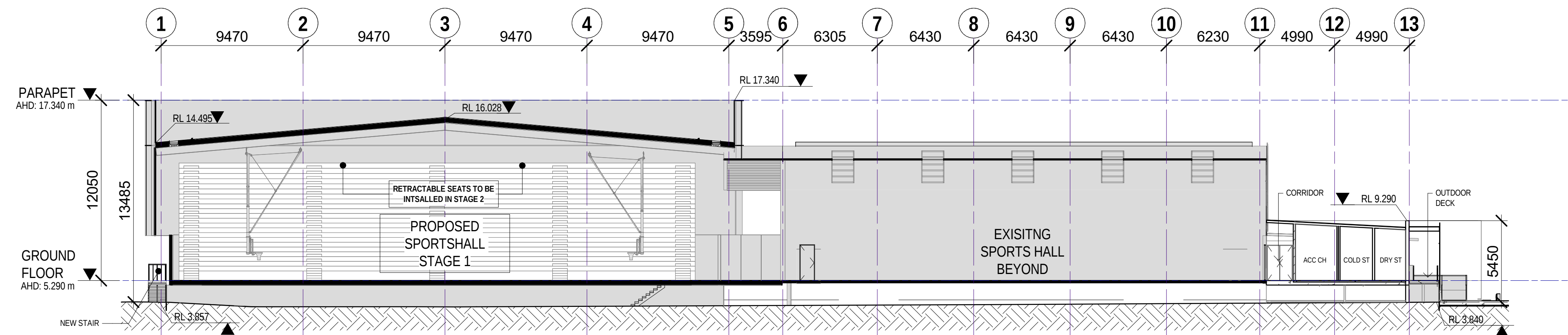
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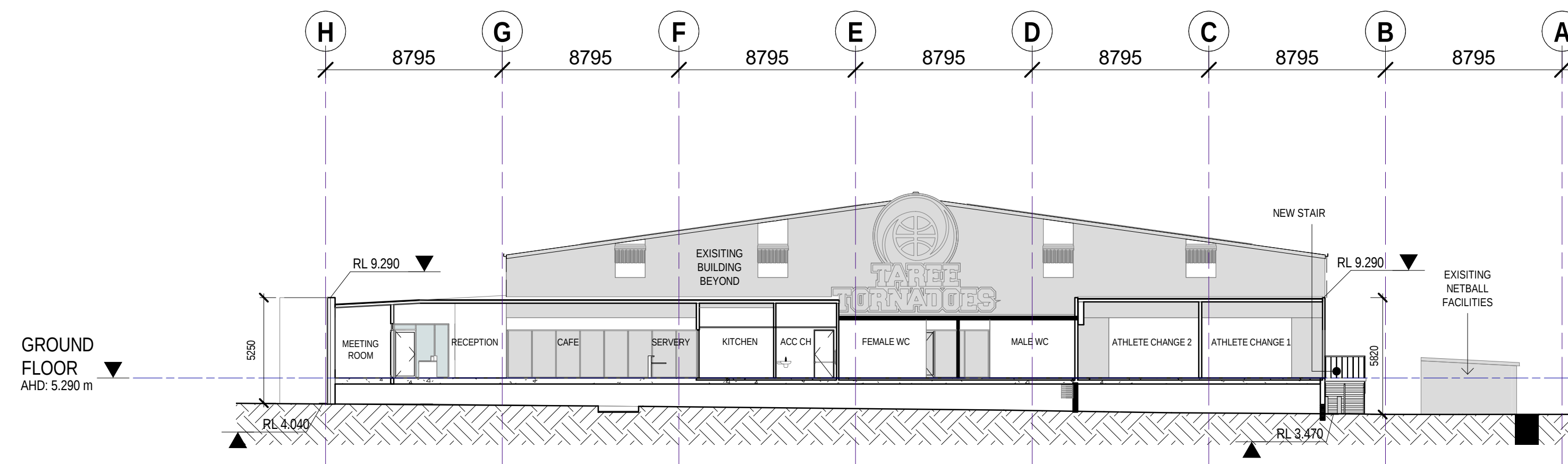
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1 STAGE 2 SECTION D
A015 Scale 1 : 200



2 STAGE 2 SECTION E
A015 Scale 1 : 200



3 STAGE 2 SECTION F
A015 Scale 1 : 200

STAGE 2



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PROJECT NO:
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PROJECT DATE:
DECEMBER 2020

REASON FOR ISSUE:
APPROVAL

PROPOSED SECTIONS - STAGE 2 - D&E&F
NORTH COAST REGION NEW SOUTH WALES

REVISION:
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SHEET DATE:
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SCALE:
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TP0012

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ARTIST IMPRESSION STAGE 1
NORTH COAST REGION NEW SOUTH WALES

REVISION: B SHEET DATE: 09/02/22 SCALE: @ A1

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STAGE 2



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ARTIST IMPRESSION STAGE 2
NORTH COAST REGION NEW SOUTH WALES

REVISION:
B

SHEET DATE:
09/02/22

SCALE:
@ A1

DRAWING NO:
TP0014

9/02/2022 5:50:11 PM

APPENDIX B

Desktop Car Parking Demand Observations



Friday 9/4/21 @ ~11:11AM



Sunday 24/1/21 @ ~11:47AM



Wednesday 29/4/20 @ ~9:44AM



Wednesday 27/11/19 @ ~1:00PM



Sunday 21/7/19 @ ~12:07PM



Monday 30/7/18 @ ~10:52AM



Tuesday 8/8/17 @ ~11:48AM



Tuesday 6/9/16 @ ~9:08AM



Friday 19/8/16 ~12:17PM



Wednesday 5/8/15 @ ~2:04PM



Saturday 24/3/12 @~3:00PM

APPENDIX C

Background Traffic Assessments, Consents and Functional Layouts

Schedule 4 – Infrastructure A Facilities

Schedule 4 Infrastructure A Public Facilities

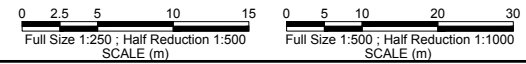
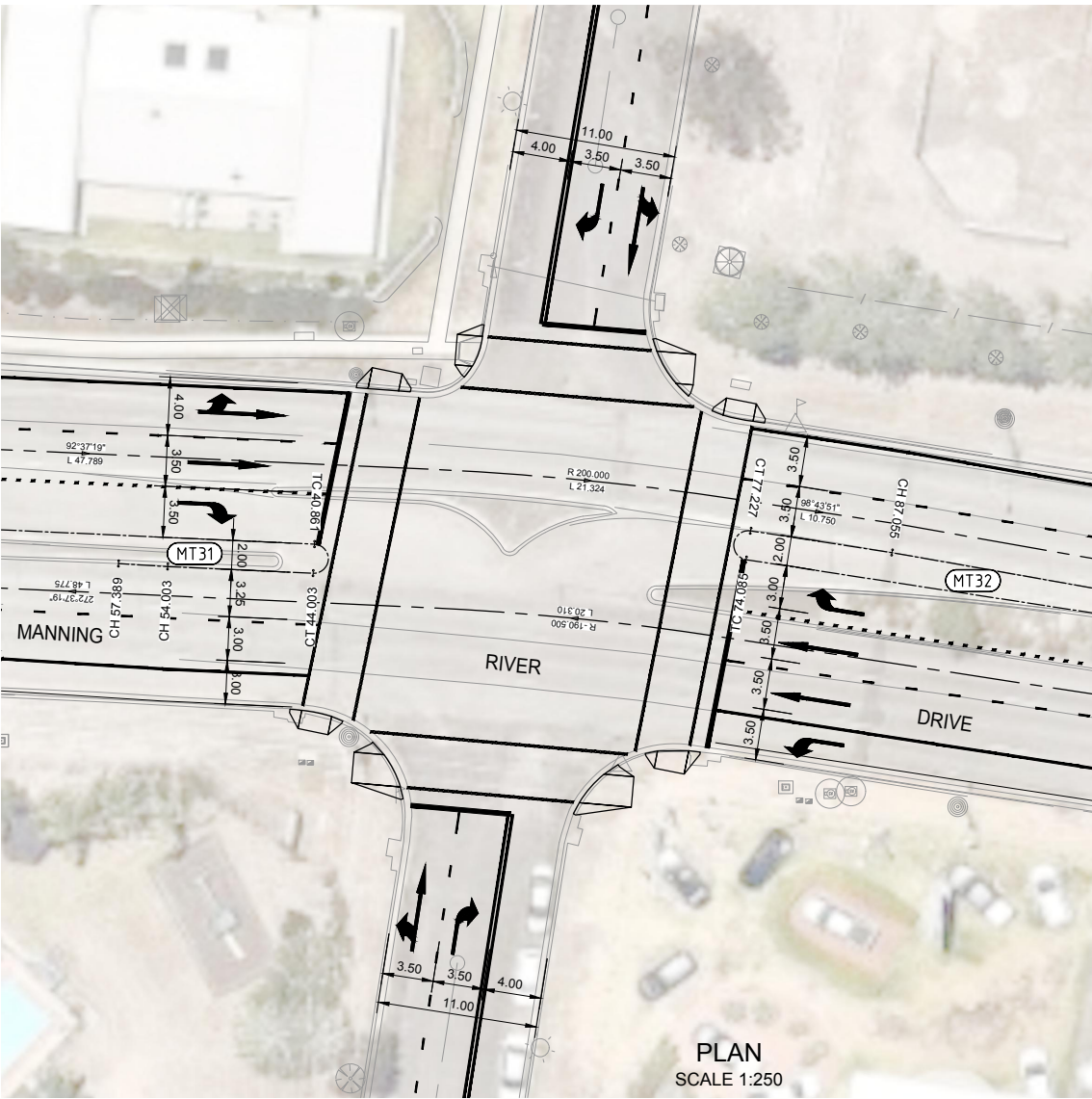
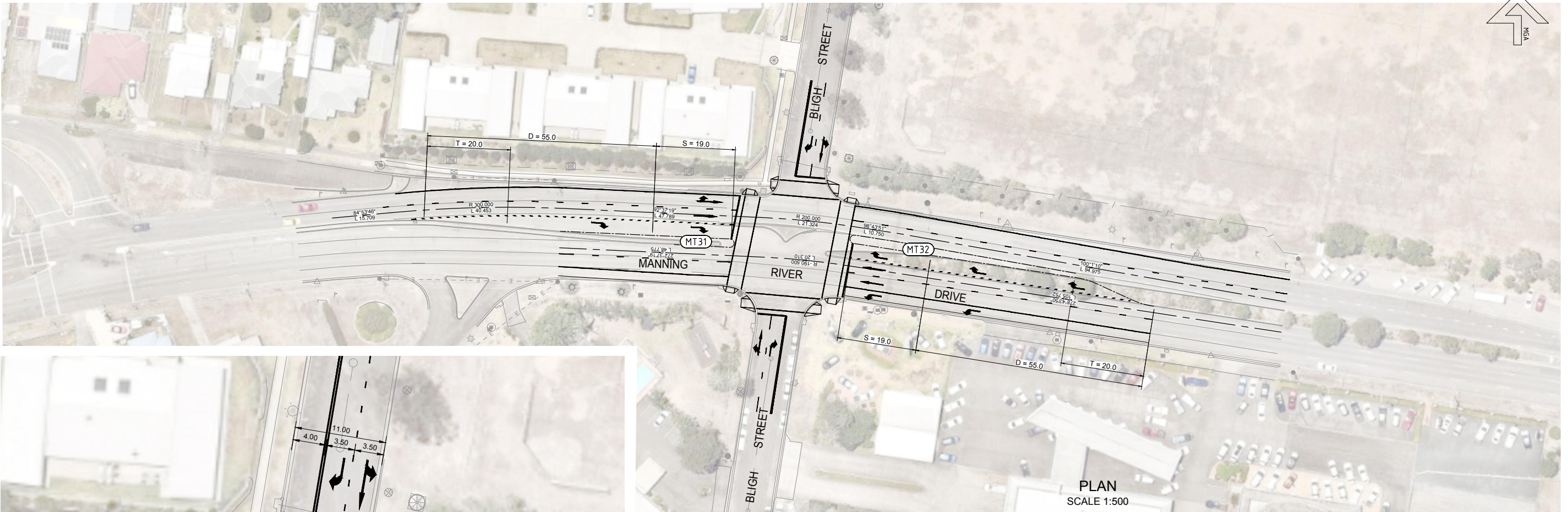
Column 1 – Public Facility	Column 2 – Public Purpose	Column 3 – Scheduled Cost*
Dedication of Road Reserves and subdivision of land required for roads and infrastructure	Public roads	\$48,600.00
Culverts under the Pitt Street Link for the unnamed Creek including Raised Boardwalks Bridges along the River and Creek to connect the Marina Residential Precinct	Management of stormwater for the whole of the Land, including stormwater from public roads and public open space areas.	\$1,620,000.00
Road linking Bligh and Pitt Streets and the upgrade of the existing parts of Pitt and Bligh Street and Nelson Park	Public roads, upgrade of existing public road, public open space	\$1,516,320.00
Pedestrian / Cycle Bridge over Brown's Creek	Pedestrian walkways and cycleways in public open space. Pedestrian and cycle access between public open space areas.	\$1,355,400.00
Drainage Detention within the Creek System	Management of stormwater for the whole of the Land, including stormwater from public roads and public open space areas.	\$486,000.00
Upgrade of intersections with Manning River Drive, Bligh, Pioneer and Nelson Streets	Upgrade of existing public roads	\$518,400.00

Total Scheduled Cost for Infrastructure A Facilities = \$5,544,720.00

* Schedule Cost includes factor for management and supervision (8%)

Schedule 5 – Infrastructure B Facilities

Column 1 – Public Facility	Column 2 – Public Purpose
General Plaza Paving	Provision of public pedestrian and cycle paths.
Riverfront Paving	Provision of public pedestrian and cycle paths.
Road and car parking surfaces	Internal roads to be dedicated as public roads and associated public carparks.
Landscaping and planting	Landscaping of public open space and streetscape.
Shelters	Public open space and streetscape enhancement.
Street Furniture – seating, bins, BBQs, bollards	Public open space and streetscape enhancement.
Children's Play Equipment	Public open space enhancement.
Public Art	Public open space and streetscape enhancement.
Road side lighting	Lighting of public pedestrian paths for safety and security.
General lighting and signage	Lighting of public pedestrian paths for safety and security and enhancement of public open space areas. Signage in public areas to provide information and direction for users of the precinct.
Gateway signage	Gateway signage at public access to the precinct to enhance the view of the precinct from public places and to provide information to users.
Stormwater Management Works	Management of stormwater for the whole of the Land, including stormwater from public roads and public open space areas.
Intersection upgrades	Upgrade of existing public roads.



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	DATE	ISSUED TO TRAFFIC CONSULTANT FOR COMMENT	GH
0	21/04/2020	ISSUED TO TRAFFIC CONSULTANT FOR COMMENT	GH
REVISIONS	BY		

BUSHLAND HEALTH
FIGTREES ON MANNING
TAREE

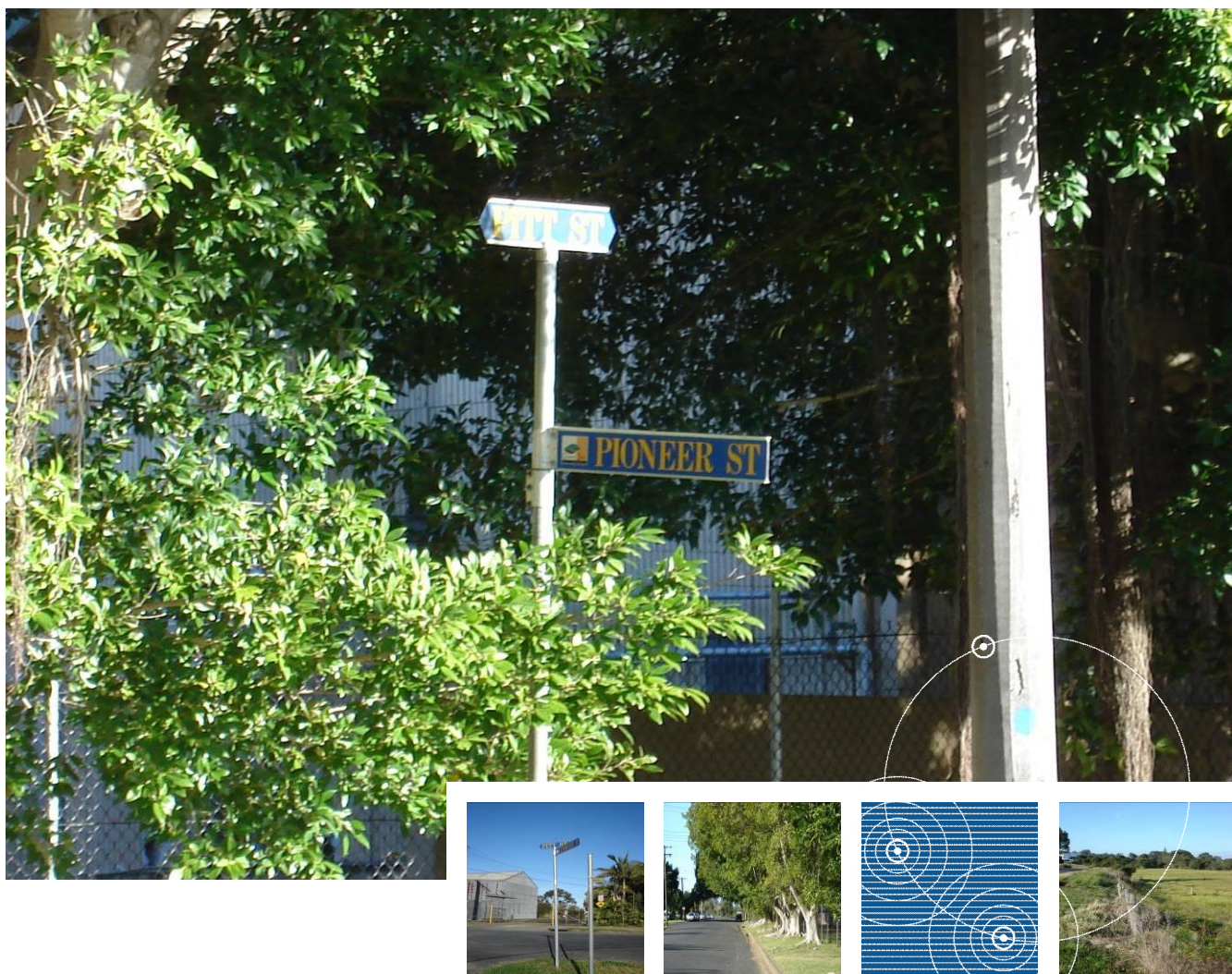
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FIGTREES ON MANNING - STAGE 1
INTERSECTION
MANNING RIVER DRIVE & BLIGH STREET

DRAWING NUMBER/REFERENCE		
7482-1001-INT3	ORIGIN OF LEVELS	REV.
DESIGNER	PM 39836	0
JS	HEIGHT	
SURVEYOR	RL 6.924	
GG/PC	DATUM/GDA	
DRAFTING	AHD	
JS	SCALE	A1
APPROVED	AS SHOWN	
GH		



Pitt Street Waterfront Precinct Rezoning

Phase 1 - Transport Review

Greater Taree City Council

31 October 2007

Pitt Street Waterfront Precinct Rezoning

Prepared for

Greater Taree City Council

Prepared by

Maunsell Australia Pty Ltd

Level 11, 44 Market Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia
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ABN 20 093 846 925

31 October 2007

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Quality Information

Document Pitt Street Waterfront Precinct Rezoning

Ref 60026979

Date 31 October 2007

Prepared by Daniel Lee

Reviewed by Robin Jackson

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	27/08/2007	Draft Report	Robin Jackson Principal	Original Signed
B	02/10/2007	Draft Report	Robin Jackson Principal	Original Signed
C	31/10/2007	Final Report	Robin Jackson Principal	

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Executive Summary

Maunsell has been commissioned by Greater Taree City Council to prepare a Traffic and Transport Assessment for the proposed rezoning of the Pitt Street Waterfront Precinct.

The site identified for re-development is located east of Taree city centre and comprises mostly of the former dairy factory and pasture land with a small number of commercial, industrial and residential lands.

The existing cycle facilities within Taree were observed to be limited to a small area adjacent to the Taree city centre. Although a bike plan encompassing a wider cycle network has been prepared by the Greater Taree City Council to encompass a wider network, these were not evident on site. However, the Council's bike plan identifies the study area for possible bike paths with opportunities to provide shared facilities along the edge of the Manning River.

Pedestrian facilities in Taree are generally concentrated within the locality of Taree city centre as well as along the main roads within Taree. Outside of the town centre, pedestrian facilities were observed to be limited and typical of regional townships as pedestrian traffic can be quite low.

The disused rail facility within the study area was examined for possible reuse as a passenger service line. The facility was originally installed for the purpose of transporting milk from a dairy factory, therefore enabling the line to cater for passenger services will require substantial works to upgrade the rail facilities. A rail service would obviously benefit the immediate community, however initial assessment has shown that the catchments area is minimal and the cost of implementing and maintaining a rail service may not be sustainable given the catchment area.

Analysis of the local road network with current traffic flows, using SIDRA Intersections 3.1, has shown that the surrounding intersections currently perform at satisfactory levels with capacity to accommodate additional traffic flows. To further examine the capacity of the local road network and the development impact on the surrounding intersections, different development scenarios consisting of varying levels of residential, commercial, industrial and recreational trips for study area were analysed. Initial results of the analysis indicated that the local network would be able to accommodate the additional traffic generated by the re-development of the study area, however it also identified that the intersection of Commerce Street and Victoria Street will operate near capacity and will require remedial measures if traffic is to be increased.

1.0 Introduction

1.1 Background

The recent sale of the former Dairy Factory at Pitt Street, Chatham and the subsequent cease of factory operations present opportunities to develop a strategic plan for developments within this important 20ha site.

The site is positioned at a strategically significant waterfront location and is a major opportunity to provide employment, residential, tourism and perhaps commercial facilities for the people of Taree. The site is large when considered against existing land uses in Taree and can be used to create a vibrant waterfront precinct that integrates into the surrounding urban fabric.

1.2 The Study Area

The site is positioned within the suburb of Chatham, located east of Taree and bounded by Crescent Avenue, Chatham Avenue and Manning River Drive, as shown in **Figure 1.1**. Prior to the completion of the Taree Bypass, these roads were formerly part of the Pacific Highway. Locally, Pitt Street, Pioneer Street, Lyndhurst Street and Nelson Street provide access to Crescent Avenue and Chatham Avenue.

Figure 1.1 – Location of Site in Relation to Local Area



Source: Google Maps (2007)

The site is accessible from Lyndhurst Street to the west, Pioneer Street towards the centre of the site and Bligh Street to the east. There are currently no connections through the site.

Located adjacent to the precinct are mostly single dwelling residential properties and a school along the boundary of Chatham Avenue. The precinct itself comprises mainly of pasture land with industrial buildings located along the river's edge.

Also located within the precinct are a small number of residential properties fronting onto Pitt Street and a retail business located at the intersection of Manning River Drive and Bligh Street.

As the majority of the site was previously used as grazing grounds, vehicle access into the precinct is limited. A rail spur line previously utilised by the dairy factory is located along the western boundary of the study area. However, this rail line has not been in service in recent times and was only utilised by the dairy factory prior to the factory transporting its produce by trucks.

1.3 Report Purpose and Scope

With the development opportunities in mind, the purpose of this report is to:

- consider the existing capacity of the surrounding transport networks;
- review existing documentation and confirm the opportunities and constraints that face the development;
- consider the likely traffic generation and potential impacts of a range of development scenarios;
- consider the re-use of the existing rail spur; and
- provide recommendations regarding the ability of the precinct to support the residential, tourism, industrial and/or marina land uses.

2.0 Planning Context

2.1 Draft Mid-North Coast Regional Strategy (2007)

The Draft Mid-North Coast Regional Strategy was prepared by NSW Department of Planning in recognition of the rate of growth within NSW mid-north coast. Department of Planning forecasts that within 25 years, the region's population would increase by 91,000 people. In order to accommodate this increase, the draft strategy has recognised the regional significance of Taree and its land and infrastructure capacities to accommodate significant industrial and residential growth.

The draft strategy is supportive of further residential development, including medium and higher density developments and supportive of developments of taller buildings around the Taree town centre to promote affordability and bring tourism to the area.

2.2 City Centre Study (1991)

The Taree City Centre Study was produced by Purdon Associates Pty Ltd in 1991 to assist Council prepare a management plan and development strategy for the Taree City Centre.

The study examined the existing developments and functions within the Taree City Centre, within the areas surrounding Victoria Street, Albert Street and Manning Street in Taree. The study did not extend to the Pitt Street Precinct. The City Centre Study provides guidelines to encourage and control developments within the Taree Centre in order to achieve the identified objectives.

The following extracts are applicable to this project:

- *"Taree City Centre should continue to fulfil the role of a sub-regional centre serving much the same catchment as at present. The Centre should retain at least the current share of retail and commercial floorspace."*
- *Provision of retail floorspace, both for the catchment and tourists, should be concentrated in the City Centre with the exception of suburban retail centres required to meet local shopping needs of Greater Taree residents."*
- *"Pedestrian Access - It is recommended that Council assesses the standard of pedestrian access from other areas adjacent to the City Centre and upgrade as required."*

2.3 Taree CBD Foreshore Management Plan (2000)

The Taree CBD Foreshore Management Plan was prepared by Webb, McKeown & Associates Pty Ltd to analyse and formulate a management plan for the Taree CBD foreshore area.

It recognised that the foreshore is a popular area for recreational uses during weekends and holidays with facilities such as boat ramps, wharves and various water based sports clubs located along the Manning River.

The Taree CBD Foreshore Management Plan is mainly focussed on the area surrounding the Taree CBD. However, some of the general plans that are applicable to the study area include:

- Formalising a waterfront pedestrian and bicycle pathway along the length of the foreshore;
- Lighting along the foreshore;
- Water contact with stepped or sloping banks;
- Placement of wharves; and
- Placement of jetties/boardwalks.

2.4 Summary

The regional planning context recommends residential and tourism growth in Taree, which is supportive of the preliminary development proposals for the Pitt Street Precinct. It is likely that the proposed developments will help to achieve the longer term growth requirements of the region and hence should be supported by the NSW Government.

Locally, the site offers the potential to support Taree City Centre but care needs to be taken to ensure that the site complements and integrates with the City Centre in terms of movement connections for pedestrians, cyclists, vehicles and public transport users. The site should not be isolated from the City Centre.

The Foreshore Management Plan identifies an opportunity to expand public access to the waterfront in Taree. As a 'river city', river access is an important characteristic of the site. The river frontage should be capitalised on as movement corridor, both for access to the site and through the site.

The proposed development appears to site well in terms of local planning policy. However, transport improvements will be required to integrate the site into it's surrounds.

3.0 Precinct Planning

3.1 Overview

At the precinct planning stage, transport requirements must be kept at the strategic level so as to not influence the development outcomes. It is however, essential to establish key transport principles that will act as a framework to support the precinct plan including access requirements, road hierarchy, public transport access and walking and cycling systems.

Council has informed Maunsell that Taree is experiencing a rapid growth in the use of motorised mobility scooters, which do not tend to be accommodated within the existing transport infrastructure. Catering for these vehicles will also be an intrinsic aspect of the precinct planning through the development of wider shared paths.

3.2 Pedestrians and Cyclists

When planning and designing pedestrian and cycle facilities, there are a number of general principles that should be considered and applied. These include:

- **Permeability** – pedestrians and cyclists should be able to move conveniently through an area by ensuring that all key origins and destinations are well connected. Large sites, developments and buildings should not present unacceptable barriers to movement.
- **Priority** – high priority should be given to pedestrian and cycle movements on key routes, through measures such as short wait times at signalised crossing points.
- **Continuous** – pedestrian and cycle routes should be continuous, with well connected foot/cycle paths, crossing facilities and entry points.
- **High quality** – pedestrian and cycle facilities should at minimum meet design standards. Footpaths should allow provisions for people with disabilities. Designs should at least meet the standards expressed in Austroads Guide to Traffic Engineering, Part 13: Pedestrians and Part 14: Bicycles.
- **Integration** – walking and cycling should be integrated with other modes (particularly bus and train services) through the provision of obvious, safe and convenient pedestrian/cycle access paths to interchange areas, as well as secure cycle storage facilities.
- **Legibility** – the local environment should be easy for pedestrians and cyclists to interpret to navigate – street name signs should be clearly visible and provide destinations and distances to key locations.
- **Capacity** – pedestrian and cycle paths should be designed to allow ample space for both travelling and stationary pedestrians and cyclists.
- **Pleasant** – streetscapes should be designed to high urban design standards that provide interesting pedestrian and cycle routes, free of litter and fear of crime. Appropriate lighting should be provided on all routes. Greater levels of pedestrian and cyclist activity will assist in these regards.

Relating specifically for pedestrian facility design, the following principles should be incorporated into the precinct plan:

- **Comfort** – pedestrian paths should be unchallenging and comfortable to travel on. Walking surfaces should be free of obstructions and provide a smooth even surface (with no broken paving).
- **Crossing facilities** – appropriate at-grade pedestrian crossing facilities should be provided on desire lines. Consideration should be given to reducing the road width at these locations. Grade separated crossing facilities should be avoided where possible. Pedestrian connectivity across the Crescent Avenue/Chatham Avenue/Manning River Drive corridor will need to be improved to reduce the current severance.

- **Facilities** – appropriate facilities should be provided within the footpath area, including regular seating, bins and information/guide signs. Design of facilities should be coordinated with the overall urban design theme and care should be taken when placing facilities to ensure that footpaths are not obstructed.
- **Access to car parks** – pedestrian access between car parks and local attractions should be considered to ensure that safe, convenient and obvious routes are provided, including pedestrian routes within car parks.

Likewise, there are specific design principles that relate to cycle facilities, and these should also be incorporated into the precinct plan design:

- **Segregated facilities** – for on-road cycle facilities, cycle lanes should generally be provided with clear segregated cycle lanes, advance stop lines and other priority treatments. Particular care should be taken for areas where cycle lanes and on-street parking are integrated.
- **Storage Facilities** – appropriate storage facilities should be provided at all key destinations (including train stations, major bus stops and large developments). Storage facilities should provide for both long and short term storage of cycles and related equipment. Design should be such that storage is not only secure and provides weather protection, but also conveys a sense of high priority for the treatment of cycles and cyclists.
- **Intersection Treatments** – appropriate facilities should be provided for cyclists at intersections and at locations where cyclists have to move between on and off-street paths and vice versa to ensure safe and convenient access. These locations are typically the most difficult and confusing areas of the network for both cyclists and other road users.

The following design principles relate well to the design of shared pedestrian/cyclist facilities, such as the potential waterfront route, and should be incorporated into the design of the masterplan:

- **Separate** - in general, facilities should be provided separately for pedestrians and cyclists, taking into account the different needs of these two groups, and in particular, vulnerable pedestrians such as those with impaired hearing, sight or walking difficulties. Where facilities are likely to be shared with motorised mobility scooters, wider shared paths (2.5m minimum) must be provided.
- **Consultation** - where opportunities for shared off-road routes are identified (such as the waterfront), paths should be carefully planned with wide consultation at an early stage to ensure suitability of the route and the proposed facilities. Once implemented, use of the route should be monitored and changes made if problems arise.

3.3 Access and Street Hierarchy

Guidelines for road network design can be allocated into three main categories:

- Road classification (road hierarchy) – how will traffic move through the precinct and are roads designed to accommodate with function in mind?
- Road capacity – are adequate lanes provided on the streets to accommodate traffic without significant congestion?
- Intersection performance – are delays at intersections acceptable?

Road Classification

The role and function of a road within an urban transport network can be defined in terms of the traffic carry function and urban amenity: as traffic flow increases, amenity decreases and vice versa.

Therefore:

- Arterial roads have the least amenity, but the highest traffic carrying capability. They provide an arterial function carrying traffic between urban areas.
- Sub-arterial roads carry traffic within urban areas, typically connecting to arterial roads.
- Collector roads increase amenity at the expense of capacity. These roads provide an intra-urban traffic function.
- Local roads have a high level of urban amenity but relatively low traffic carrying capacity. These roads provide a local function within communities.

The NSW Roads and Traffic Authority has developed guidelines for classification of roads, which considers traffic speeds and typical carrying capacity. **Table 3.1** summarises the RTA functional classification system.

Table 3.1 Functional Classification of Roads

Road Type	Traffic Volume (AADT)	Through Traffic	Inter-Connections	Speed Limit (km/h)
Arterial/Freeway	No limit	Yes	Sub-arterial	70-110
Sub-Arterial	<20,000	Some	Arterial/Collector	60-80
Collector	<5,000	Little	Sub-arterial/Local	40-60
Local	<2,000	No	Collector	40

Source: Updated Guidelines for Functional Classification of Roads in Urban Areas, RTA, 1993

The Crescent Avenue/Chatham Avenue/Manning River Drive corridor provides the sub-arterial function within the study area, with Lyndhurst Street and Pioneer Street currently acting as local roads.

To improve the permeability and accessibility of the precinct, it may be beneficial to provide a connection between Pitt Street and Bligh Street. This would obviously depend on the land use scenarios developed, but would be recommended on the basis of transport planning principles.

However, connecting Pitt Street and Bligh Street may encourage motorists to use the precinct as an alternate route to the Crescent Avenue/Chatham Avenue/Manning River Drive corridor. If this connection is provided, measures to slow traffic and make the alternative route less attractive for through traffic should be considered. These may include streetscaping, changing the alignment of the roads or introducing intersections.

Road Capacity

Level of Service (LoS) is an index of the operational efficiency of a roadway or intersection. The analysis is essential in planning and design of the transport network and can influence the number of lanes provided or the arrangement of a traffic control system under study. As a mid-block measure, LoS is a qualitative measure describing the operational conditions on a road and their perception by a driver. The capacity of urban lanes with interrupted flow is provided in **Table 3.2** for each LoS.

Table 3.2 - Mid-block Level of Service and Capacity

LoS	Description	Hourly flow (vehicles)	
		1 Lane	2 Lanes
A	A condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.	200	900
B	In the zone of stable flow and drivers still have the reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is a little less than with LoS A.	380	1,400
C	Also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.	600	1,800
D	Close to the limit of stable flow and is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.	900	2,200

LoS	Description	Hourly flow (vehicles)	
		1 Lane	2 Lanes
E	Occurs when traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause break-down.	1,400	2,800

Source: Guide to Traffic Generating Developments, RTA, 1994

It is generally acceptable to provide road capacity at Level of Service D in the peak hour since overprovision of road capacity is not conducive to promoting alternative transport modes to the car.

Intersection Performance

The capacity of an urban road network is controlled by the capacity of the intersections. Average vehicle delay is commonly used to assess the actual performance of intersections, with Level of Service used as an index. A summary of the Level of Service index is shown in **Table 3.3**.

Table 3.3 Level of Service Criteria for Intersections

Level of Service	Average Delay / Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays	At capacity; requires other control mode
F	>70	Roundabouts require other control mode	At capacity; requires other control mode

Source: Guide to Traffic Generating Developments, RTA 1993

Level of Service D is generally accepted by the NSW Roads and Traffic Authority as design constraint. It should also be noted that capacity constraint can be used as a demand management technique and that over-provision of capacity can encourage more car use.

3.4 Cross-Sections

The precinct should comprise of a network and hierarchy of roads which would integrate the study area into the existing adjacent road network. The existing alignment of Pitt Street and Bligh Street present an opportunity to extend the roads further into the precinct.

Footpaths should be provided on all roads, with a general minimum width of 1.2m increasing to 2.4m in areas of higher pedestrian volumes.

On routes likely to be used by motorised mobility scooters, a minimum of 2.5m should be provided. Kerb lips should be avoided as these create an obstacle for motorised wheelchairs.

Traffic lanes on public transport routes should be provided at 3.5m minimum width, with general traffic lanes at 3.0-3.2m.

Access to a marina should consider vehicles with trailers for boat access. Heavy or oversized vehicles may also require access to the site for maritime purposes.

4.0 Opportunities and Constraints

4.1 Pedestrian

Paved footpaths are provided within Taree on the majority of the arterial roads and within the town centre. Current pedestrian access around the Pitt Street Precinct and the residential areas outside of the Taree City Centre tends to be limited to grass verges along the road reserves.

Pedestrian crossings exist at the signalised intersections of Chatham Avenue / Pioneer Street and Chatham Avenue / Cowper Street. However, at the adjacent priority intersections of Lyndhurst Street / Crescent Avenue and Bligh Street / Manning River Drive, there are no existing pedestrian crossing facilities provided.

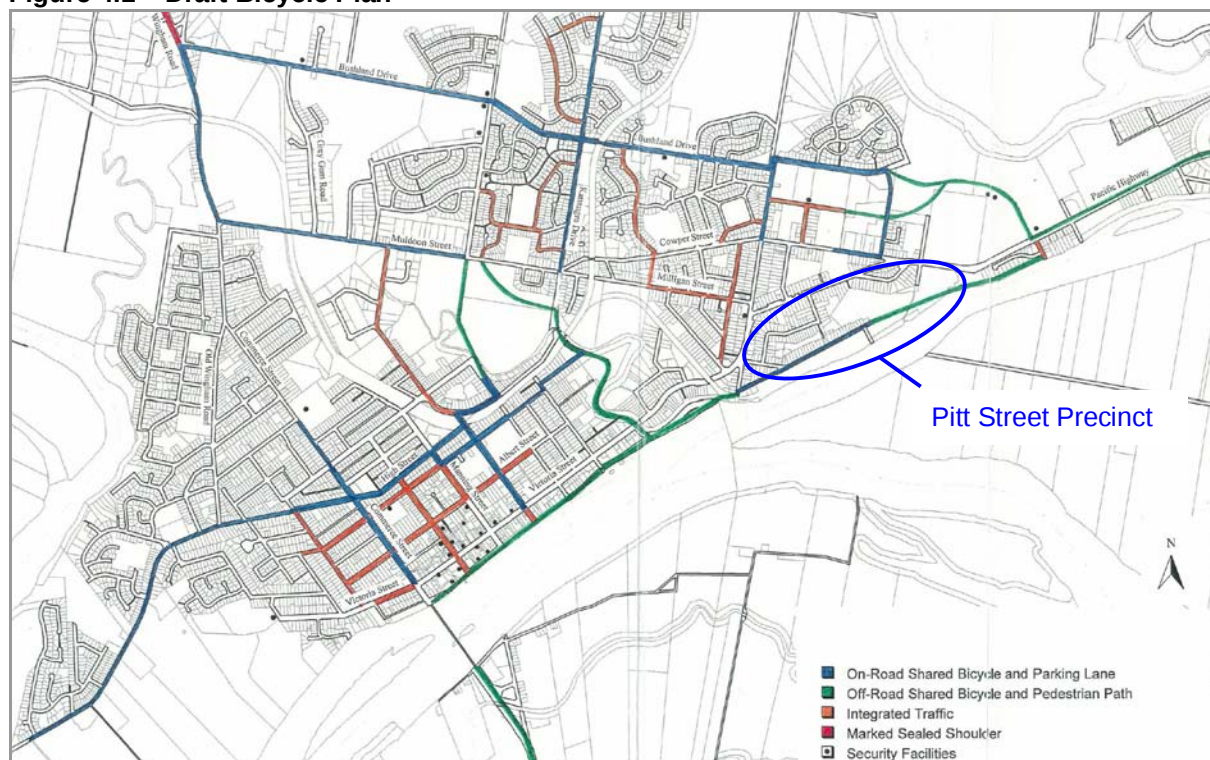
Pedestrian access to the site is severed by the Crescent Avenue/Chatham Avenue/Manning River Drive corridor. Connectivity between Taree City Centre and the site is constrained by the creek and railway.

Opportunities for improved pedestrian accessibility include safe, controlled crossing points within the Crescent Avenue/Chatham Avenue/Manning River Drive corridor, including the Bligh Street intersection and potentially Lyndhurst Street. Improved access along the waterfront to Taree City Centre should also be pursued in line with the principles defined in the Taree CBD Foreshore Management Plan.

4.2 Cycling

Bicycle facilities are currently not evident within the precinct or the surrounding areas. The draft Bicycle Plan for the Greater Taree prepared for Council in 1996 proposed a bicycle route along the Manning River edge between Commerce Street and Manning River Drive. **Figure 4.1** details the proposed bicycle routes within the Greater Taree area.

Figure 4.1 – Draft Bicycle Plan



Source: Greater Taree City Council, 1996

Figure 4.1 indicates opportunities for both on-road and off-road bicycle routes within the Pitt Street Precinct to connect Taree with Chatham.

4.3 Public Transport

Local bus services are provided by Eggins Coach Services to connect Taree with the surrounding localities of Chatham, Taree North, Taree West and Cundletown. Services are not frequent, but are likely to be comparable to the public transport ridership potential of a regional city such as Taree.

School bus services are also provided by other bus operators within the area. While these services are intended for student travel, services are accessible to the public based on the availability of seats.

Various companies operating long distance coach services, such as between Sydney and Brisbane, include Taree as a set-down area. These services are common throughout the day with set-down areas distributed around the Taree town centre.

Taree is serviced by up to five CountryLink rail services daily. These services are intended for long distance travel between Brisbane, Sydney, Casino and Kyogle. Apart from the CountryLink services, there are no local or regional rail operations connecting Taree to the surrounding localities.

Public transport should be provided within the Pitt Street precinct to connect to Taree City Centre and station. The services should be direct and as frequent as possible, with high quality bus stops (with weather protection, seating and timetable information) provided at 400m spacings.

Where possible, stops should be provided on both sides of the road close to crossing points to increase legibility of the public transport system for users. Circular routes or routes using different roads for in-bound and out-bound journeys should be avoided.

4.4 Road Conditions

Figures 4.2 – 4.8 show the existing road conditions of the surrounding streets of Pitt Street Precinct. Crescent Avenue, Chatham Avenue and Manning River Drive all previously formed the Pacific Highway and are still characteristic of an arterial road with up to three travel lanes in each direction with intermittent medians. The roads provide access between many of the surrounding localities within Greater Taree and the city centre whilst providing access to the Pacific Highway.

Figure 4.2 - Intersection of Crescent Avenue, Nelson Street & Lyndhurst Street



Figure 4.3 – Lyndhurst Street looking east



Source: Maunsell (2007)

Figure 4.4 – Pitt Street looking west



Figure 4.5 – Pitt Street looking west



Figure 4.6 – Pioneer Street looking north



Figure 4.7 – Chatham Street looking west



Figure 4.8 – Chatham Street looking east



Source: Maunsell (2007)

To identify the current capacity of the local road network, classified turning counts were undertaken at the following six intersections during August 2007, identified on **Figure 4.9**:

- Pacific Highway/Old Bar Road Interchange;
- Manning River Drive/Commerce Street/Victoria Street Signalised Intersection;
- Crescent Avenue & Lyndhurst Street Priority Intersection;
- Chatham Avenue & Pioneer Street Signalised Intersection;
- Chatham Avenue & Cowper Street Signalised Intersection; and
- Pacific Highway/Princes Street Interchange.

The intersection of Chatham Street and Oxley Street was not identified by RTA or Council as a key intersection and was not included in the survey scope at this preliminary stage.

Figure 4.9 – Location of Classified Turning Counts



Source: Google Maps 2007

The performance of the six intersections has been assessed with the aid of SIDRA Intersection 3.1. The results of this analysis, provided at **Table 4.1**, indicate that the intersections currently have some residual capacity during the peak periods. The intersection of Commerce Street and Victoria Street is approaching capacity with some queuing.

Table 4.1 – Intersection Performance Summary, 2007

Intersection		Level of Service*	Existing Average Delay (Seconds)
Chatham Ave & Pioneer St	AM	B	16.7
	PM	A	14.2
Crescent Ave & Lyndhurst St	AM	B	1.4
	PM	A	1.7
Chatham Ave & Cowper St	AM	B	22.0
	PM	B	20.9
Princes St & Pacific Hwy	AM	A	6.5
	PM	A	5.6
Pacific Highway & Old Bar Road	AM	A	5.6
	PM	A	5.6
Commerce St & Victoria St	AM	C	37.6
	PM	C	29.1

Source: Maunsell 2007

* Level of Service based on RTA criteria for intersections

While the street network has some residual capacity, there are a number of issues that will need to be resolved through the precinct planning process. These include:

- safety concerns have been noted at the Lyndhurst Street/Crescent Avenue priority intersection due to the alignment of Nelson Street.
- Restricted movements at the Bligh Street intersection reduce permeability and connectivity across Chatham Avenue.
- Length of turning bays on Chatham Avenue and safety for vehicles turning into and out of the Crescent Avenue/Chatham Avenue/Manning River Drive corridor.

The availability of three access points (Lyndhurst Street, Pioneer Street and Bligh Street) to the site offers the potential to balance traffic loading onto the adjacent transport network rather than concentrating traffic demands at one access point.

4.5 Flood Access

Figure 4.10 illustrates the extent of the 1 in 100 year flood. It indicates that, in such an event, Pitt Street, Lyndhurst Street, Bligh Street and Chatham Avenue will not be affected and safe passage can be provided for evacuation from the precinct.

Figure 4.10 – 1 in 100 Year Flood Extent



Source: Greater Taree City Council

5.0 The Project

5.1 Development Characteristics

The intent of the current landowners of the precinct is for mixed use redevelopment of the site. They wish to seek support for a comprehensive re-development of the area to capitalise on the deep-water frontage along the Manning River whilst possibly retaining and reusing/adapting the existing industrial buildings.

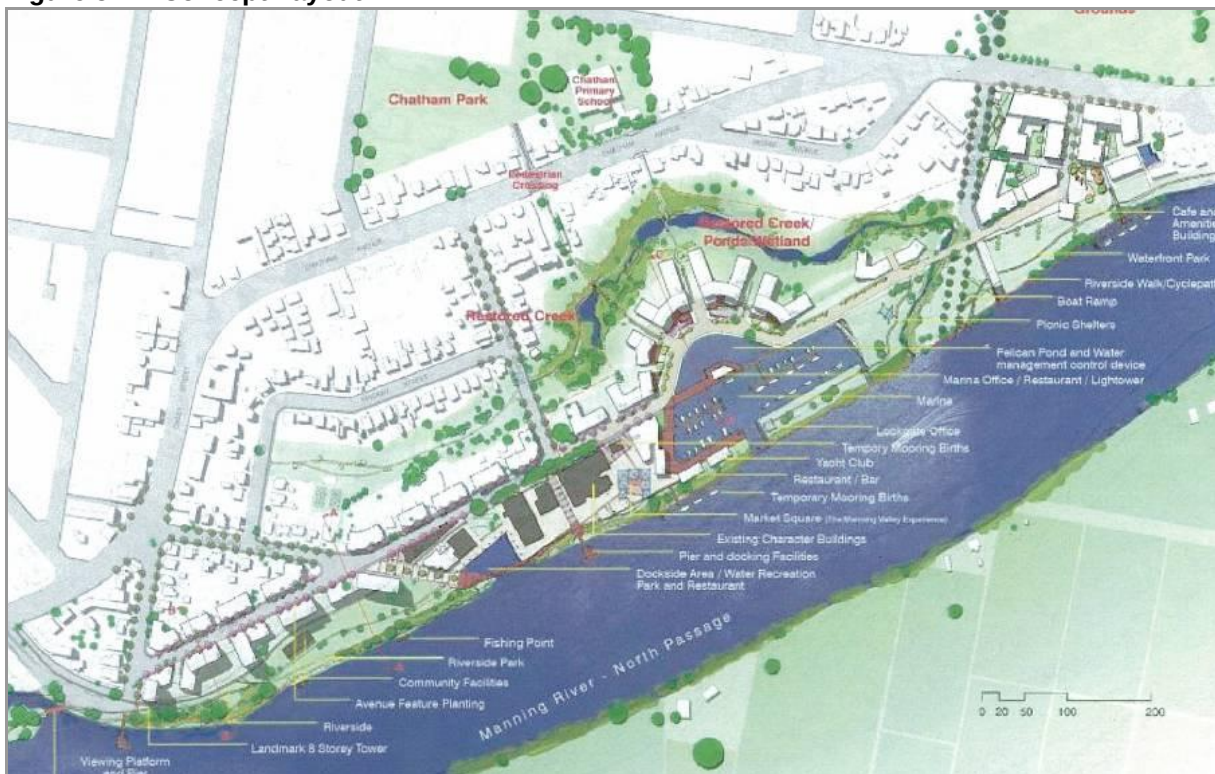
Preliminary options prepared by urban designers have all proposed mixed use developments for the precinct. The common features proposed include marina facilities, residential dwellings, commercial and retail developments within the precinct.

The extent of development is dependant on several factors, one of which is the level of traffic generated by the precinct and the capacity of the surrounding road network in accommodating the additional traffic. Therefore, to assess the permissible level of development, it is necessary to identify and assess the highest trip generation of the precinct whilst the local road network experiences its peak traffic flows.

5.2 Indicative Preliminary Layouts

Figures 5.1 to 5.4 display four possible design layouts for the precinct. All propose to maintain the existing alignment of Pitt Street with varying options for local access roads with varying levels of development of marinas, medium density housing and walkways.

Figure 5.1 – Concept Layout A



Source: Dickson Rothschild, 2007

Figure 5.2 – Concept Layout B



Source: HBO and EMTB, 2007

Figure 5.3 – Concept Layout C



Source: LAB, 2007

Figure 5.4 – Concept Layout D



Source: Suters Architects, 2007

5.3 Potential Trip Generation

At this preliminary stage of assessment, trip rates for the various land uses have been obtained from the Guide to Traffic Generating Developments (RTA, 2002) as summarised at **Table 5.1**. These rates enable the average vehicle trip generation for different scenarios to be estimated.

Table 5.1 – Trip Rates

Development Type	Daily Trip Rate	Peak Hour Trip Rate
Residential (Houses)	9 per dwelling	0.85
Residential (Medium density)	6.5 per dwelling	0.65
Commercial/ Employment	10 per 100m ²	2 per 100m ² (PM)
Marina	2.7 per berth	-
Industrial	5 per 100m ²	1 per 100 m ² (AM)

Source: Guide to Traffic Generating Developments, RTA, 2002

The four preliminary concept layouts provide high, medium and low scenarios that can be used to sensitivity test the development impacts. **Table 5.2** summarises the calculation of likely trips based on the trip rates in **Table 5.1**. It has been assumed that multi-dwelling residential land uses would have three levels across the precinct. The actual development yield and hence transport impacts will need to be refined at the rezoning application stage. A sensitivity test has been included as a fifth scenario.

Table 5.2 – Trip Generation

Land Use	Scenario									
	A		B		C		D		Sensitivity	
	Units	Trips	Units	Trips	Units	Trips	Units	Trips	Units	Trips
Residential – houses (lots)	200	170	0	0	20	17	100	85	250	213
Medium density residential (units)	300	195	500	325	400	195	200	130	250	163
Commercial (m ²)	2,500	50	2,500	50	2,500	50	3,000	60	5,000	100
Marina (berths)	50	135	75	203	100	270	25	68	50	135
Industrial (m ²)	0	0	0	0	0	0	20,000	200	20,000	200
Total		550		578		532		543		811

Source: Maunsell, 2007

6.0 Transport Impacts

6.1 Pedestrians

Pedestrian facilities should be convenient and offer a safe passage through the precinct by connecting to existing pedestrian networks. The concept plans prepared have all indicated an off-road path arrangement along the water's edge to provide a safe and pleasing environment.

Pedestrian paths should be provided along all the roads within the precinct as well as beyond the precinct to connect to any existing pedestrian facilities. In particular, safe passage for pedestrians must be provided across intersections of Crescent Avenue. Permeability across this busy corridor should be improved.

Safe pedestrian connectivity should be provided at key intersections within the surrounds of the precinct where high pedestrian activities are anticipated. Such measures to be investigated should include signalised pedestrian crossings, marked foot crossings, sufficient lighting, tactile markers for the visually impaired, safe buffer zones and kerb ramps. Any proposed signalised intersections should also incorporate pedestrian crossings into the phasing to allow for safe access of pedestrians.

Dependant on vehicle flows, shared zones may be appropriate within the precinct to provide priority for pedestrians in areas near commercial, retail and recreational developments.

6.2 Cycling

The proposed bicycle route through Pitt Street Precinct may be incorporated during the redevelopment of the precinct.

The concept plans prepared for the precinct indicate off-street walkways which may be incorporated as shared pedestrian / cycle paths, therefore the routes would be perceived as a safe environment for cyclists to utilise.

The direct route of the path (provided it is aligned with the river edge) between Crescent Avenue and Manning River Drive, would offer an alternate route to Chatham Avenue for cyclists travelling between Crescent Avenue and Manning River Drive.

6.3 Public Transport

The development would have a positive impact on public transport services, providing the opportunity to enhance services through increased ridership potential. Improving bus services is a key factor in the reduction of reliance on private vehicles and can be achieved by allowing the existing bus operations or new services to access the precinct.

Such services will need designated passenger pick-up / set-down areas. Possible users of the transport service may be commuters and students with destinations to Taree City Centre and surrounding schools.

Bus set-down / pick-up locations should be located in a centrally convenient location within the precinct where it is accessible by the majority of residents.

6.4 Traffic

The morning peak hour is the most onerous in terms of existing transport network performance. Therefore, to analyse a worst-case scenario, the development scenarios have been analysed based on the AM peak period.

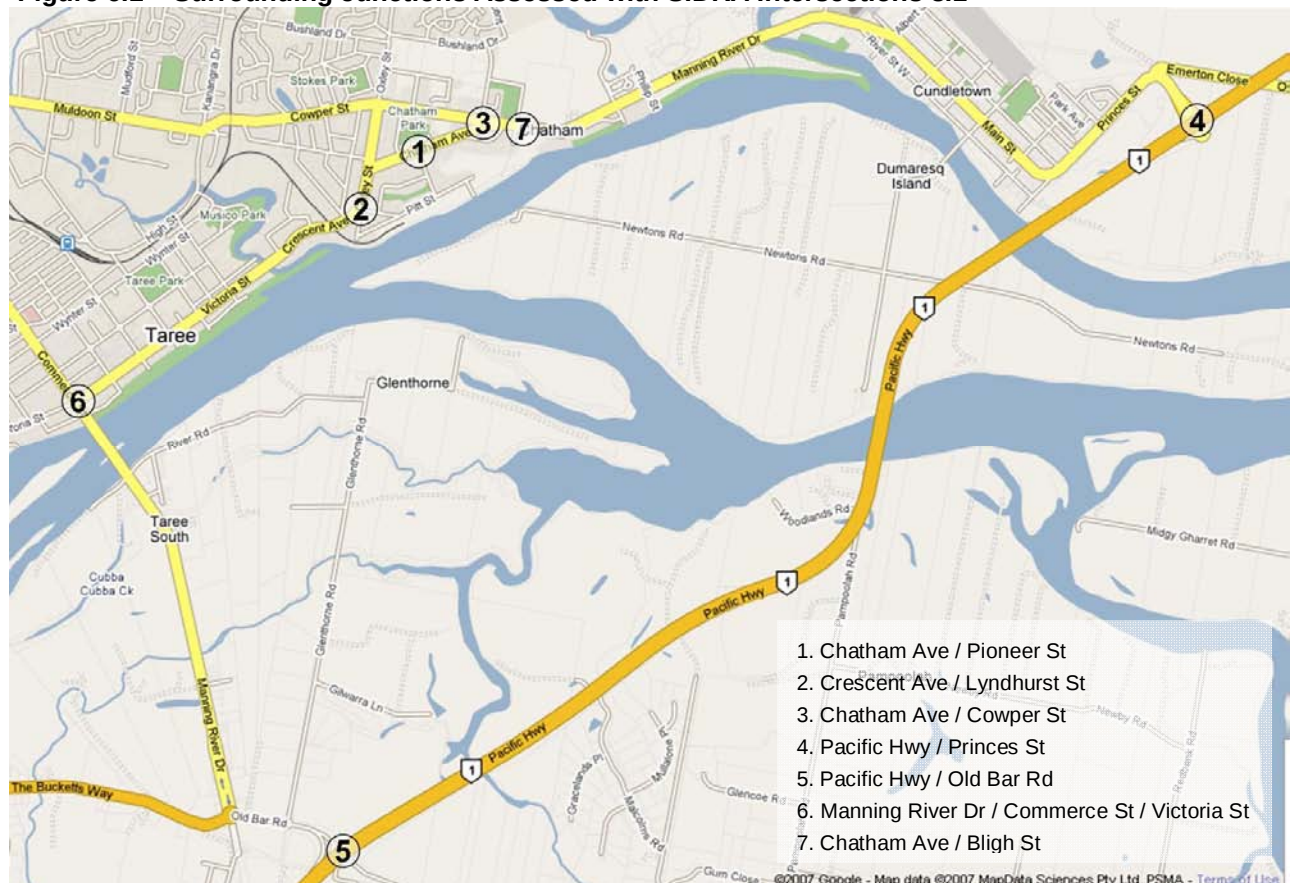
For the purpose of this analysis, the existing peak hour traffic was increased by 5% in anticipation of the growth of traffic within Greater Taree. The current average population growth of Greater Taree is approximately 0.98% per annum¹, therefore a growth factor of 5% is reasonable if it is assumed the precinct is developed within five years.

Furthermore, it has been assumed for AM peak hour, traffic generated by the residential properties exit the precinct during the AM peak hour and traffic generated by the commercial and industrial developments enter the precinct during the peak hour.

Marina facilities and recreational facilities generally have peak traffic occurring during weekends and outside of standard AM and PM peak periods. However, for the purposes of this analysis, it has been assumed that the traffic generated by the Marina would enter the precinct during the AM peak period.

Figure 6.1 displays the location of the intersections examined for possible impact from the development of the precinct. **Table 6.1** provides a summary of the surrounding intersections' performance levels for different development scenarios.

Figure 6.1 – Surrounding Junctions Assessed with SIDRA Intersections 3.1



Source: Google Maps 2007

¹ Annual Bureau of Statistics 2001-2006 Census Data

Table 6.1 – With Development Intersection Performance, 2012

	Base + 5%		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
Intersections	LoS	Avg Delay (Secs)	LoS	Avg Delay (Secs)	LoS	Avg Delay (Secs)	LoS	Avg Delay (Secs)	LoS	Avg Delay (Secs)	LoS	Avg Delay (Secs)
Chatham Ave & Pioneer St	B	16.5	B	19.9	B	20.0	B	19.0	B	19.0	B	20.7
Crescent Ave & Lyndhurst St*	B	22.7	C	32.6	C	33.8	C	33.8	C	34.2	C	40.4
Chatham Ave & Cowper St	B	19.4	B	20.4	B	20.1	B	19.6	B	19.6	B	20.0
Princes St & Pacific Hwy*	B	23.4	B	26.7	B	26.3	B	25.2	B	25.2	B	26.9
Pacific Hwy & Old Bar Road	A	5.5	A	5.7	A	5.7	A	5.7	A	5.7	A	5.7
Commerce St & Victoria St	C	37.7	D	43.7	D	43.6	D	43.7	D	44.2	D	46.4
Manning River Dr & Bligh St*	B	24.9	B	21.4	B	21.4	B	21.3	B	21.2	B	21.7

* The average delay for sign controlled intersection is based on the movement with the highest average delay.

* The level of service for sign controlled intersection is based on the critical movement of the intersection.

Table 6.1 reports that the 'Level of Service' (LoS) of the local intersections would be within satisfactory levels during the AM peak period. However, as the traffic generation of the precinct is increased, the intersection of Commerce Street and Victoria Street will reach its capacity, indicating that this intersection may limit the extent of development that can be provided within the precinct.

Further examination has revealed that the current south-bound and east-bound approaches at the intersection of Commerce Street and Victoria Street are already operating at capacity with long delays for both approaches. It was revealed that the delays for these approaches are due to the short turning bay for the right-turn movement into Victoria Street from Commerce Street. Extending this turn-bay would greatly improve the performance and capacity of the intersection.

The probable cost of expanding the turn bay on Commerce Street may be in the order of \$270,000 plus costs incurred with possible relocations of service lines, electrical posts, land acquisition, stormwater pipe realignments and bridge adjustments. Costs should be confirmed using local unit costs and the accuracy confirmed through progression of a design.

The outputs shown in **Table 6.1** assume the closure of Nelson Street at the intersection of Crescent Avenue. Nelson Street currently provides access to commercial premise with dual frontages on Crescent Avenue and Nelson Street as well to residential properties located on Nelson Street and Pitt Street.

The current layout of the Crescent Avenue / Lyndhurst Street / Nelson Street intersection requires motorists to observe several opposing movements before attempting to enter Crescent Avenue from either Nelson Street or Lyndhurst Street. This has been noted as a safety concern by Council.

Accident data between 2000 and 2005 indicates that there have been five accidents at this location involving vehicle movements between Crescent Avenue / Nelson Street / Lyndhurst Street. To improve safety and performance at the intersection, it may be necessary to restrict exiting movements at Nelson Street via such treatments as left-entry only or lane closures at the intersection.

Although the existing traffic flows and accident data may not warrant signals at the intersection of Crescent Street and Lyndhurst Street, the anticipated increase in vehicle and pedestrian flows at the intersection may benefit from a signalised intersection.

A signalised intersection not only improves safety for vehicles but also allows greater opportunities for pedestrian connectivity within the surrounding streets. An average cost of implementing signalised intersections at similar locations have been in the order of \$150,000. However, this is subject to additional costs incurred from coordination, pedestrian facilities, additional lighting and ongoing maintenance.

6.5 Flooding

Council requires that the proponent demonstrates *“that permanent, fail safe, maintenance free measures are incorporated in the development, to ensure the timely, orderly and safe evacuation of people from the area, should a flood occur².”*

In the event of a 1 in 100 year flood, access to the site would be maintained via Pitt Street and Bligh Street. However, the existing pasture land would be affected by such a flood event.

Therefore to satisfy Council's requirement for a *‘permanent, fail safe, maintenance free measures incorporated in the development to ensure that timely, orderly and safe evacuation of people from the area’* during a flood event imposes the requirement for all proposed built developments within the flood prone zone to be developed to withstand the 1 in 100 year flood.

The condition also constrains any internal roads designed within the zone to be constructed above the flood levels to ensure a safe flood evacuation route. Thus the preliminary options previously prepared will need to ensure that the proposed developments are constructed above the flood levels and all properties are accessible to an internal flood evacuation route.

6.6 Construction Traffic Impacts

A significant area of the precinct is positioned below acceptable flood clearance levels, therefore it is expected that high volumes of heavy vehicles would be generated to transport fill during the precinct's development stages. As such, a detailed Construction Management Plan would need to be formalised once a design plan for the precinct has been established and an estimate of the construction traffic volumes are formalised.

As internal roads within the study area branch from adjacent arterial roads to provide direct access to the precinct, construction vehicle movements within surrounding local streets would be minimal. Furthermore, the alignments Pitt Street, Bligh Street and Pioneer Street may allow for three separate access locations onto the site during construction stages, thus distributing the construction traffic within the surrounding intersections.

The precinct's proximity to the arterial roads of Crescent Avenue, Chatham Avenue and Manning River Drive implies that, dependant on the origination, transportation of construction materials would have minimal impact on Greater Taree's surrounding local roads as there is no need for construction vehicles to traverse through local traffic areas.

To assess the construction vehicles' impact on the surrounding intersections, sensitivity tests of various heavy vehicle flows during the AM peak were examined with SIDRA and are summarised in **Table 6.2**. The construction program and process is unknown, therefore the construction vehicles have been assumed as sensitivity tests from 0.5 vehicles per minute to 1.2 vehicles per minute.

² Greater Taree City Council, 1987, Interim Flood Management Policy

Table 6.2 – Summary of Construction Period Sensitivity Tests

Intersection		Base + 5%		30 heavy vehicles / hour		60 heavy vehicles / hour		90 heavy vehicles / hour	
		LoS	Avg Delay (Secs)	LoS	Avg Delay (Secs)	LoS	Avg Delay (Secs)	LoS	Avg Delay (Secs)
Chatham Avenue & Pioneer Street	AM	B	16.5	B	17.0	B	17.6	B	18.0
Crescent Avenue & Lyndhurst Street*	AM	B	22.7	B	24.9	C	37.2	F	80.0
Chatham Avenue & Cowper Street	AM	B	19.4	B	19.5	B	19.6	B	19.8
Princes Street & Pacific Highway*	AM	B	23.4	B	23.9	B	24.6	B	25.2
Pacific Highway & Old Bar Road	AM	A	5.5	A	5.5	A	5.6	A	6.6
Commerce Street & Victoria Street	AM	C	37.7	C	39.9	C	40.2	D	42.5
Manning River Drive & Bligh Street*	AM	B	24.9	B	28.2	C	35.8	D	47.1

* The average delay for sign controlled intersection is based on the movement with the highest average delay.

* The level of service for sign controlled intersection is based on the critical movement of the intersection.

Table 6.2 indicates that the surrounding intersections would perform within satisfactory levels with up to 60 vehicles (representing 60 entries and 60 exits) during the AM peak hour. It is also observed that with increases of up to 90 heavy vehicles, the intersection of Crescent Avenue and Lyndhurst Street will fail to accommodate the anticipated volumes.

The main impacts of construction will be amenity impacts, noise, dust and pedestrian safety. These issues would need to be addressed through a construction traffic management plan and cannot be identified or confirmed at this preliminary stage.

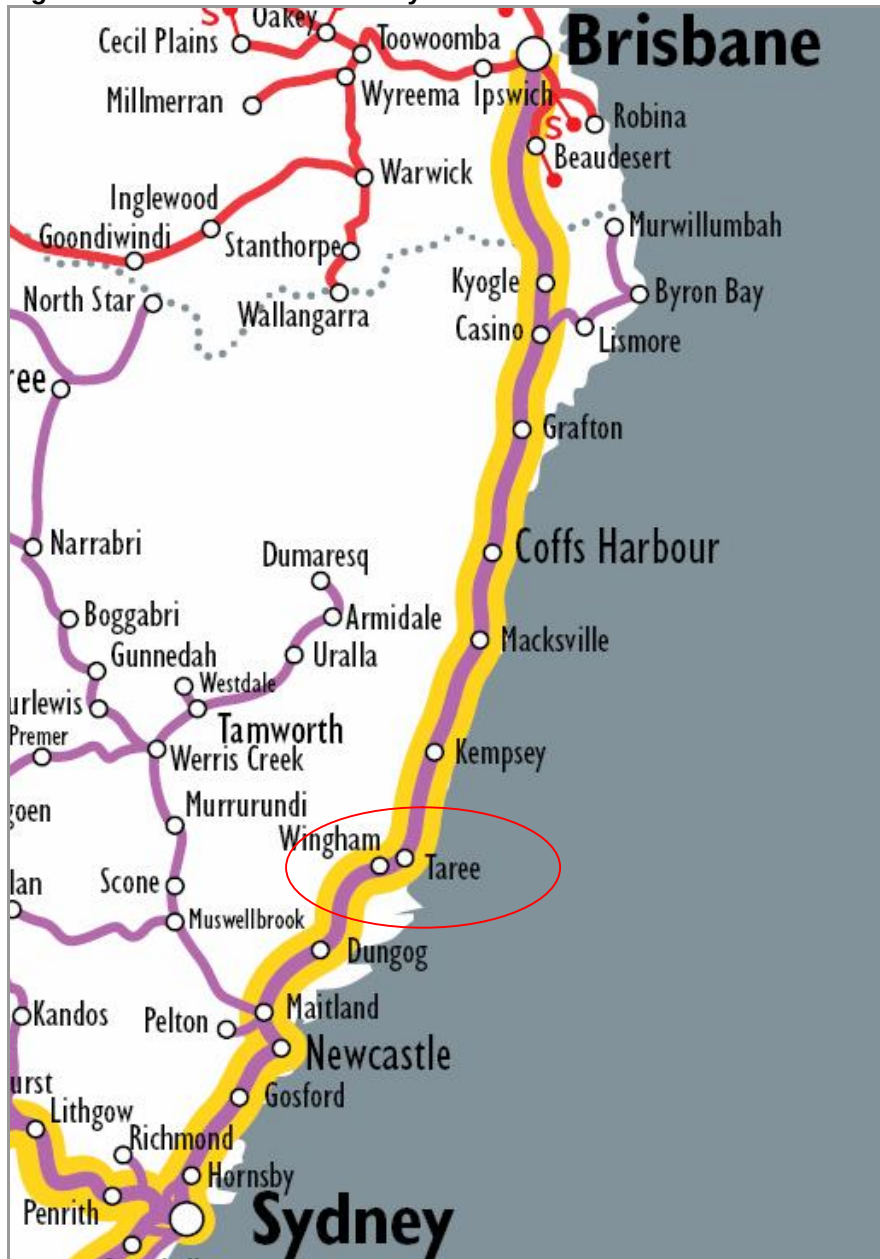
7.0 Rail Feasibility

7.1 Introduction

The existence of the rail siding facilities within precinct has raised the feasibility of introducing passenger services from the existing rail service to Taree. As the rail facility has not been in use in recent times and was previously installed to transport freight, operational issues, infrastructure requirements and the likely order of costs need to be assessed.

For the purpose of the analysis, it has been assumed that passenger train services to the precinct would link to areas south of Taree including Sydney and Newcastle, as shown in **Figure 7.1**.

Figure 7.1 – North Coast Railway Line



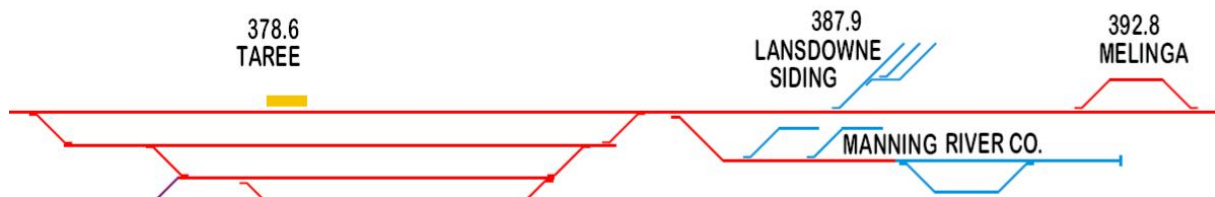
Source: Australian Railway Association website <http://www.ara.net.au/>

7.2 Existing Track Configuration

The section of track leading into the precinct is the Manning River Rail Siding (spur line) located off the North Coast Railway Line between Sydney and Brisbane. The spur line forms a junction with the North Coast Line immediately north of Taree and is located approximately 380km from Sydney.

According to Australian Rail Track Corporation (ARTC) operational documentation, the siding terminates approximately 3.2km north of Taree railway station and is itself approximately 2km long. The diagram below illustrates the schematic layout of the existing sidings with Sydney shown to the left of **Figure 7.2**.

Figure 7.2 – North Coast Railway Line



Source: ARTC, 2007

7.3 Operational Issues

The ARTC working timetable (published 5 August 2007) confirms that the existing spur line has been decommissioned and there are no trains that currently access the line. The line was originally installed to facilitate transport of goods for three separate industrial operations located within the precinct. Since the decommissioning, the industrial operators have chosen to transport freight by road vehicles and ceased utilisation of the rail lines.

Currently, Taree station is accessed by the following CountryLink services:

- Sydney to Casino XPT (arrives at Taree 12:36pm);
- Sydney to Grafton XPT (arrives at Taree 5:11pm);
- Sydney to Brisbane XPT (arrives at Taree 9:42pm);
- Casino to Sydney XPT (Overnight service departs Taree at 1:42am);
- Grafton to Sydney XPT (departs Taree at 11:07am); and
- Brisbane to Sydney XPT (departs Taree at 4:30pm).

The layout of the existing train line from Taree to the Pitt Street Precinct would result in passenger train services using shuttle service to transport passengers to and from the precinct to Taree Station. The alternative of designating the Pitt Street precinct station as part of the North Coast Railway line would involve diverting the existing train services to the precinct and back-tracking of the rail service to realign with the main railway line.

7.4 Infrastructure Requirements

Re-commissioning the rail line and converting the rail line for passenger train services would require the following rail infrastructure works to be completed:

- Track upgrading works – Re-sleepering, new rail and additional ballast;
- Junction upgrading works – Upgrading of the existing junction with the North Coast Line;
- New platform at the Pitt Street Precinct – Construction of a new terminating platform at the end of the spur line;

- Station facilities – Installation and construction of new station facilities including car parking, services, passenger amenities, staff amenities, ticketing facilities, security and communications equipment;
- Level crossing upgrading – Level crossings will need to be either upgraded or rationalised to manage the new services; and
- Signalling works – re-signalling of the junction with the North Cost Line.

Some basic assumptions have been made regarding the required infrastructure, these include:

- Track class to be upgraded to suit passenger services (Class 1);
- All works will be within the existing corridor;
- No new earthworks will be undertaken;
- Track geometry will remain unchanged;
- No bridges or structure will be modified;
- Maintenance responsibility for the overbridges will remain with the RTA/ local council;
- Level crossings will be rationalised from two down to one (i.e. removal of access road to the dairy effluent pump station) and be fully protected with lights, bells and boom gates;
- Platform to be a basic 20m structure to allow for one car trains to terminate;
- Infrastructure along the existing spur line will be rationalised (i.e. removal of redundant turnouts and sidings);
- The line will be for passenger use only, no freight will operate on the line; and
- No change has been assumed at the existing Taree Station.

7.5 Probable Cost

The likely costs associated with the introduction of new passenger services onto the existing spur line include the following components:

- 1) Infrastructure costs – Infrastructure costs comprising of the items previously listed including track infrastructure, station infrastructure and amenities. This is likely to incur a cost of between \$9-13 Million depending of the condition of the existing infrastructure and the adopted configuration.
- 2) Rolling stock (passenger train vehicles) – Additional rolling stock may need to be acquired should passenger services be introduced on the upgraded line. Single car unit may cost in the order of \$5-7Million³ which would include maintenance for a specified period.
- 3) Maintenance Costs – Maintenance costs include both routine maintenance (including track walk inspections and minor maintenance works) and major periodic maintenance. The overall maintenance costs will vary depending on the frequency of trains and the loads that are carried. For the section of renewed track with infrequent passenger trains it is estimated that the maintenance costs may be in the order of \$50,000 - \$100,000 per annum.
- 4) Operational Costs – Operational costs includes staff (eg. drivers, station staff, operational staff) and network access fees charged by ARTC. Without any detailed concepts the estimated preliminary operational costs on the new route would be approximately \$2-3M per annum.

7.6 Potential Effects

Introduction of a regular rail service to the precinct will benefit those residing within the rail catchment travel between the site, the town centre and the wider area. Aside from the obvious benefit for passenger transportation, a rail service would reduce the demand for parking and reduce the volume traffic within the town centre.

³ Figures based on the estimated cost of the recently procured Hunter Rail Cars (see <http://www.rtsa.com.au/events/conferences/core/2004/final-paper-07-duncan.pdf>)

The estimated catchment of the station has been estimated using typical residential densities and Census data, as shown in **Table 7.1**.

Table 7.1 – Estimated catchment population, excluding waterfront development

Zone	Land Use	Number of Lots/ Area (ha)	Population/ Lot or Employees / Hectare	Total Population
2a	Residential	450	2.41*	1,085
3a	Business General	1.7	28**	48
3b	Business Automotive and Tourist	2.5	28**	70
4	Industrial	34.1	28**	955
Total				2,157

* Source: 2001 Census: average population of households, Taree

** Source: Guide to Traffic Generating Developments (RTA, 2002)

The low volume of passengers predicted to utilise the rail service from Pitt Street does not appear to warrant the cost of introducing a passenger rail service. On this basis, the passenger rail service between Taree and Pitt Street precinct is not considered feasible and is not recommended.

8.0 Ability of the Site to Support Development

8.1 Transport Impacts

The site currently has good opportunities for connectivity with the adjacent road network, being served by three roads at the western end, centre and eastern end of the site. The current road network surrounding the site performs well during the morning and evening peak periods, with all intersections performing at Level of Service C or better. Although both peaks are very consistent, the morning peak period is slightly worse.

General analysis of possible scenarios for development has shown that the vehicle traffic generated by redevelopment of the precinct can be accommodated within the local road network without mitigation measures. However, the analysis has shown that traffic near the Taree town centre may be affected if the development scenarios increase considerably, requiring intersection treatment works to be carried out at the intersection of Commerce Street and Victoria Street.

The majority of the land within the precinct is prone to a 1 in 100 year flood levels, any proposed development will need to be accessible to a flood evacuation route by direct access to either Pitt Street or Manning River Drive.

With appropriate planning, the redevelopment of the precinct provides an opportunity to provide pedestrian / bicycle friendly environment with residential and recreations faculties in close proximity to the Taree town-centre to further enhance Taree as a tourist destination.

8.2 Rail Feasibility

A review of rail feasibility has identified that the site cannot viably support the introduction of passenger services on the existing spur line. The costs of providing the necessary infrastructure would not be re-couped by the likely patronage.

The rail corridor, therefore presents an opportunity for alternate uses such as a walking trail or shared path.

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Richard Pamplin - Manager Environmental and Strategic Planning
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3 September 2009

Dear Richard

RE: Adequacy of the Phase 1 Transport Review report submitted in support of the Preliminary Assessment of the Pitt Street, Taree Waterfront Precinct Concept Plan

The transport assessment entitled 'Pitt Street Waterfront Precinct Rezoning Phase 1 – Transport Review' (Maunsell AECOM, 31 October 2007) was originally prepared in support of the *Preliminary Assessment of the Pitt Street, Taree Waterfront Precinct Concept Plan* dated 26 February 2008.

The transport assessment has been reviewed in detail to determine:

- 1) Whether the scope and findings adequately address the issues presented by the Local Area Plan (LAP) / Masterplan (provided by email on 14 July 2009); and
- 2) Whether any findings in the assessment are superseded by the LAP/Masterplan.

Table 1 below outlines any additional issues identified as a result of the transport assessment review and how these issues have been, or may be addressed through the planning process.

Table 1: Issues/Recommendations Identified for the LAP / Masterplan

Issue	Recommendation
DGR 6.1: <i>Prepare a Traffic Impact Study in accordance with Table 2.1 of the RTA's Guide to Traffic Generating Developments to address matters, including the following:</i> • <i>The capacity of the road network to safely and efficiently cater for the additional traffic generated;</i> • <i>Access to and within the site;</i> • <i>Servicing and parking arrangements;</i> • <i>Intersection site distances;</i> • <i>Connectivity to existing developments;</i> • <i>Impact on public transport (including school bus routes);</i> • <i>Provision of access for pedestrians and cyclists to, through and within the site; and</i> • <i>Identify suitable mitigation measures, if required, to ensure the efficient functioning</i>	The Phase 1 Transport Review was a traffic and transport assessment prepared for the purpose of re-zoning the Figtrees on the Manning site. The review identified the opportunities and constraints for: • Pedestrians; • Cyclists; • Public Transport; and • Existing road network. The Transport Review analysed four development scenarios for Figtrees on the Manning and assessed the capacity of the adjacent road network for each of the development scenarios. The internal road layouts, land uses and floor space areas originally assessed as part of the

of the network	Transport Review differ from the Local Area Plan (LAP) / Master Plan. However, the forecast trip generation of the site is similar to the sensitivity assessment undertaken as part of the Transport Review. Therefore, the findings of the Transport Review in relation to the capacity of the road network to accommodate the current LAP/ Masterplan remains valid. Other specific details identified by the DGR, such as staging of the development and construction traffic impact assessment, were not addressed.
DGR 6.2: <i>Address the proposal's public infrastructure requirements, including a pedestrian cycle bridge over Browns Creek, pedestrian and cycle links through the site, road connection between Bligh and Pitt Street, and the treatment of the land/waterway interface. Address the construction sequencing of those facilities and Council's long term maintenance responsibilities.</i>	The Transport Review identified current constraints of the existing infrastructure as well as potential opportunities to improve accessibility within the area. The Transport Review did not identify specific infrastructure requirements, construction staging or maintenance arrangements. These issues should be addressed by the applicant and Council as part of the Voluntary Payment Agreement.
DGR 6.3: <i>Protect existing public access to and along the foreshore and provide new opportunities for controlled public access. Consider access for the disabled, where applicable.</i>	The Transport Review identified opportunities to enhance accessibility between foreshore and the town centre of Taree. It also assessed the development scenarios' capabilities in providing access to the waterfront. The LAC / Master Plan suggest boardwalks, jetties, viewing platforms and river pool/stage along the waterfront to improve public access to the waterfront.
The land uses identified in the 'Traffic Generation Assessment' of the LAP / Master Plan differs from the Transport Review. Also, the Traffic Generation Assessment does not reflect the suggested development lot yields shown for each of the Master Plan precincts	Although the development lot yields differ between the assessments undertaken by the Transport Review and the current LAP / Masterplan, the forecast trips generated by the site are similar and the findings of the Transport Review remain valid for the current LAP / Masterplan.

Yours faithfully



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