

Project Title: **Stromeferry Bypass**

Technical Note: **St/01**

Project Number: **47065084**

Date:

June 2014

Subject: **Technical Note: Stromeferry Bypass – Stage 2 Strome Narrows Bridge Crossings - Options**

Author **Derek Ogilvie/ Jill Irving**

Five options have been considered for the bridge crossing of Strome Narrows, as discussed below. Also refer to sketches attached.

Option 1

Low / Medium level crossing

Road level at approximately 29.5m AOD

Bridge Spans 40m, 15x50m, 40m

Precast, Prestressed concrete (or composite steel/concrete) box girder deck on reinforced concrete substructure

Shortest Route

Clearance approx. 23.5m

Massive rock cutting on north bank, or alternatively tunnel section within north hillside – probable precludes this option

Option 2A

Low level crossing

Road level at approximately 29.5m AOD

Bridge Spans 40m, 16x50m, 40m

Longer bridge

Precast, Prestressed concrete (or composite steel/concrete) box girder deck on reinforced concrete substructure

Slightly longer Route at higher skew, intended to avoid massive rock cutting on north bank

Clearance approx. 20m

Rock cutting on north bank much less than Option 1.

Option 2B

High level crossing

Road level at approximately 37.85m AOD

Bridge Spans 75m, 85m, 105m, 700m main span, 105m, 85m, 75m

Long central span over the water

Cable stayed bridge with steel box girder deck on reinforced concrete substructure

Same route on plan as Option 2A, but at higher level, intended to further reduce rock cutting on north bank

Clearance approx. 35m

Rock cutting on north bank much less than Option 1 and less than Option 2A.

Option 3

Low level crossing

Road level at approximately 24m AOD



Bridge Spans 40m, 15x50m, 40m

Shorter bridge

Precast, Prestressed concrete (or composite steel/concrete) box girder deck on reinforced concrete substructure

Slightly shorter route at smaller skew, but with tighter geometry on north bank, intended to avoid massive rock cutting on north bank

Clearance approx. 20m

Rock cutting on north bank much less than Option 1.

Option 3A (Preferred Option)

Refinement of Option 3, includes 65m navigation span, modifications to profile to minimise earthworks impact.

Low level crossing (road level approx. 26m AOD, clearance 20m approx.)

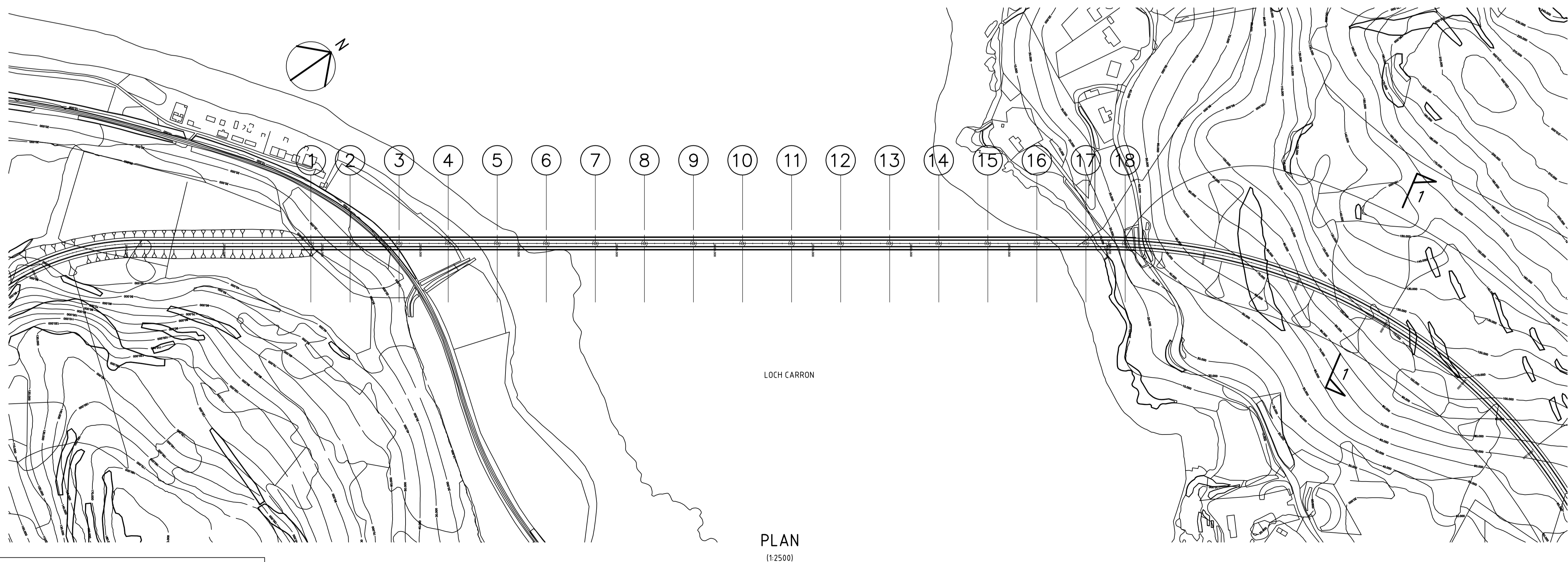
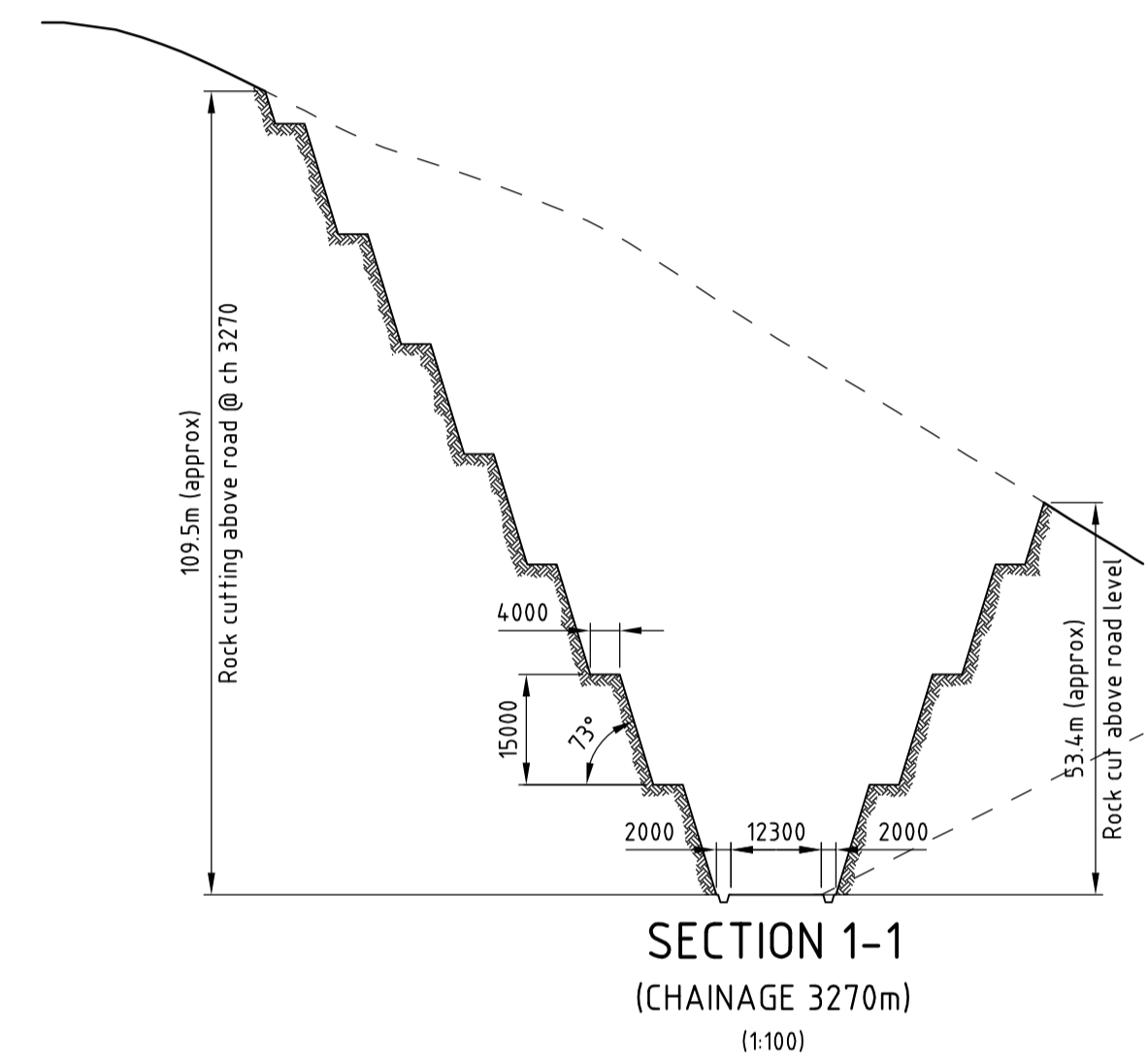
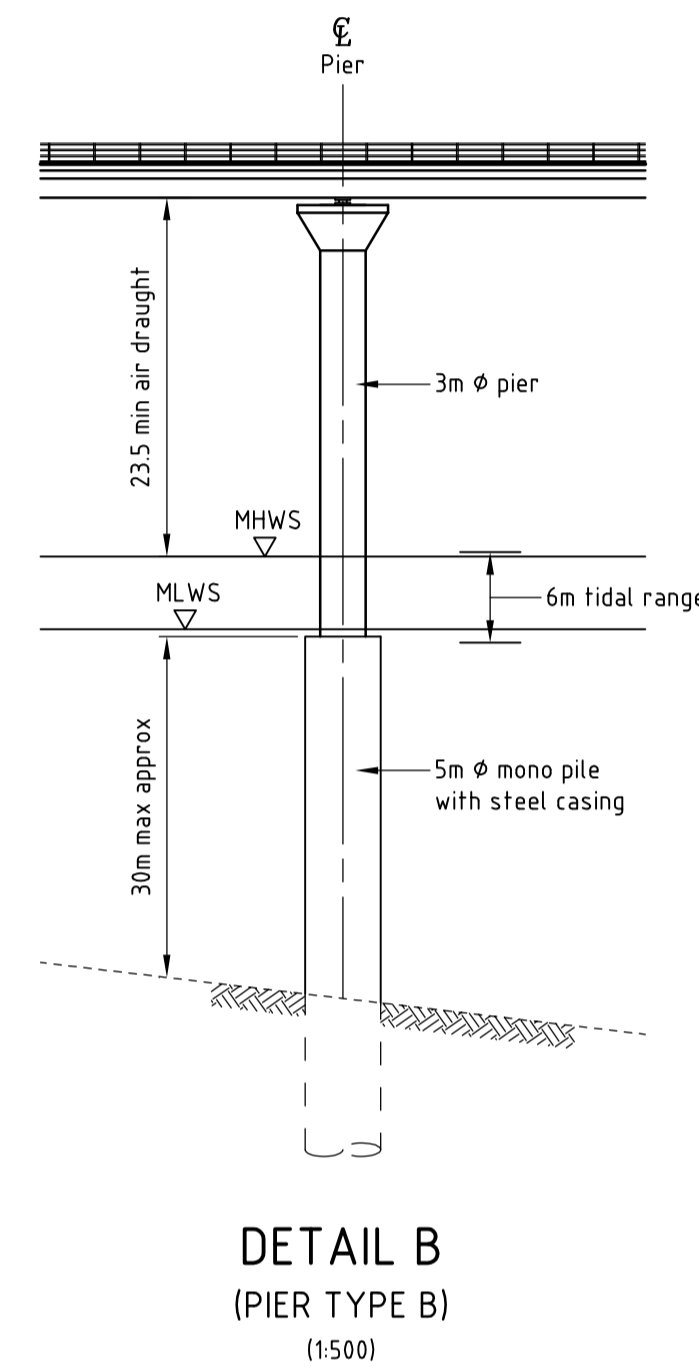
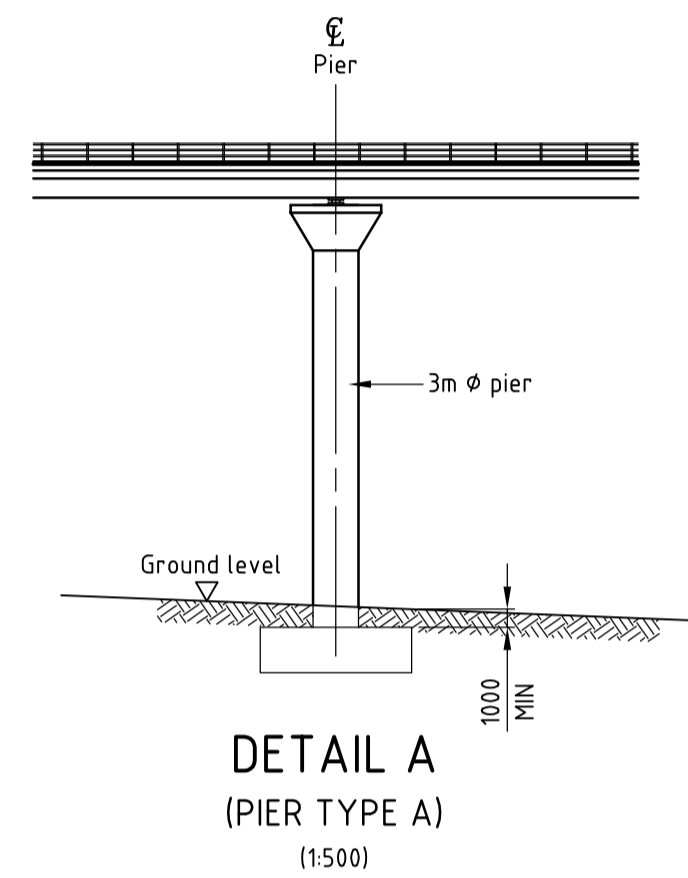
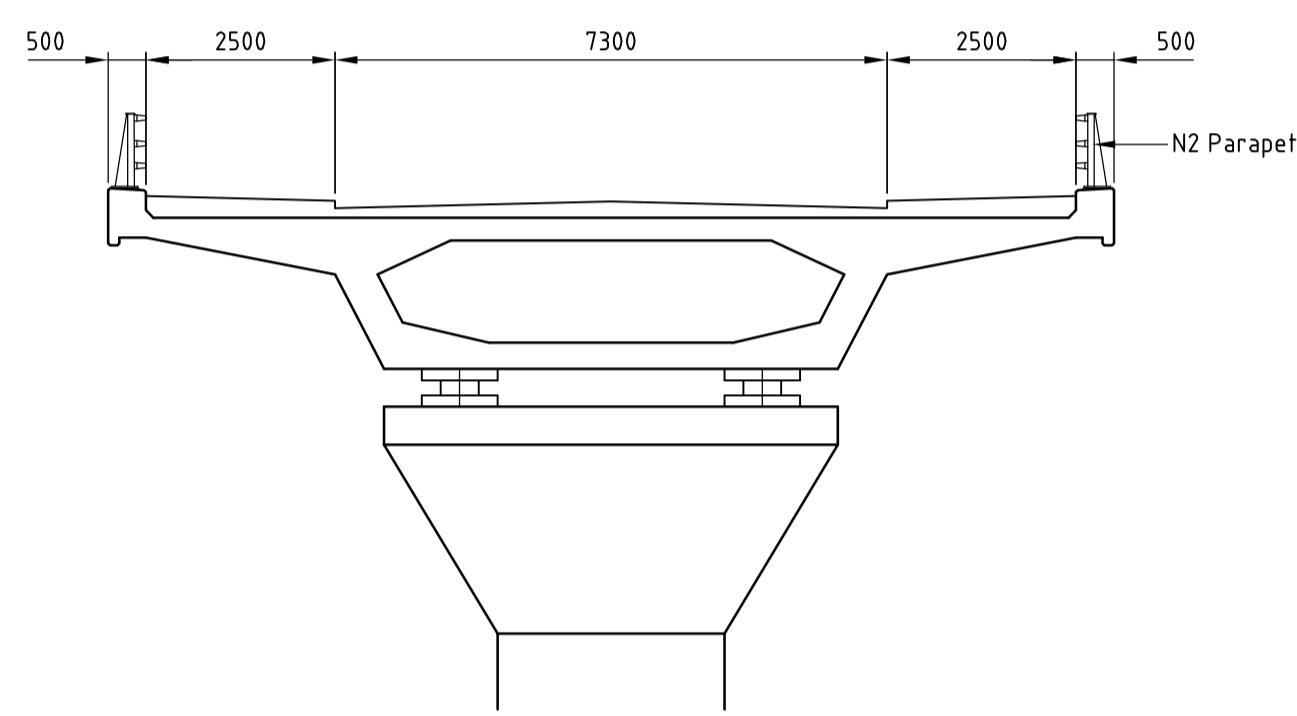
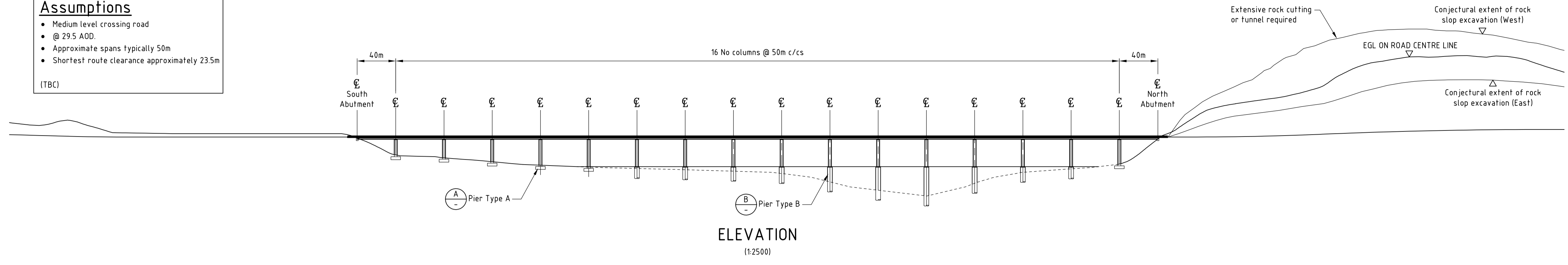
Total length 830m

Precast/prestressed concrete(or composite steel/concrete) box girder deck on reinforced concrete substructure

Assumptions

- Medium level crossing road
- @ 29.5 AOD
- Approximate spans typically 50m
- Shortest route clearance approximately 23.5m

(TBC)



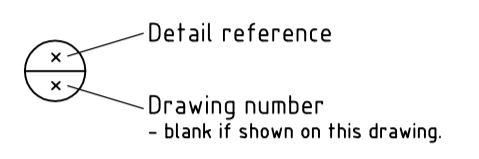
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NOTES

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Revision Details	By	Date	Suffix
	Check		

Purpose of issue
PRELIMINARY

Client
Client Name / Logo

Project Title
STROMEY FERRY CROSSING

Drawing Title
**OPTION 1
GENERAL ARRANGEMENT**

Designed DJO	Drawn JMcC	Checked DJO	Approved DJO	Date SEPT '13
URS Internal Project No. 47065084		Suitability Suitability		
Scale @ A1 AS SHOWN		Zone / Mileage Zone / Mileage		

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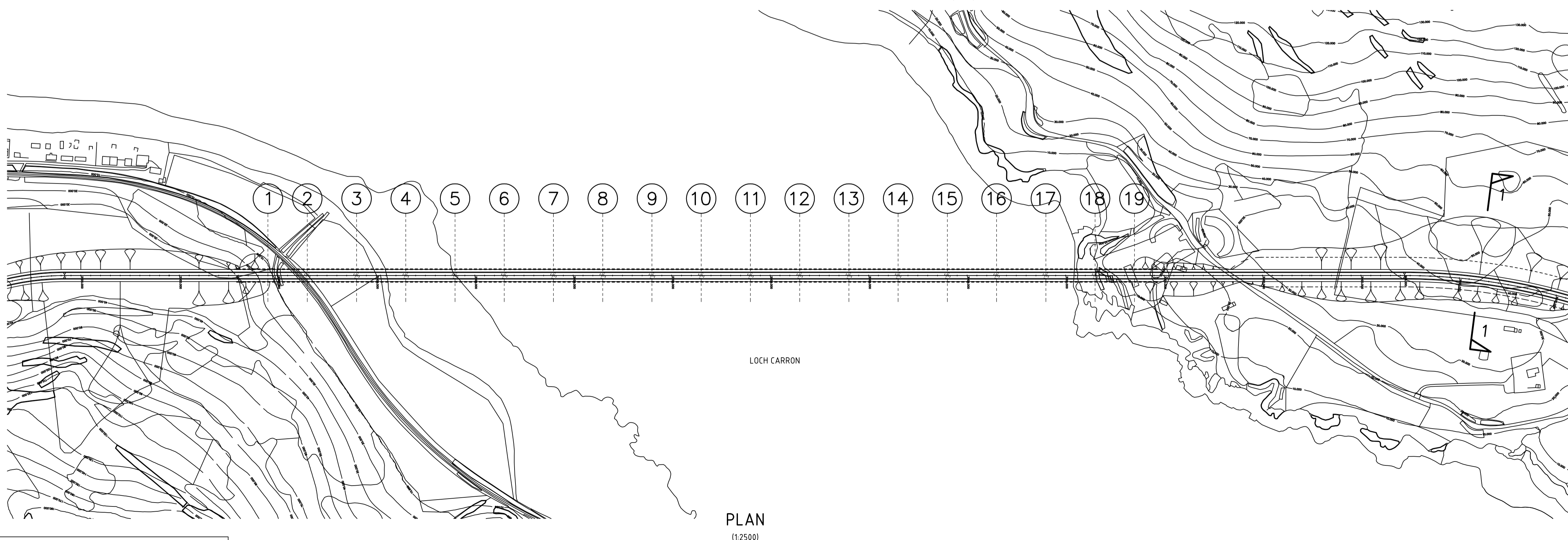
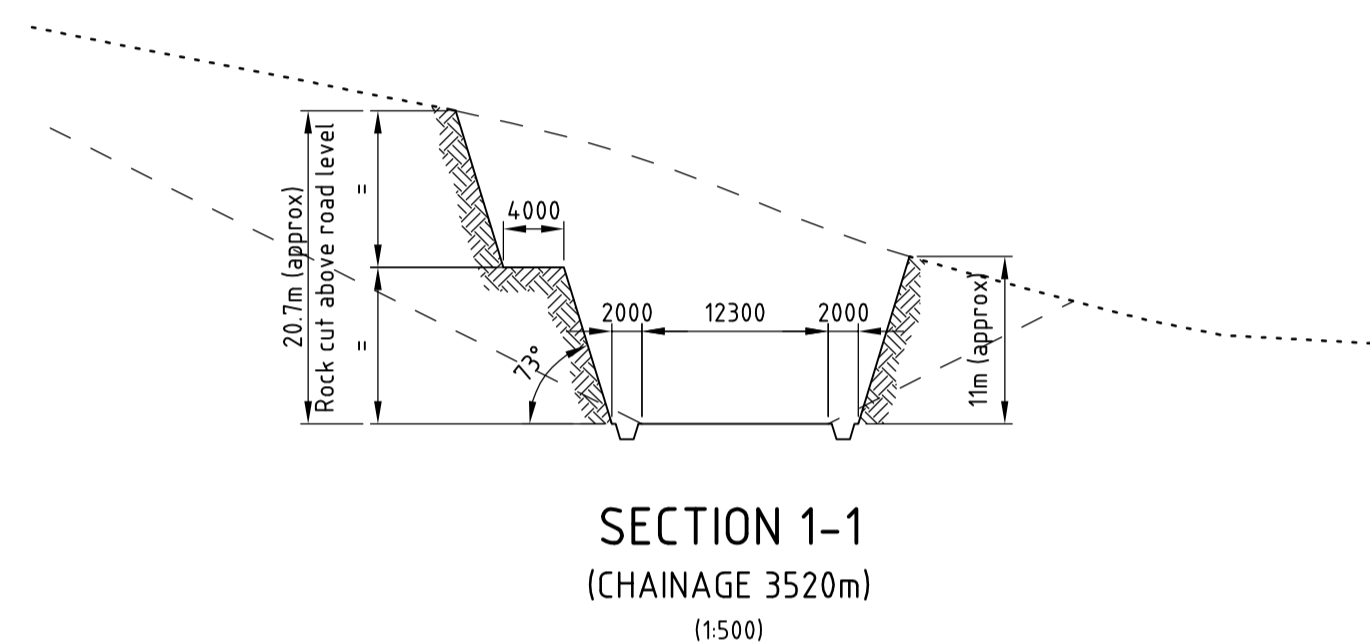
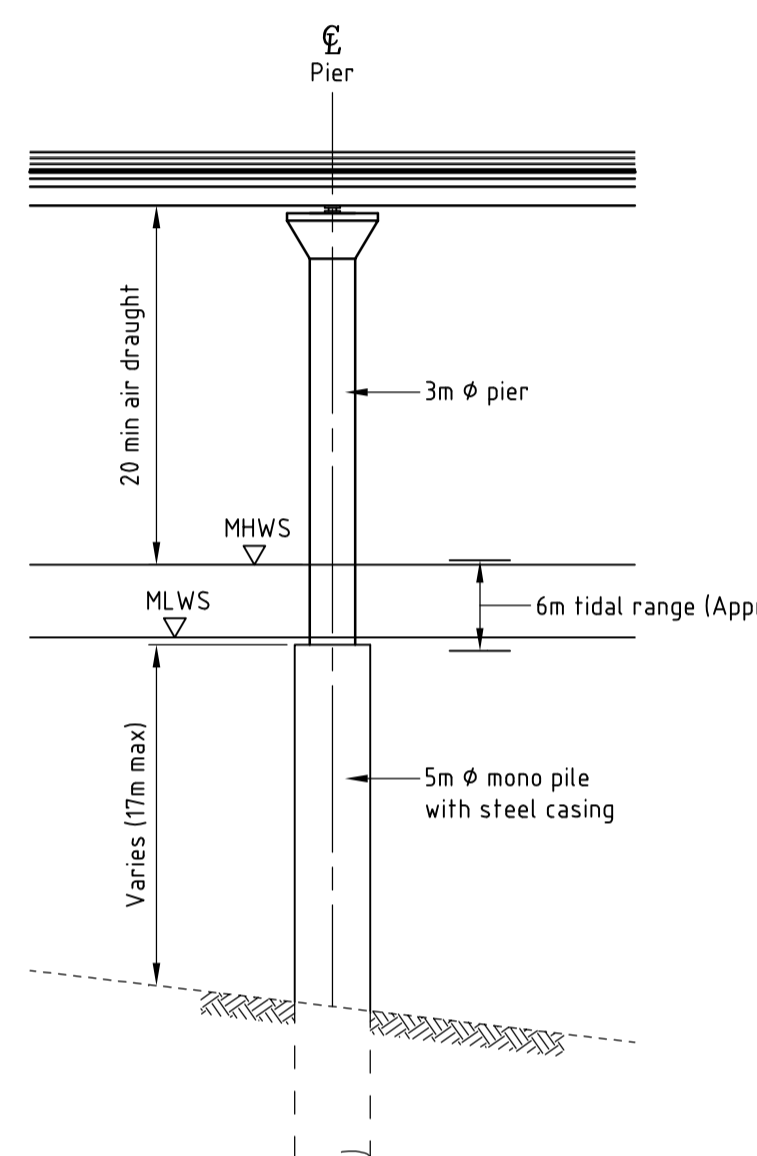
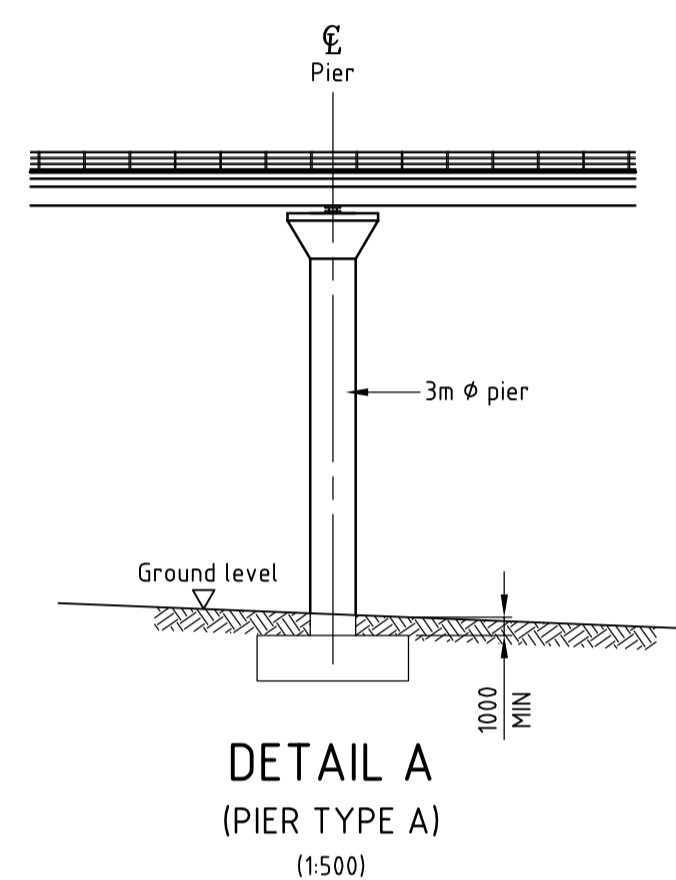
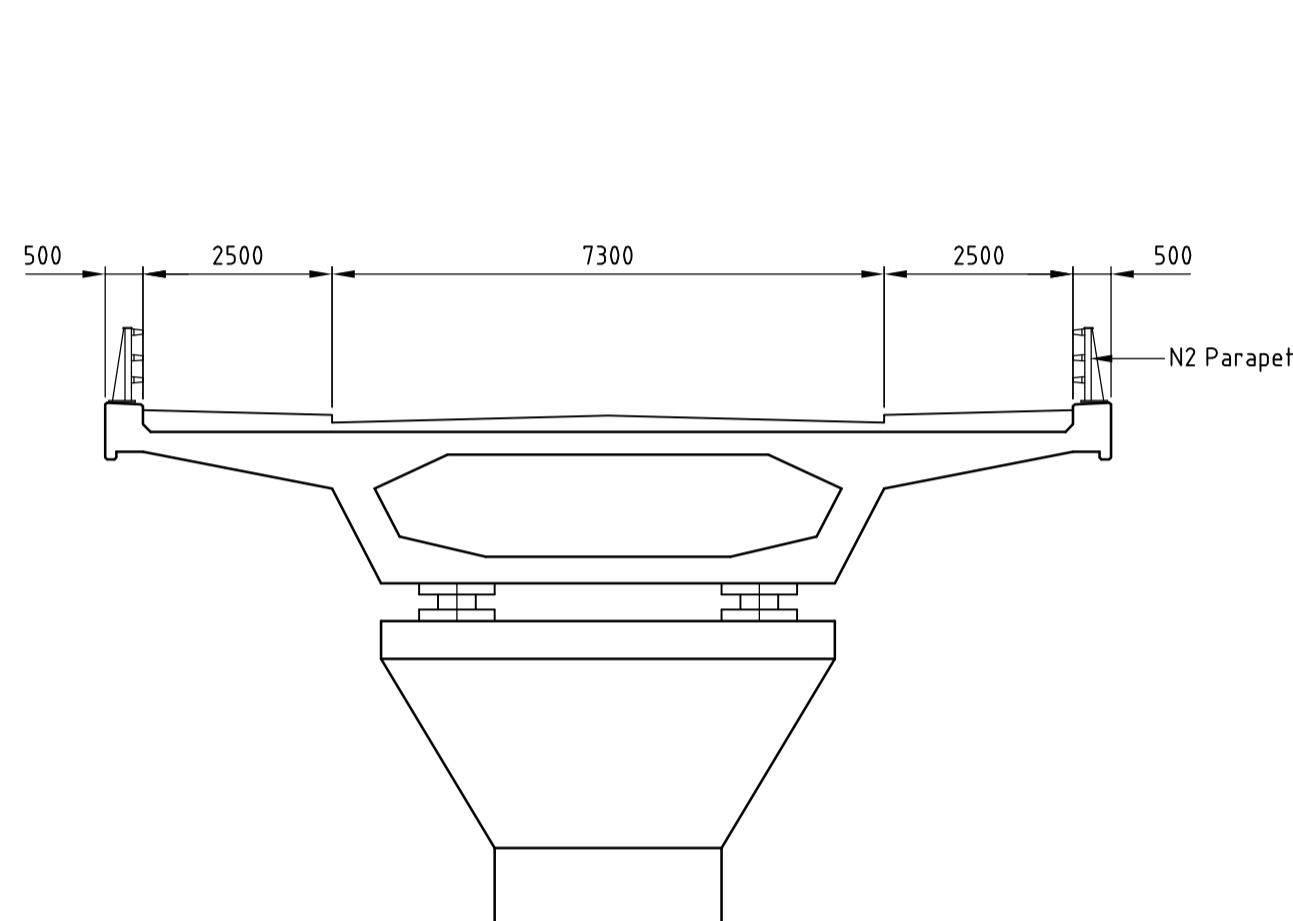
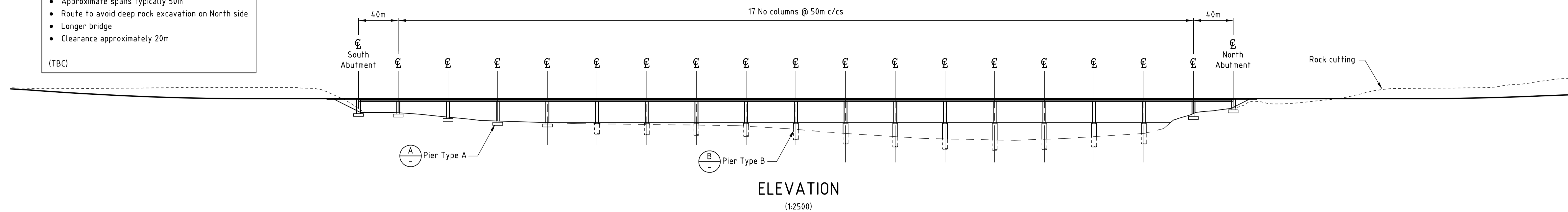
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Assumptions

- Medium level crossing
- Road @ 29.5 AOD
- Approximate spans typically 50m
- Route to avoid deep rock excavation on North side
- Longer bridge
- Clearance approximately 20m

(TBC)



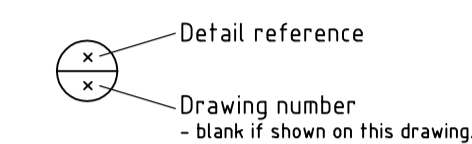
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Purpose of issue

PRELIMINARY

Client

Client Name / Logo

Project Title

STROME FERRY CROSSING

Drawing Title

OPTION 2A
GENERAL ARRANGEMENT

Designed	Drawn	Checked	Approved	Date
DJO	JMcC	DJO	DJO	SEPT 13

URS Internal Project No.	Suitability
47065084	Suitability
Scale @ A1	Zone / Mileage
AS SHOWN	Zone / Mileage

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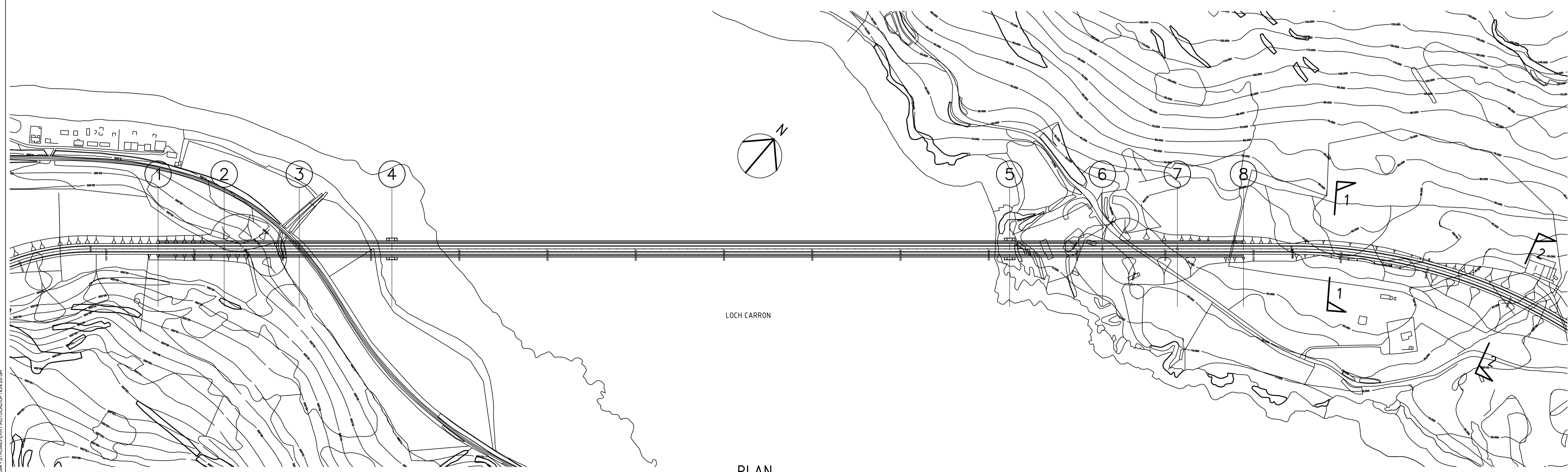
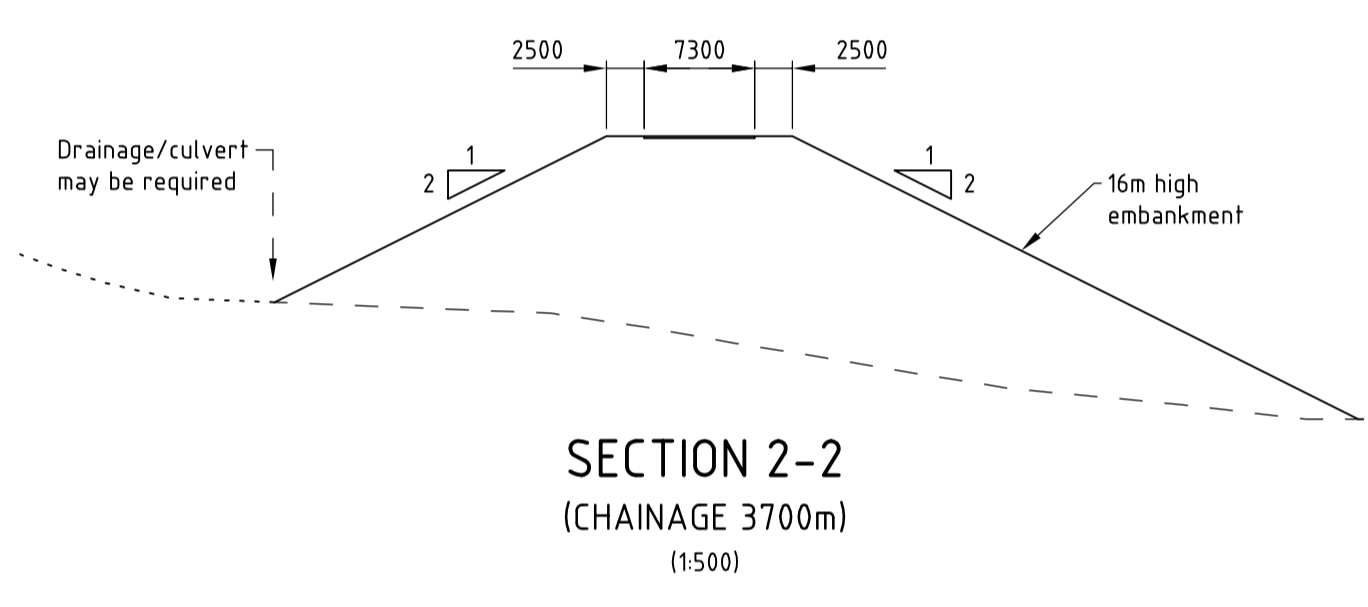
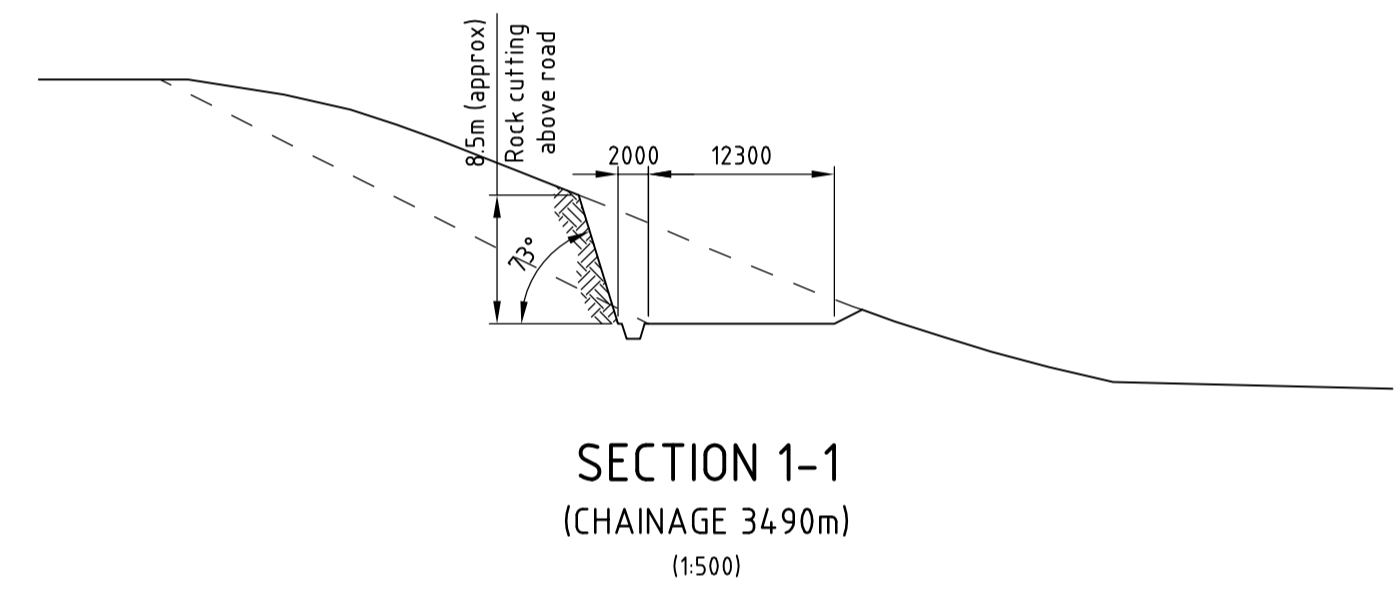
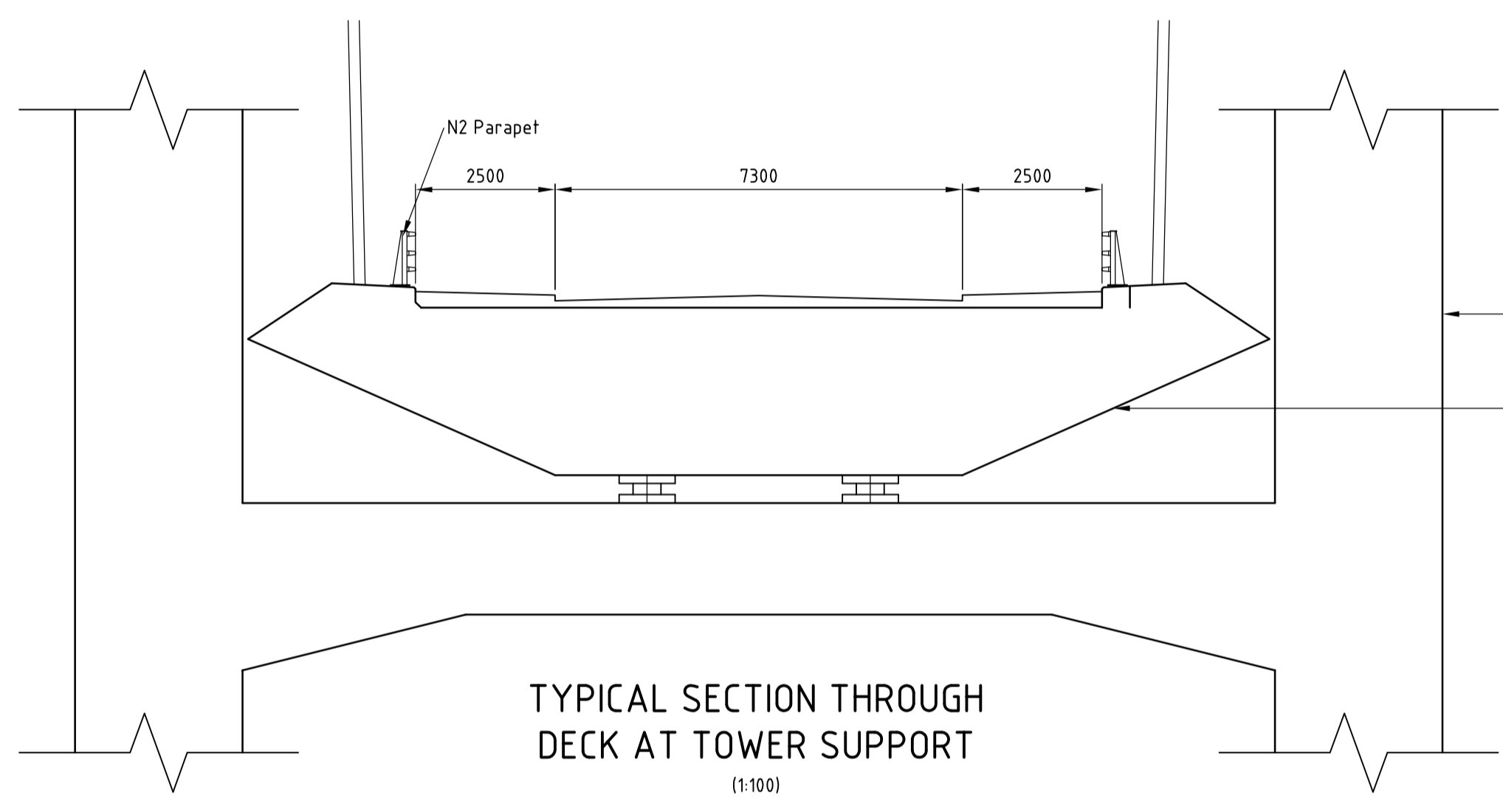
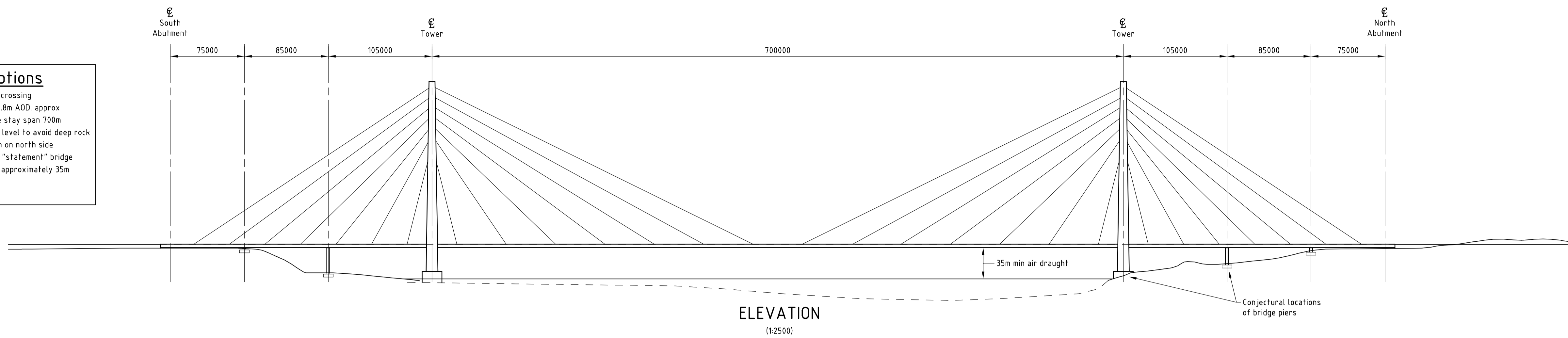


Drawing Number	Rev
47065084/002	0

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File Name: I:\2013\130621_130621_STROME FERRY AUTOCAD OPTION 2A.DWG
 Plot Date: 11/09/13 10:07

- Assumptions**
- High level crossing
 - Road @ 37.8m AOD approx
 - Long cable stay span 700m
 - Route and level to avoid deep rock excavation on north side
 - Long span "statement" bridge
 - Clearance approximately 35m
- (TBC)

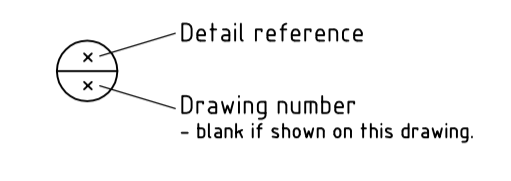


CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISK	DEMOLITION RISKS
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

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Revision Details	By	Date	Suffix
	Check		

Purpose of issue
PRELIMINARY

Client
Client Name / Logo

Project Title
STROME FERRY CROSSING

Drawing Title
**OPTION 2B
GENERAL ARRANGEMENT**

Designed DUO	Drawn JMcC	Checked DUO	Approved DUO	Date SEPT 13
URS Internal Project No. 47065084		Suitability Zone / Mileage AS SHOWN		

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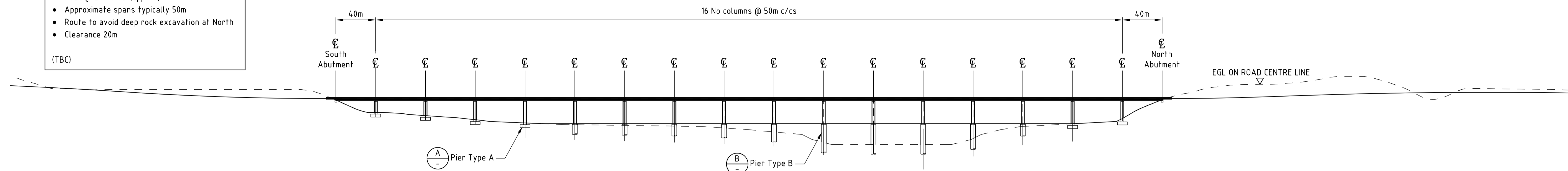
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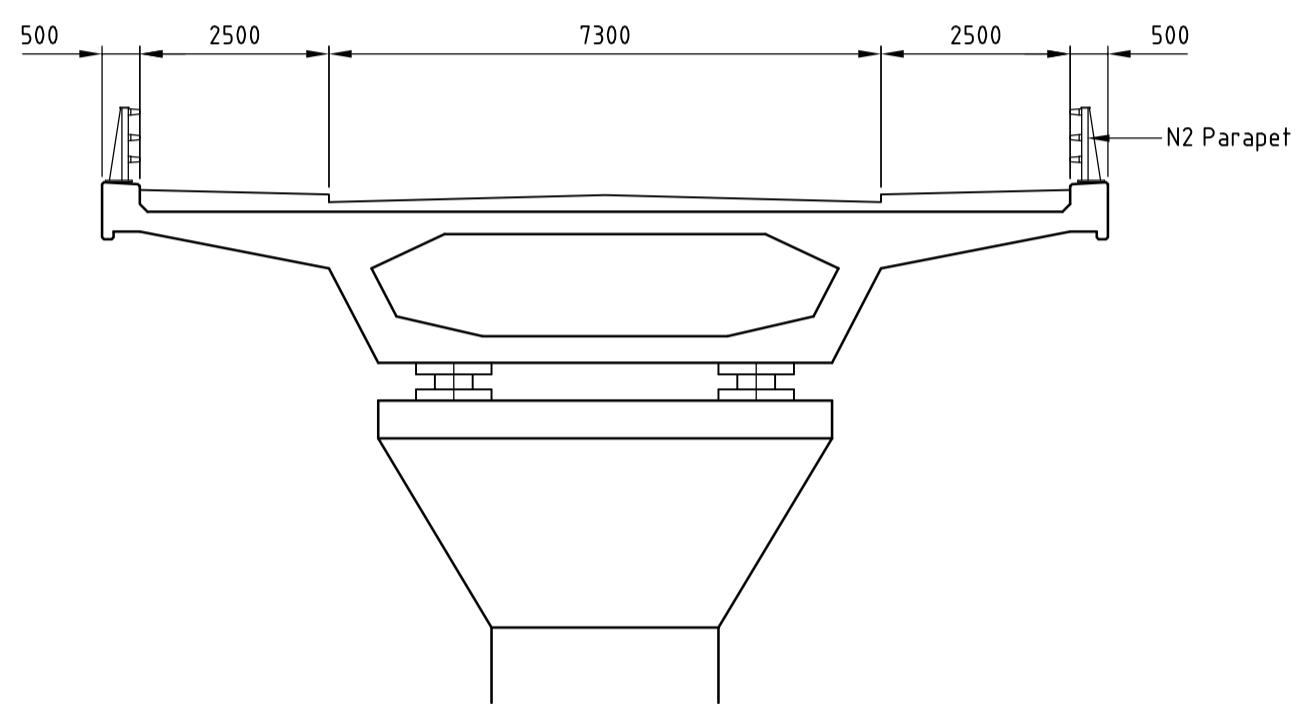
Assumptions

- Low level crossing
- Road @ 24m AOD (approx)
- Approximate spans typically 50m
- Route to avoid deep rock excavation at North
- Clearance 20m

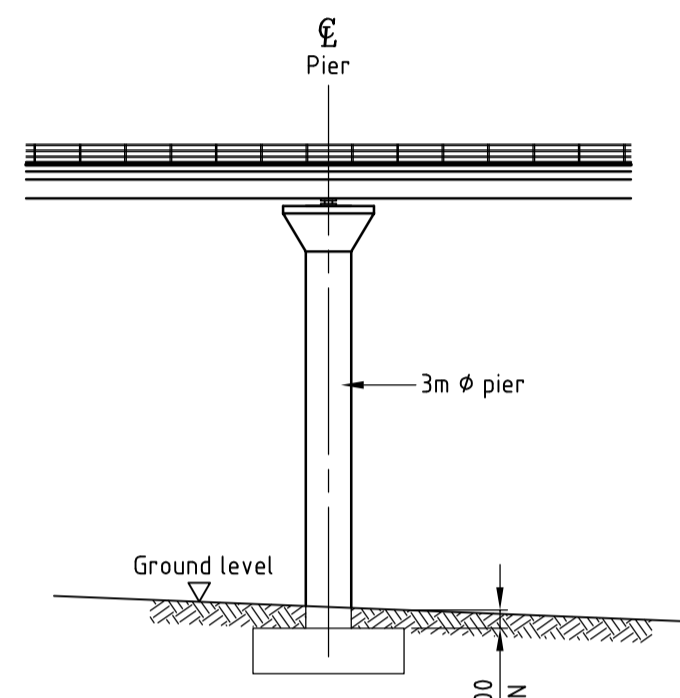
(TBC)



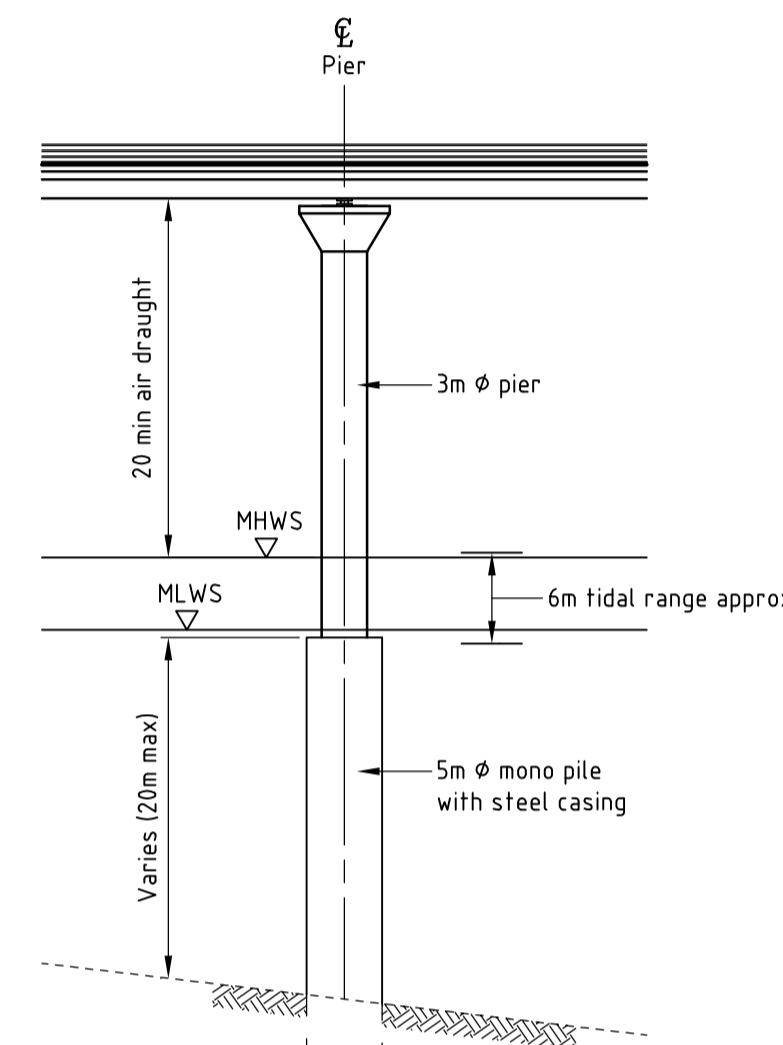
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(1:2500)



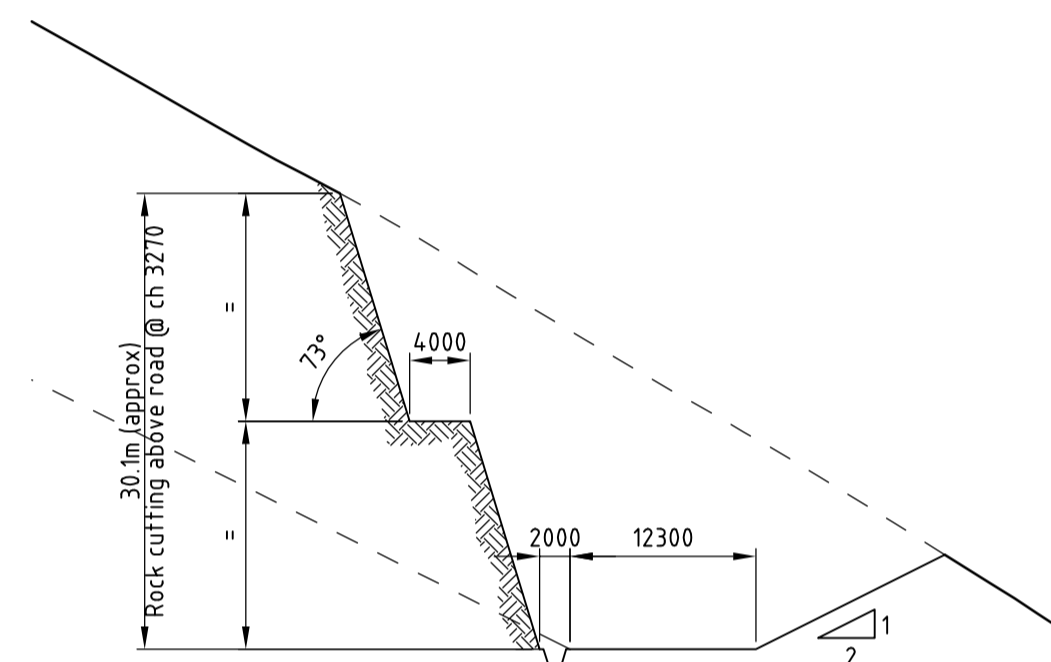
TYPICAL SECTION THROUGH DECK
(1:100)



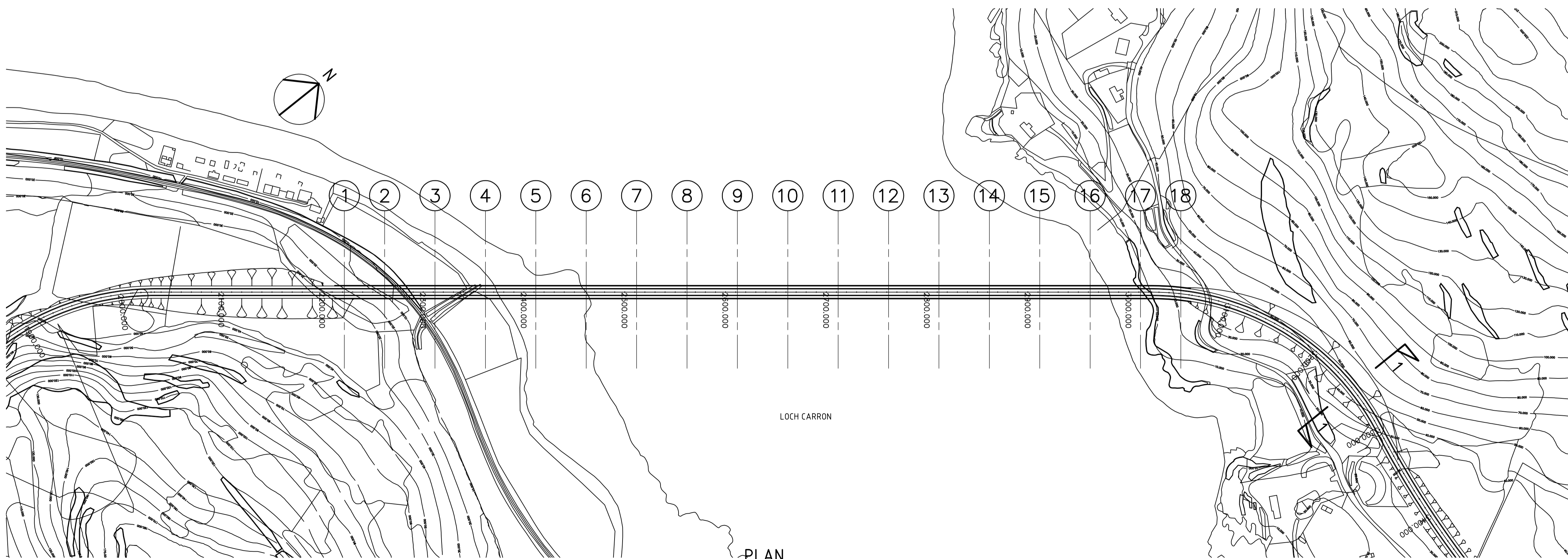
DETAIL A
(PIER TYPE A)
(1:500)



DETAIL B
(PIER TYPE B)
(1:500)



SECTION 1-1
(CHAINAGE 3250m)
(1:500)



PLAN
(1:2500)

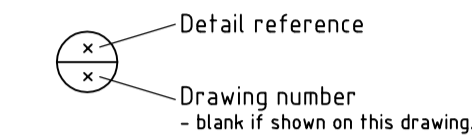
CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISK	DEMOLITION RISKS
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Revision Details	By	Date	Suffix
	Check		

Purpose of issue
PRELIMINARY

Client
Client Name / Logo

Project Title
STROME FERRY CROSSING

Drawing Title
**OPTION 3
GENERAL ARRANGEMENT**

Designed DJO	Drawn JMcC	Checked DJO	Approved DJO	Date SEPT '13
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URS Internal Project No. 47065084	Suitability Suitability
Scale @ A1 AS SHOWN	Zone / Mileage Zone / Mileage

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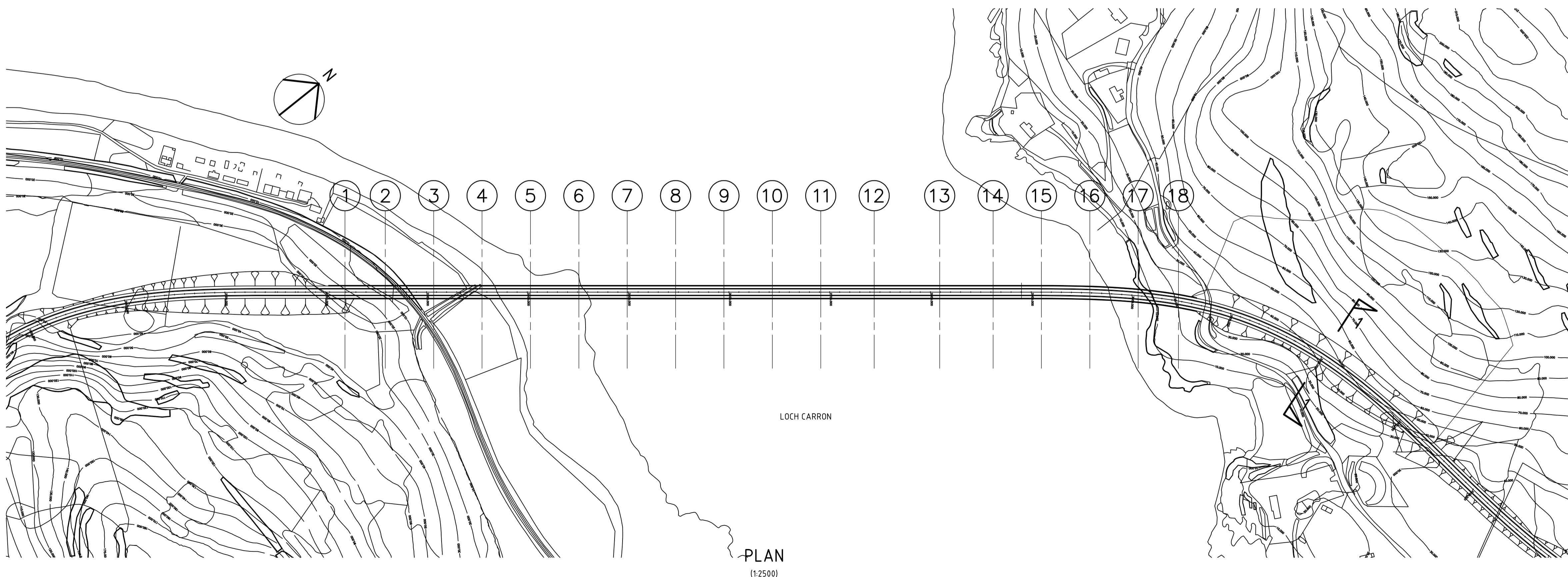
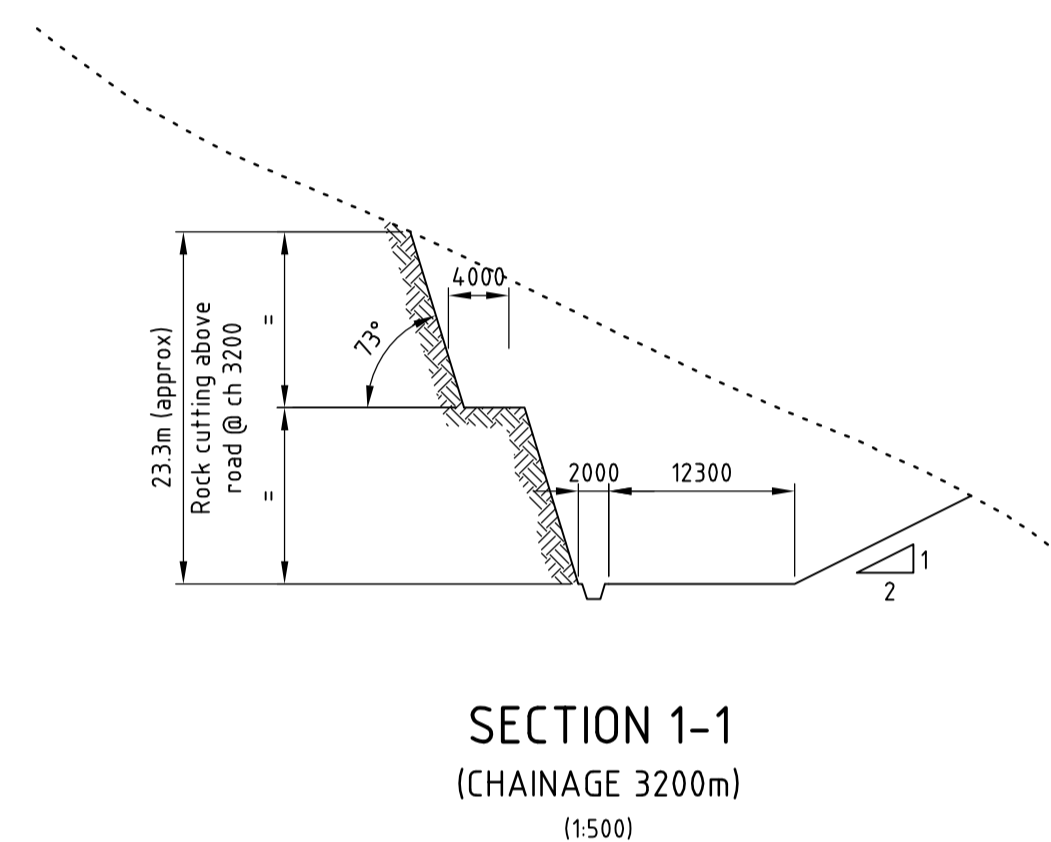
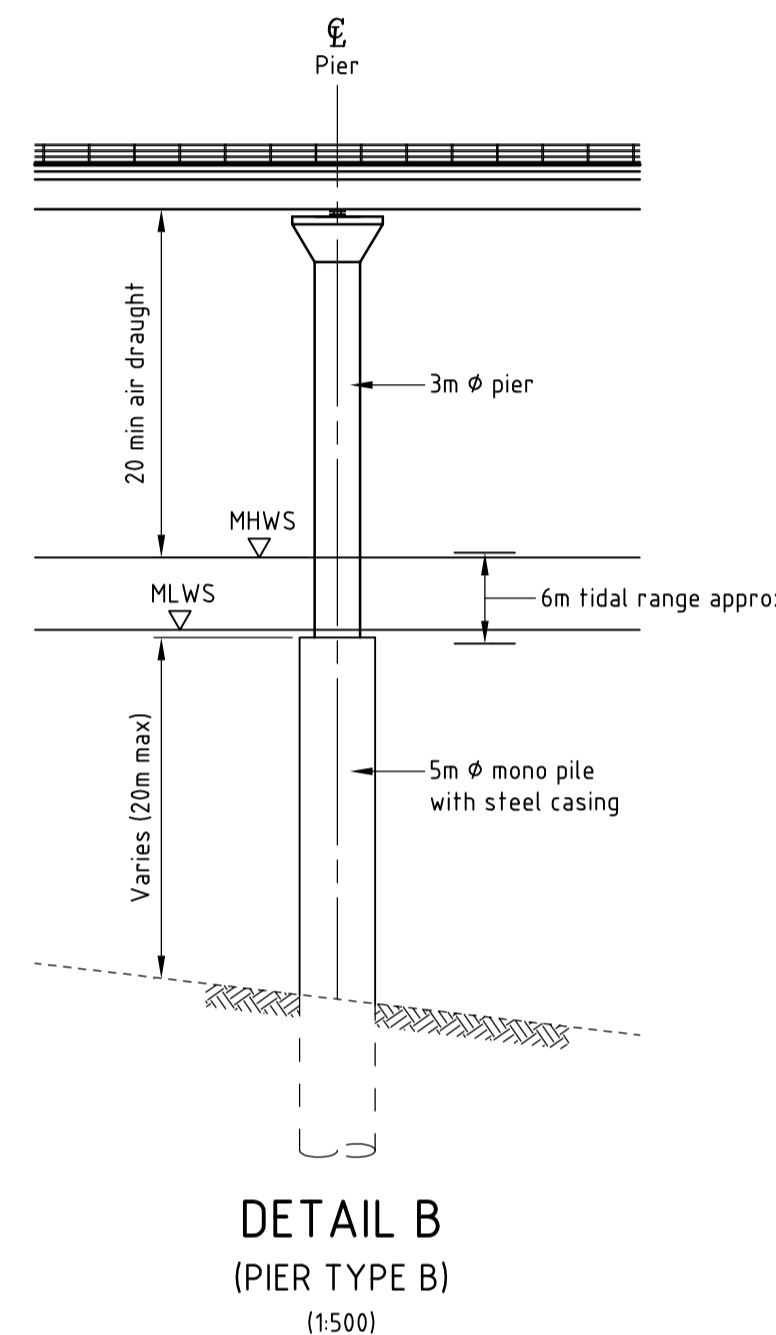
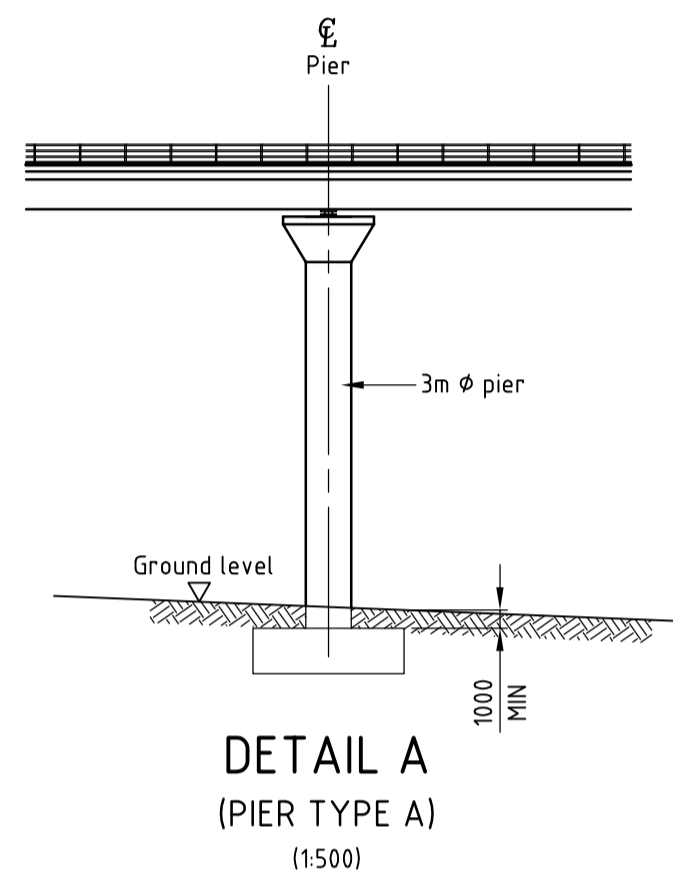
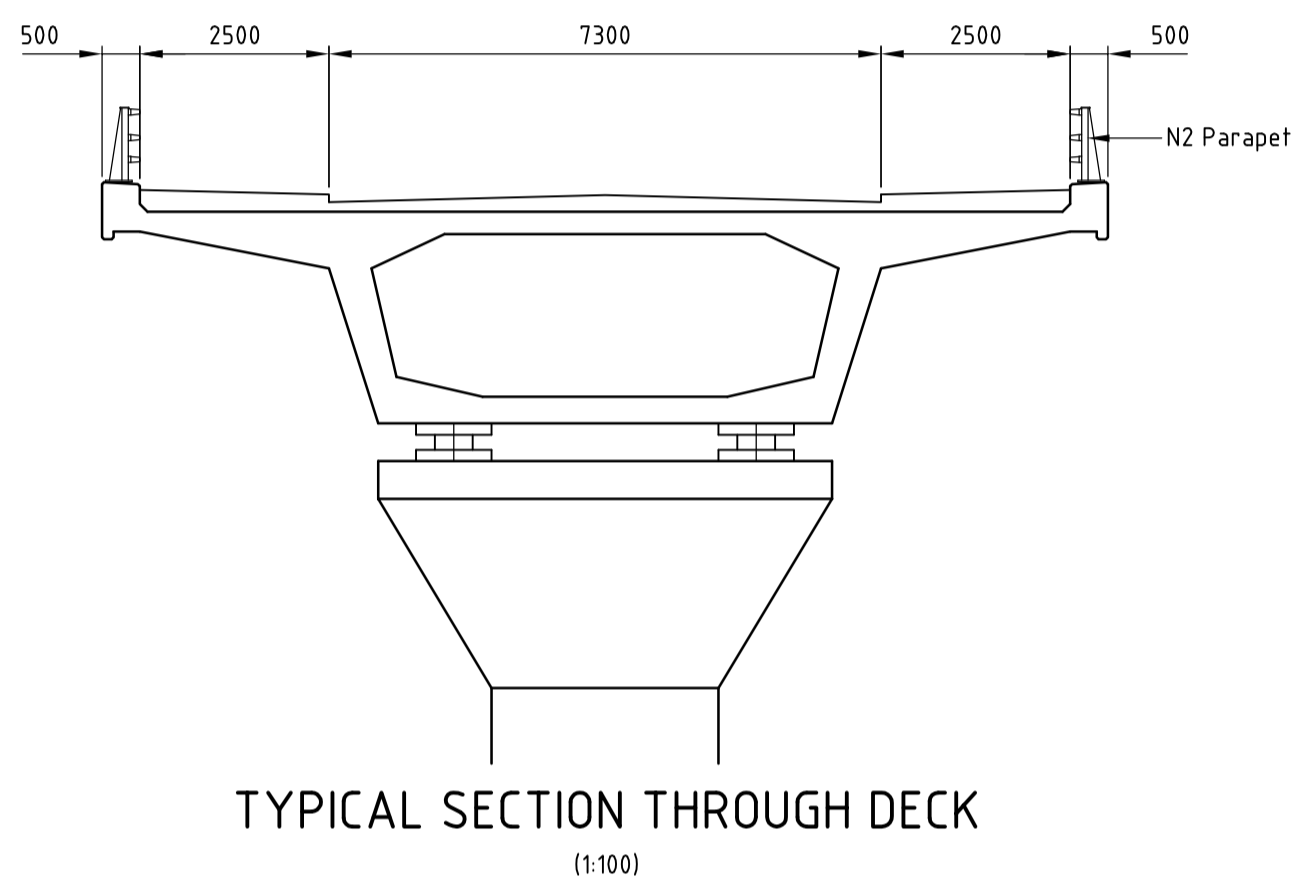
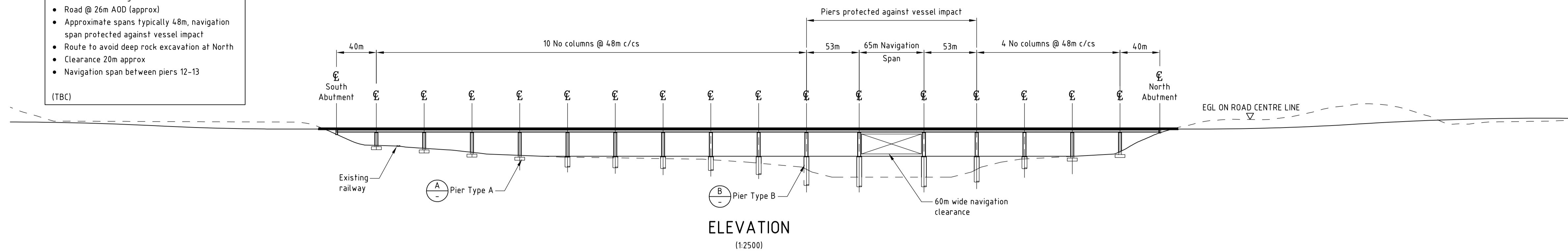
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Assumptions

- low level crossing
- Road @ 26m AOD (approx)
- Approximate spans typically 48m, navigation span protected against vessel impact
- Route to avoid deep rock excavation at North
- Clearance 20m approx
- Navigation span between piers 12-13

(TBC)



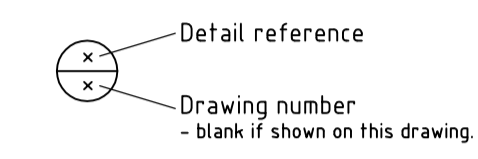
CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISK	DEMOLITION RISKS
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Project Title

STROME FERRY CROSSING

Drawing Title

**OPTION 3A
GENERAL ARRANGEMENT**

Designed	Drawn	Checked	Approved	Date
DJO	JMcC	DJO	DJO	JAN '14

URS Internal Project No.	Subsidiary
47065084	
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