

## Proposed Footbridges over Railway Line, Pyle



**Review of the Proposed Footbridges over the Railway Line in Pyle.**

### Project Information

<b>RVW PROJECT NUMBER</b>	C6962
<b>DOCUMENT REF.</b>	C6962-RVW-XX-ZZ-RP-S-003
<b>DOCUMENT TITLE</b>	Pyle Railway Bridges
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<b>APPROVER</b>	Barney Procter – Director
<b>DATE</b>	19th October, 2020
<b>STATUS</b>	Preliminary

### Document History

REVISION	Date	Revision Notes
P01	19.10.2020	First Issue

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## 1.0 INTRODUCTION

RVW Consulting Ltd. were commissioned to produce schematic designs for two bridges over the main railway line through Pyle. The purpose of the schemes was to highlight the site constraints, to aid cost analysis of the structures to help assist planning permission as part of a larger scheme.

This document details the design codes and design criteria used to produce the schematic designs and structural drawings for each of the bridges.

The bridges will contribute to Bridgend County Borough Councils Health and Wellbeing objectives by providing foot and cycle links across the borough. They will be used for foot and cycle traffic only and have a clear width of 3 metres. Access ramps where required will be no steeper than 1:21.

These designs have been based information obtained from Ordnance Survey data. Specific topographical surveys of each proposed location, utility searches for above and below ground services and ground investigation reports will be required to progress the designs further.

The level data used within this report has been interpreted from LIDAR data and Google Earth. Detailed surveys are required to confirm assumptions.

Allowances should be made in the cost plan for amendments to the design following accurate site information.



## 2.0 SITE DETAILS

The railway that is the main line from Swansea to Paddington. At the time of writing there are no electrification plans for this section of line, but allowances will be made where possible to accommodate future expansion of the electrification of this section of line. Both bridges cross this line and will provide foot traffic and cycle links for the proposed residential development.

### 2.1 Bridge One

Bridge One will be located adjacent to the existing A48 road bridge over the railway line. The existing road bridge is a listed structure so the new footbridge will be independent of this.

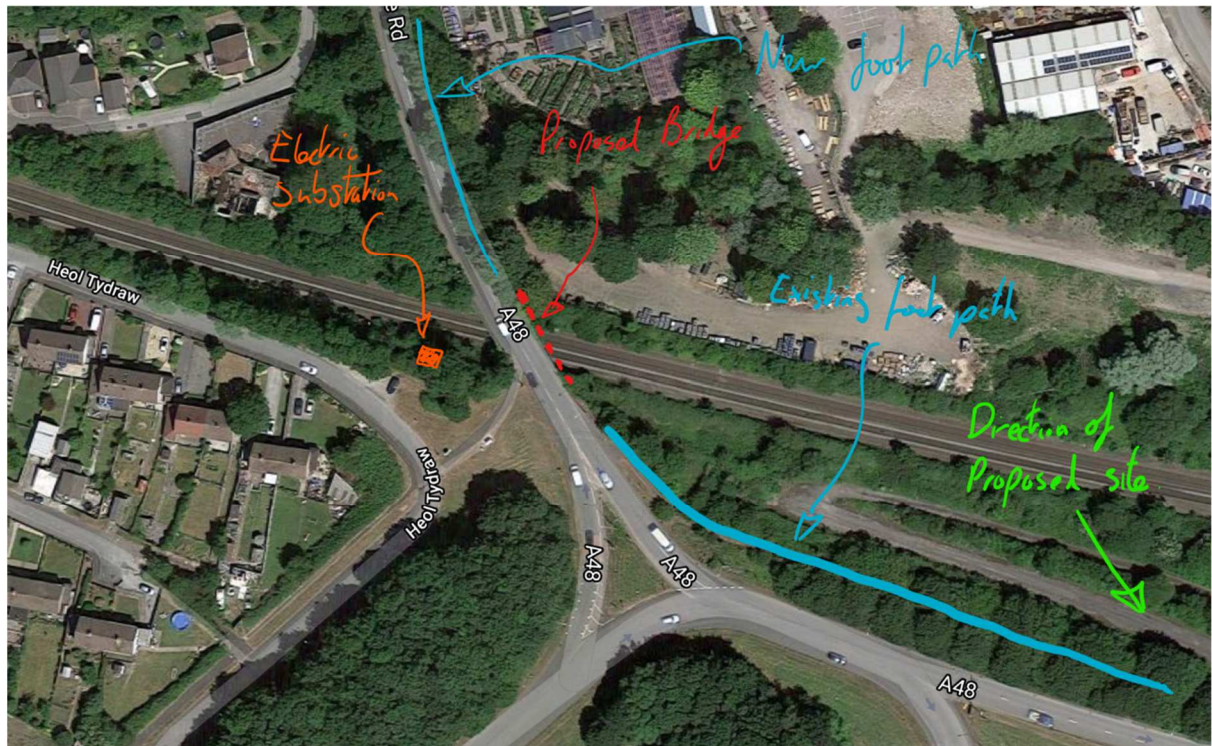


Figure 1  
Location of Bridge One.

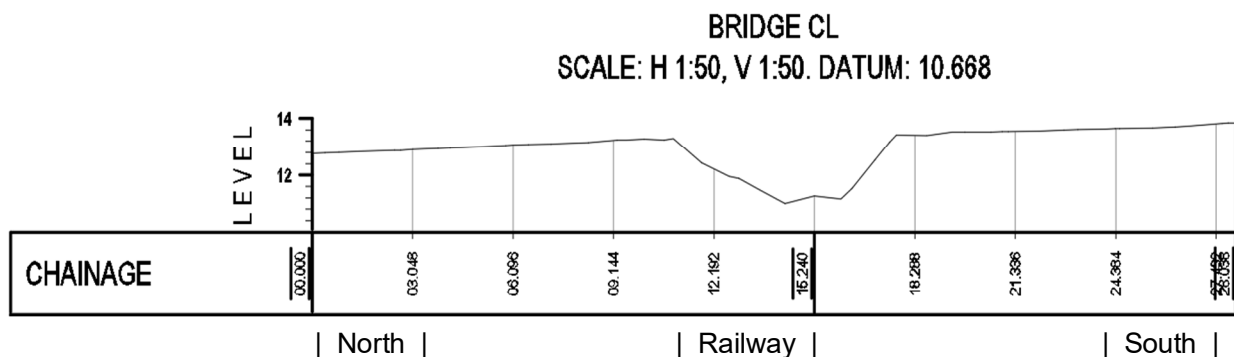


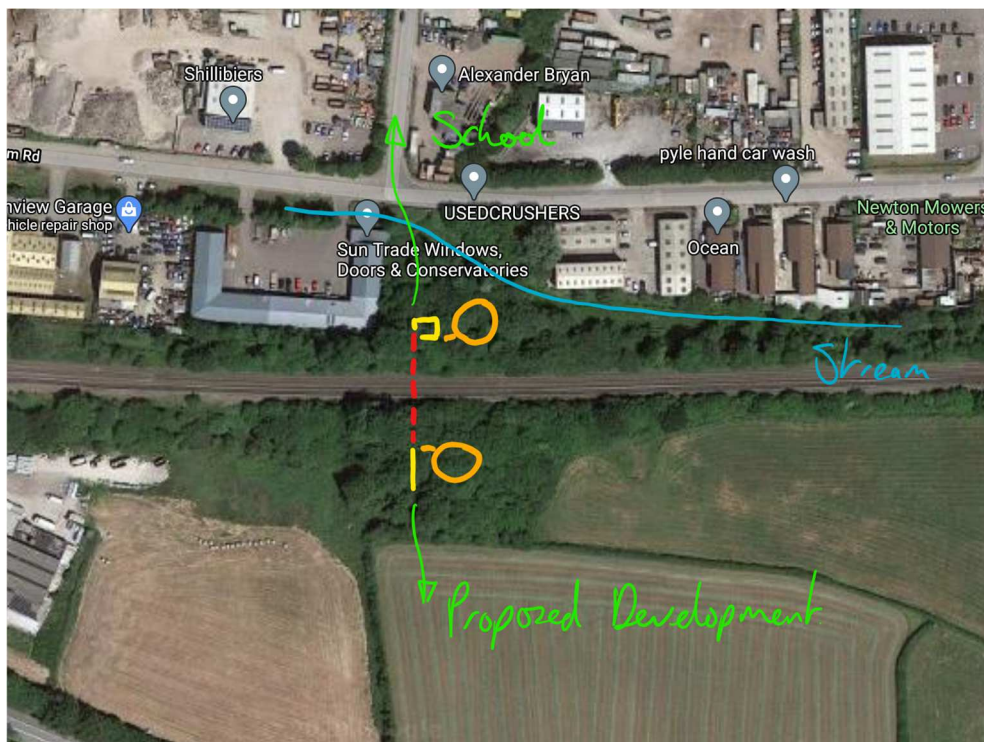
Figure 2  
Section through proposed location of footbridge one.

Steps onto the bridge are not required from the levels of the existing site.

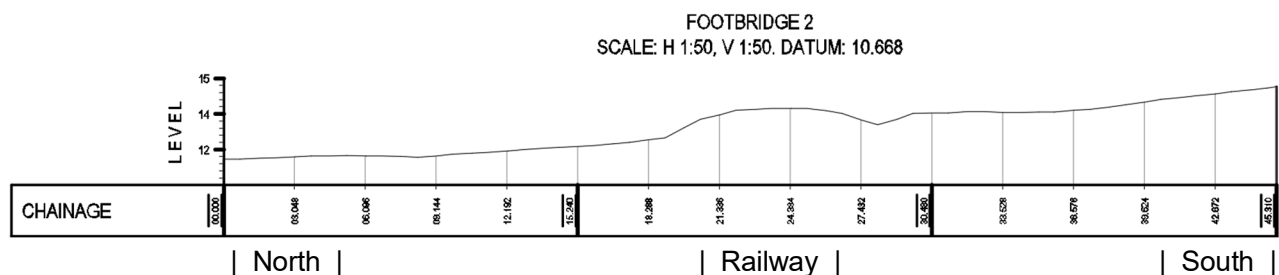
## 2.2 Bridge Two

Bridge Two is located approximately 700 metres to the East of bridge one and is located on previously undeveloped land. The land to the South of the railway line is higher than the level of the railway line. The land to the North is approximately 6 metres lower than the railway line. As shown in the figure 4.

The bridge tower to the South is within Network Rail land which means relevant permissions need to be granted and costs/time scales associated with this considered at an early stage.



**Figure 3**  
Location of Bridge Two.



**Figure 4**  
Section through proposed location of footbridge two.

The land to the South also has a small stream that runs through it. This will require either diverting, culverting or building over.

### 3.0 PROPOSED STRUCTURE

Both bridges require a 5m way-leave either side of the tracks and a minimum height above the tracks of 5.350m although the preferred height would be 6.650m.

For costing bridge 2 will be designed as 6.650m high but this might be able to be reduced during final design.

#### 3.1 Bridge One

The proposed new bridge will have a clear span of 30 metres over the railway line and will be an adaption of the “bowstring” truss. It will be made from structural steel. Due to the levels of the existing ground only on and off ramps are required.

The bridge will not have a roof structure or solid walls so the deck will require drainage to avoid water falling onto the railway line.

The bridge will have an open steel mesh on each side preventing objects from being dropped onto the railway. There will also be handrailing built off the metal deck on each side.

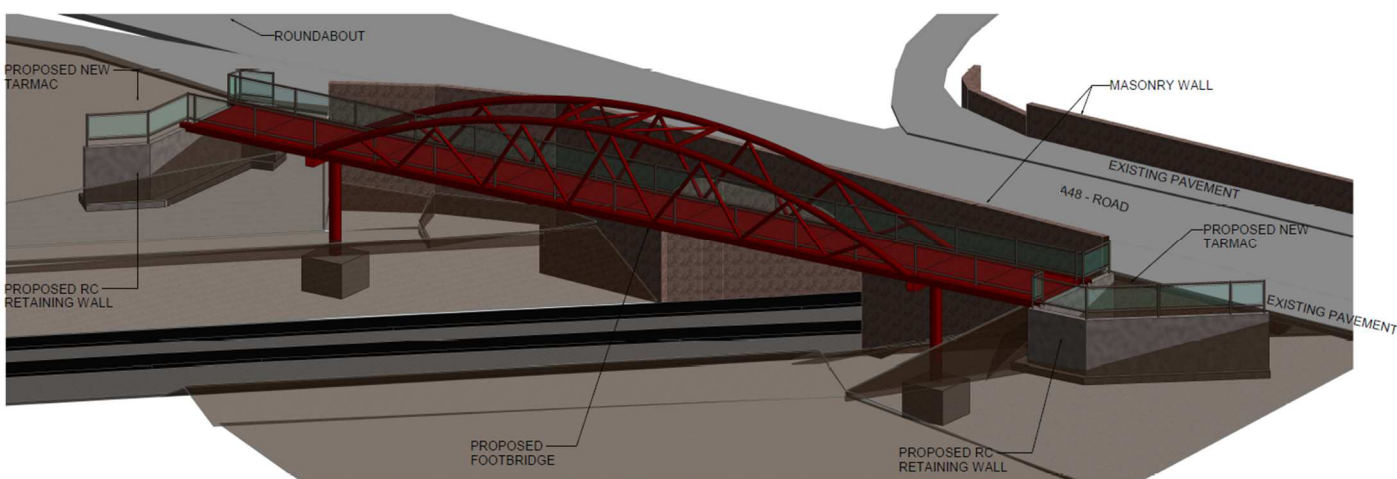
The main top cord will be made from rolled circular hollow sections. The bottom cord of the truss will be made from rolled SHS sections. The diagonal members forming the web of the truss will be rolled CHS sections.

The trusses will be connected at the top with rolled circular sections. They will also be connected at the bottom with rolled RHS sections which will support the metal plate walkway.

Both sides of the bridge will be supported off piled foundations.

Reinforced concrete walls be utilised to support the bank either side and aid access onto the bridge. These walls will also have piled foundations.

Excluding any secondary steelwork and fixings, bridge one is approximately 25 Tonnes.



**Figure 5**  
3D view of Bridge 1.



### 3.2 Bridge Two

The proposed new Bridge will have a clear span of 30 metres over the railway line and span onto support towers either side. The towers will lead onto stairs and ramps down to ground level.

The bridge will be a “Bowstring” truss made from structural steel.

The bridge will have an open steel mesh on each side preventing objects from being dropped onto the railway. There will also be handrailing off the metal deck on each side.

The main top cord will be made from rolled circular hollow sections. The bottom cord of the truss will be made from rolled SHS sections. The diagonal members forming the web of the truss will be rolled CHS sections.

The trusses will be connected at the top with rolled circular sections. They will also be connected at the bottom with rolled RHS sections which will support the metal plate walkway.

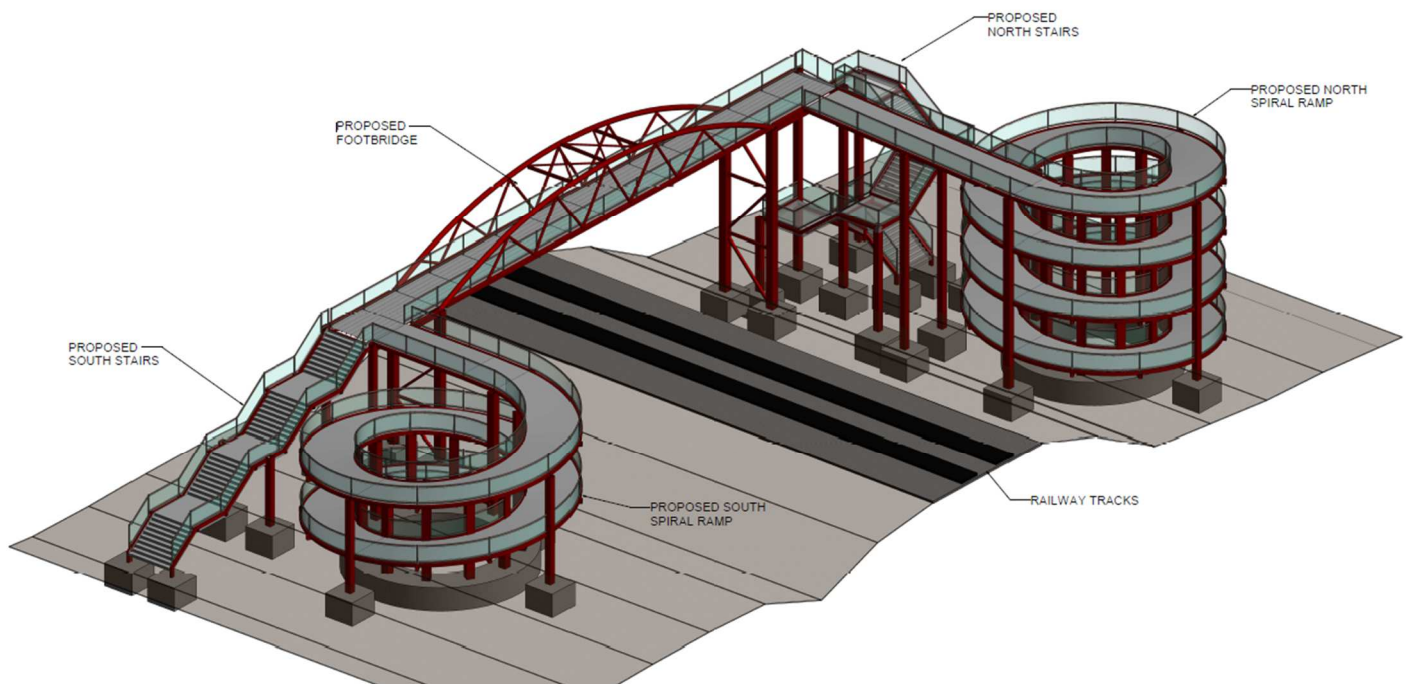
The towers either side and the stairs/ramp will be supported off piled foundations.

Network rails maximum head of 6.65m will be achieved for the purpose of this design. It is recommended that this is reviewed during the next phase of works as achieving the “normal minimum” dimension of 5.35m would result in a cost saving. This needs to be agreed with NR.

Excluding any secondary steelwork and fixings, bridge two is approximately 155 Tonnes.

This includes the all the on and off ramps and stairs.

An alternative to the spiral ramps would be a lift. This however poses safety and maintenance issues. Another alternative to reduce the extent of the stairs and ramp would be to build the ground level up each side of bridge. Due to the proximity of the industrial units on the North side the amount the ground level could be lifted is limited.



**Figure 6**  
3D view of Bridge 2.

### 3.3 *Design Information Relevant to Both Structures.*

#### Classes and levels

Consequence class – CC2 (Table B1 BS EN 1990)

Reliability class – RC2 (Table B2 BS EN 1990)

Inspection level minimum – IL2 (Table B5 BS EN 1990)

#### Materials

Steel – S355 to BS EN 10025 & BS EN 100210

Concrete – to BS 8500-1

Reinforcement – Grade B500 ribbed bars to BS 4449

#### Finishes

Steel – Painted in accordance with the Specification for Highway works Series 1900.

Concrete – In accordance with the Specification for Highway works Clause 1708

#### Elements designed to relevant codes:

Pedestrian parapets – BS 7818

#### Loadings

Permanent dead loads - Steel 7800 kg/m<sup>3</sup>

Reinforced concrete 2400 kg/m<sup>3</sup>

Imposed loads - Snow, wind & thermal in accordance with BS EN 1991-1-3, 4 and 5.

Footbridge live load – LM4 as per BS EN 1991-2:2003

Accidental loading – BS EN 1991-1-7

Pedestrian loading – Vertical and horizontal excitation BS EN 1990 and BS EN 1991-2

## 4.0 DRAWING SCHEDULE

Below is a list of drawings that shows the designs in more detail.

### **Bridge 1**

#### **Drawing Number:**

C6962-RVW-B1-ZZ-DR-S-01  
C6962-RVW-B1-ZZ-DR-S-02  
C6962-RVW-B1-ZZ-DR-S-03

#### **Drawing Title:**

Isometric View  
Footbridge Plan and Sections  
Site Plan

### **Bridge 2**

#### **Drawing Number:**

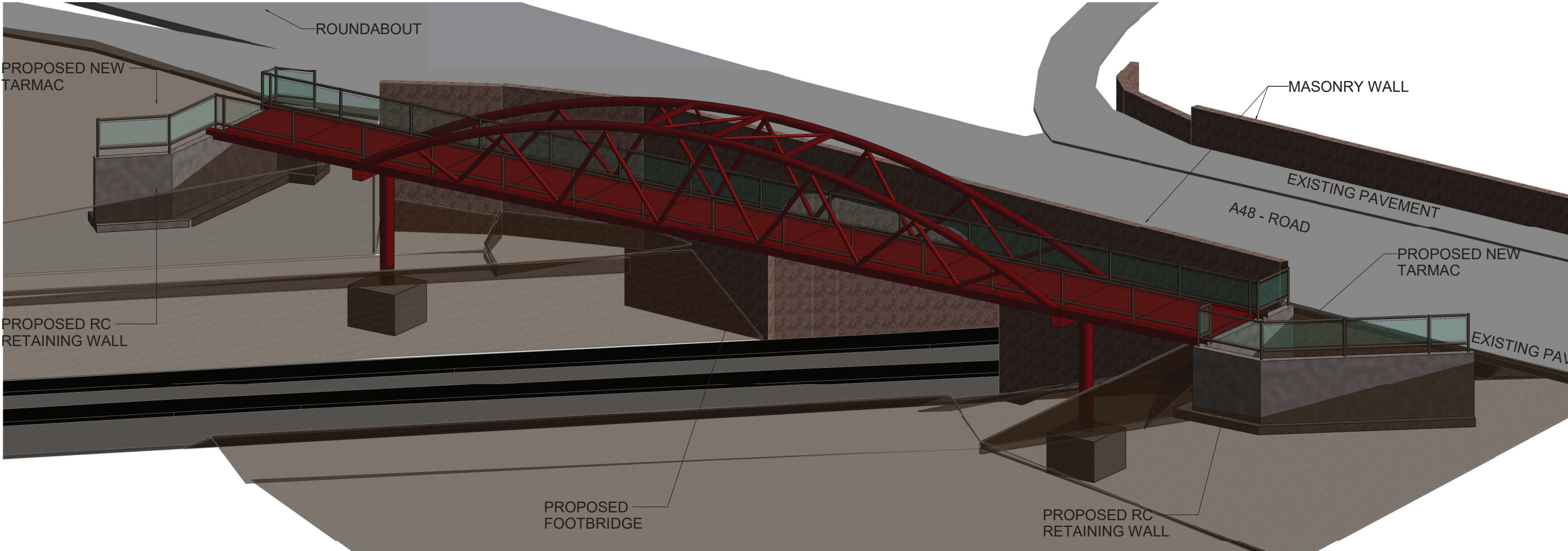
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C6962-RVW-B2-ZZ-DR-S-11  
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C6962-RVW-B2-ZZ-DR-S-13  
C6962-RVW-B2-ZZ-DR-S-14  
C6962-RVW-B2-ZZ-DR-S-15  
C6962-RVW-B2-ZZ-DR-S-16

#### **Drawing Title:**

Isometric View – Sheet 1  
Isometric View – Sheet 1  
Footbridge Plan and Sections  
Footbridge Sections  
North Stairs and Ramp GA  
South Stairs and Ramp GA  
Site Plan

## 5.0 APPENDIX A - DRAWINGS






ISOMETRIC VIEW  
(Scale )

P1	19.10.20	COSTING ISSUE	JJK	DJ
Rev.	Date.	Details.	By.	Chk.

Amendments



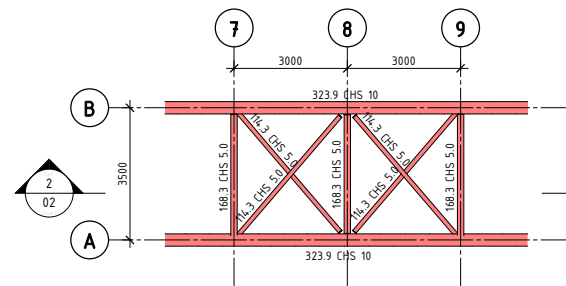
6 NEPTUNE COURT  
VANGUARD WAY  
OCEAN PARK  
CARDIFF CF24 5PJ

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F. 029 20460799  
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Project:  
**PROPOSED RAILWAY BRIDGE, PYLE BRIDGE 1**

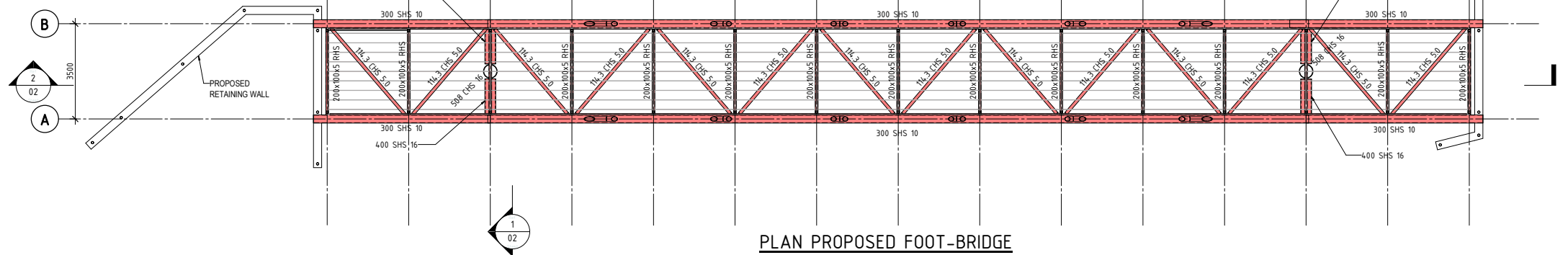
Title:  
**ISOMETRIC VIEW**

Drawn: JJK	Checked: DJ	Scale(s) at A1:
Date: OCT 20	RVW Job N°: <b>C6962</b>	Revision: <b>P01</b>
Drawing Status: <b>COSTING ISSUE</b>		
Drawing N°: <b>C6962-RVW-B1-ZZ-DR-S-01</b>		



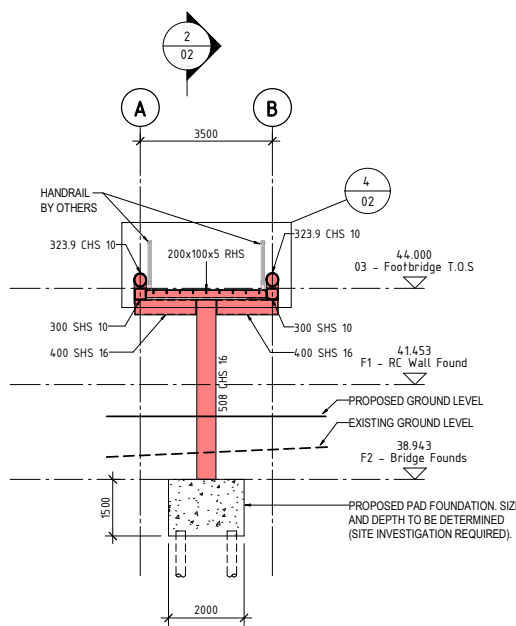
**04 - Top Chord Steel**

(Scale 1 : 100)



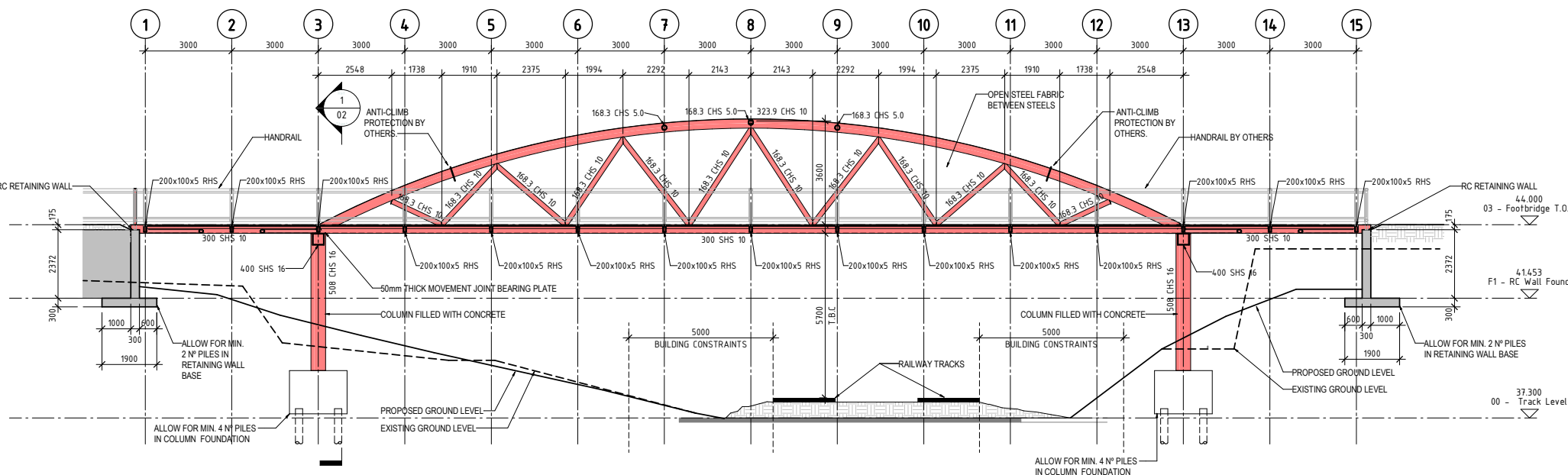
**PLAN PROPOSED FOOT-BRIDGE**

(Scale 1 : 100)



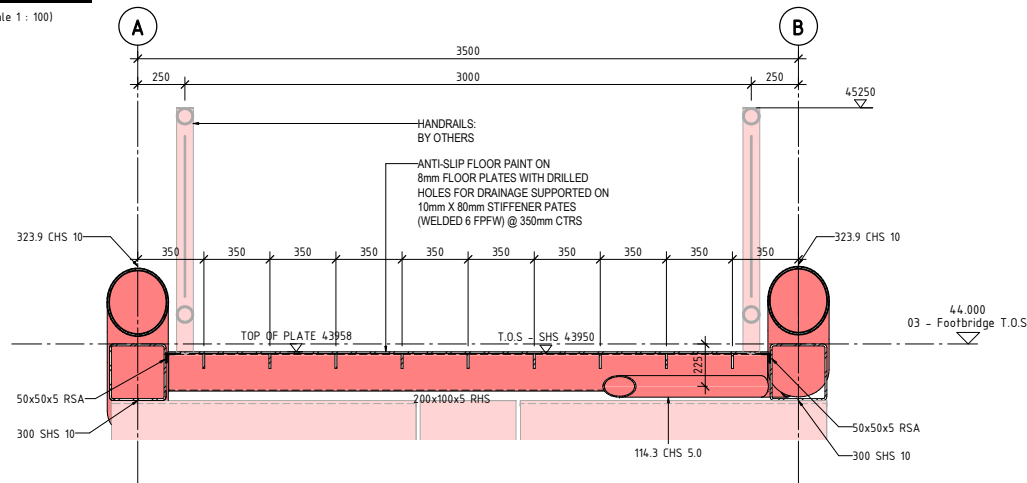
**SECTION 1**

(Scale 1 : 100)



**SECTION 2**

(Scale 1 : 100)



**4 - CALLOUT FROM SECTION 1**

(Scale 1 : 20)

**NOTES :-**

**GENERAL**

DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.

ALL DIMENSIONS ARE IN MILLIMETRES. ALL LEVELS ARE IN METRES.

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS & SPECIFICATIONS.

**STEELWORK**

STEELWORK FABRICATOR TO DESIGN & DETAIL ALL CONNECTIONS. LOADS TO BE PROVIDED BY THE ENGINEER. ALL CONNECTIONS TO BE CAPABLE OF RESISTING THE TYING FORCE REQUIRED BY BS 5950.

PRIOR TO ANY FABRICATION:  
A) ALL CALCULATIONS & DETAILS TO BE APPROVED BY THE ENGINEER.  
B) FABRICATOR TO PRODUCE A FULL SET OF DETAILED DRAWINGS FOR COMMENT.

SPECIFICATION FOR STRUCTURAL STEELWORK TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL STRUCTURAL STEELWORK SPECIFICATION FOR BUILDING CONSTRUCTION BY BSCA.

**PAINTING SPECIFICATION:**

A) SURFACE PREPARATION - BLAST CLEAN TO GSA 2 1/2.

B) POST FABRICATION PRIMER - 75 MICRONS (DFT) HIGH BUILD EPOXY ZINC PHOSPHATE PRIMER TO BS 5493.

ALL DAMAGED STEEL TO BE MADE GOOD TO ENGINEERS APPROVAL.

STEELWORK FABRICATOR TO BE SOLELY RESPONSIBLE FOR TEMPORARY WORK & THE ERECTION OF STRUCTURAL STEELWORK.

**UNLESS OTHERWISE NOTED:**

A) ALL HOT ROLLED STEEL TO BE GRADE S355

B) ALL WELDS TO BE 6mm CONTINUOUS FILLET WELDS.

C) ALL BOLTS FOR HOT ROLLED SECTIONS TO BE GRADE 8.8.

D) ALL BOLTS FOR COLD ROLLED SECTIONS TO BE GRADE 4.6.

IF ANY SPLICES ARE TO BE USED, THEIR LOCATION MUST BE APPROVED BY THE ENGINEER.

**PILING NOTES:**

1. PILE CUT OFF LEVELS TO BE 75mm ABOVE FORMATION LEVEL & TO HAVE A MINIMUM OF 75mm EMBEDMENT INTO PILE CAP.

2. PILE REINFORCEMENT TO PROJECT A MINIMUM OF 600mm INTO GROUND BEAM FROM PILE CUT OFF LEVEL AND TO BE BENT OVER INTO GROUND BEAM.

3. PILE LOADINGS SHOWN ON PILE AND GROUND BEAM LAYOUT ARE REQUIRED WORKING LOADS.

4. MAX PILE DEVIATION TO BE + OR - 75mm FROM POSITION DETAILED OR AGREED PRIOR TO COMMENCEMENT OF WORKS.

5. THE PILES SHALL BE DESIGNED FOR THE MAXIMUM SAFE WORKING LOAD AS SHOWN IN THE TABLE.

6. THE PILES SHALL BE DESIGNED FOR A FACTOR OF SAFETY OF 2.5 TIMES THE SAFE WORKING LOAD.

7. THE PILES SHALL BE DESIGNED, BY THE PILING CONTRACTOR, USING RECOGNIZED GEOTECHNICAL PRINCIPLES.

8. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING APPROVAL OF HIS PILE DESIGN BY THE NHC (OR EQUIVALENT) AND LOCAL AUTHORITY BUILDING REGULATION APPROVAL.

9. THE CONTRACTOR WILL CARRY OUT STATIC LOAD TESTS, IN ACCORDANCE WITH STANDARD ICE SPECIFICATION 1996, TO A MINIMUM OF 3 NO. PILES.

10. THE CONTRACTOR IS TO CONSULT WITH GEOTECHNICAL ENGINEER WITH REGARD TO ANY SPECIAL GROUND CONDITIONS WHICH MAY EXIST. FOR EXAMPLE, THE PRESENCE OF SULPHATES IN THE SOIL WOULD LIKELY REQUIRE THE USE OF A SULPHATE RESISTANT CONCRETE MIX.

11. IF PILES ARE MORE THAN 75mm OUT OF POSITION, OR OUT OF POSITION BY MORE THAN 1.75, THE ENGINEER SHOULD BE CONSULTED.

12. ALL PILE REINFORCEMENT TO PROJECT INTO R.C. GROUND BEAM.

13. PILES TO BE DESIGNED FOR 450 kN WORKING LOAD.

Rev.	Date.	Details.	By.	Chk.
P1	19.10.20	COSTING ISSUE	JJK	DJ

**Amendments**

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**Project:**  
**PROPOSED RAILWAY BRIDGE, PYLE BRIDGE 1**

**Title:**  
**FOOTBRIDGE PLAN WITH SECTIONS**

Drawn:	Checked:	Scale(s) at A1:	
JJK	DJ	As indicated	
Date:	RVW Job N°:	Revision:	Suitability:
OCT 20	<b>C6962</b>	<b>P01</b>	<b>D1</b>

**COSTING ISSUE**

**Drawing N°:**  
**C6962-RVW-B1-ZZ-DR-S-02**

**BRIDGE STEELWORK ADDITIONAL NOTES**

ALL LINK BRIDGE AND STAIRCORE STEELWORK TO HAVE A MINIMUM 60 MINUTES FIRE RATED COATING APPLIED IN ADDITION TO NORMAL PAINT SPECIFICATION IF THAT IS DEEMED INSUFFICIENT. AT THIS STAGE, PROVIDE A COST FOR 120 MINUTE FIRE RATING AS WELL AS THE EXACT REQUIREMENTS FOR PROTECTING THE STRUCTURE HAVE NOT BEEN PROVIDED BY THE CLIENT.

2 No. SPIGOT SPLICE CONNECTION DETAILS ARE TO BE ALLOWED FOR PER TRUSS. 40mm PRE-CAMBER OF THE BRIDGE TO BE ALLOWED FOR. ALL BOX SECTIONS ARE TO HAVE FULLY WELDED CAPPING PLATES TO PROTECT FROM ENVIRONMENTAL INGRESS. NO ON SITE DRILLING OF FIXINGS. ALL CLEATS AND FIXINGS FOR ALL SECONDARY MEMBERS ARE TO BE INSTALLED BEFORE PAINTING/FIRE PROTECTING THE STEELWORK. ALL DAMAGED PAINT TO BE RE-APPLIED PRIOR TO INSTALLATION OF BRIDGE ON SITE.

**CONCRETE**

1. ALL WORK TO BE UNDERTAKEN & MATERIALS SUPPLIED IN ACCORDANCE WITH RELEVANT BRITISH STANDARDS, CODES OF PRACTICE & BUILDING REGULATIONS.

2. CONCRETE GRADES TO BE AS FOLLOWS:  
BUILDING CONCRETE TO BE GRADE GEN 1  
MASS CONCRETE TO BE GRADE C20/25  
REINFORCED CONCRETE TO BE GRADE C32/40

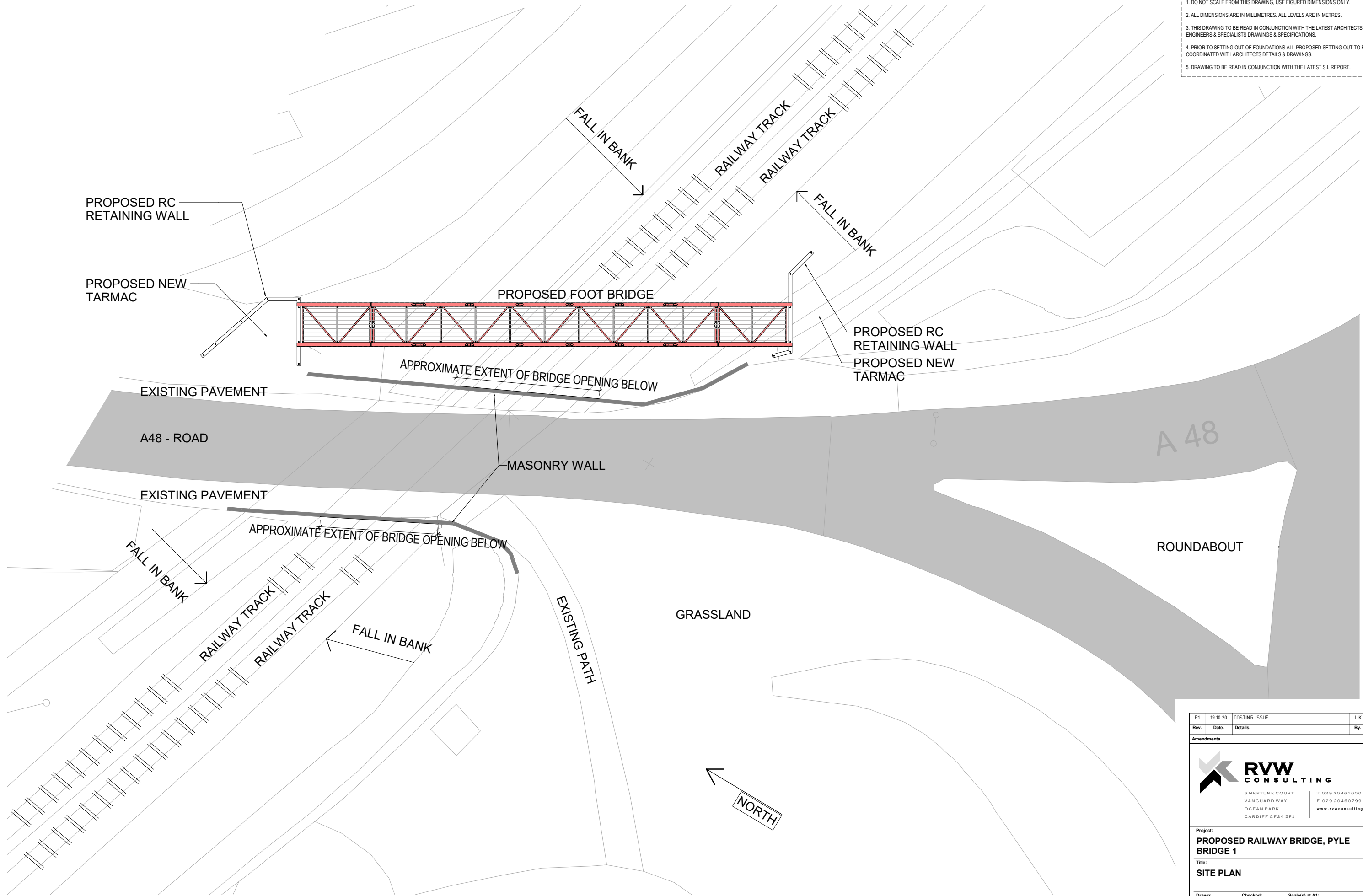
3. ONLY PLASTIC OR CONCRETE SPACERS ARE TO BE LAID DIRECTLY ONTO DPM / RADON / GAS BARRIER.

4. ALL BURIED CONCRETE SHOULD AT A MINIMUM CONFORM TO CLASS AC-1 OF BRE SPECIAL DIGEST 1 (2006)

5. WATERPROOFING MEMBRANE / RADON BARRIER TO BE LAID IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS & LAPPED ONTO D.P.C WHERE APPLICABLE. ALL TO ARCHITECT'S DETAILS. TOP HATS TO BE USED AT SERVICE PENETRATIONS AND ALL JOINTS TO BE LAPPED AND TAPED



- GENERAL
1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
  2. ALL DIMENSIONS ARE IN MILLIMETRES. ALL LEVELS ARE IN METRES.
  3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS & SPECIFICATIONS.
  4. PRIOR TO SETTING OUT OF FOUNDATIONS ALL PROPOSED SETTING OUT TO BE COORDINATED WITH ARCHITECTS DETAILS & DRAWINGS.
  5. DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST S.I. REPORT.



PLAN OF EXISTING A48 TRAFFIC BRIDGE & PROPOSED FOOT-BRIDGE  
(Scale 1 : 150)

P1	19.10.20	COSTING ISSUE	JJK	DJ
Rev.	Date.	Details.	By.	Chk.

Amendments



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Project:  
**PROPOSED RAILWAY BRIDGE, PYLE  
BRIDGE 1**

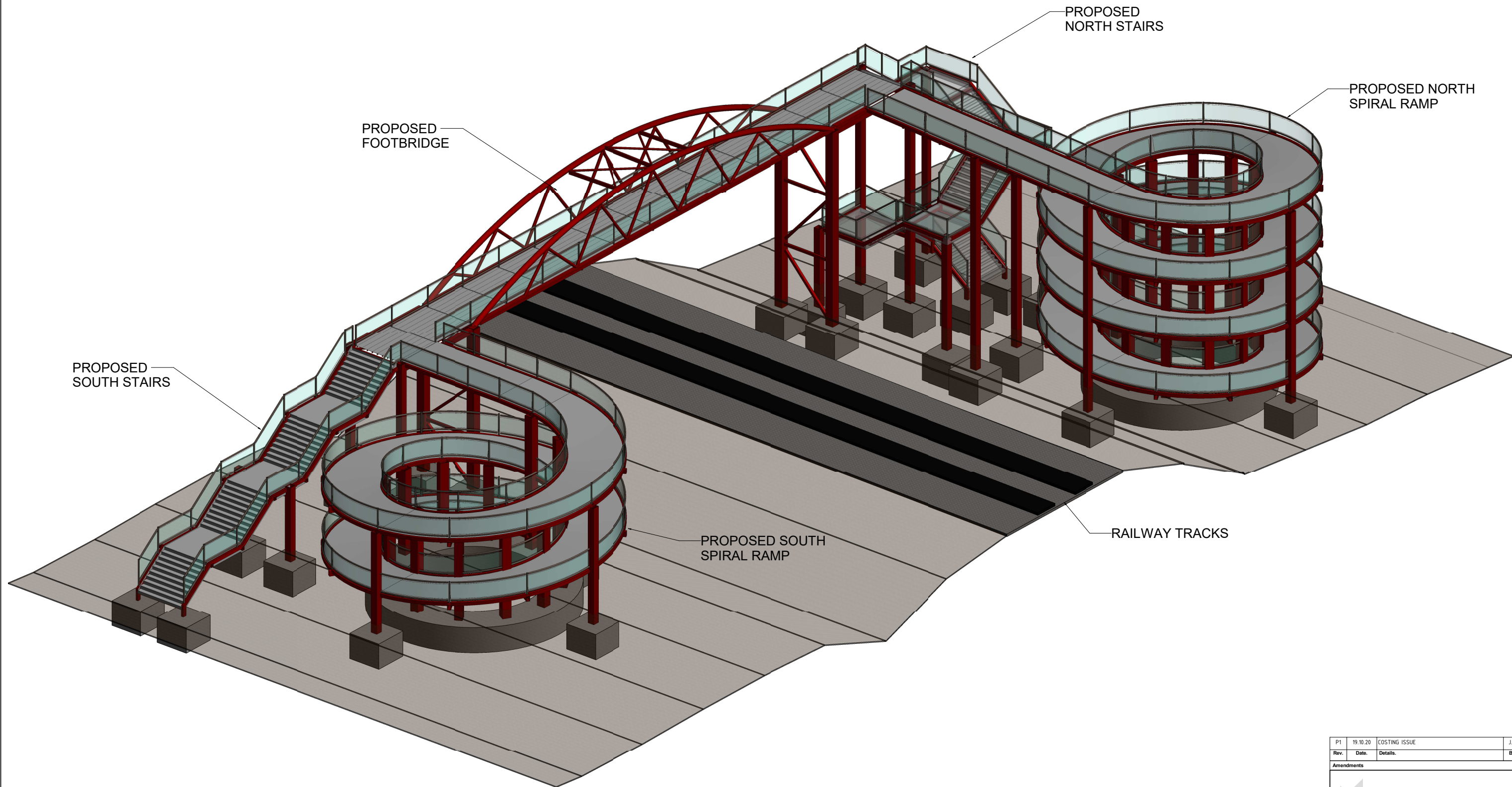
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**SITE PLAN**

Drawn: JJK	Checked: DJ	Scale(s) at A1: As indicated
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Date: OCT 20	RVW Job N°: <b>C6962</b>	Revision: <b>P01</b>	Suitability: <b>D1</b>
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Drawing Status:  
**COSTING ISSUE**


Drawing N°:  
**C6962-RVW-B1-ZZ-DR-S-03**



3D VIEW - SITE  
(Scale )

P1	19.10.20	COSTING ISSUE	JJK	DJ
Rev.	Date.	Details.	By.	Chk.

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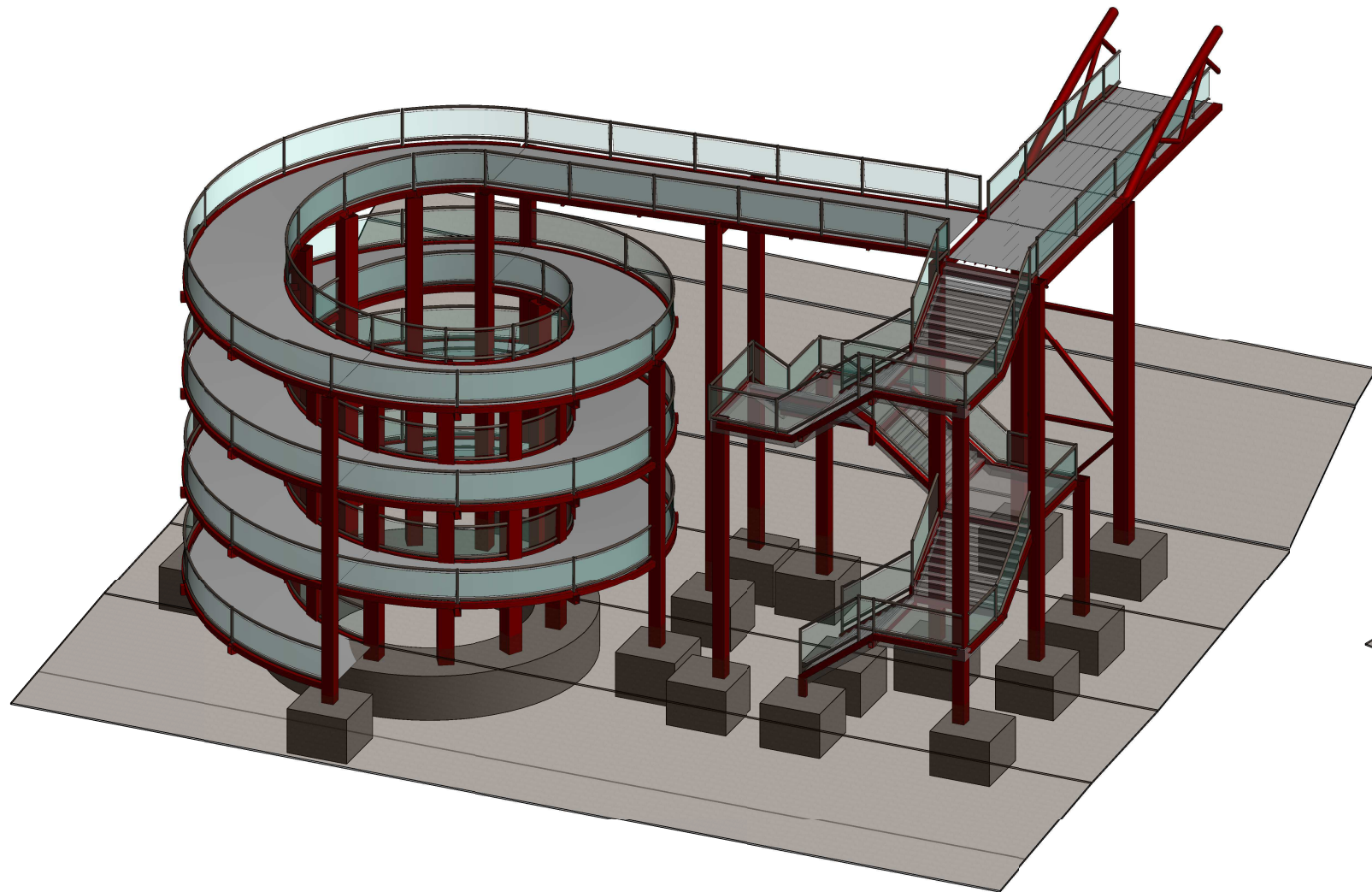
Project:  
**PROPOSED RAILWAY BRIDGE, PYLE  
BRIDGE 2**

Title:  
**ISOMETRIC VIEW  
SHEET 1**

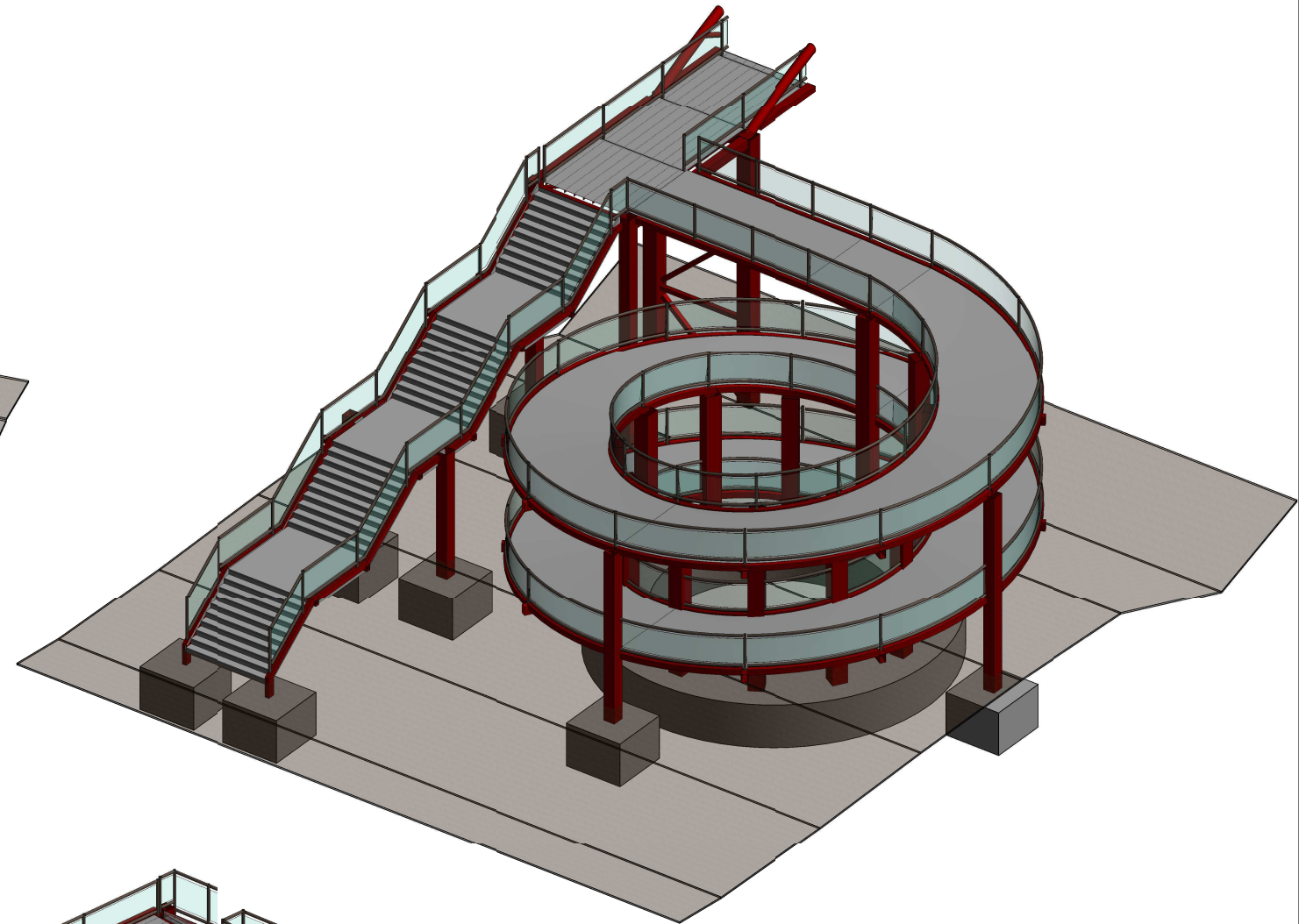
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Date: OCT 20	RVW Job N°: <b>C6962</b>	Revision: <b>P01</b>
Drawing Status: <b>COSTING ISSUE</b>		

Drawing N°:  
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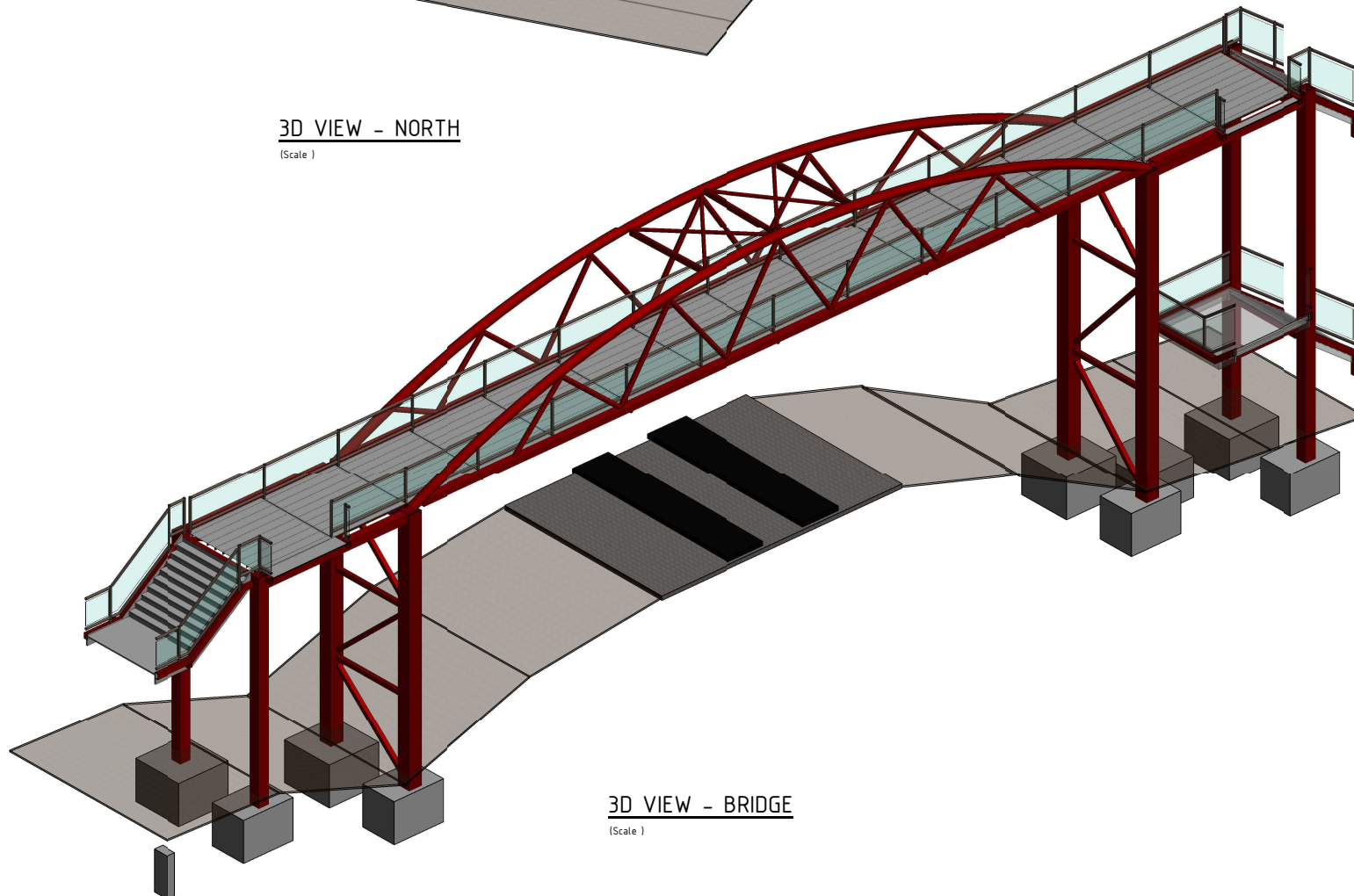




3D VIEW - NORTH  
(Scale )




3D VIEW - SOUTH  
(Scale )



3D VIEW - BRIDGE  
(Scale )

P1	19.10.20	COSTING ISSUE	JJK	DJ
Rev.	Date.	Details.	By.	Chk.

Amendments



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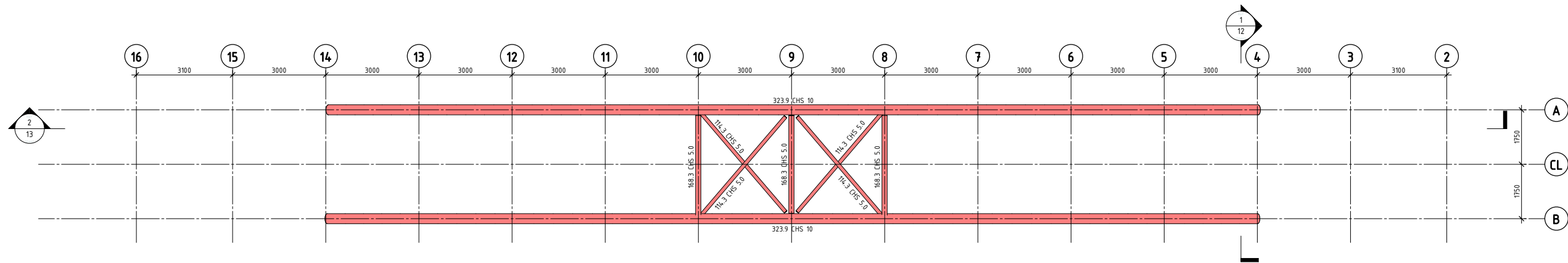
Project:  
**PROPOSED RAILWAY BRIDGE, PYLE  
BRIDGE 2**

Title:  
**ISOMETRIC VIEW  
SHEET 2**

Drawn: JJK	Checked: DJ	Scale(s) at A1:	
Date: OCT 20	RVW Job N°: <b>C6962</b>	Revision: <b>P01</b>	Suitability: <b>D1</b>

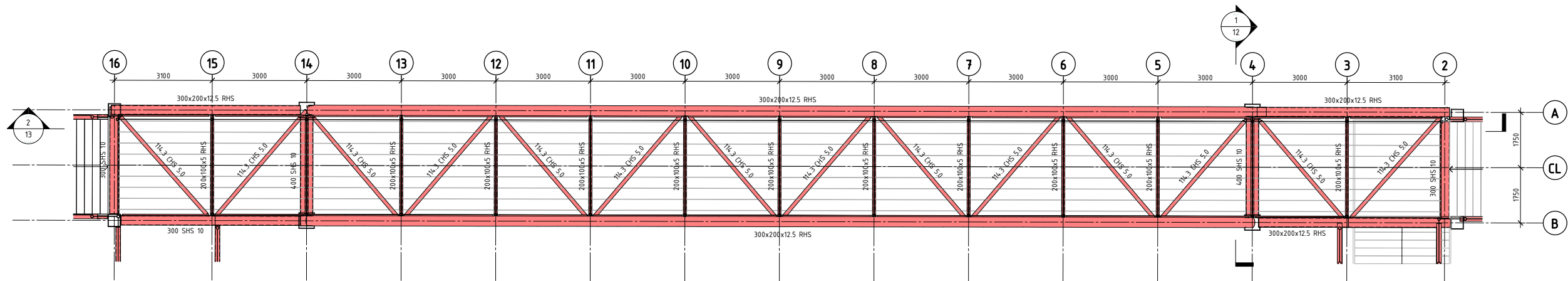
Drawing Status:  
**COSTING ISSUE**

Drawing N°:  
**C6962-RVW-B2-ZZ-DR-S-11**



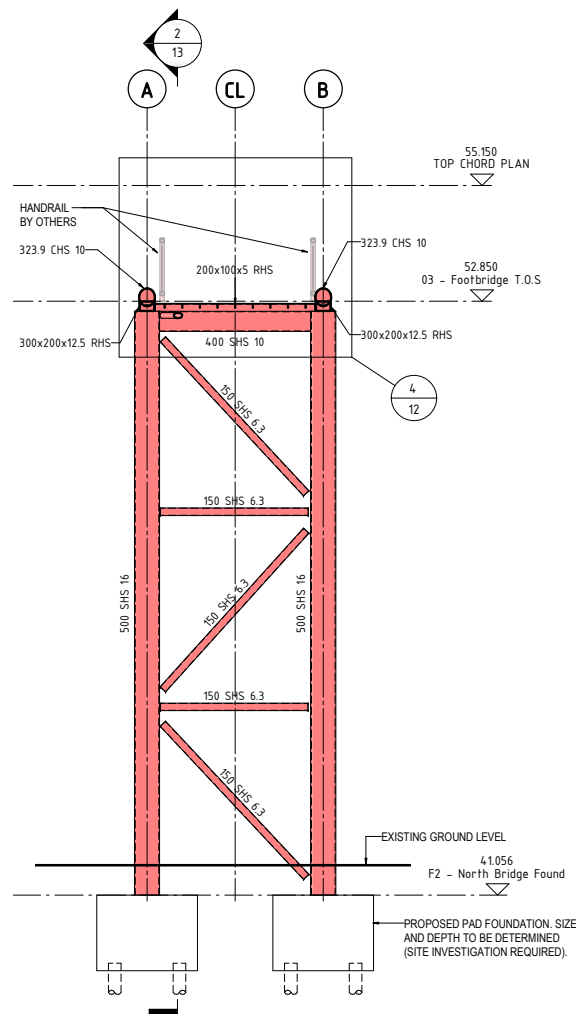
TOP CHORD PLAN

(Scale1 : 75)



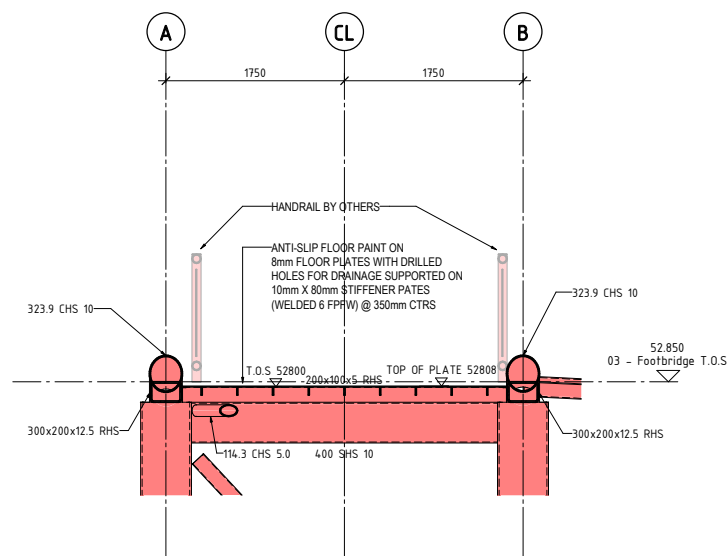
FOOTBRIDGE PLAN

(Scale1 : 75)



SECTION 1

(Scale1 : 75)



4 - CALLOUT FROM SECTION 1

(Scale1 : 37)

NOTES :-

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PAINTING SPECIFICATION:

A) SURFACE PREPARATION - BLAST CLEAN TO GSA 2 1/2.

B) POST FABRICATION PRIMER - 75 MICRONS (DFT) HIGH BUILD EPOXY ZINC PHOSPHATE PRIMER TO BS 5493.

ALL DAMAGED STEEL TO BE MADE GOOD TO ENGINEERS APPROVAL.

STEELWORK FABRICATOR TO BE SOLELY RESPONSIBLE FOR TEMPORARY WORK & THE ERECTION OF STRUCTURAL STEELWORK.

UNLESS OTHERWISE NOTED:

A) ALL HOT ROLLED STEEL TO BE GRADE S355

B) ALL WELDS TO BE 6mm CONTINUOUS FILLET WELDS.

C) ALL BOLTS FOR HOT ROLLED SECTIONS TO BE GRADE 8.8.

D) ALL BOLTS FOR COLD ROLLED SECTIONS TO BE GRADE 4.6.

IF ANY SPLICES ARE TO BE USED, THEIR LOCATION MUST BE APPROVED BY THE ENGINEER.

CONCRETE

1. ALL WORK TO BE UNDERTAKEN & MATERIALS SUPPLIED IN ACCORDANCE WITH RELEVANT BRITISH STANDARDS, CODES OF PRACTICE & BUILDING REGULATIONS.

2. CONCRETE GRADES TO BE AS FOLLOWS:

BLINDING CONCRETE TO BE GRADE GEN 1

MASS CONCRETE TO BE GRADE C20/25

REINFORCED CONCRETE TO BE GRADE C32/40

3. ONLY PLASTIC OR CONCRETE SPACERS ARE TO BE LAID DIRECTLY ONTO DPM / RADON / GAS BARRIER.

4. ALL BURIED CONCRETE SHOULD AT A MINIMUM CONFORM TO CLASS AC-1 OF BRE SPECIAL DIGEST 1 (2006)

5. WATERPROOFING MEMBRANE / RADON BARRIER TO BE LAID IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS & LAPPED ONTO D.P.C WHERE APPLICABLE. ALL TO ARCHITECT'S DETAILS. TOP HATS TO BE USED AT SERVICE PENETRATIONS AND ALL JOINTS TO BE LAPPED AND TAPED

BRIDGE STEELWORK ADDITIONAL NOTES

ALL LINK BRIDGE AND STAIRCORE STEELWORK TO HAVE A MINIMUM 60 MINUTES FIRE RATED COATING APPLIED IN ADDITION TO NORMAL PAINT SPECIFICATION IF THAT IS DEEMED INSUFFICIENT. AT THIS STAGE, PROVIDE A COST FOR 120 MINUTE FIRE RATING AS WELL AS THE EXACT REQUIREMENTS FOR PROTECTING THE STRUCTURE HAVE NOT BEEN PROVIDED BY THE CLIENT.

2 No. SPIGOT SPLICE CONNECTION DETAILS ARE TO BE ALLOWED FOR PER TRUSS. 40mm PRE-CAMBER OF THE BRIDGE TO BE ALLOWED FOR.

ALL BOX SECTIONS ARE TO HAVE FULLY WELDED CAPPING PLATES TO PROTECT FROM ENVIRONMENTAL INGRESS.

NO ON SITE DRILLING OF FIXINGS. ALL CLEATS AND FIXINGS FOR ALL SECONDARY MEMBERS ARE TO BE INSTALLED BEFORE PAINTING/FIRE PROTECTING THE STEELWORK.

ALL DAMAGED PAINT TO BE RE-APPLIED PRIOR TO INSTALLATION OF BRIDGE ON SITE.

PILING NOTES:

1. PILE CUT OFF LEVELS TO BE 75mm ABOVE FORMATION LEVEL & TO HAVE A MINIMUM OF 75mm EMBEDMENT INTO PILE CAPS.

2. PILE REINFORCEMENT TO PROJECT A MINIMUM OF 600mm INTO GROUND BEAM FROM PILE CUT OFF LEVEL AND TO BE BENT OVER INTO GROUND BEAM.

3. PILE LOADINGS SHOWN ON PILE AND GROUND BEAM LAYOUT ARE REQUIRED WORKING LOADS.

4 MAX PILE DEVIATION TO BE + OR - 75mm FROM POSITION DETAILED OR AGREED PRIOR TO COMMENCEMENT OF WORKS.

5. THE PILES SHALL BE DESIGNED FOR THE MAXIMUM SAFE WORKING LOAD AS SHOWN IN THE TABLE.

6. THE PILES SHALL BE DESIGNED FOR A FACTOR OF SAFETY OF 2.5 TIMES THE SAFE WORKING LOAD.

7. THE PILES SHALL BE DESIGNED, BY THE PILING CONTRACTOR, USING RECOGNIZED GEOTECHNICAL PRINCIPLES.

8. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING APPROVAL OF HIS PILE DESIGN BY THE NHBC (OR EQUIVALENT) AND LOCAL AUTHORITY BUILDING REGULATION APPROVAL.

9. THE CONTRACTOR WILL CARRY OUT STATIC LOAD TESTS, IN ACCORDANCE WITH STANDARD ICE SPECIFICATION 1996, TO A MINIMUM OF 3 NO. PILES.

10. THE CONTRACTOR IS TO CONSULT WITH GEOTECHNICAL ENGINEER WITH REGARD TO ANY SPECIAL GROUND CONDITIONS WHICH MAY EXIST:-  
FOR EXAMPLE, THE PRESENCE OF SULPHATES IN THE SOIL WOULD LIKELY REQUIRE THE USE OF A SULPHATE RESISTANT CONCRETE MIX.

11. IF PILES ARE MORE THAN 75mm OUT OF POSITION, OR OUT OF POSITION BY MORE THAN 1:75, THE ENGINEER SHOULD BE CONSULTED.

12. ALL PILE REINFORCEMENT TO PROJECT INTO R.C. GROUND BEAM.

13. PILES TO BE DESIGNED FOR 450 kN WORKING LOAD.

P1	19.10.20	COSTING ISSUE	JJK	DJ
Rev.	Date.	Details.	By.	Chk.

Amendments



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Project:  
**PROPOSED RAILWAY BRIDGE, PYLE BRIDGE 2**

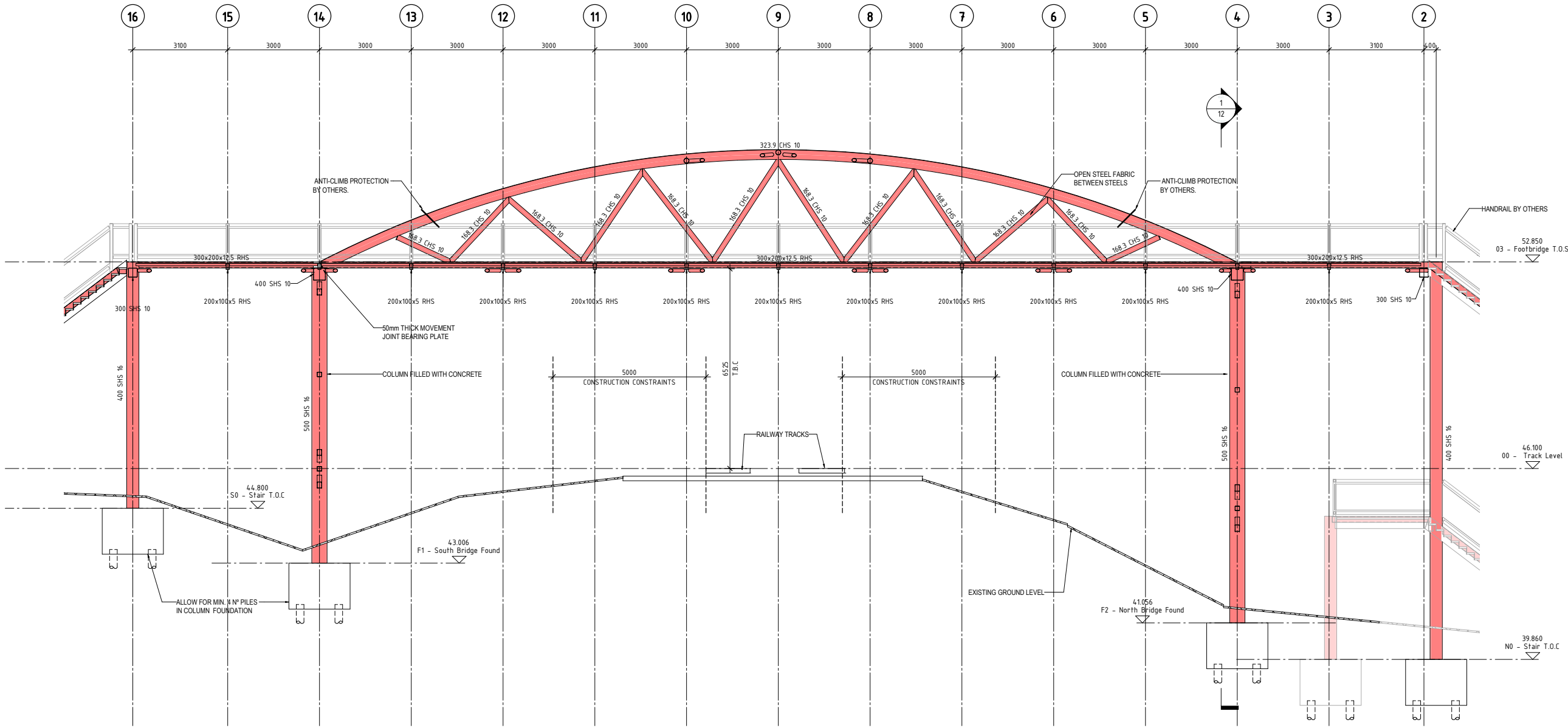
Title:  
**FOOTBRIDGE PLANS WITH SECTIONS**

Drawn:	Checked:	Scale(s) at A1:
JJK	DJ	As indicated
Date:	RVW Job N°:	Revision:
OCT 20	C6962	P01
Drawing Status:		Suitability:
		D1

COSTING ISSUE

Drawing N°:  
**C6962-RVW-B1-ZZ-DR-S-12**





SECTION 2  
(Scale 1 : 75)

NOTES :-

GENERAL

DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.

ALL DIMENSIONS ARE IN MILLIMETRES. ALL LEVELS ARE IN METRES.

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS & SPECIFICATIONS.

STEELWORK

STEELWORK FABRICATOR TO DESIGN & DETAIL ALL CONNECTIONS. LOADS TO BE PROVIDED BY THE ENGINEER. ALL CONNECTIONS TO BE CAPABLE OF RESISTING THE TYING FORCE REQUIRED BY BS. 5950.

PRIOR TO ANY FABRICATION:  
A) ALL CALCULATIONS & DETAILS TO BE APPROVED BY THE ENGINEER.  
B) FABRICATOR TO PRODUCE A FULL SET OF DETAILED DRAWINGS FOR COMMENT.

SPECIFICATION FOR STRUCTURAL STEELWORK TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE 'NATIONAL STRUCTURAL STEELWORK SPECIFICATION FOR BUILDING CONSTRUCTION' BY BSCA.

PAINTING SPECIFICATION:

A) SURFACE PREPARATION - BLAST CLEAN TO GSA 2 1/2.

B) POST FABRICATION PRIMER - 75 MICRONS (DFT) HIGH BUILD EPOXY ZINC PHOSPHATE PRIMER TO BS 5493.

ALL DAMAGED STEEL TO BE MADE GOOD TO ENGINEERS APPROVAL.

STEELWORK FABRICATOR TO BE SOLELY RESPONSIBLE FOR TEMPORARY WORK & THE ERECTION OF STRUCTURAL STEELWORK.

UNLESS OTHERWISE NOTED:

A) ALL HOT ROLLED STEEL TO BE GRADE S355

B) ALL WELDS TO BE 6mm CONTINUOUS FILLET WELDS.

C) ALL BOLTS FOR HOT ROLLED SECTIONS TO BE GRADE 8.8.

D) ALL BOLTS FOR COLD ROLLED SECTIONS TO BE GRADE 4.6.

IF ANY SPLICES ARE TO BE USED, THEIR LOCATION MUST BE APPROVED BY THE ENGINEER.

PILING NOTES:

1. PILE CUT OFF LEVELS TO BE 75mm ABOVE FORMATION LEVEL & TO HAVE A MINIMUM OF 75mm EMBEDMENT INTO PILE CAPS.

2. PILE REINFORCEMENT TO PROJECT A MINIMUM OF 600mm INTO GROUND BEAM FROM PILE CUT OFF LEVEL AND TO BE BENT OVER INTO GROUND BEAM.

3. PILE LOADINGS SHOWN ON PILE AND GROUND BEAM LAYOUT ARE REQUIRED WORKING LOADS.

4. MAX PILE DEVIATION TO BE + OR - 75mm FROM POSITION DETAILED OR AGREED PRIOR TO COMMENCEMENT OF WORKS.

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7. THE PILES SHALL BE DESIGNED, BY THE PILING CONTRACTOR, USING RECOGNIZED GEOTECHNICAL PRINCIPLES.

8. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING APPROVAL OF HIS PILE DESIGN BY THE NHBC (OR EQUIVALENT) AND LOCAL AUTHORITY BUILDING REGULATION APPROVAL.

9. THE CONTRACTOR WILL CARRY OUT STATIC LOAD TESTS, IN ACCORDANCE WITH STANDARD ICE SPECIFICATION 1996, TO A MINIMUM OF 3 NO. PILES.

10. THE CONTRACTOR IS TO CONSULT WITH GEOTECHNICAL ENGINEER WITH REGARD TO ANY SPECIAL GROUND CONDITIONS WHICH MAY EXIST:-  
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ALL DAMAGED PAINT TO BE RE-APPLIED PRIOR TO INSTALLATION OF BRIDGE ON SITE.

CONCRETE

1. ALL WORK TO BE UNDERTAKEN & MATERIALS SUPPLIED IN ACCORDANCE WITH RELEVANT BRITISH STANDARDS, CODES OF PRACTICE & BUILDING REGULATIONS.

2. CONCRETE GRADES TO BE AS FOLLOWS:  
BLINDING CONCRETE TO BE GRADE GEN 1  
MASS CONCRETE TO BE GRADE C20/25  
REINFORCED CONCRETE TO BE GRADE C32/40

3. ONLY PLASTIC OR CONCRETE SPACERS ARE TO BE LAID DIRECTLY ONTO DPM / RADON / GAS BARRIER.

4. ALL BURIED CONCRETE SHOULD AT A MINIMUM CONFORM TO CLASS AC-1 OF BRE SPECIAL DIGEST 1 (2006)

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P1	19.10.20	COSTING ISSUE	JJK	DJ
Rev.	Date.	Details.	By.	Chk.

Amendments



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Project:  
**PROPOSED RAILWAY BRIDGE, PYLE BRIDGE 2**

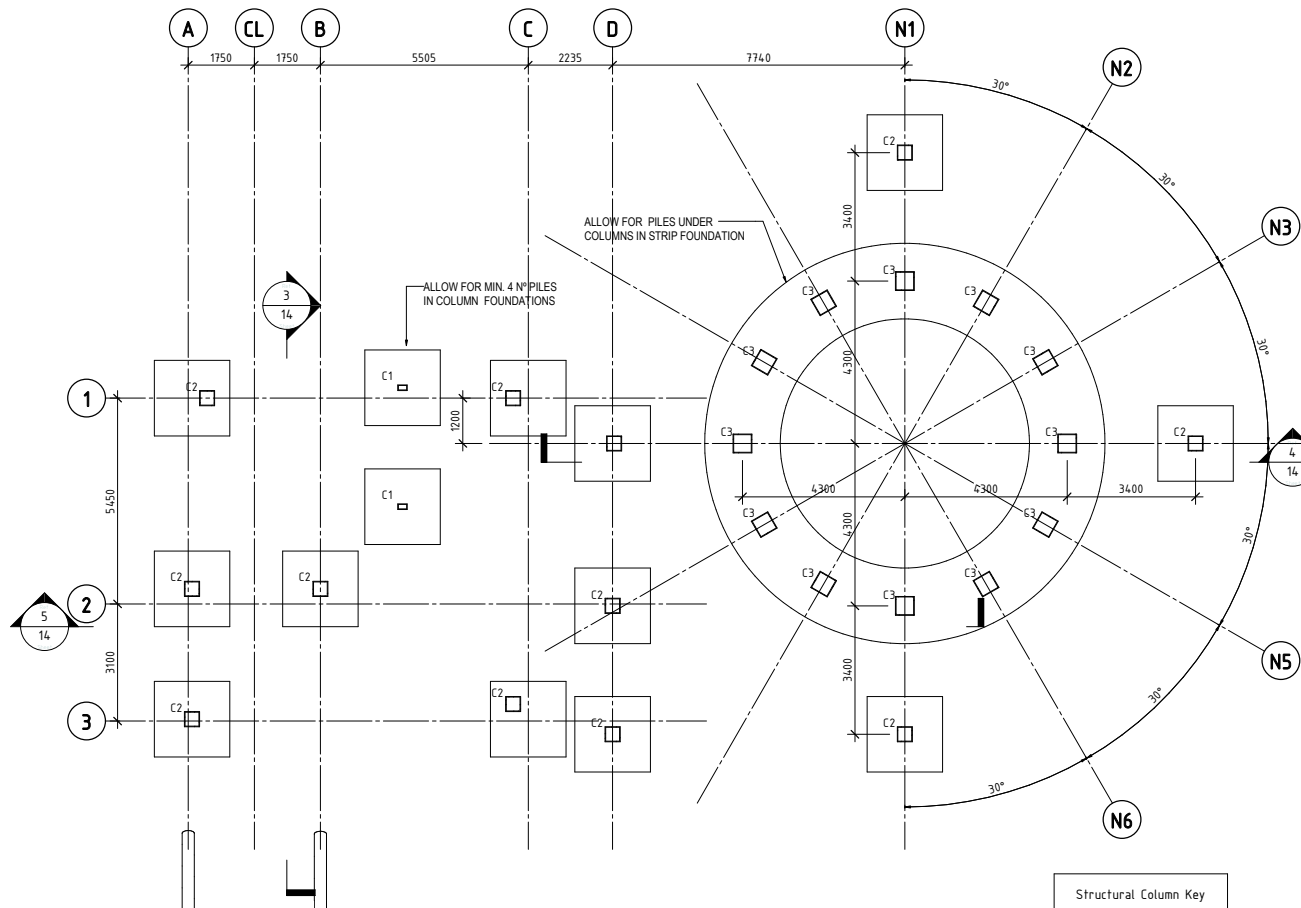
Title:  
**FOOTBRIDGE SECTION**

Drawn:	Checked:	Scale(s) at A1:
JJK	DJ	As indicated
Date:	RVW Job N°:	Revision:
OCT 20	C6962	P01
Drawing Status:		Suitability:
		D1

COSTING ISSUE

Drawing N°:  
**C6962-RVW-B2-ZZ-DR-S-13**

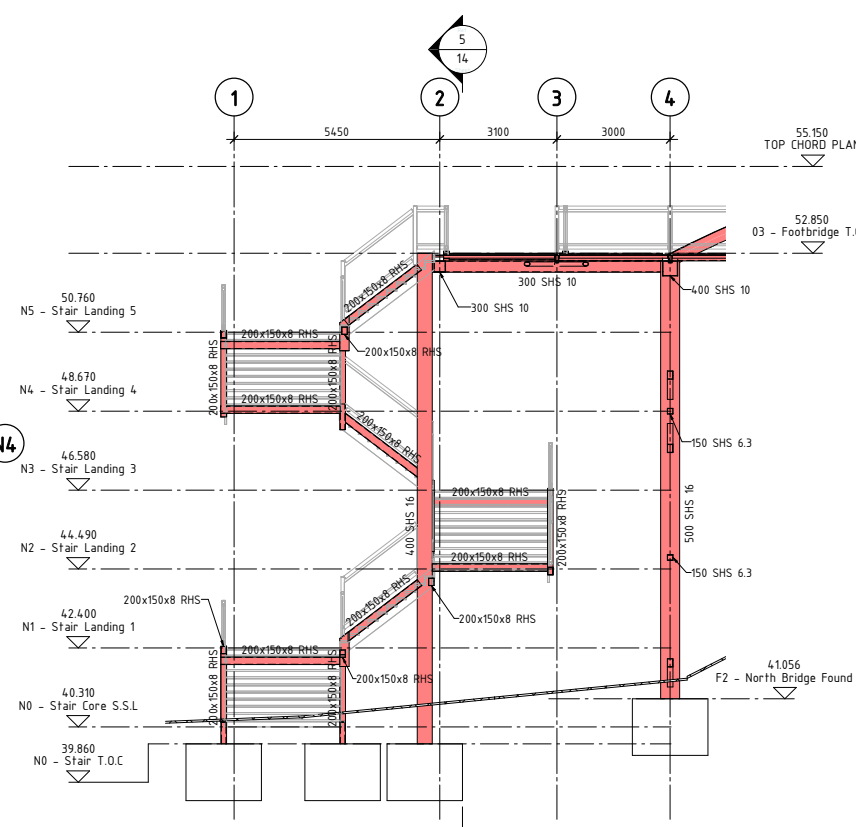




**NORTH STAIR AND RAMP FOUNDATION LEVEL**

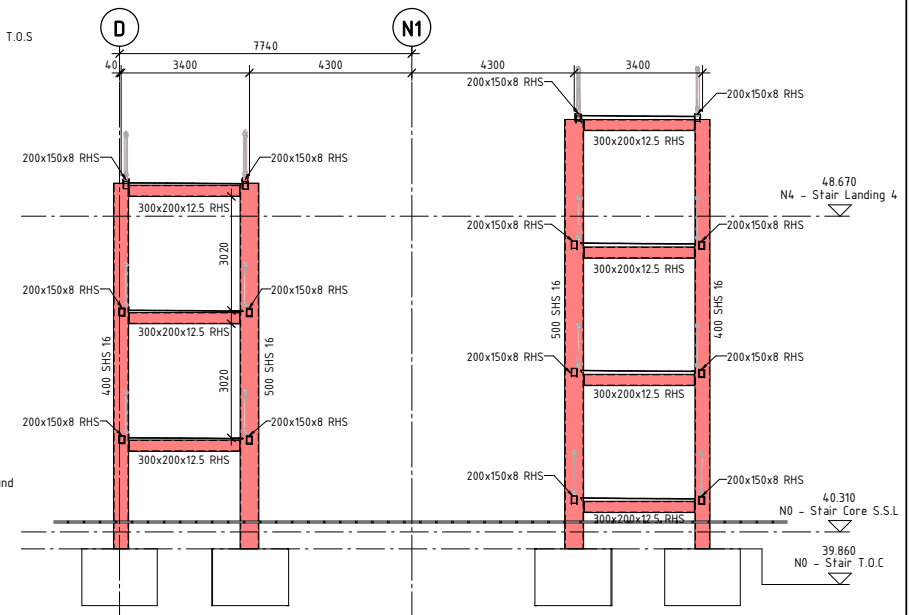
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Structural Column Key	
C1	250x150x16 RHS
C2	400 SHS 16
C3	500 SHS 16



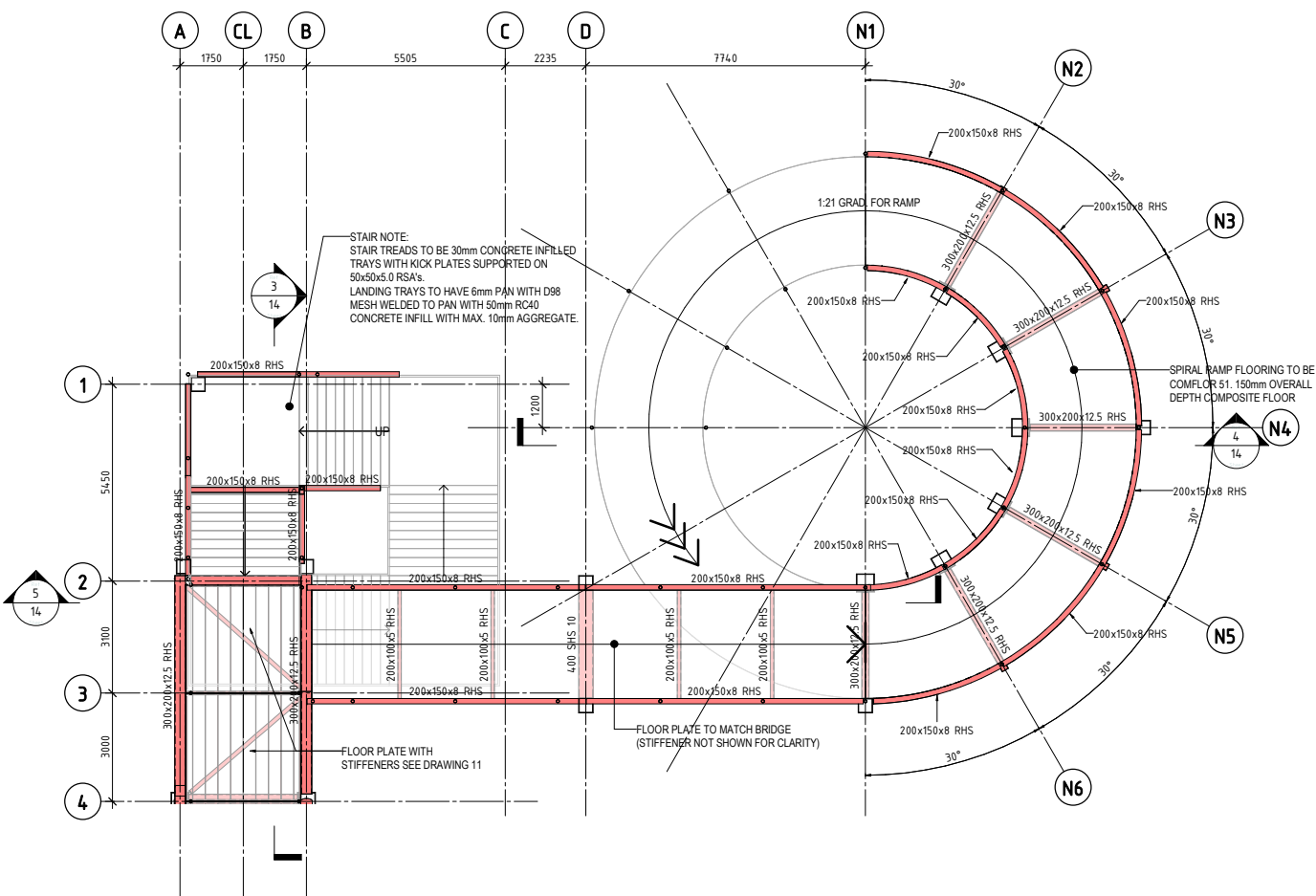
**SECTION 3**

(Scale 1 : 100)



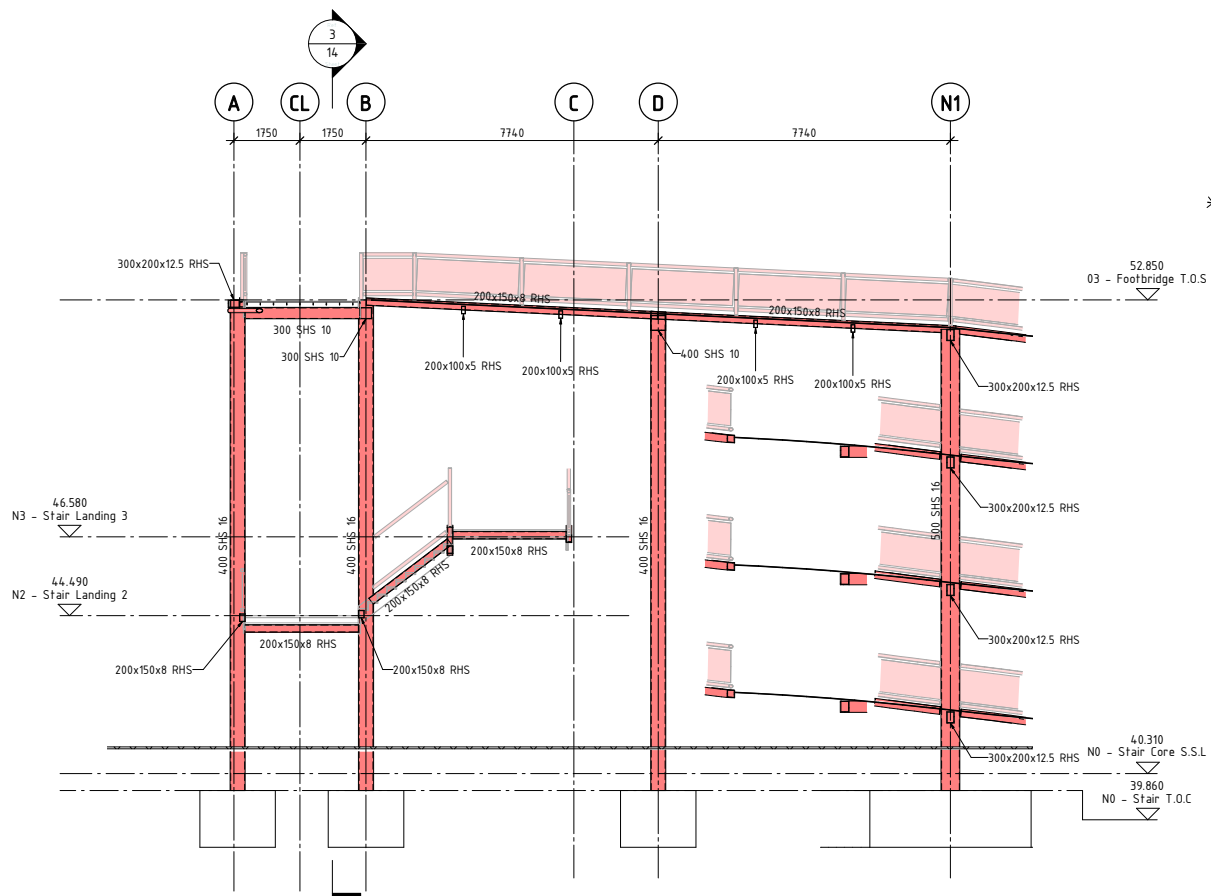
**SECTION 4 - SPIRAL RAMP**

(Scale 1 : 100)



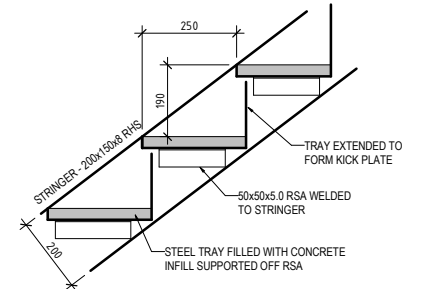
**NORTH STAIR & RAMP BRIDGE LEVEL**

(Scale 1 : 100)



**SECTION 7**

(Scale 1 : 100)



**Typical Stair Detail**

(Scale 1 : 10)

Rev.	Date	Details	By	Chk.
P1	19.10.20	COSTING ISSUE	JKK	DJ

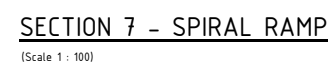
Amendments

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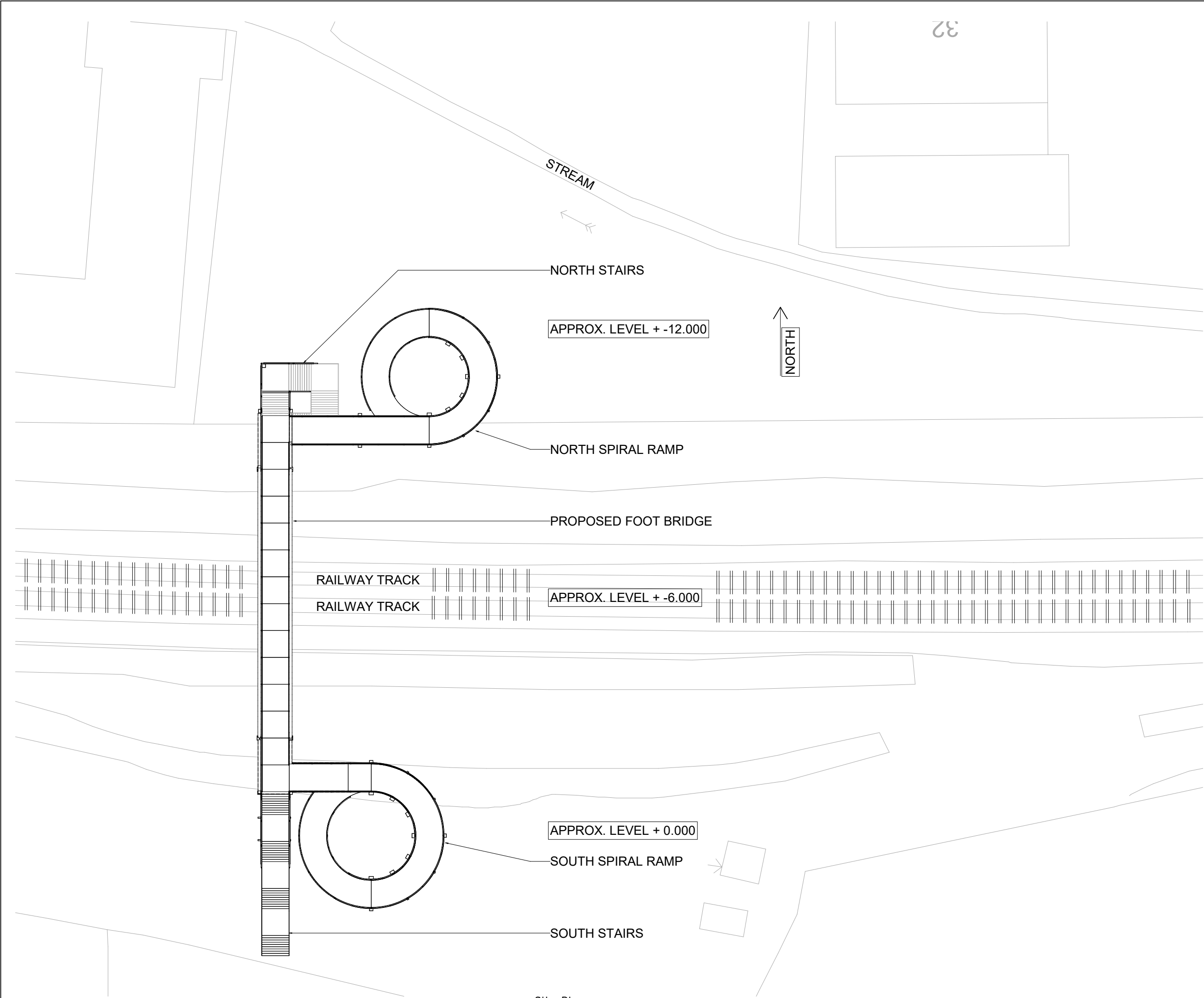
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Project: <b>PROPOSED RAILWAY BRIDGE, PYLE BRIDGE 2</b>			
Title: <b>NORTH STAIRS &amp; SPIRAL RAMP GENERAL ARRANGEMENT</b>			
Drawn:	Checked:	Scale(s) at A1:	
Author	Checker	As indicated	
Date:	RVW Job N°:	Revision:	Suitability:
10/18/20	<b>C6962</b>	<b>P01</b>	<b>D1</b>
Drawing Status: <b>COSTING ISSUE</b>			
Drawing N°: <b>C6962-RVW-B2-ZZ-DR-S-14</b>			



Project:		
<b>PROPOSED RAILWAY BRIDGE, PYLE BRIDGE 2</b>		
Title:		
<b>SOUTH STAIRS &amp; SPIRAL RAMP GENERAL ARRANGEMENT</b>		
Drawn:	Checked:	Scale(s) at A1:
JJK	DJ	1 : 100
Date:	R/W Job N°:	Revision:
OCT 20	<b>C6962</b>	<b>P01</b>
		Suitability: <b>D1</b>
Drawing Status:		
<b>COSTING ISSUE</b>		
Drawing N°:		
<b>C6962 - R/W - B2 - ZZ - DR - S - 15</b>		



- GENERAL
1. DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS ONLY.
  2. ALL DIMENSIONS ARE IN MILLIMETRES. ALL LEVELS ARE IN METRES.
  3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS & SPECIFICATIONS.
  4. PRIOR TO SETTING OUT OF FOUNDATIONS ALL PROPOSED SETTING OUT TO BE COORDINATED WITH ARCHITECTS DETAILS & DRAWINGS.
  5. DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST S.I. REPORT.

Site Plan  
(Scale 1 : 200)

P1	19.10.20	COSTING ISSUE	JJK	DJ
Rev.	Date.	Details.	By.	Chk.

Amendments



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Project: <b>PROPOSED RAILWAY BRIDGE, PYLE BRIDGE 2</b>			
Title: <b>SITE PLAN</b>			
Drawn: JJK	Checked: DJ	Scale(s) at A1: As indicated	
Date: OCT 20	RVW Job N°: <b>C6962</b>	Revision: <b>P01</b>	Suitability: <b>D1</b>
Drawing Status: <b>COSTING ISSUE</b>			
Drawing N°: <b>C6962-RVW-B2-ZZ-DR-S-16</b>			