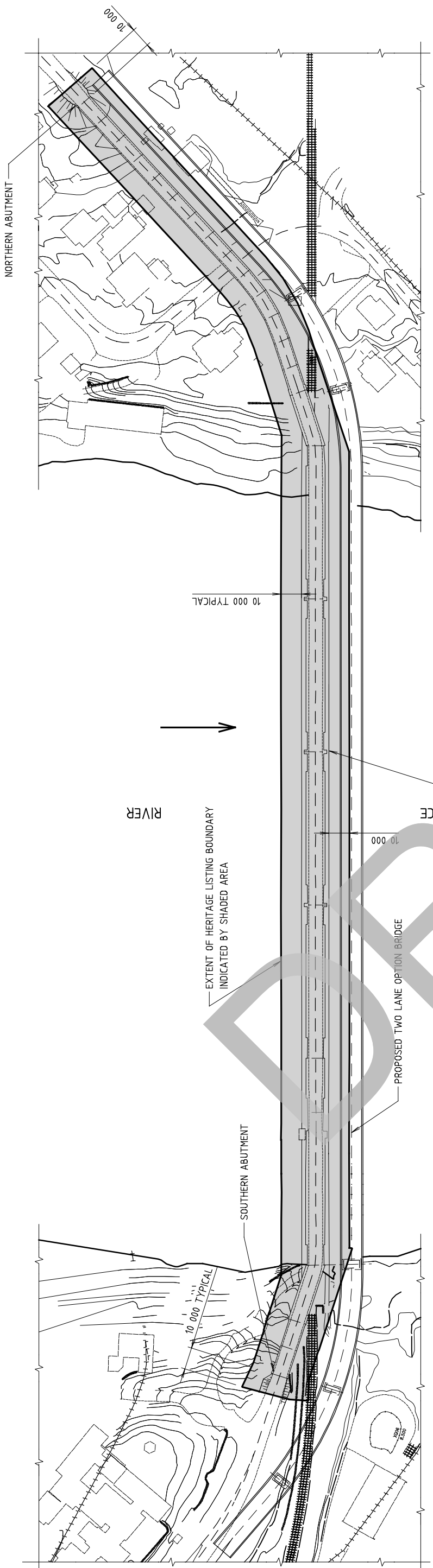


Appendix A

Plans of the Proposed Two Lane New Bridge

DRAFT



GENERAL NOTES

SCALE 0 10 20 30 40 50m
OR AS SHOWN

DIMENSIONS ARE IN MILLIMETRES
CHAINAGES AND REDUCED LEVELS ARE IN METRES
REDUCED LEVELS ARE RELATED TO
THE BRIDGE CONTRACT DOES NOT INCLUDE


PLAN

ADVANCE COPY
NOT TO BE USED
FOR CONSTRUCTION
15/03/2005

ISSUE	DATE	SHOW EXISTING BRIDGE	DaH	HC
A	14-03-05			
		REVISION	PREP	CHECK AUTH

ROADS AND TRAFFIC AUTHORITY OF NSW
CITY OF GRAFTON
MAIN ROAD No 83
PROPOSED MODIFICATIONS TO BRIDGE OVER
CLARENCE RIVER AT GRAFTON
TWO LANE OPTION (EXISTING BRIDGE)

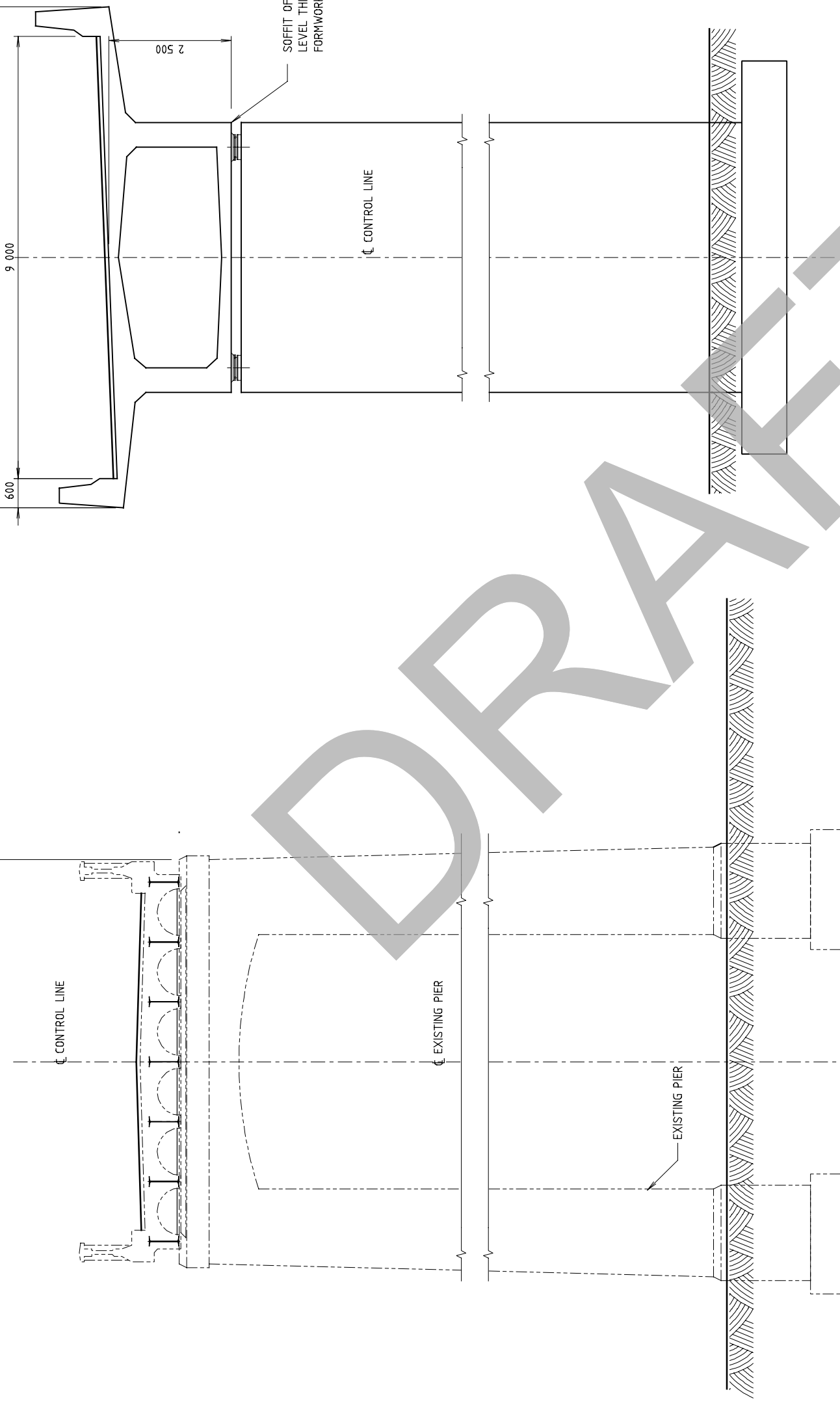
GENERAL ARRANGEMENT

 PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARARAMATTA NSW 2150 PHONE (02) 85374096 FACSIMILE (02) 85374055	CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66404300 FACSIMILE (02) 66461301
PREPARED DESIGN <i>H.C. Hoyle</i> DRAWING <i>D. J. Hoyle</i>	CHECKED SKETCH No KD678A
MANAGER, BRIDGE DESIGN PRODUCTS	SHEET No 1A No OF SHEETS 7

CAD No. KD678GAPa.dgn

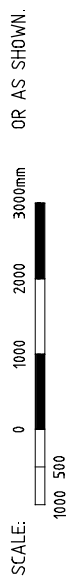
VARIES FROM 4 500 TO 10 000

10 200
9 000



ADVANCE COPY
 NOT TO BE USED
 FOR CONSTRUCTION
 15/03/2005

GENERAL NOTES



PIER 13 ELEVATION
 PIER 14 SIMILAR U.N.O.

A	14-03-05	SHOW EXISTING BRIDGE	D&H	HC
ISSUE	DATE	REVISION	PREP	CHECK/AUTH

ROADS AND TRAFFIC AUTHORITY OF NSW
 MAIN ROAD No 83
 CITY OF GRAFTON
 PROPOSED MODIFICATIONS TO BRIDGE OVER
 CLARENCE RIVER AT GRAFTON
 TWO LANE OPTION (EXISTING BRIDGE)
 PIER 13 AND PIER 14



PREPARED BY
 BRIDGE SECTION
 110 GEORGE STREET
 PARRAMATTA NSW 2150
 PHONE (02) 86374096
 FACSIMILE (02) 86374055

CLIENT
 NORTHERN REGIONAL OFFICE
 31 VICTORIA STREET GRAFTON
 PO BOX 576 GRAFTON NSW 2460
 PHONE (02) 66414300
 FACSIMILE (02) 66461301

PREPARED	CHECKED	SKETCH No
DESIGN		
DRAWING		

KD678A

SHEET No **6A** No OF SHEETS **7**

MANAGER, BRIDGE DESIGN PRODUCTS

CAD No. KD678P13E-Rev.01

DRAFT

Appendix B

Artist's Impression of the New Bridge

**Preliminary Artist's Impression of Proposed
New Bridge**



DRAFT

Appendix C

Visual Assessment of Option 2b

EDITORIAL LOG:

Project No: 000632

Project Name: RTA Northern Region

**Proposed duplication of the Clarence River Bridge
Visual Assessment of Option 2b from downstream**

Document Reference No.0632760 vis assess report

Version	Date	Author	Notes
1.A	18.03.05	JA	Draft
2.B	22.03.05	JA	Revised Draft
3.C	23.03.05	JA	Final Report
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Printing:

Distribution	No. of Copies	By/Hand/Courier/Collect
Peter Black, RTA	1	digital
Peter Black, RTA	1	digital as PDF
Peter Black, RTA	1	Digital as PDF

RTA Proposed
Duplication of the
Clarence River Bridge
Visual Assessment of Option 2b from downstream

DRAFT



www.geolink.net.au

RTA Proposed
Duplication of the
Clarence River Bridge
Visual Assessment of Option 2b from downstream

DRAFT

Contact us

www.geolink.net.au

Level 1, 64 Ballina Street
PO Box 9
Lennox Head NSW 2478
T 02 6687 7666
F 02 6687 7782

33 Gordon Street
PO Box 1446
Coffs Harbour NSW 2450
T 02 6651 7666
F 02 6651 7733

Ref: 0632760 vis assess report
Date: 18 March 2005

Table of Contents

section	Page
1 Introduction	
1.1 focus of visual assessment	3
1.2 visual assessment	3
2 Methodology	
2.1 terminology.....	4
2.2 methodology.....	4
3 The Project Site	
3.1 site location	7
3.2 existing bridge	9
3.3 heritage significance.....	10
3.4 site surrounds.....	10
3.5 significance of site surrounds	11
3.6 sensitivity of the landscape to alteration.....	12
3.7 viewer sensitivity to alteration of the landscape	13
3.8 significance of the existing views & vistas	13
4 Option 2b for bridge duplication	
4.1 background	14
4.2 Option 2B	14
5 Views from Downstream	
5.1 determining affected locations.....	15
5.2 assessing views	17
5.3 Girl Guide Place and Pound Street Jetty.....	17
5.4 Clarence River 2 Viewing Locations.....	19
5.5 Fry Street boat ramp	22
5.6 Pacific Highway.....	24
5.7 Kent and Greaves Street corner.....	26
5.8 Clarence River Bridge	28
5.9 Bridge approaches	30
6 Recommendations	
6.1 recommendations.....	32
7 Conclusion	
7.1 overview.....	33
7.2 visual assessment summary	33
7.3 conclusion	37
8 References	
9 Copyright and Usage Note	

List of Illustrations

Illustration 1 – location of Clarence River Bridge and proposed Option 2b bridge.....	8
Illustration 2 – view from downstream of the Clarence River Bridge	9
Illustration 3 – view of the Clarence River Bridge from the river end of Fitzroy Street	9
Illustration 4 – northern approach to the bridge.....	10
Illustration 5 – rural land on the eastern river bank	11
Illustration 6 – residential properties downstream of the existing bridge on the western river bank.....	11
Illustration 7 – heritage listed fig trees on Breimba Street.....	12
Illustration 8 – potentially affected locations.....	16
Illustration 9 – view from Girl Guide Place	17
Illustration 10 – view from Girl Guide Place with impression of proposed bridge	17
Illustration 11 – view from Pound Street Jetty.....	17
Illustration 12 – view from Pound Street Jetty with impression of proposed bridge.....	18
Illustration 13 – view from Clarence River opposite Pound Street Jetty.....	20
Illustration 14 – view from Clarence River opposite Pound Street Jetty with impression of proposed bridge.....	20
Illustration 15 – view from Clarence River opposite river end of Bacon Street.....	20
Illustration 16 – view from Clarence River opposite river end of Bacon Street with impression of proposed bridge.....	20
Illustration 17 – view from river bank at end of Fry Street looking upstream to the Clarence River Bridge	22
Illustration 18 – view from river bank at end of Fry Street with impression of proposed bridge	22
Illustration 19 – view from Pacific Highway, north of Centenary Drive turnoff looking towards Grafton and Clarence River Bridge	24
Illustration 20 – view from Pacific Highway with impression of proposed bridge	25
Illustration 21 – looking from the intersection of Kent and Greaves Streets to the northern bridge approach.....	27
Illustration 22 – looking to northern bridge approaches with impression of proposed northern approach.....	27
Illustration 23 – railway and sugar facility southeast of existing bridge	30
Illustration 24 – the northern approach to the Clarence River Bridge.....	31
Illustration 25 – side view of the planted embankment.....	31

List of Tables

Table 1 – summary of visual assessment	34
--	----

Introduction

1.1 focus of visual assessment

The RTA Northern Region has prepared a Statement of Heritage Impact for the proposed duplication of the Clarence River Bridge at Grafton, NSW. This report identifies Option 2b as the preferred option for the bridge duplication. This option is located approximately 9.3m downstream of the existing bridge.

As part of the Statement of Heritage Impact report, the RTA commissioned GeoLINK to prepare a visual assessment for Option 2b. The RTA indicated the NSW Heritage Office required a visual assessment from downstream of the proposed bridge location.

The focus of this study is limited to the visual impacts of the proposed Option 2b bridge on the existing bridge and the existing bridge approaches. The extent of the heritage listed bridge and approaches is indicated in the RTA drawing KD678A which can be found in the Statement of Heritage Impact Report.

1.2 visual assessment

This assessment considers the potential visual impacts of the proposed bridge on locations downstream of the site. These include private residential properties, the Pacific Highway, the Clarence River, publicly accessible locations and the existing Clarence River Bridge.

Methodology

2.1 terminology

Definitions for the key terminology used in this report are provided below:

Landscape feature

A part of the landscape that can be seen from the viewing location which may be, or is known to be, an important landmark, view, cultural item or landscape feature (natural or artificial)

High scenic value

Areas with visually prominent features of landform, land cover, water form or built elements. These may include escarpments, elevated ridgelines, visually significant stands of vegetation, geological formations, river, parks, buildings, city skyline or streetscape. Views from an elevated position are also usually of high scenic value. (RTA 2001)

Moderate scenic value

Areas with landform, or built features which tend to be common throughout the region and are not outstanding in visual quality. (RTA 2001)

Low scenic value

Areas with features of minimal diversity or variety. (RTA 2001)

2.2 methodology

The following process has been adopted for the visual assessment of the proposed Option 2b bridge duplication.

2.2.1 Understanding the Proposal

This visual assessment commences with a review of the planning documentation for the proposal. This includes the RTA's Statement of Heritage Impact, the bridge plans and the Environmental Overview.

2.2.2 Site Analysis

The site investigation phase of the assessment will include an investigation of the proposed bridge site and the surrounds. The analysis of the existing site and surrounds will consider:

- the significance of existing landscape types (e.g. Natural, Cultural and Urban)
- sensitivity of the landscape/urban area to alteration by the proposed works
- viewer sensitivity to alteration by the proposed works
- significance of existing views and vistas

This phase will also identify locations downstream of the proposed bridge that have the potential to have their existing views affected by the proposed bridge.

2.2.3 Potential Views to the Site

The possible viewing locations will be identified on an aerial photograph. For each viewing location with the potential to have affected views, photographs will illustrate the existing view and the potential new view. The RTA has indicated that the proposed option 2b bridge is at route selection stage and this will be subject to concept design at the EIA stage. The bridge has been indicated as a balanced cantilever type bridge. This is one of the superstructure options that could be considered at concept design stage. This assessment considers this type of bridge.

A mock up of the proposed Option 2b bridge will be added to each view to provide an impression of how the proposed bridge would appear.

2.2.4 Visual Analysis

Using the view mock-ups, a visual assessment will determine the potential visual impacts of the proposed bridge on the affected locations. The following 'desirable outcomes' will be used to provide a standard for measuring the potential impact for each view. These outcomes reflect a best case scenario with a minimal visual impact.

Desirable Outcomes

1. The proposed bridge would not obstruct the view to any landscape feature from the property or public location.
2. The proposed bridge would not interrupt any significant views from the property or public location.
3. The proposed bridge would not detract from the visual amenity of an important visual or cultural element or landscape.
4. The proposed bridge would be of a scale appropriate to the setting when viewed from a property or public location.
5. The proposed bridge would be of materials sympathetic to the surrounds.
6. The proposed bridge would be of a form sympathetic to the surrounds.

The views to the proposed bridge will be assessed against these 'desirable outcomes' with an overall assessment being made as to the potential visual impact. This assessment will be based on a rating of low, medium or high potential visual impact. These ratings are based on the following:

ratings	Relative to 'Desirable Outcomes'
no visual impact	achieved all desirable outcomes
low visual impact	fully achieved at least 5 desirable outcomes and impacts could be substantially lessened through the instigation of recommendations
medium visual impact	partially achieved at least 5 desirable outcomes and some impacts could be lessened by the instigation of recommendations
high visual impact	achieves less than 4 desirable outcomes and it would be extremely difficult to lessen the visual impacts

2.2.5 Recommendations

Recommendations will be made to mitigate the potential visual impacts on affected private properties, public locations and the surrounding landscape.

DRAFT

The Project Site

3.1 site location

The project site is located at Grafton, 320km south of Brisbane. The proposed bridge duplication site is over the Clarence River, approximately 9.3m downstream of the existing Clarence River Bridge. The existing bridge provides a crossing between North and South Grafton. The following map indicates the study site.

DRAFT

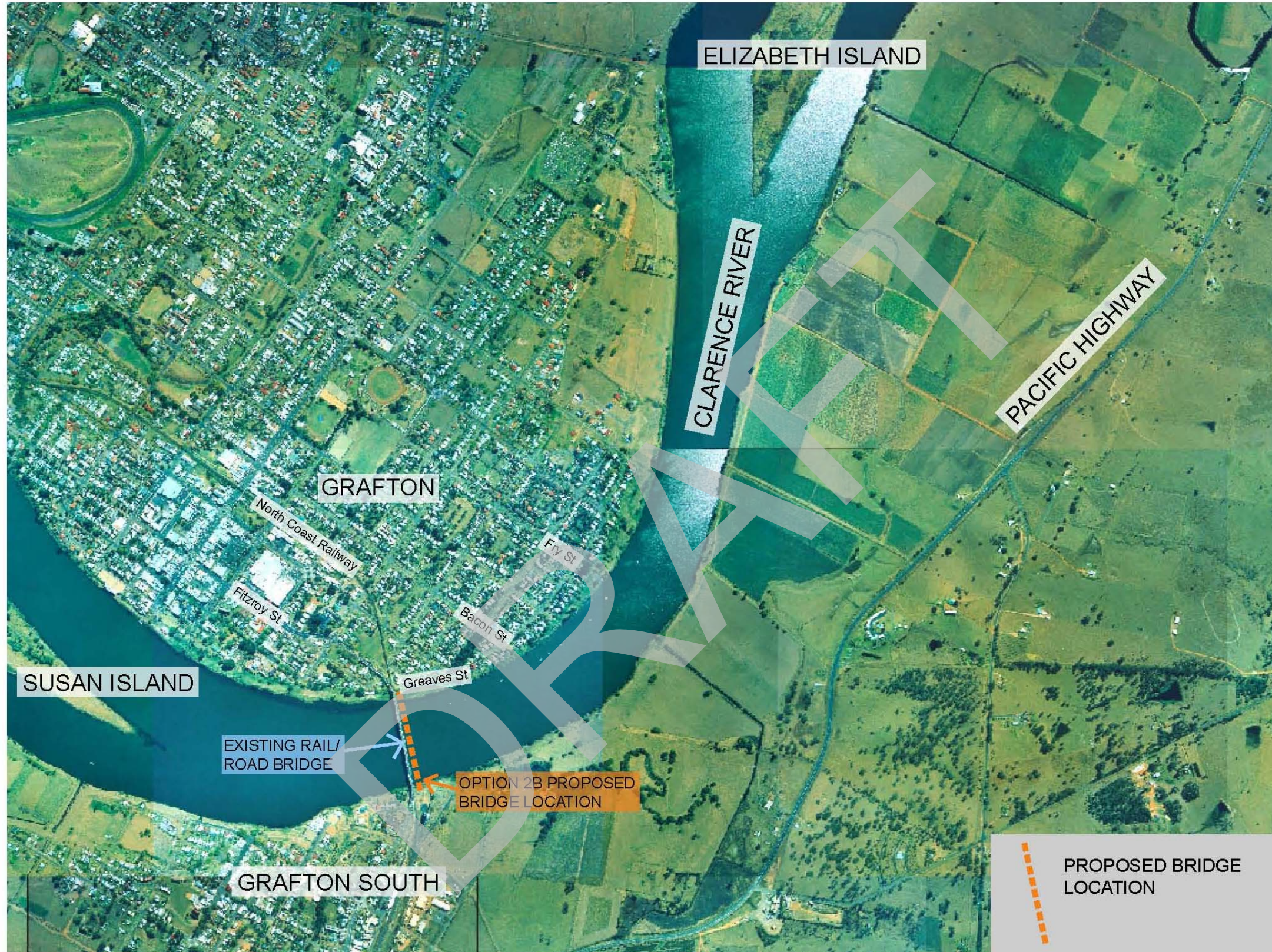


Illustration 1 – location of Clarence River Bridge and proposed Option 2b bridge

3.2 existing bridge

The Grafton Bridge is 13m high and 667m in length including its approaches. It includes 5 fixed spans and the moving span of the bascule. The bridge accommodates both vehicular and rail traffic. At the design of the bridge, a "Rail" bascule span was incorporated to accommodate the double-deck structure. The road on the upper deck is of reinforced concrete. The rail is located at the lower level with a pedestrian pathway cantilevered either side of the bridge at this level. These pathways have an aluminium deck and chain mesh fencing surrounds.

The southern approach to the Grafton Bridge is carried upon a steel truss span of 30.48m, two concrete and steel spans of 12.19m each and an earth embankment approximately 30.5m long and 10.9m wide. The northern approach includes a 30.48m steel truss span and fourteen steel and concrete spans of 12.80m each. (RTA 2004)

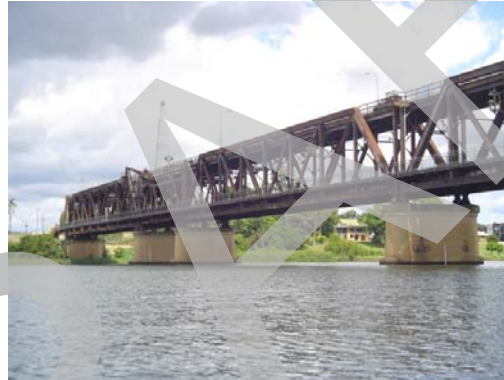


Illustration 2 – view from downstream of the Clarence River Bridge



Illustration 3 – view of the Clarence River Bridge from the river end of Fitzroy Street



Illustration 4 – northern approach to the bridge

3.3 heritage significance

The Clarence River Bridge is considered to be an item of state heritage significance. The bridge was significant in completing the connection for a standard gauge rail link between Sydney and Brisbane. The bridge, opened in 1932, has also become a landmark for the City of Grafton and creates a distinct silhouette when viewed over the Clarence River with the rural setting in the distance.

The bridge is also significant in its design. The bascule span of the bridge is of an unusual type in Australia and it is also the largest railway bascule span built in Australia. The bridge is the only one in NSW to carry road and rail traffic on two different levels. It is also unique in that the rail signals were used to control both the rail and road traffic. The bridge has been assessed as having significance at the State level. (RTA 2004).

The Stage heritage significance applies to the bridge and its approaches.

3.4 site surrounds

The majority of Grafton is located on the flood plain of the Clarence River. The town is laid out in the grid pattern that was typical of early Australian urban design. The river divides the town in two. The main business district is located along Prince Street and Fitzroy Streets in North Grafton. The main strip shopping facilities are located along Prince Street. Between the bridge and Prince Street, there are commercial outlets along Fitzroy Street including motels and service stations. There are a number of government facilities on Victoria Street including the post office, courthouse and police station. Other facilities located within North Grafton include the showground, the racecourse, and public parklands.

Along the southern approach to the bridge the land use is a combination of residential with commercial areas in clusters along Armidale Street. Immediately to the southeast of the bridge, there is a sugar storage facility. Beyond this facility, the land use along the eastern bank of the river is rural. There is a scattering of remnant vegetation along this section of the river bank.

Along the northern approach to the bridge there is a combination of residential and commercial land use. Northeast of the bridge is an older residential area that includes the heritage listed fig trees along part of Breimba Street. This

area includes the wide streets, grassed swales and established street trees that contribute to Grafton's historic and leafy character. This residential area extends along the west bank of the river to Elizabeth Island. At this location there are less residential homes and the land use appears to be mostly rural.

There is a small area of parkland at the end of Pound Street, northeast of the bridge. This parkland provides access to the Pound Street jetty. There are a number of boats moored on the Clarence River at this location. There is also a boat ramp at the river end of Fry Street.

There is an area of parkland along the west bank of the river on the upstream side of the bridge. A path here links to the pedestrian accesses across the bridge. At the river end of Fitzroy Street there is also a sailing club, sheds and picnic tables.

The North Coast Railway leaves the Clarence River Bridge and travels northwest through North Grafton. At South Grafton there is a passenger train station south of the sugar facility.

The broader surrounds to Grafton represent fertile river flood plains used for grazing and agriculture. This type of land use is visible in the immediate surrounds to the bridge on the eastern bank of the river, downstream from the bridge and at South Grafton.



Illustration 5 – rural land on the eastern river bank

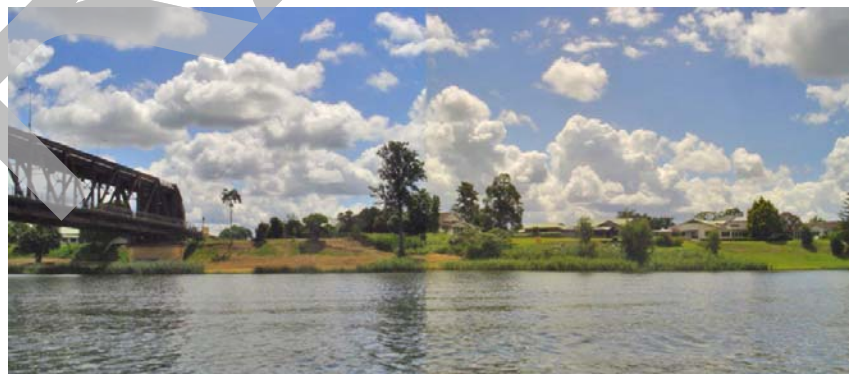


Illustration 6 – residential properties downstream of the existing bridge on the western river bank

3.5 significance of site surrounds

The surrounds to the proposed bridge include a range of landscape types. The river, Elizabeth Island and Susan Island contribute to providing distinct natural elements. The scale of the river, approximately 400m wide between North and South Grafton, makes this natural element particularly dominating. The river is also the focus for numerous activities with houses overlooking the river,

boating clubs having access to its banks and a number of parks having river frontage.

The nearby residential areas and city centre contribute to creating an urban landscape type. This landscape type occurs either end of the bridge and continues for the extent of North and South Grafton. This landscape type contrasts with the rural landscape type that is evident along the eastern river bank and also to the west of South Grafton.

All of these landscape types can be seen to represent a cultural landscape as they are all evidence of human activity in the region over the years. Certain landscape elements within the site surrounds have a more easily identifiable cultural value as they have become either heritage listed or assigned heritage value. These include the Clarence River Bridge and its approaches, the fig trees along Breimba Street, numerous buildings along Prince Street and the Post Office on Victoria Street. The significance of certain residential areas has also been recognised by the establishment of Urban Conservation Areas.



Illustration 7 – heritage listed fig trees on Breimba Street

The natural, urban and cultural landscape types within the surrounds can all be seen to be significant. Collectively, they are the elements that give Grafton its character. The river is the focus of the town and provides the attractive natural setting. The rural landscape surrounds the town and is evidence of part of the town's history and current use. Certain elements of the urban landscape, particularly the heritage valued and listed elements, create streetscapes and locations of high visual amenity.

Within this setting, the Clarence River Bridge represents both an urban and cultural landscape.

3.6 sensitivity of the landscape to alteration

The proposed bridge represents the greatest change to the urban and cultural landscape that is the existing Clarence River Bridge and the natural landscape that is the Clarence River. The characteristics of the setting, i.e. the wide river and the openness of the setting, make this setting highly sensitive to any proposed structure. The urban landscape would also be modified to accommodate the proposed bridge approaches. This would involve earthworks and construction. The settings for the proposed approaches are not as exposed as the actual bridge setting, but these works would represent a change to the existing landscape. The rural landscape would not be modified

to accommodate the proposed bridge and is, therefore, not sensitive to the proposed alteration.

3.7 viewer sensitivity to alteration of the landscape

There are a number of factors that would be likely to make viewer sensitivity to the proposal high. These include:

- the existing Clarence River Bridge is a local landmark;
- the existing Clarence River Bridge is a major traffic route within Grafton;
- the proposal site is very open;
- the proposal is a superstructure; and
- the proposal would require considerable earthworks and construction.

All these factors mean alteration to the existing landscape would be highly visible and very noticeable.

3.8 significance of the existing views & vistas

The site and site surrounds provide the opportunity for many attractive views and vistas. The Clarence River is the focus of many views available out from the riverbank. In particular, good views are possible to the river from the numerous foreshore parklands in North and South Grafton. For some of these views, the Clarence River Bridge is also a focal point. In particular, the silhouette of the Clarence River Bridge creates an attractive view and one that is distinct to Grafton. Views to the river and the bridge are generally broad views.

There are other significant views within the site surrounds. These include views to the rural landscape. These are significant in that they identify the broader setting for the City of Grafton. There are also a number of significant vistas along a number of the older streets, particularly those that include heritage valued or listed items.

Option 2b for bridge duplication

4.1 background

In 2002, the RTA undertook a Feasibility Study to identify options for the placement of a second Clarence River Bridge at Grafton. Six localities were considered. An Environmental Overview was prepared and used to shortlist the potential bridge duplication localities. Following the short listing of localities, crossing options were developed. RTA has subsequently done further analysis of these options and has identified Option 2b as its preferred option.

4.2 Option 2B

Option 2b proposes a bridge duplication on the downstream side of the existing bridge. The proposed bridge would provide 2 traffic lanes. It would be located approximately 9.3m from the existing bridge for the majority of the river crossing. At the northern approach, the proposed bridge would then curve to the northwest, crossing the railway line and aligning with the existing northern approach. On the southern side, the bridge would curve around the kink in the existing bridge and realign with the existing southern approach. The existing bridge level is at RL 18.68 with the top of the steel work another 1.6m higher again. The bridge level for the proposed bridge would be at RL 20.40. A concrete kerb would be an additional 1.2m above this. Therefore the overall difference in total height would be a maximum of approximately 1.3m with the proposed bridge finishing higher. This would be subject to negotiations with Australian Rail Track Corporation and the RTA to negotiate a lower clearance over the railway. The proposed bridge would include concrete piers. These would be located in line with the existing bridge piers. The proposed piers would be similar in size to the existing bridge piers.

Views from Downstream

5.1 determining affected locations

This study was limited to the affected properties and public locations downstream of the proposed bridge location. The process for determining potentially affected properties and public locations included reviewing the site surrounds on an aerial photo and on site investigation. The following locations were identified as having the potential to have views affected by the proposed bridge and bridge approaches.

- residences downstream of the site and on the western river bank;
- small park at the river end of Pound Street (Girl Guide Place);
- the Pound Street Jetty at the river end of Pound Street;
- rural properties downstream of the site and on the eastern river bank;
- downstream on the Clarence River between the bridge and the Fry Street boat ramp;
- the Pacific Highway northbound from Grafton, just north of the Centenary Drive turnoff;
- residential properties on the corner of Kent and Greaves Street;
- and
- the vehicular deck of the existing Clarence River Bridge.

There did not appear to be homes within the rural land along the eastern river bank and, therefore, these views have not been assessed.

The following views have been assessed.

1. view from Girl Guide Place
2. view from Pound Street Jetty
These two views will be used as indicative as views from the private properties along the western river bank. It is noted a number of these residences are closer than these locations to the bridge.
3. view from the Clarence River (centre of river, opposite the Pound Street Jetty)
4. view from the Clarence River (centre of the river, opposite the river end of Bacon Street);
The river views will be assessed collectively as they are very similar.
5. view from the boat ramp at Fry Street
6. view from the Pacific Highway, north of Centenary Drive turn off
7. view from residences on corner of Kent and Greaves Street
8. views from the vehicular deck of the existing Clarence River Bridge

The following map identifies the location of these views.

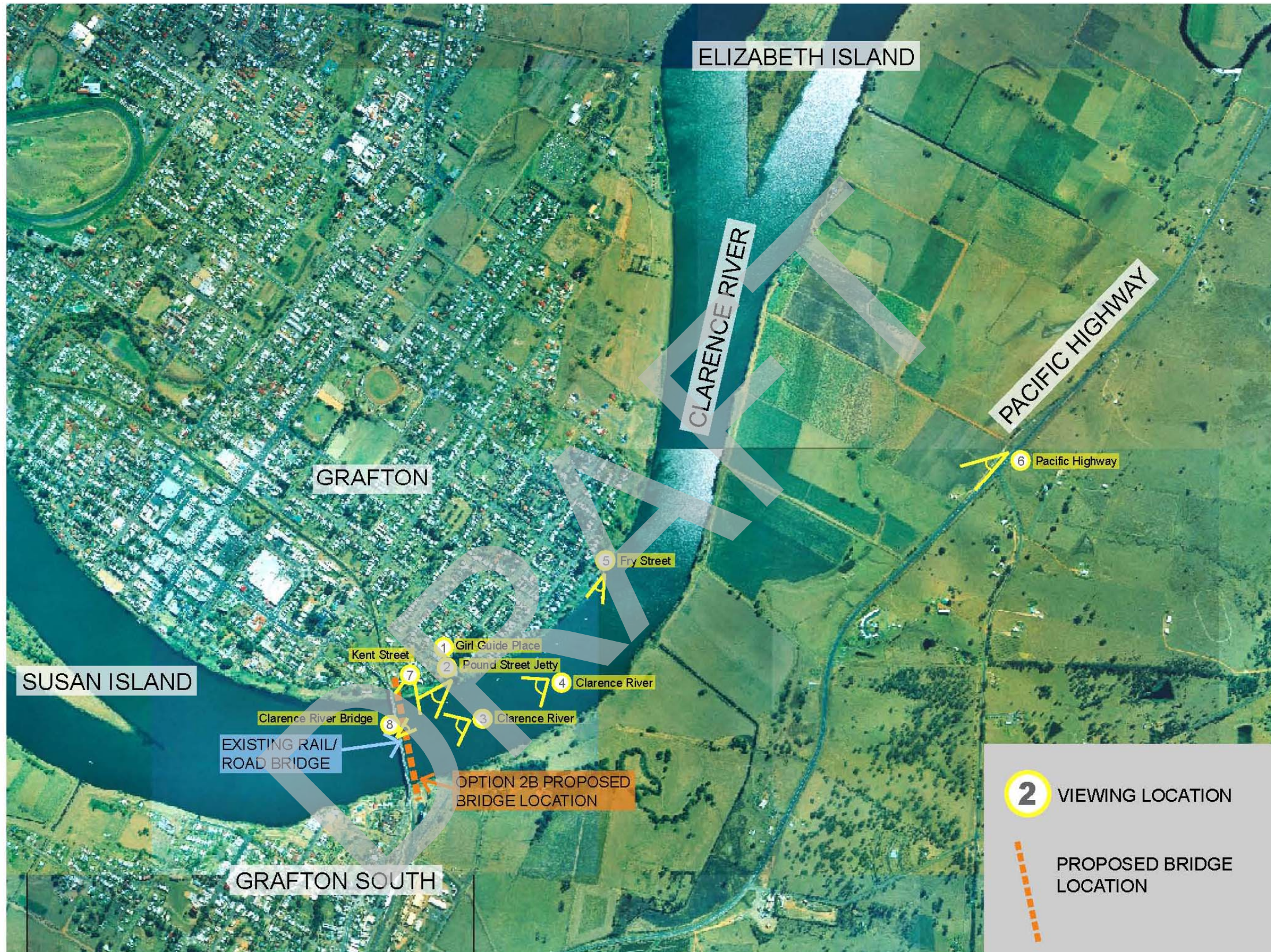


Illustration 8 – potentially affected locations

5.2 assessing views

Each view will be presented using before and after photographs. The after photographs include a mock up based on the current RTA design of the bridge. Each view will be assessed against the 'desirable outcomes'.

5.3 Girl Guide Place and Pound Street Jetty

Given the proximity of these two viewing locations, they have been assessed jointly. These viewing locations are seen to be representative of the way in which the residential properties along the western bank of the river would have their views affected by the proposed bridge. It is noted, however, that a number of these residential properties are closer to the bridge than these locations.

Girl Guide Place is a small area of park at the river end of Pound Street. This location has clear, slightly elevated views upstream to the Clarence River Bridge. The northern extent of the bridge is partially concealed by vegetation at the top of the river bank. This location is approximately 200m downstream of the existing bridge.

The Pound Street Jetty is accessed from Girl Guide Place and is also approximately 200m downstream of the existing bridge. Given that the jetty is at water level and extended into the river, this location provides clearer views up river to the Clarence River Bridge.



Illustration 9 – view from Girl Guide Place



Illustration 10 – view from Girl Guide Place with impression of proposed bridge



Illustration 11 – view from Pound Street Jetty



Illustration 12 – view from Pound Street Jetty with impression of proposed bridge

The views from these locations have been assessed against the desirable outcomes with the following findings.

Desirable Outcome 1

The proposed bridge would not obstruct the view to any landscape feature from the property or public location.

The Clarence River Bridge is an important landmark and cultural element within Grafton and is, therefore, a landscape feature. The proposed bridge would be located approximately 9.3m downstream of the existing bridge and would obstruct views to much of the existing bridge. The bulk of the proposed concrete arches would limit views to the steel trusses of the existing bridge, to the existing vehicular level and to parts of the rail level. It would also obstruct the view to the bascule and the Rail mechanism. The piers to the proposed bridge would obstruct the view to the piers of the existing bridge.

Desirable Outcome 2

The proposed bridge would not interrupt any significant views from the property or public location.

Currently, Girl Guide Place provides good views to a portion of the Clarence River, to the sugar facility at South Grafton and to the Clarence River Bridge. Views from the Pound Street Jetty take in more of the bridge and the river upstream of the bridge. These views are determined to be of high scenic value as they take in the natural feature of the Clarence River and the visually prominent built element of the Clarence River Bridge. From both viewing locations, the proposed bridge would not affect views to the Clarence River and to the sugar facility. It would, however, interrupt the significant view currently available to the Clarence River Bridge.

Desirable Outcome 3

The proposed bridge would not detract from the visual amenity of an important visual or cultural element or landscape.

The views from these locations have a very high visual amenity taking in the Clarence River Bridge, a portion of the Clarence River and the rural landscape along the eastern river bank. The proposed bridge would be an obvious additional built element within this view. The Clarence River Bridge is an important landmark and part of this is the view of its silhouette against the Clarence River, Grafton and surrounding rural region. The proposed bridge would not affect the view to the river and the rural land, however, it would obstruct the view to the existing bridge and would detract from the visual amenity of this important cultural element.

Desirable Outcome 4

The proposed bridge would be of a scale appropriate to the setting when viewed from a property or public location.

The Clarence River Bridge and the Clarence River are the dominating landscape elements within these views. Both elements are large in scale. The existing bridge and expanse of the river provide an appropriate scale of setting for the proposed bridge. Therefore, the proposed bridge would be of a scale appropriate to the setting.

Desirable Outcome 5

The proposed bridge would be of materials sympathetic to the surrounds.

The existing bridge is of steel trusses. The proposed bridge is currently indicated as a reinforced concrete bridge with arches. The materials of the proposed bridge are not in keeping with materials used in the Clarence River Bridge and would be likely to contrast strongly with the existing bridge materials.

Desirable Outcome 6

The proposed bridge would be of a form sympathetic to the surrounds.

The existing bridge is geometric and angular in form. The layout of the steel trusses creates a fairly open form that enables views through the bridge to the landscape beyond. The current concept for the proposed bridge features a bridge with concrete arches. The arches of the proposed bridge would be likely to contrast with the linear nature of the existing bridge. The proposed bridge is also more solid in form and would be likely to contrast with the open layout of the steel trusses.

The piers of the proposed bridge would be aligned with the piers of the existing bridge. This would assist in 'blending' the bases of the two bridges.

Considered relative to the river, the proposed bridge is simple in form and would be likely to be sympathetic to the natural surrounds i.e. the river.

5.4 Clarence River 2 Viewing Locations

These two viewing locations have also been assessed together as the views are similar just varying distances from the proposed bridge site. The closer view is taken at approximately the centre of the river opposite the Pound Street Jetty. The second view is also at approximately the centre of the river, opposite the river end of Bacon Street. The first viewing location is approximately 300m downstream of the proposed bridge location. The second location is approximately 600m downstream of the proposed bridge location.



Illustration 13 – view from Clarence River opposite Pound Street Jetty



Illustration 14 – view from Clarence River opposite Pound Street Jetty with impression of proposed bridge



Illustration 15 – view from Clarence River opposite river end of Bacon Street



Illustration 16 – view from Clarence River opposite river end of Bacon Street with impression of proposed bridge

The views from these locations have been assessed against the desirable outcomes with the following findings.

Desirable Outcome 1

The proposed bridge would not obstruct the view to any landscape feature from the property or public location.

The Clarence River Bridge is an important landmark and cultural element within Grafton and is, therefore, a landscape feature. The proposed bridge would be located approximately 9.3m downstream of the existing bridge and would obstruct views to much of the existing bridge. The bulk of the proposed concrete arches would limit views to the steel trusses of the existing bridge, to the existing vehicular level and to parts of the rail level. It would also obstruct the view to the bascule and the Rall mechanism. Depending on the viewing position on the river, the proposed piers could also obstruct the views to the piers of the existing bridge.

Desirable Outcome 2

The proposed bridge would not interrupt any significant views from the property or public location.

From these central locations on the Clarence River, significant views are possible up the river to the Clarence River Bridge, South Grafton and the rural landscape beyond. Significant views are also possible to the rural land along the eastern river bank and to the residential properties located along the western river bank. These views are determined to have high scenic value as they take in the natural feature of the Clarence River and the visually prominent built element of the Clarence River Bridge. From both viewing locations, the proposed bridge would not affect views to the rural landscape, the residential area along the western bank, to South Grafton or the rural landscape beyond. The proposed bridge, however, would affect the significant view to the Clarence River Bridge.

Desirable Outcome 3

The proposed bridge would not detract from the visual amenity of an important visual or cultural element or landscape.

The views from these river locations have a very high visual amenity taking in wide views of the Clarence River, the rural landscape, an attractive older residential area and the Clarence River Bridge with South Grafton in the background. The proposed bridge would be an obvious additional built element within this view. The Clarence River Bridge is an important landmark and from the river the bridge is clearly visible and creates a striking silhouette against the sky. The proposed bridge would not affect the view to the river and surrounding landscape and, therefore, would be unlikely to detract from the attractiveness of these elements. It would, however, obstruct the view to the existing bridge and its silhouette. It would, therefore, detract from the visual amenity of this important cultural element.

Desirable Outcome 4

The proposed bridge would be of a scale appropriate to the setting when viewed from a property or public location.

Broad views are possible out from these river viewing locations. These broad views take in the Clarence River, the rural landscape to the east, the residential area to the west and the Clarence River Bridge with South Grafton in the background. These landscape elements provide a large scale of setting for the proposed bridge. Therefore, the proposed bridge would be of a scale appropriate to the setting.

Desirable Outcome 5

The proposed bridge would be of materials sympathetic to the surrounds.

The existing bridge is of steel trusses. The proposed bridge is currently indicated as a reinforced concrete bridge with arches. The materials of the proposed bridge are not in keeping with materials used in the Clarence River

Bridge and would be likely to contrast strongly with the existing bridge materials.

Desirable Outcome 6

The proposed bridge would be of a form sympathetic to the surrounds.

The existing bridge is geometric and angular in form. The layout of the steel trusses creates a fairly open form that enables views through the bridge to the backdrop beyond. From the water, the existing bridge is silhouetted against the sky. The current concept for the proposed bridge features a bridge with concrete arches. The arches of the proposed bridge would be likely to contrast with the linear nature of the existing bridge. The proposed bridge is also more solid in form and would be likely to contrast with the open layout of the steel trusses.

The piers of the proposed bridge would be aligned with the piers of the existing bridge. This would assist in 'blending' at least the bases of the two bridges.

Considered relative to the river, the proposed bridge is simple in form and would be likely to be sympathetic to the natural surrounds i.e. the river.

5.5 Fry Street boat ramp

This location is at the end of Fry Street, northeast of the Clarence River Bridge. This site has been assessed as it represents the extent at which any of the existing bridge can be seen from the western river bank (downstream of the bridge). Any properties on the western river bank and north of this location do not have views to the bridge. The Fry Street location is approximately 1km from the Clarence River Bridge.



Illustration 17 – view from river bank at end of Fry Street looking upstream to the Clarence River Bridge



Illustration 18 – view from river bank at end of Fry Street with impression of proposed bridge

The view from this location has been assessed against the desirable outcomes with the following findings.

Desirable Outcome 1

The proposed bridge would not obstruct the view to any landscape feature from the property or public location.

From this location, visible landscape features include the Clarence River, the rural landscape along the eastern bank and the southern end of the Clarence River Bridge. The Clarence River Bridge is approximately 1km away and is not the dominant landscape feature within this view. The proposed bridge would obstruct the view to the Clarence River Bridge, but this is currently a long distance view that only takes in the southern extent of the existing bridge.

Desirable Outcome 2

The proposed bridge would not interrupt any significant views from the property or public location.

Broad views are possible out from this viewing location. These broad views take in the Clarence River and the rural landscape to the east. These broad views have a high scenic value as they include the natural feature of the Clarence River. The view also takes in a small portion of the Clarence River Bridge. The proposed bridge would not interrupt the broad views possible to the river and the east river bank. The proposed bridge would interrupt the view to the Clarence River Bridge. Once again this view would be a long distance view and a limited view of the existing bridge.

Desirable Outcome 3

The proposed bridge would not detract from the visual amenity of an important visual or cultural element or landscape.

The views from this location have a high visual amenity with the Clarence River and the rural landscape along the eastern bank the dominating landscape features. The proposed bridge would be approximately 1km away and would not detract from the visual amenity of this scenery. Only a small portion of the bridge is visible from this location and it is seen some distance away with the river bank as a backdrop. The degree to which the proposed bridge detracts from the existing bridge is somewhat lessened by the indistinct view of the Clarence River Bridge from this viewing location.

Desirable Outcome 4

The proposed bridge would be of a scale appropriate to the setting when viewed from a property or public location.

Broad views are possible out from this viewing location. The broad views take in the Clarence River, the rural landscape to the east and a small portion of the Clarence River Bridge. These landscape elements provide a large scale of

setting for the proposed bridge. Therefore, the proposed bridge would be of a scale appropriate to the setting.

Desirable Outcome 5

The proposed bridge would be of materials sympathetic to the surrounds.

The existing bridge is of steel trusses. The proposed bridge is currently indicated as a reinforced concrete bridge with arches. The materials of the proposed bridge are not in keeping with material used in the Clarence River Bridge. However, from this viewing location both bridges would be approximately 1km away. The contrast between materials would be likely to be less obvious than when viewing from a closer location.

Desirable Outcome 6

The proposed bridge would be of a form sympathetic to the surrounds.

The existing bridge is geometric and angular in form. From this location the small portion of bridge that is visible is viewed against the riverbank. The character of the bridge is, therefore, less distinct than when viewed closer to the bridge and against the sky. The current concept for the proposed bridge features a bridge with concrete arches. The arches of the proposed bridge would be likely to contrast with the lines of the existing bridge. The proposed bridge is also more solid in form and would be likely to contrast with the open layout of the steel trusses. The contrast in forms, however, would be lessened by this viewing location being 1km from the bridge.

Considered relative to the river and rural landscape along the eastern bank, the proposed bridge is simple in form and would be likely to be sympathetic in form to these landscape features.

5.6 Pacific Highway

The Clarence River Bridge is considered a cultural icon and a distinct landscape feature to Grafton and NSW. It is, therefore, appropriate to consider the views to the bridge from the main approach into the town, the Pacific Highway. The bridge is not visible from the southern approach into Grafton. The Clarence River Bridge and the Clarence River are visible from the northern approach to Grafton. The location where the clearest view is possible appears to be just north of the intersection with Centenary Drive. This location is approximately 2.8km from the Clarence River Bridge.



Illustration 19 – view from Pacific Highway, north of Centenary Drive turnoff looking towards Grafton and Clarence River Bridge



Illustration 20 – view from Pacific Highway with impression of proposed bridge

This view has been assessed against the desirable outcomes with the following findings.

Desirable Outcome 1

The proposed bridge would not obstruct the view to any landscape feature from the property or public location.

From this location, broad views are possible out from the highway. These views take in the rural landscape along the Clarence River flood plain, glimpses of the Clarence River, the City of Grafton and the distant mountains. It is also possible to view the Clarence River Bridge over the Clarence River. Grafton, the river and the Clarence River Bridge are seen in the middle ground. At this highway location the speed limit is 100km/hour so the views to these landscape elements vary quickly as vegetation within the rural landscape foreground affects what can and can't be seen in the middle ground.

The proposed bridge would not affect the view to the rural landscape, to the Clarence River, to Grafton or the mountain landscape beyond. It would however, obstruct the view to the Clarence River Bridge. The visual impact of the obstruction is lessened by the bridges being 2.8 km away.

Desirable Outcome 2

The proposed bridge would not interrupt any significant views from the property or public location.

Broad views are possible out from this viewing location. These views can be considered of high scenic value as they include the City of Grafton, glimpses of the Clarence River and the distant Gibraltar Range. An embankment along the western side of the highway tends to direct the viewing line across the rural landscape to Grafton. This could be considered the most significant view from this location. The Clarence River Bridge is approximately central to this view. The proposed bridge would not interrupt the significant view to Grafton, but it would interrupt the significant view to the Clarence River Bridge.

Desirable Outcome 3

The proposed bridge would not detract from the visual amenity of an important visual or cultural element or landscape.

The views from this location have a high visual amenity. The proposed bridge would not affect the high visual amenity of the surrounding landscape. It would however, affect the first clear view of a landscape feature that is a Grafton

landmark, that is, the Clarence River Bridge. The level to which the proposed bridge detracts from the visual introduction to this cultural element would be lessened by the bridge being 2.8km from the viewing location.

Desirable Outcome 4

The proposed bridge would be of a scale appropriate to the setting when viewed from a property or public location.

The broad rural landscape, the scale of the City of Grafton, the expanse of the river and the size of the existing bridge all provide an appropriate scale of setting for the proposed bridge. Therefore, the proposed bridge would be of a scale appropriate to the setting.

Desirable Outcome 5

The proposed bridge would be of materials sympathetic to the surrounds.

The existing bridge is of steel trusses. The proposed bridge is currently indicated as a reinforced concrete bridge with arches. The materials of the proposed bridge are not in keeping with material used in the Clarence River Bridge. However, from this viewing location both bridges would be approximately 2.8km away. The contrast between materials would be likely to be less obvious than when viewing from a closer location.

Desirable Outcome 6

The proposed bridge would be of a form sympathetic to the surrounds.

The existing bridge is geometric and angular in form. The current concept for the proposed bridge features a bridge with concrete arches. The arches of the proposed bridge would be likely to contrast with the lines of the existing bridge. The proposed bridge is also more solid in form and would be likely to contrast with the permeable layout of the steel trusses. The contrast in forms, however, would be lessened by this viewing location being 2.8km from the bridge.

Considered relative to the river, the City of Grafton and the surrounding rural landscape, the proposed bridge is simple in form and would be likely to be sympathetic to these landscape features.

5.7 Kent and Greaves Street corner

This location is at the corner of Kent and Greaves Street approximately 50m from the northern end of the existing Clarence River Bridge. At this site, there are a number of residences that look onto the combined view of the northern vehicular approach to the bridge and the rail viaduct. This view has been assessed as the northern approach to the proposed bridge would be constructed between these two existing approaches and would be visible from these properties.



Illustration 21 – looking from the intersection of Kent and Greaves Streets to the northern bridge approach



Illustration 22 – looking to northern bridge approaches with impression of proposed northern approach

This view has been assessed against the desirable outcomes with the following findings.

Desirable Outcome 1

The proposed approach would not obstruct the view to any landscape feature from the property or public location.

From this location, it is currently possible to view the rail viaduct and part of the northern vehicular approach. The proposed northern approach would cross the railway soon after the bridge and would then be located between the rail viaduct and the existing vehicular approach. The proposed approach would not obstruct the view to the viaduct. The proposed approach would partially obstruct the view to the existing vehicular approach.

Desirable Outcome 2

The proposed bridge would not interrupt any significant views from the property or public location.

The northern vehicular approach to the bridge is heritage listed and features attractive brick arch construction. This is best viewed by walking below the approach. From this viewing location it is only possible to see the side profile of the existing vehicular approach. The proposed approach would not interrupt the view of the rail viaduct or any view to the brickwork of the existing vehicular approach. The proposed bridge would partially obstruct the existing side view of the vehicular approach.

Desirable Outcome 3

The proposed bridge would not detract from the visual amenity of an important visual or cultural element or landscape.

The rail viaduct and existing vehicular approach are significant parts of the existing Clarence River Bridge. The rail viaduct is clearly visible from this location, but only parts of the vehicular approach are visible. The detail of the

vehicular approach is not visible. The proposed approach would be an obvious additional built element within this location, but its form would be similar to that of the existing vehicular approach. It would also have a curved layout similar to that of the existing vehicular approach. The proposed approach would be partially concealed by the rail viaduct. Given these factors, whilst it will be an obvious additional built element, the proposed approach will not detract from the visual amenity of the existing approaches. The proposed approach will also not remove the potential to view the construction detail of the existing vehicular approach i.e. the brick work arches.

Desirable Outcome 4

The proposed bridge would be of a scale appropriate to the setting when viewed from a property or public location.

This existing view currently takes in a range of large built structures including the very northern extent of the Clarence River Bridge, the rail viaduct and the existing northern vehicular approach. This infrastructure is all large in scale and provides an appropriate scale of setting for the proposed approach.

Desirable Outcome 5

The proposed bridge would be of materials sympathetic to the surrounds.

The existing northern vehicular approach consists of 14 steel and concrete spans. The concrete is the most visually obvious material as identifying the steel requires being located directly below the structure. The proposed northern approach would be a concrete box girder structure and would, therefore, be in keeping with the materials used in the existing vehicular approach.

Desirable Outcome 6

The proposed bridge would be of a form sympathetic to the surrounds.

The existing vehicular approach is linear in nature. The rail viaduct includes pillars and arches. The proposed vehicular approach would be similar in form to the existing vehicular approach i.e. linear with pillars at regular intervals. Given that the proposed vehicular approach would be closer to the existing vehicular approach than the rail viaduct, the proposed approach would be of a form sympathetic to its immediate surrounds.

5.8 Clarence River Bridge

This viewing location is for the extent of the existing Clarence River Bridge and it considers the potential view for motorists travelling across the bridge. These potential views have been assessed against the desirable outcomes with the following findings.

Desirable Outcome 1

The proposed bridge would not obstruct the view to any landscape feature from the property or public location.

From the Clarence River Bridge, limited views are possible to the Clarence River. For much of the bridge, the steel trusses extend above the road pavement and create a barrier to viewing the river. Between the end and start of a new truss, a steel grid allows brief views to the river. The proposed bridge would finish approximately 1.3m above the existing bridge. From this viewing location, the proposed bridge would not affect views upstream to the river, but would obstruct the brief views that are currently possible to the river downstream.

Desirable Outcome 2

The proposed bridge would not interrupt any significant views from the property or public location.

The Clarence River Bridge is a landscape feature with a high scenic value as it represents a visually prominent built element. When travelling across the bridge it is possible to view the top of the steel trusses and the very top of the Rall mechanism. The proposed bridge would not affect these views. The Clarence River also has high scenic value. Currently, brief views are possible to the river through the sections of steel grid. The proposed bridge would interrupt these brief views.

Desirable Outcome 3

The proposed bridge would not detract from the visual amenity of an important visual or cultural element or landscape.

Travelling across the Clarence River Bridge does not provide the best view of the actual bridge. The view of the bridge from this location takes in a variety of materials, a lack of maintenance on the steelwork and only limited views of the actual bridge structure. The glimpses of the river add some visual amenity to the experience. The proposed bridge would obstruct the limited views currently possible downstream. The proposed bridge would be higher than the existing bridge and would be perceived as a 1.3m high concrete wall adjacent to the bridge. It is likely this view would detract from the existing visual amenity of the bridge.

Desirable Outcome 4

The proposed bridge would be of a scale appropriate to the setting when viewed from a property or public location.

The proposed bridge would be higher than the existing bridge. From this proximity the proposed bridge is likely to appear out of scale with the existing bridge and to dominate the existing bridge.

Desirable Outcome 5

The proposed bridge would be of materials sympathetic to the surrounds.

From this viewing location it is possible to view the top of the steel trusses of the existing bridge. The concrete of the proposed bridge would be seen at close range and would be likely to contrast sharply with the steel of the existing bridge.

Desirable Outcome 6

The proposed bridge would be of a form sympathetic to the surrounds.

Only the top of the proposed bridge would be visible when travelling across the existing bridge. The top of the bridge would be linear. The existing bridge is linear in nature. The part of the proposed bridge visible from this location would be similar in form to the parts of the existing bridge that are visible from this viewing location.

5.9 Bridge approaches

The site immediately to the east of the southern approach would have views to the southern approach to the proposed bridge. This site is occupied by the railway and sugar facility. This is not a publicly accessible site and experiences people activity only at intermittent intervals. It is determined there would not be a significant visual impact for this site.



Illustration 23 – railway and sugar facility southeast of existing bridge

The northern approach to the proposed bridge would be located roughly parallel with the existing northern approach to the bridge. The side view of the proposed northern approach has been assessed from a viewing location on the corner of Kent and Greaves Street. The proposed northern approach also represents a potential impact on the character of the existing northern approach. Immediately before the bridge, the northern approach to the bridge includes an embankment. This embankment is planted out and features a number of mature figs. This landscaping currently provides an attractive entry to the bridge.

Given the proximity and scale of the proposed approach, it would be highly likely this planting would be removed or damaged during the construction of the proposed approach. This would greatly lower the visual amenity of the existing northern approach from the motorist's point of view.



Illustration 24 – the northern approach to the Clarence River Bridge



Illustration 25 – side view of the planted embankment

Recommendations

6.1 recommendations

The visual impacts for each of the viewing locations are related to the same factors. That is, that the proposed bridge will obstruct the view to the existing bridge and its distinct silhouette. The visual impacts are also related to the sharp contrast between the arched and bulky form of the proposed bridge versus the linear and open form of the existing bridge. There is also a sharp contrast between the materials of the proposed and existing bridge. The first recommendation is proposed to reduce these visual impacts. It cannot possibly alleviate the visual impact of the proposed bridge, but could contribute to creating a bridge that is more sympathetic in form to the existing bridge. The second recommendation has been made to mitigate the potential loss of visual amenity at the northern approach to the bridge.

1. During the concept design consider a bridge design with a form in keeping with the existing bridge design which will also minimise the bulk and the obstruction of the views to the existing bridge and its silhouette.
2. Incorporate landscape works at the proposed and existing northern entries to the bridge to restore the attractive northern entry to the bridge. Planting should provide for the long term replacement of any removed or damaged mature trees. Planting should also be in keeping with the visual character of the surrounds.

Conclusion

7.1 overview

This visual assessment report has considered the proposed duplication of the Clarence River Bridge at Grafton. In particular, this report considers the visual impacts downstream of the Option 2b bridge. The following sites were considered in this report.

- residences downstream of the site and on the western river bank;
- small park at the river end of Pound Street (Girl Guide Place);
- the Pound Street Jetty at the river end of Pound Street;
- rural properties downstream of the site and on the eastern river bank;
- downstream on the Clarence River between the bridge and the Fry Street boat ramp;
- the river end of Fry Street;
- the Pacific Highway northbound from Grafton, just north of the Centenary Drive turnoff;
- residential properties on the corner of Kent and Greaves Streets;
- the vehicular level of the Clarence River Bridge.

Views from Girl Guide Place and the Pound Street Jetty were considered jointly and as representative of views from the residential area north of the bridge. Views were not considered from the rural area along the eastern bank as no homes were identified in this area.



The potential view to the southern approach was not considered as this area includes the sugar facility and railway and there is little people activity in the vicinity. The northern approach was considered and it was noted there would be a potential loss of visual amenity associated with the potential loss of mature trees to the landscaped embankment.

7.2 visual assessment summary

The following table provides an overview of each of the potentially affected locations and the visual impact in relation to the proposed bridge.

An overall rating has been provided for each of the potentially affected properties. This rating has been achieved by reviewing the summary of findings for each of the locations and making an assessment as to how each location rated relative to the 'desirable outcomes'. The rating applied to each view is as per the rating system described in Section 2.

Table 1 – summary of visual assessment

Summary of Findings	Potential Visual Impact
 <p>Girl Guide Place & the Pound Street Jetty</p> <ul style="list-style-type: none"> - the Clarence River Bridge is a landscape feature and cultural element - the bulk of the arches would limit views to the steel trusses of the existing bridge, the vehicular deck, part of the rail deck and the Rall mechanism - the proposed piers would obstruct the view to the existing piers - the proposed bridge would not affect views to the river and the sugar facility, but would interrupt views to the Clarence River Bridge - views from these locations have a high visual amenity taking in the important feature and silhouette of the Clarence River Bridge - the proposed bridge would not affect the amenity of the river and rural views, but would detract from the visual amenity of the existing bridge - the proposed bridge would be appropriate in scale with the large river and existing bridge - the concrete of the proposed bridge would contrast with the steel trusses of the existing bridge - the arched form of the proposed bridge would contrast with the linear nature of the existing bridge - the solidity of the proposed bridge would contrast with the open form of the existing bridge - the piers of the proposed bridge would be aligned with the piers of the existing bridge and would be likely to blend in - the simple form of the proposed bridge would be sympathetic with the organic and simple form of the river 	<p>HIGH</p>
 <p>Clarence River</p> <ul style="list-style-type: none"> - the Clarence River Bridge is a landscape feature and cultural element - the bulk of the concrete arches would obstruct the view to much of the existing bridge, the vehicular deck, parts of the rail deck and the Rall mechanism. - depending on the viewing location, the proposed piers could obstruct the view to the existing piers - the proposed bridge would not affect the significant views possible up the river with South Grafton and the rural landscape as a backdrop, to the rural land along the east bank and to the residential properties along the western river bank - the proposed bridge would affect the significant view possible to the Clarence River Bridge - views at this location have a high visual amenity taking in the Clarence River, the rural landscape, an attractive older residential area and the Clarence River Bridge - the proposed bridge would be an obvious additional built element - the proposed bridge would not detract from the attractiveness of the river and surrounding landscape, but would obstruct the view to the Clarence River Bridge and its silhouette. It would detract from the visual amenity of this cultural element. - the scale of the river, the rural landscape and the existing bridge provide an appropriate scale of setting for the proposed bridge - the concrete of the proposed bridge would contrast with the steel trusses of the existing bridge - the arched form of the proposed bridge would contrast with the linear nature of the existing bridge - the solidity of the proposed bridge would contrast with the open form of the existing bridge - the piers of the proposed bridge would be aligned with the piers of the existing bridge and would be likely to blend in - the simple form of the proposed bridge would be sympathetic with the simple form of the river 	<p>HIGH</p>



River End of Fry Street

- from this location the most obvious landscape features are the Clarence River, the rural landscape and the southern extent of the Clarence River Bridge
- the Clarence River Bridge, however, is approximately 1 km away and is not the dominant landscape feature
- the proposed bridge would not interrupt the views to the river or the rural landscape
- the proposed bridge would obstruct the view to the small portion of the Clarence River Bridge that is visible from this location
- broad views are possible out from this site and the proposed bridge would not interrupt the broad views possible to the river and the rural landscape
- the proposed bridge would interrupt the view up river to the Clarence River Bridge
- the views from this location have a high visual amenity taking in broad views of the river
- the proposed bridge would be 1 km away and would not detract from the high visual amenity of the surrounding landscape
- the proposed bridge would detract from the amenity of the Clarence River Bridge, however, from this location the existing bridge is seen against the river bank and is only partially visible. The degree the proposed bridge detracts from the existing would be lessened by distance, the backdrop to the view and the extent of the view
- the broad landscape setting and scale of the existing bridge provide an appropriate scale of setting for the proposed bridge
- the materials of the proposed bridge are not in keeping with materials used in the Clarence River Bridge, however, the contrast would be less than when viewing from a closer location
- the arched and solid form of the proposed bridge would contrast with the linear open form of the existing bridge, however, the contrast would be lessened by viewing the bridges from 1 km away
- the form of the proposed bridge would be simple and would be sympathetic to the natural and rural landscape features.

MEDIUM



Pacific Highway, north of Centenary Drive turnoff

- approximately 2.8km from the site
- broad views are possible out from the highway taking in rural land, Grafton, the Clarence River, the Clarence River Bridge and distant mountains
- Grafton and the river are seen in the middle ground with the Clarence River Bridge approximately at the centre of this view
- the scenery is viewed whilst travelling at 100 km/hour with vegetation in the foreground affecting what can be seen beyond
- the proposed bridge would not affect views to the rural land, the river, to Grafton or the mountains
- the proposed bridge would obstruct the view to the Clarence River Bridge
- the view to Grafton is a significant view with the Clarence River Bridge part of this view
- the proposed bridge would not interrupt the significant view to Grafton, but would interrupt the significant view to the Clarence River Bridge
- the proposed bridge would not affect the high visual amenity of the surrounding landscape
- The proposed bridge would affect the first clear view of the landscape feature that is the Clarence River Bridge. This effect would be somewhat lessened by the bridges being 2.8km from the viewing site
- the scale of proposed bridge would be appropriate to the setting

MEDIUM

- the materials and form of the proposed bridge are not in keeping with the materials and forms of the existing bridge, however, from this distance the contrast will be less discernible than when viewing from a closer location.
- the form of the proposed bridge would be simple and would be sympathetic to the natural and rural landscape features.



Corner of Kent and Greaves Streets, North Grafton

- the proposed approach would be located mostly between the rail viaduct and the existing northern vehicular approach
- the proposed approach would not obstruct the view to the rail viaduct
- the proposed approach would partially obstruct the view to the existing vehicular approach
- the existing vehicular approach features brick arch construction which is best viewed when walking below the elevated approach
- from this location it is only possible to view the side profile of the existing vehicular approach
- the proposed approach would not obstruct the view to the rail viaduct or the brickwork of the vehicular approach, but would partially obstruct the existing side view of the vehicular approach
- the proposed approach would be an obvious additional built element, but would not affect the view to the rail viaduct from this location. The existing vehicular approach is already partially obstructed by the rail viaduct. The proposed approach would have a form and layout similar to the existing vehicular approach. Overall, the proposed approach would not be likely to detract from the visual amenity of the existing approaches
- the proposed approach would be in keeping with the scale of the existing built infrastructure i.e. the Clarence River Bridge, the rail viaduct and the existing vehicular approach
- the proposed approach would be a concrete box girder structure and would fit in with the concrete used in the existing vehicular approach
- the proposed box girder form would fit in with the linear character of the existing vehicular approach

MEDIUM

Vehicular level of the Clarence River Bridge

- limited views are possible to the river through the sections of steel grid, but elsewhere the trusses obstruct the view to the river
- the proposed bridge would be 1.3m higher than the existing bridge. It would not affect views to the river upstream, but would obstruct views to the river downstream.
- The Clarence River Bridge is a prominent built element and has a high scenic value. The proposed bridge would not affect the views that are possible to the top of the trusses and the Rail mechanism.
- The proposed bridge would obstruct the brief views currently possible to downstream of the river.
- The proposed bridge would reduce the potential to view the river and would create a 1.3m high concrete wall on the downstream side of the bridge. The proposed bridge would be likely to detract from the visual amenity of the existing bridge.
- The proposed bridge would be 1.3m higher than the proposed bridge and, at this close range, this difference would be likely to appear significant. The proposed bridge would be likely to appear out of scale when viewed from this location.
- The concrete of the proposed bridge would be likely to contrast with the steel of the existing bridge.
- The top of the proposed bridge would be visible, but would be linear in nature and in keeping with the linear character of the existing bridge.

HIGH

7.3 conclusion

This assessment has considered the visual impact of the Option 2b bridge on locations downstream of the existing bridge and from the Clarence River Bridge. Generally there will be a high visual impact for properties and public locations within this location that currently have a clear view to the Clarence River Bridge. There will also be a high visual impact for motorists travelling across the Clarence River Bridge. The visual impact is somewhat lessened the further the viewing location is from the bridge. It has been recognised that the Clarence River Bridge is a cultural element and a significant landscape feature. Therefore the proposed bridge would not only have a high visual impact when viewed from certain locations, but would also affect the views to a cultural and significant landscape for these locations.

A recommendation has been made to attempt to lessen the visual impact of the proposed bridge on the existing bridge. This relates to minimising the visual contrast between the styles and materials of the two bridges. The recommendation also seeks to lessen the mass of the bridge so that as much as possible of the existing bridge is still visible, particularly the steel trusses against the sky. A recommendation has also been included relating to the restoring the visual amenity of the northern approach following construction.

References

RTA 2001, *Environmental Impact Assessment Policy, Guidelines and Procedures*, Version No. 4, April 2001.

RTA 2004, *Statement of Heritage Impact Proposed Duplication of the Clarence River Bridge*, RTA Northern Region, Grafton, NSW.

RTA 2004, *Additional Crossing of Clarence River Volume 1 Environmental Overview*, RTA Northern Region, Grafton, NSW.

Copyright and Usage Note

GeoLINK, 2005

This document was prepared for the exclusive use of the Roads and Traffic Authority Northern Region to provide a visual assessment for the proposed duplication of the Clarence River Bridge, Grafton, NSW. This report considers only the downstream visual impacts for Option 2B. This document is not to be used for any other purpose or by any other person or corporation. GeoLINK accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this document for a purpose other than that described above.

GeoLINK declares that it does not have, nor expects to have, a beneficial interest in the subject project.

No extract of text or illustrations of this document may be reproduced, stored or transmitted in any form without the prior consent of GeoLINK.

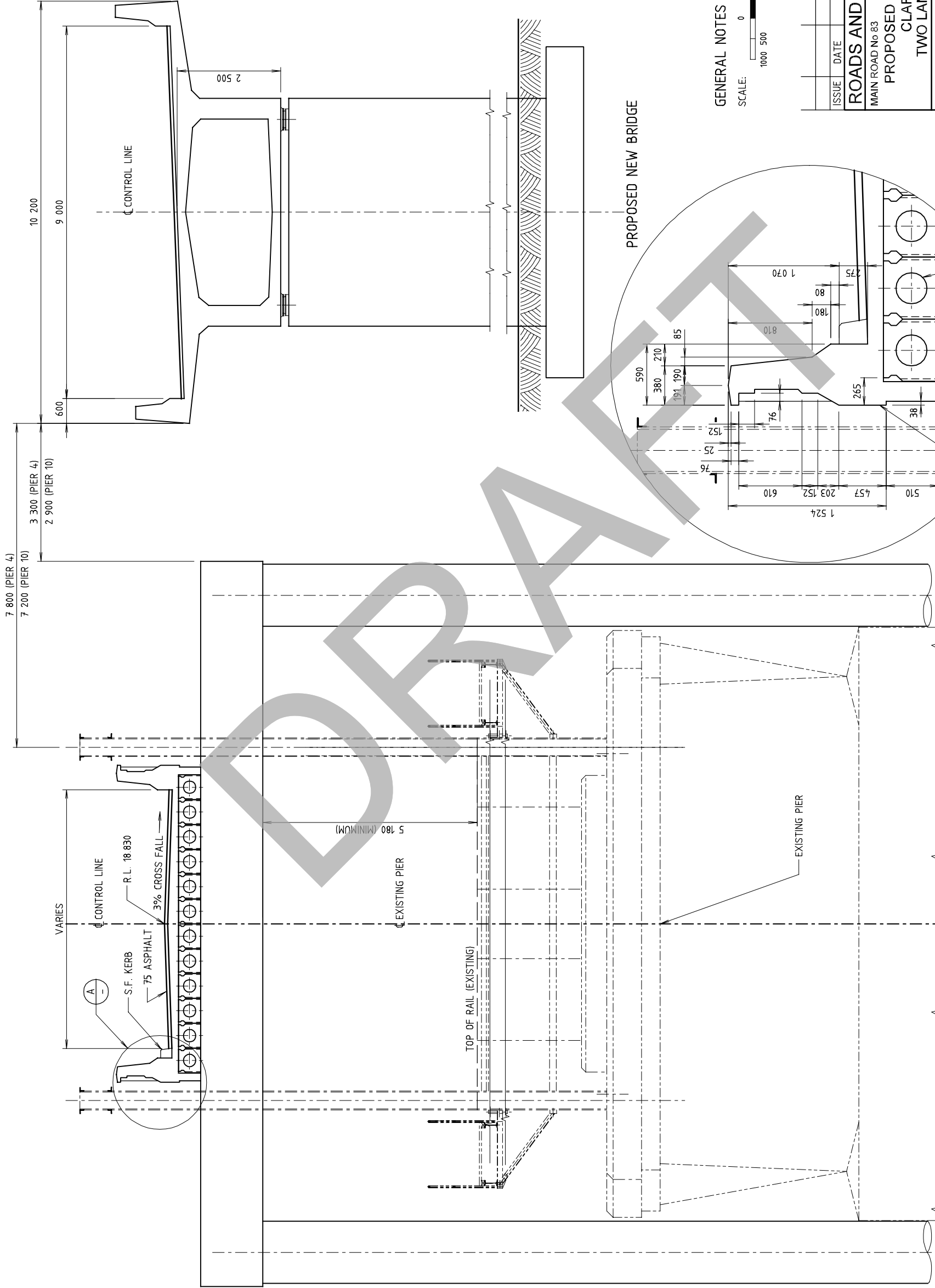
Attachment 7

Estimates of Cost

DRAFT

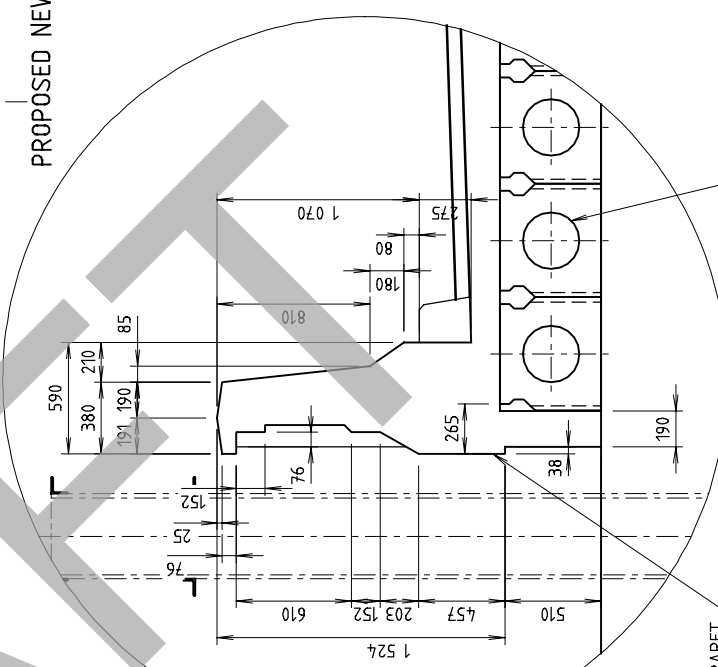
Attachment 8

Lane Configuration Bridge Plans

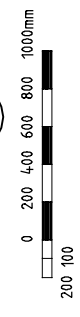


ADVANCE COPY
 NOT TO BE USED
 FOR CONSTRUCTION
 23/06/2004

GENERAL NOTES
 SCALE: 0 1000 2000 3000mm OR AS SHOWN.

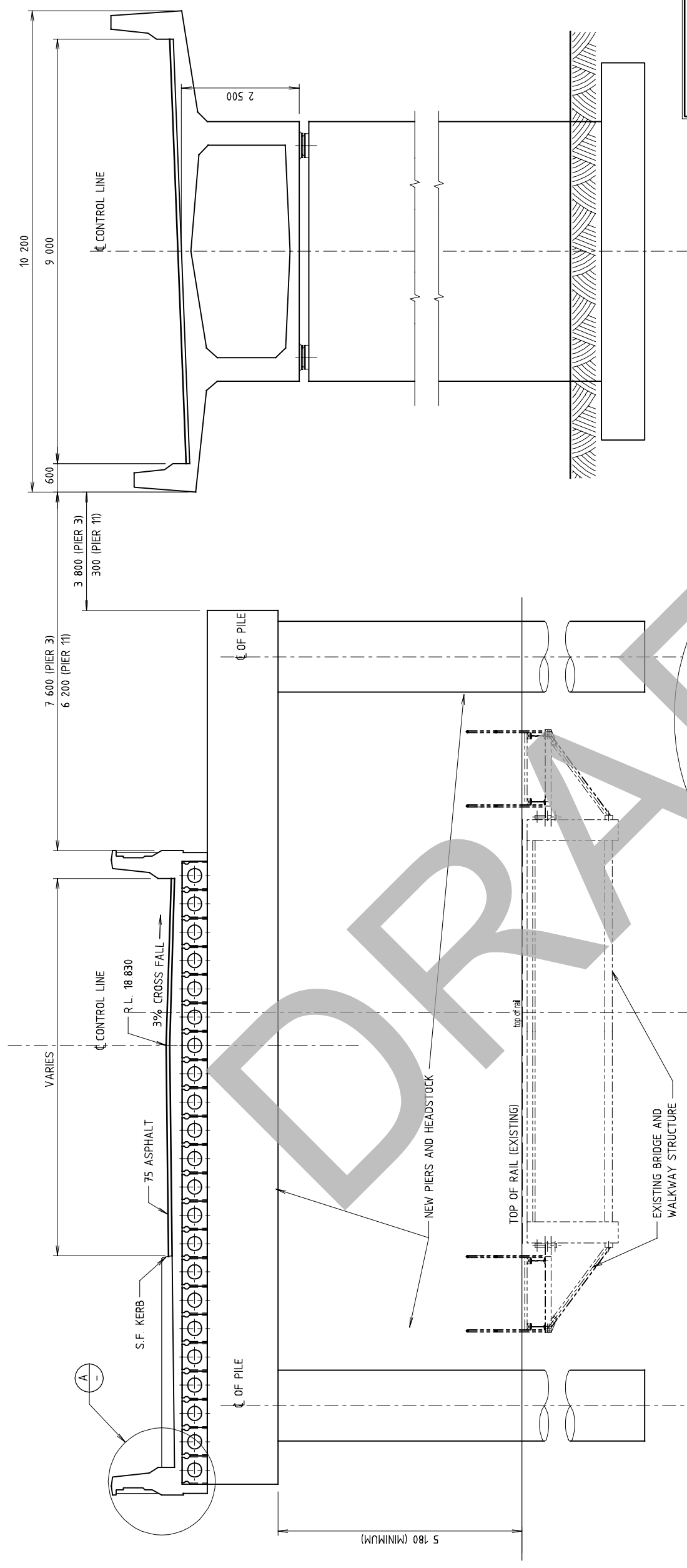


DETAIL A



PIER 4 ELEVATION
 PIER 10 SIMILAR U.N.O.

ISSUE		DATE	REVISION	PREP	CHECK	AUTH
ROADS AND TRAFFIC AUTHORITY OF NSW						
MAIN ROAD No 83						
CITY OF GRAFTON						
PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON						
TWO LANE OPTION (EXISTING BRIDGE)						
PIER 4 AND PIER 10						
PREPARED BY		BRIDGE SECTION		CLIENT		
DESIGN		110 GEORGE STREET		NORTHERN REGIONAL OFFICE		
DRAWING		PARARAMATTA NSW 2150		31 VICTORIA STREET GRAFTON		
DRAWING		PHONE (02) 65372095		PO BOX 576 GRAFTON NSW 2480		
DRAWING		FACSIMILE (02) 65376055		PHONE (02) 65404300		
DRAWING		FACSIMILE (02) 65461301		FACSIMILE (02) 65461301		
PREPARED	CHECKED	SKETCH No		K0878A		
SHEET No	5	No OF SHEETS		7		



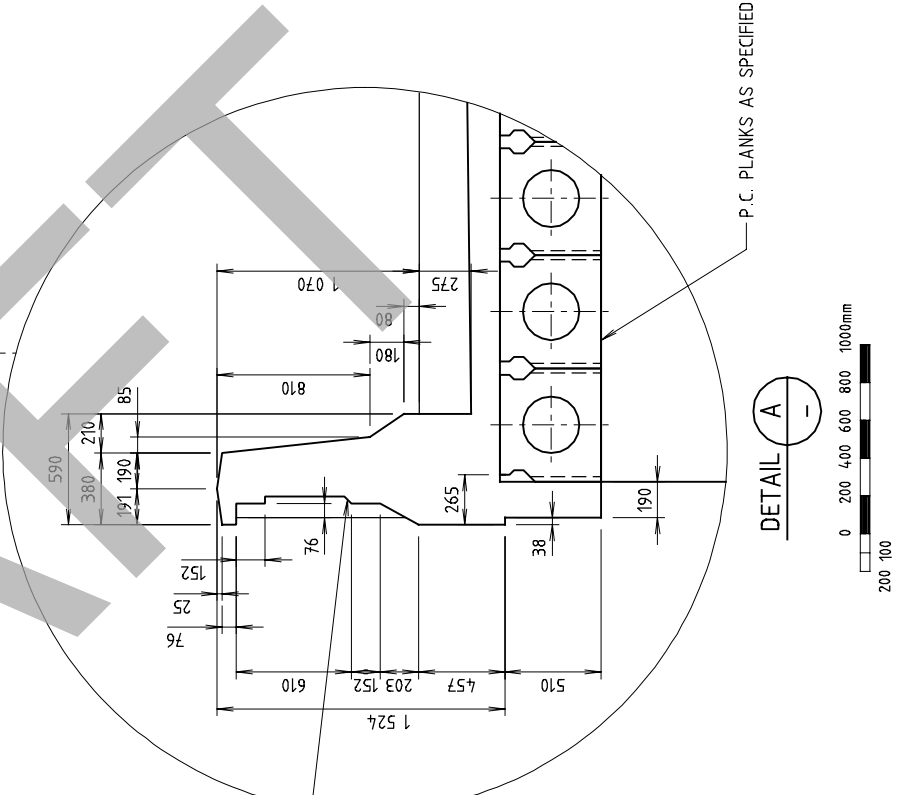
PIER 3 ELEVATION
PIER 11 SIMILAR U.N.O.

ADVANCE COPY
NOT TO BE USED
FOR CONSTRUCTION
23/06/2004

PROPOSED NEW BRIDGE

GENERAL NOTES

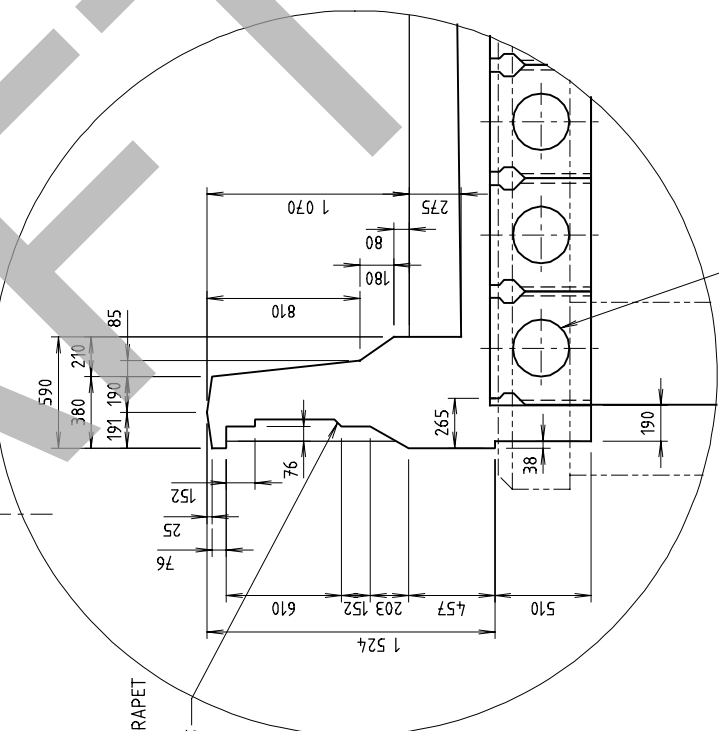
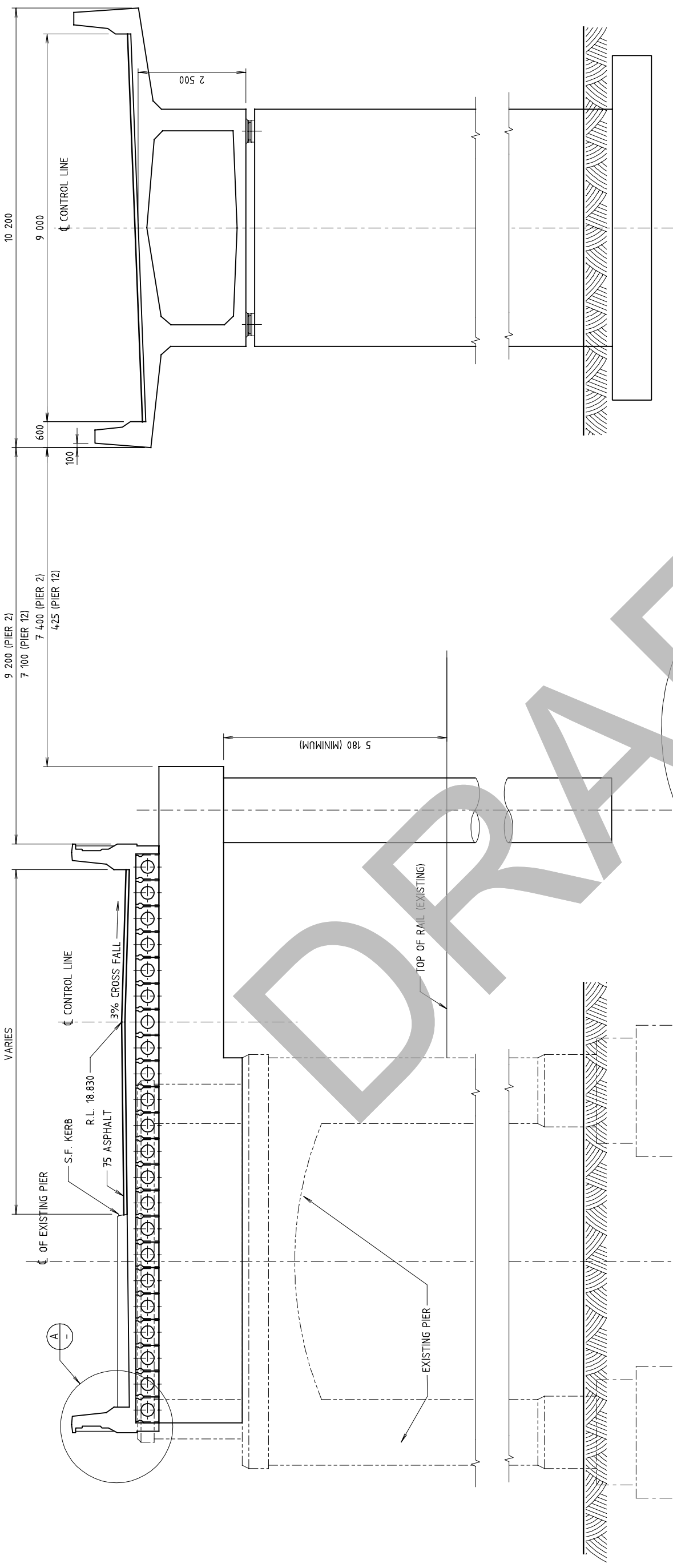
SCALE: 0 1000 2000 3000mm OR AS SHOWN.
1000 500



DETAIL A

0 200 400 600 800 1000mm
200 100

ISSUE	DATE	REVISION	PREP	CHECK	AUTH
ROADS AND TRAFFIC AUTHORITY OF NSW CITY OF GRAFTON MAIN ROAD No 83 PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON TWO LANE OPTION (EXISTING BRIDGE) PIER 3 AND PIER 11					
PREPARED	CHECKED	SKETCH	No		
DESIGN	---				
DRAWING	---				
PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARAMATTA NSW 2150 PHONE (02) 85374095 FACSIMILE (02) 85374055			CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66414300 FACSIMILE (02) 66461301		
			KD678A		
MANAGER, BRIDGE DESIGN PRODUCTS			SHEET No	4	No OF SHEETS
					7



PIER 2 ELEVATION
PIER 12 SIMILAR U.N.O.

PROPOSED NEW BRIDGE

GENERAL NOTES

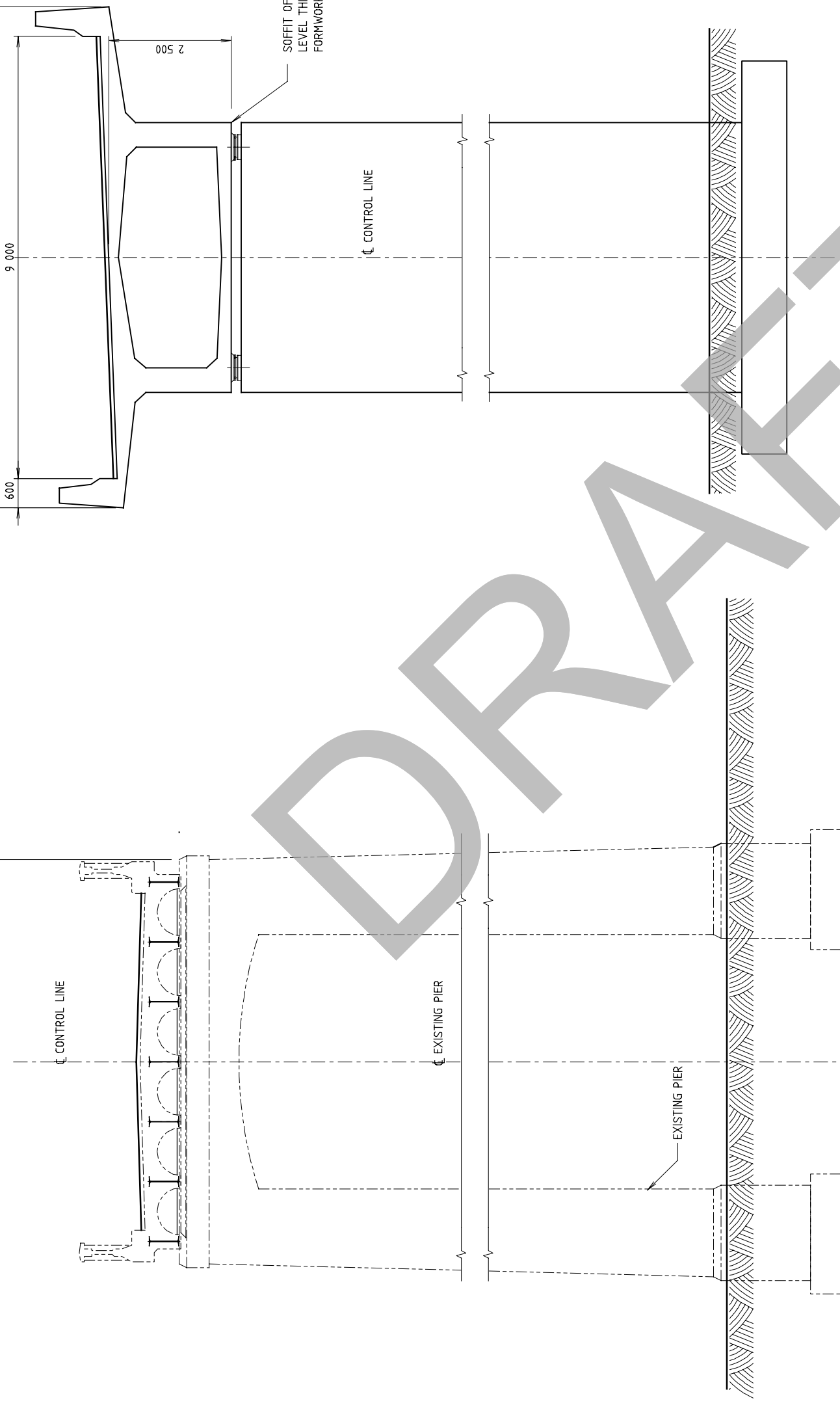
SCALE: 0 1000 2000 3000mm OR AS SHOWN.
1000 500

ADVANCE COPY
NOT TO BE USED
FOR CONSTRUCTION
23/06/2004

ISSUE	DATE	REVISION	PREP./CHECK/AUTH
ROADS AND TRAFFIC AUTHORITY OF NSW			
MAIN ROAD No 83			
CITY OF GRAFTON			
PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON			
TWO LANE OPTION (EXISTING BRIDGE)			
PIER 2 AND PIER 12			
PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARARAMATTA NSW 2150 PHONE (02) 85374096 FACSIMILE (02) 85376055		CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66414300 FACSIMILE (02) 66414301	
PREPARED	CHECKED	SKETCH No	
DESIGN			
DRAWING			
MANAGER, BRIDGE DESIGN PRODUCTS		SHEET No	3
		No OF SHEETS	7
			KD678A

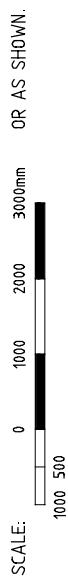
VARIABLES FROM 4 500 TO 10 000

10 200
9 000



ADVANCE COPY
 NOT TO BE USED
 FOR CONSTRUCTION
 15/03/2005

GENERAL NOTES



PIER 13 ELEVATION
 PIER 14 SIMILAR U.N.O.

A	14-03-05	SHOW EXISTING BRIDGE	D&H	HC
ISSUE	DATE	REVISION	PREP	CHECK/AUTH

ROADS AND TRAFFIC AUTHORITY OF NSW
 MAIN ROAD No 83
 CITY OF GRAFTON
 PROPOSED MODIFICATIONS TO BRIDGE OVER
 CLARENCE RIVER AT GRAFTON
 TWO LANE OPTION (EXISTING BRIDGE)
 PIER 13 AND PIER 14



PREPARED BY
 BRIDGE SECTION
 110 GEORGE STREET
 PARARAMATTA NSW 2150
 PHONE (02) 85374096
 FACSIMILE (02) 85374055

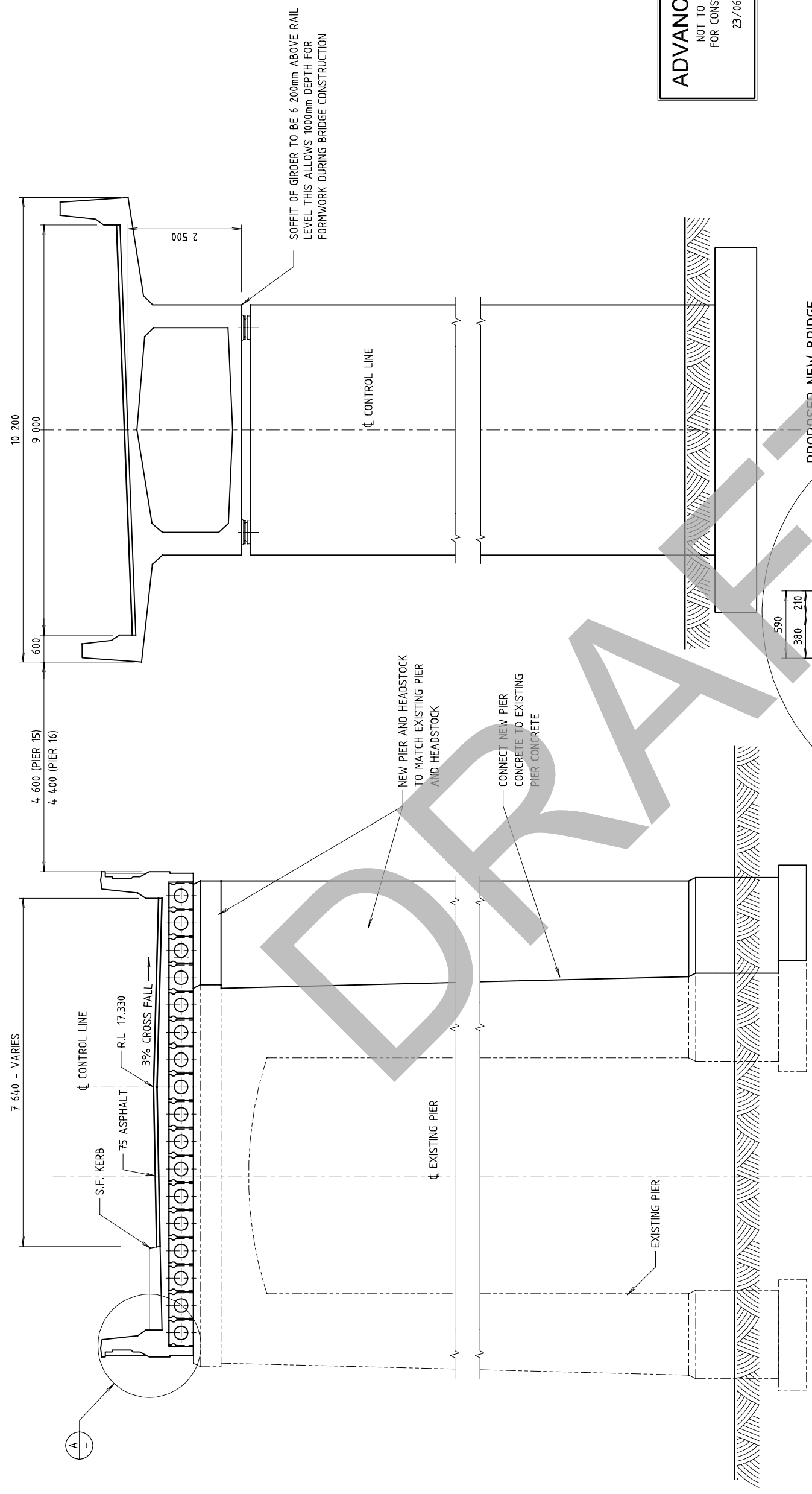
CLIENT
 NORTHERN REGIONAL OFFICE
 31 VICTORIA STREET GRAFTON
 PO BOX 576 GRAFTON NSW 2460
 PHONE (02) 66414300
 FACSIMILE (02) 66461301

PREPARED	CHECKED	SKETCH No
DESIGN		
DRAWING		

KD678A

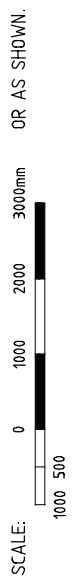
SHEET No **6A** No OF SHEETS **7**

CAD No: KD678P13E-Rev.01

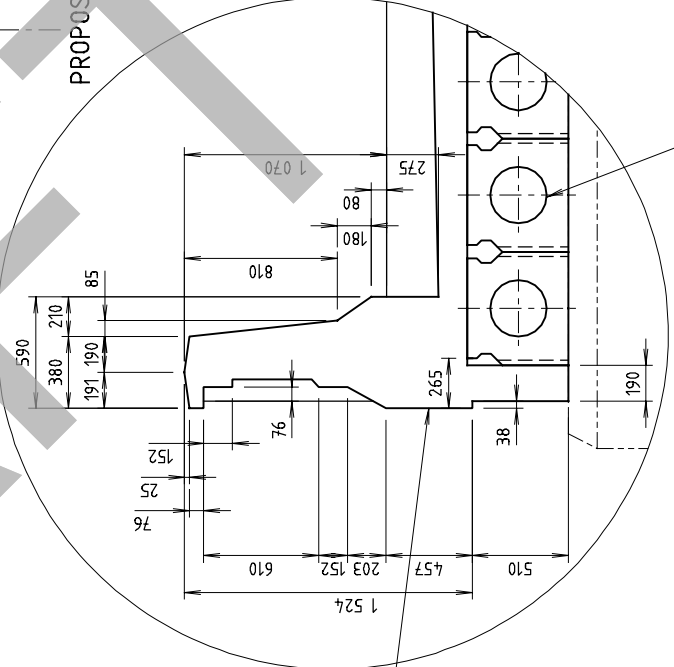


ADVANCE COPY
 NOT TO BE USED
 FOR CONSTRUCTION
 23/06/2004

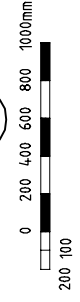
GENERAL NOTES



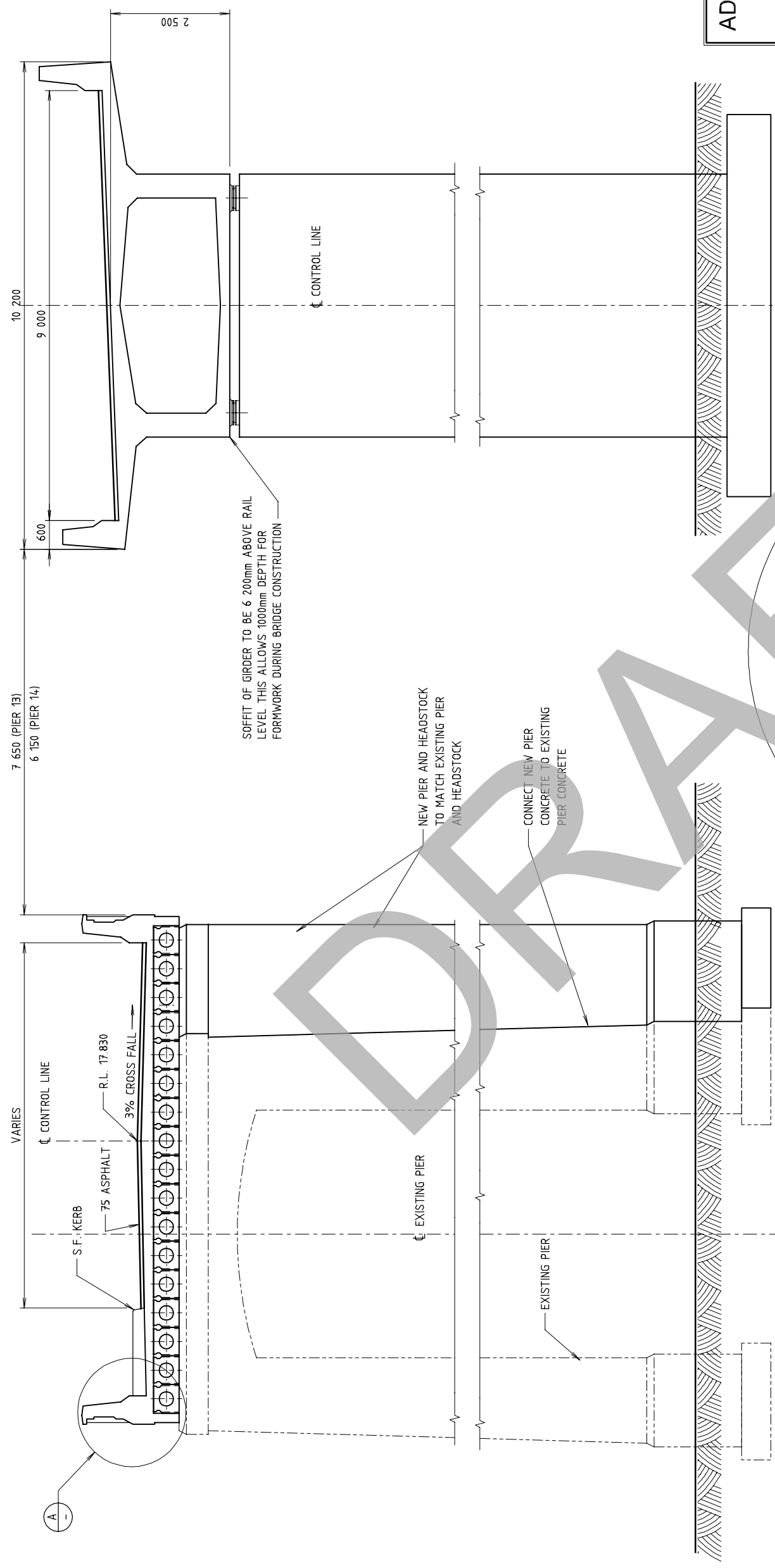
PROPOSED NEW BRIDGE



DETAIL A



ISSUE	DATE	REVISION	PREP	CHECK	AUTH
ROADS AND TRAFFIC AUTHORITY OF NSW CITY OF GRAFTON MAIN ROAD No 83 PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON TWO LANE OPTION (EXISTING BRIDGE) PIER 15 AND PIER 16					
PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARRAMATTA NSW 2150 PHONE (02) 85374096 FACSIMILE (02) 85374055			CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66414300 FACSIMILE (02) 66461301		
PREPARED	CHECKED	SKETCH	No		
DESIGN	---				
DRAWING	---				
R.T.A.			KD678A		
MANAGER, BRIDGE DESIGN PRODUCTS			SHEET No	7	No OF SHEETS
					7



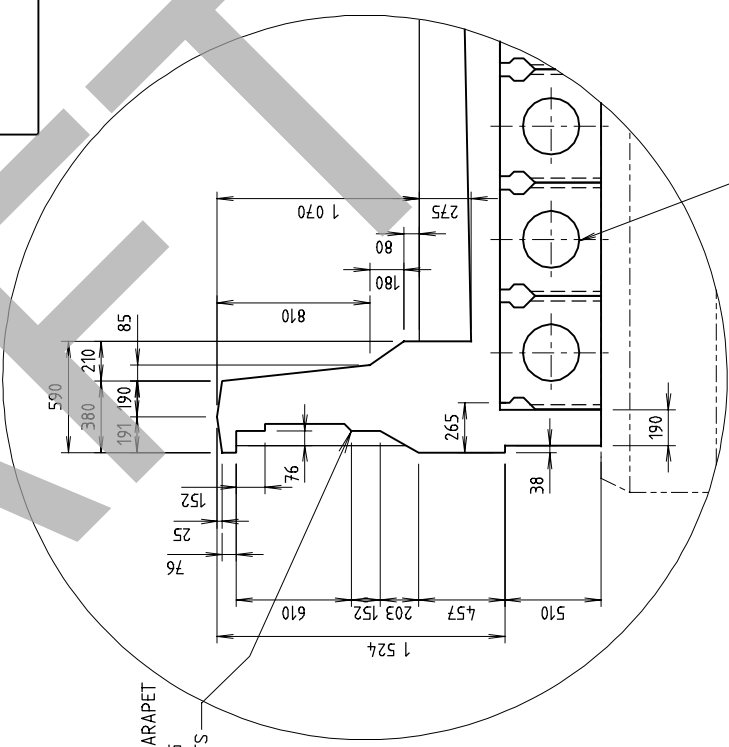
ADVANCE COPY
NOT TO BE USED
FOR CONSTRUCTION
23/06/2004

PIER 13 ELEVATION
PIER 14 SIMILAR U.N.O.

PROPOSED NEW BRIDGE

GENERAL NOTES

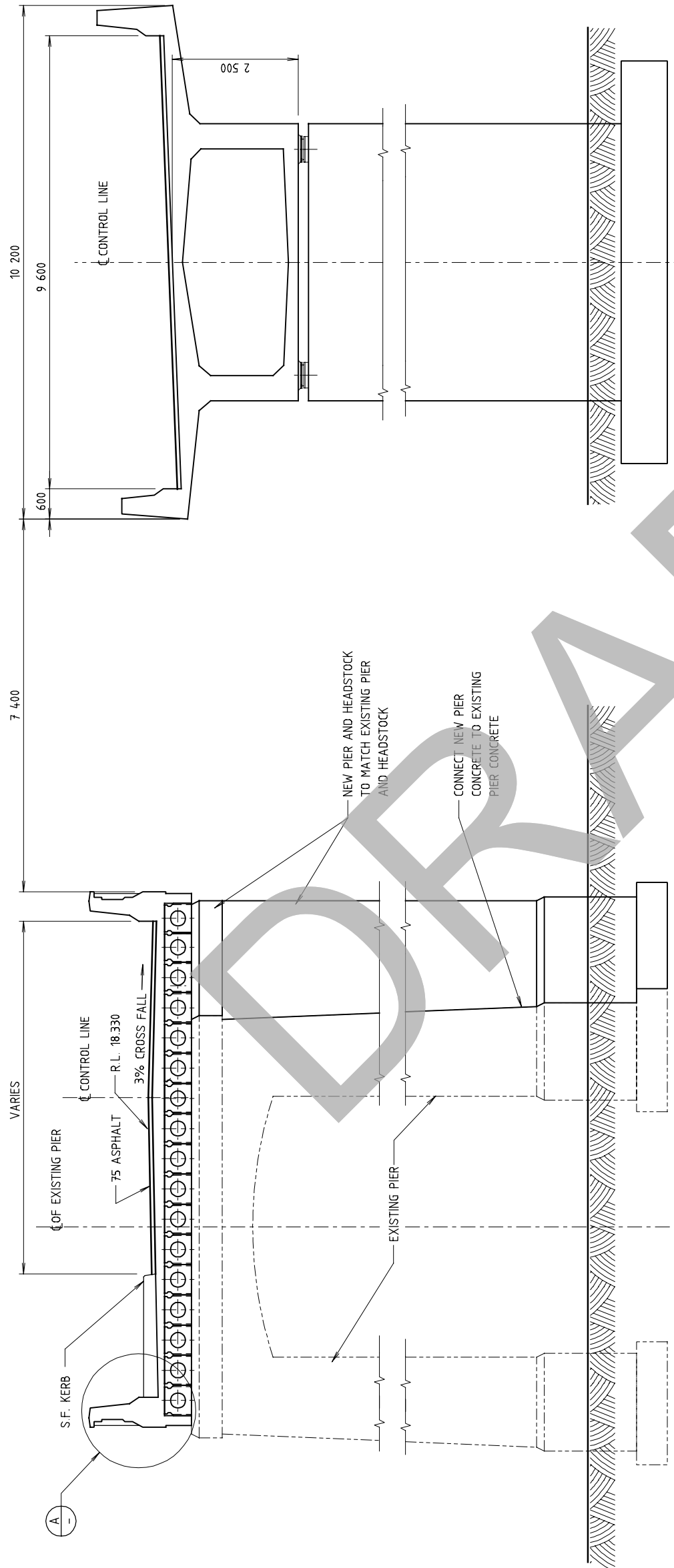
SCALE: 0 1000 2000 3000mm OR AS SHOWN.



DETAIL A

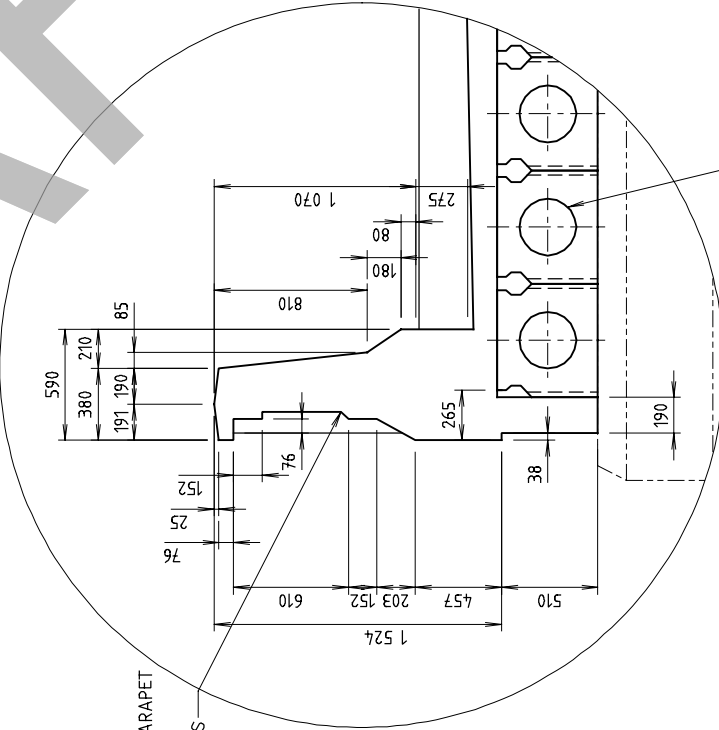
0 200 400 600 800 1000mm
200 100

ISSUE	DATE	REVISION	PREP	CHECK	AUTH
ROADS AND TRAFFIC AUTHORITY OF NSW CITY OF GRAFTON MAIN ROAD No 83 PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON TWO LANE OPTION (EXISTING BRIDGE) PIER 13 AND PIER 14					
PREPARED	CHECKED	SKETCH	No		
DESIGN	---		---		
DRAWING	---		---		
CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66414300 FACSIMILE (02) 66461301			PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARAMATTA NSW 2150 PHONE (02) 86374096 FACSIMILE (02) 86374055		
R.T.A.			KD678A		
MANAGER, BRIDGE DESIGN PRODUCTS			SHEET No	6	No OF SHEETS
					7



PIER 1 ELEVATION

PROPOSED NEW BRIDGE



DETAIL A

GENERAL NOTES

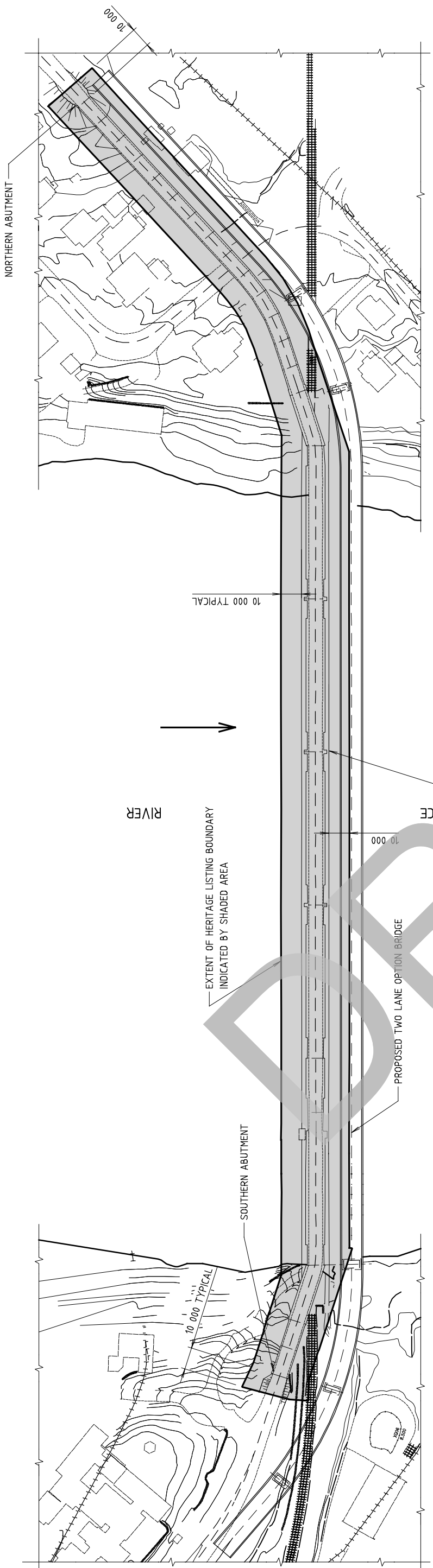
SCALE: 0 1000 2000 3000mm OR AS SHOWN.

ISSUE	DATE	REVISION	PREP	CHECK	AUTH
ROADS AND TRAFFIC AUTHORITY OF NSW					
MAIN ROAD No 83					
CITY OF GRAFTON					
PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON					
TWO LANE OPTION (EXISTING BRIDGE)					
PIER 1					
PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARAMATTA NSW 2150 PHONE (02) 85372096 FACSIMILE (02) 85376055			CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2460 PHONE (02) 66414300 FACSIMILE (02) 66461301		
PREPARED	CHECKED	SKETCH	No		
DESIGN	---				
DRAWING	---				
			KD678A		
MANAGER, BRIDGE DESIGN PRODUCTS			SHEET No	2	No OF SHEETS
CADD No: KD678P1-3.DWG			7		

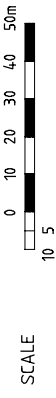
ADVANCE COPY
NOT TO BE USED
FOR CONSTRUCTION
23/06/2004

0 200 400 600 800 1000mm

200 100



GENERAL NOTES



DIMENSIONS ARE IN MILLIMETRES
 CHAINAGES AND REDUCED LEVELS ARE IN METRES
 REDUCED LEVELS ARE RELATED TO
 THE BRIDGE CONTRACT DOES NOT INCLUDE

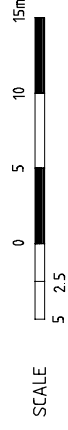
PLAN

ADVANCE COPY
 NOT TO BE USED
 FOR CONSTRUCTION
 15/03/2005

ISSUE	DATE	SHOW EXISTING BRIDGE	DaH	HC
A	14-03-05			
REVISION		PREP./CHECK/AUTH		
ROADS AND TRAFFIC AUTHORITY OF NSW CITY OF GRAFTON MAIN ROAD No 83 PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON TWO LANE OPTION (EXISTING BRIDGE) GENERAL ARRANGEMENT				
PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARARAMATTA NSW 2150 PHONE (02) 85374096 FACSIMILE (02) 85374055		CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66404300 FACSIMILE (02) 66461301		
PREPARED	CHECKED	SKETCH No		
DESIGN				
DRAWING			KD678A	
MANAGER, BRIDGE DESIGN PRODUCTS			SHEET No	1A
			No OF SHEETS	7

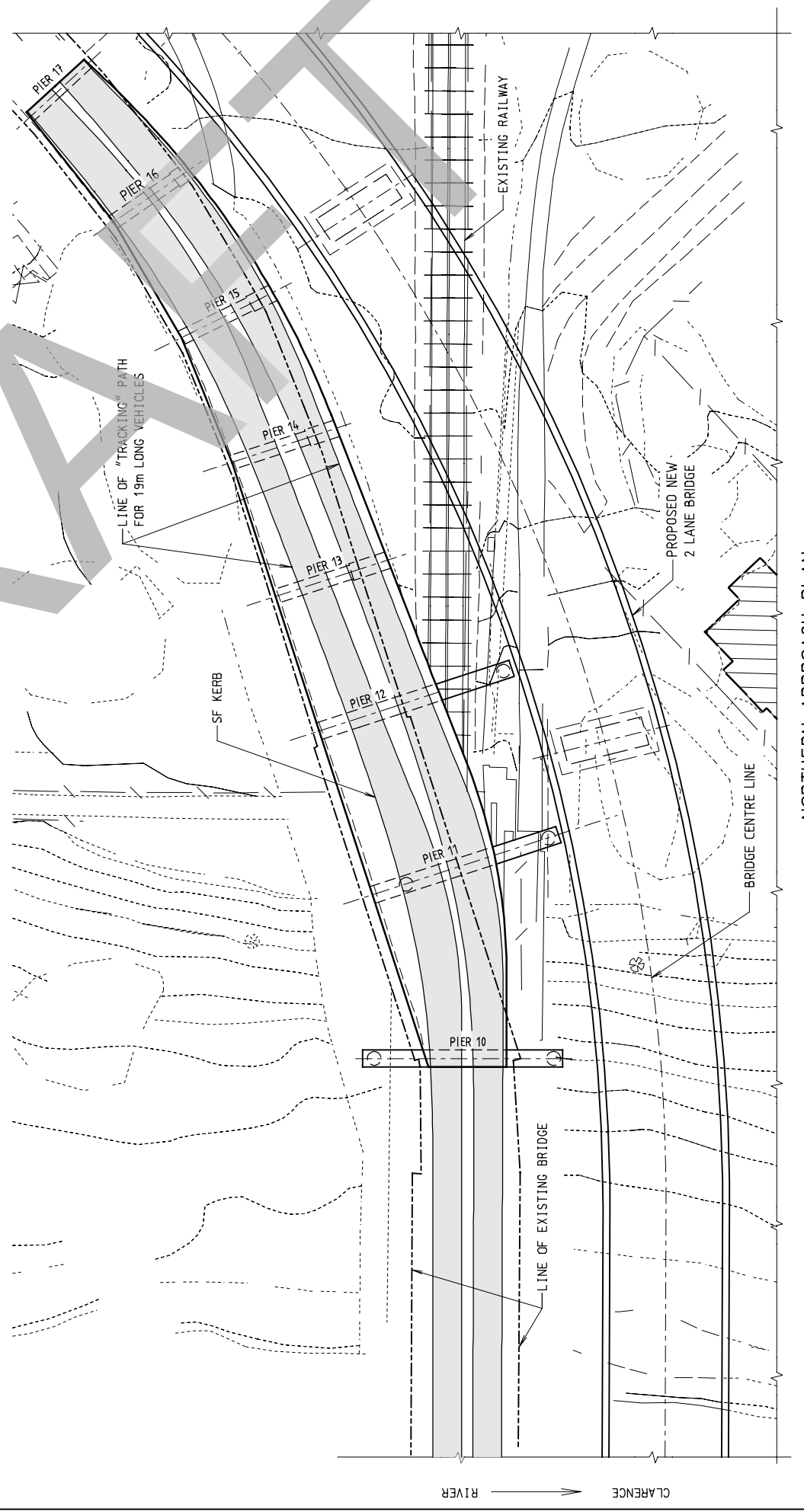
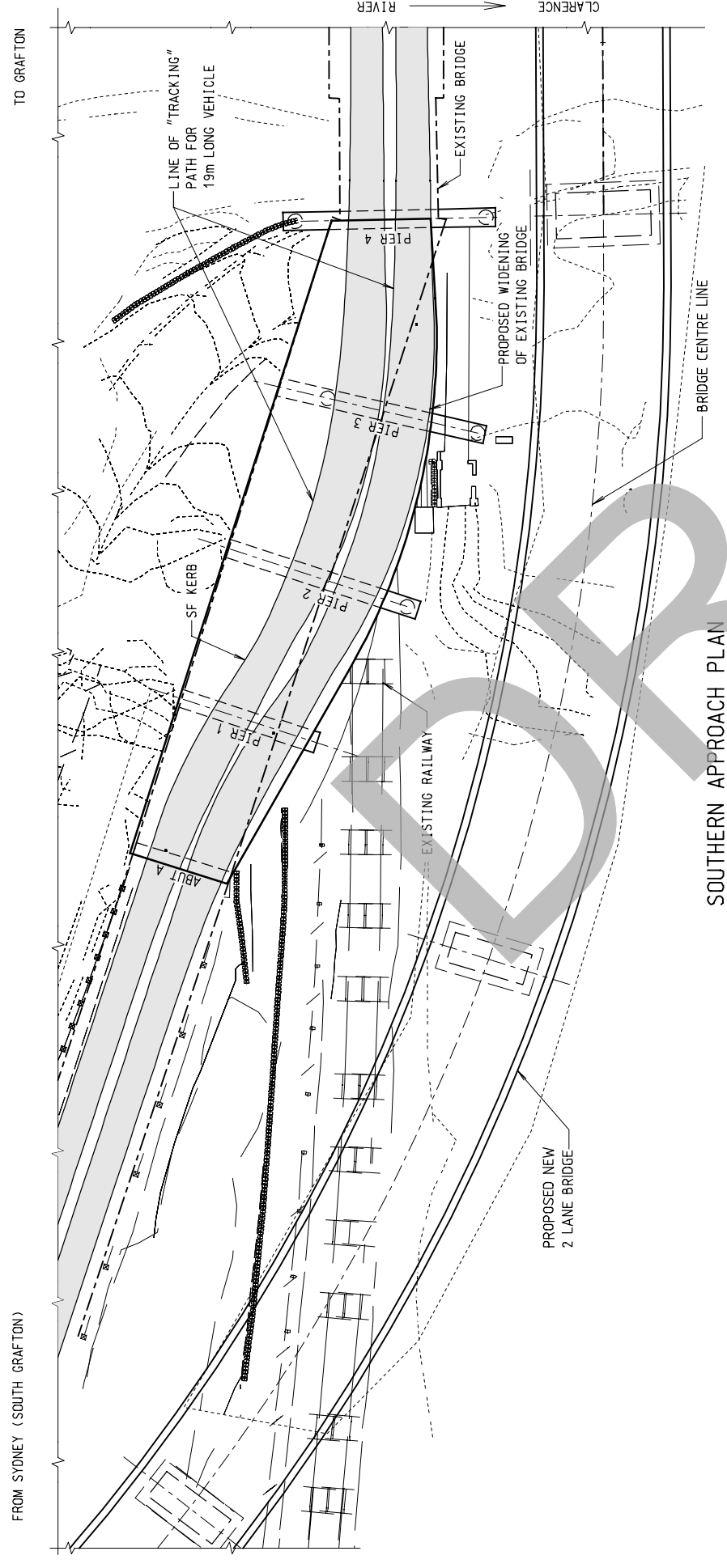
ADVANCE COPY
 NOT TO BE USED
 FOR CONSTRUCTION
 23/06/2004

GENERAL NOTES

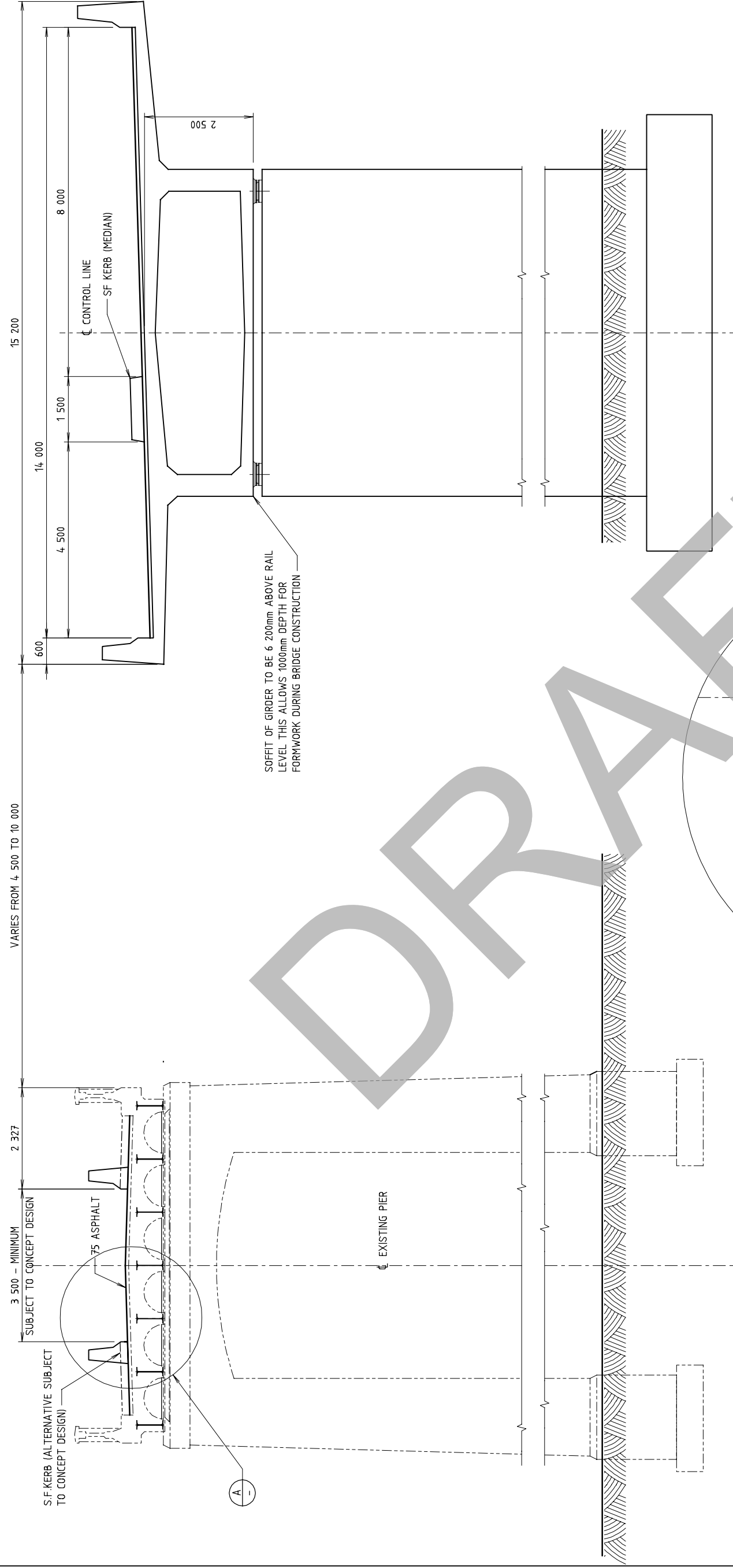


DIMENSIONS ARE IN MILLIMETRES
 CHAINAGES AND REDUCED LEVELS ARE IN METRES
 REDUCED LEVELS ARE RELATED TO
 THE BRIDGE CONTRACT DOES NOT INCLUDE

ISSUE	DATE	REVISION	PREP./CHECK/AUTH
ROADS AND TRAFFIC AUTHORITY OF NSW MAIN ROAD No 83 CITY OF GRAFTON PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON TWO LANE OPTION (EXISTING BRIDGE) GENERAL ARRANGEMENT			
PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARARAMATTA NSW 2150 PHONE (02) 85372096 FACSIMILE (02) 85376055		CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66414300 FACSIMILE (02) 66461301	
PREPARED DESIGN	CHECKED SKETCH No	KD678A	
DRAWING No. 1		SHEET No 1	No OF SHEETS 7
MANAGER, BRIDGE DESIGN PRODUCTS CAD No. KID678GAP.dgn			



NORTHERN APPROACH PLAN

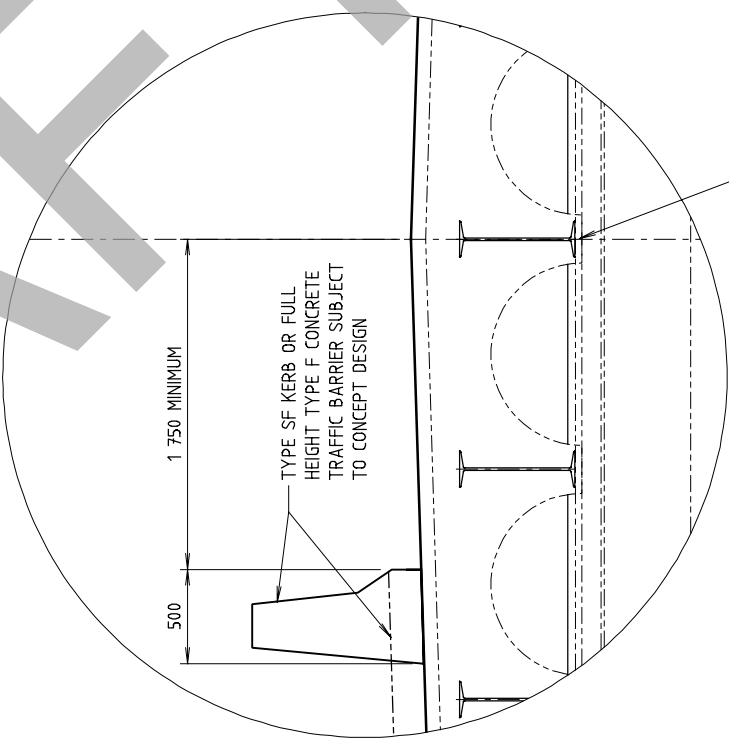


PROPOSED NEW BRIDGE

GENERAL NOTES

SCALE: 0 1000 2000 3000mm OR AS SHOWN.

ADVANCE COPY
NOT TO BE USED
FOR CONSTRUCTION
23/06/2004



DETAIL A

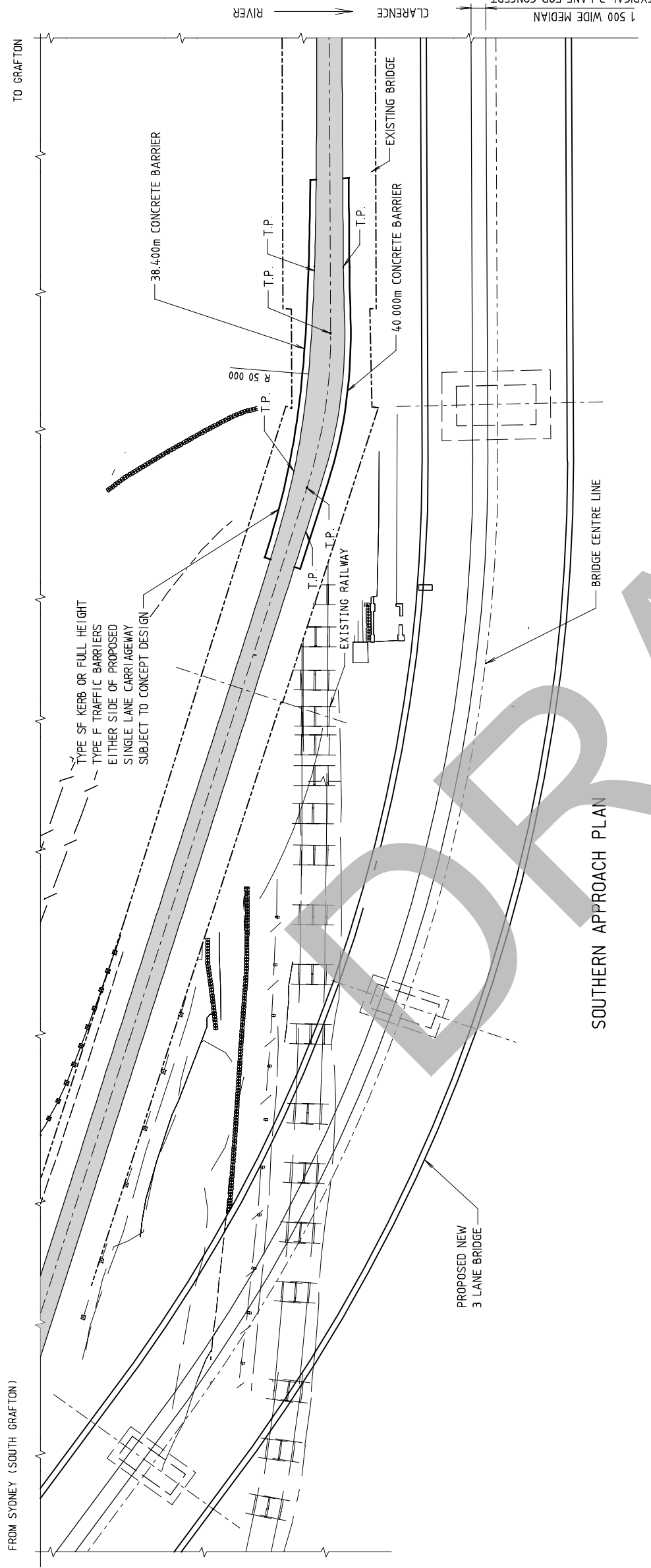
0 200 400 600 800 1000mm
200 100

ISSUE	DATE	REVISION	PREP	CHECK	AUTH

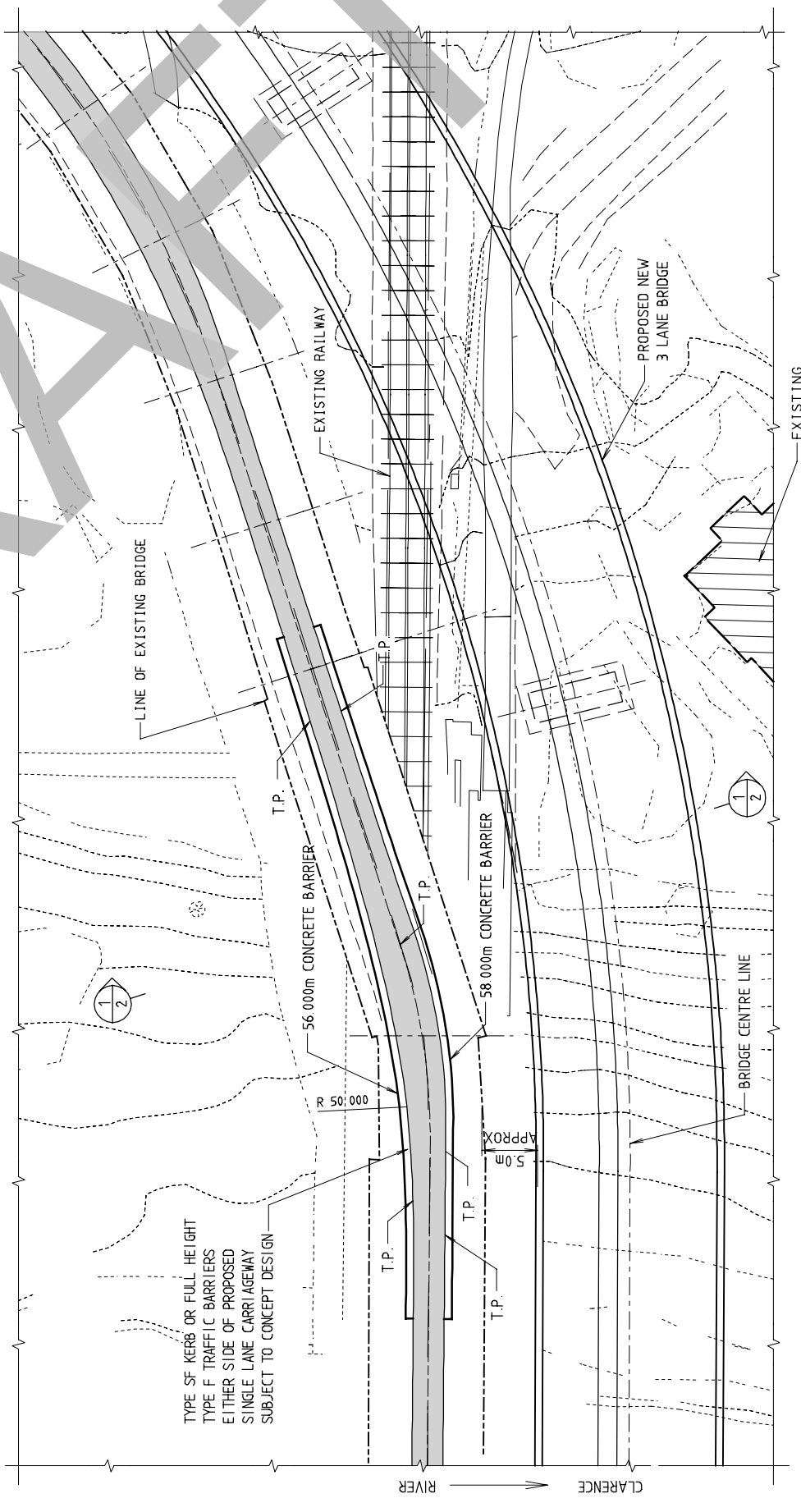
ROADS AND TRAFFIC AUTHORITY OF NSW
CITY OF GRAFTON
MAIN ROAD No 83
PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON
ONE LANE OPTION (EXISTING BRIDGE)

TYPICAL SECTIONS

	PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARAMATTA NSW 2150 PHONE (02) 85372096 FACSIMILE (02) 85376055	CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66414300 FACSIMILE (02) 66461301
PREPARED DESIGN <i>H.C. J.</i> DRAWING <i>D. J. H.</i>	CHECKED SKETCH No	KD678B
MANAGER, BRIDGE DESIGN PRODUCTS	SHEET No 2	No OF SHEETS 2



SOUTHERN APPROACH PLAN



NORTHERN APPROACH PLAN

ADVANCE COPY
 NOT TO BE USED
 FOR CONSTRUCTION
 23/06/2004

GENERAL NOTES
 SCALE: 5 2.5 5 10 15m
 OR AS SHOWN.

DIMENSIONS ARE IN MILLIMETRES
 CHAINAGES AND REDUCED LEVELS ARE IN METRES
 REDUCED LEVELS ARE RELATED TO A.H.D.

ISSUE	DATE	REVISION	PREP./CHECK/AUTH
ROADS AND TRAFFIC AUTHORITY OF NSW CITY OF GRAFTON PROPOSED MODIFICATIONS TO BRIDGE OVER CLARENCE RIVER AT GRAFTON ONE LANE OPTION (EXISTING BRIDGE) GENERAL ARRANGEMENT			
PREPARED BY BRIDGE SECTION 110 GEORGE STREET PARRAMATTA NSW 2150 PHONE (02) 85372096 FACSIMILE (02) 85372055		CLIENT NORTHERN REGIONAL OFFICE 31 VICTORIA STREET GRAFTON PO BOX 576 GRAFTON NSW 2480 PHONE (02) 66414300 FACSIMILE (02) 66461301	
PREPARED	CHECKED	SKETCH NO	NO OF SHEETS
DESIGN			1
DRAWING			2
MANAGER, BRIDGE DESIGN PRODUCTS CAD NO. K0878B6GAP.DWG		KD678B	