

A1 Birtley to Coal House

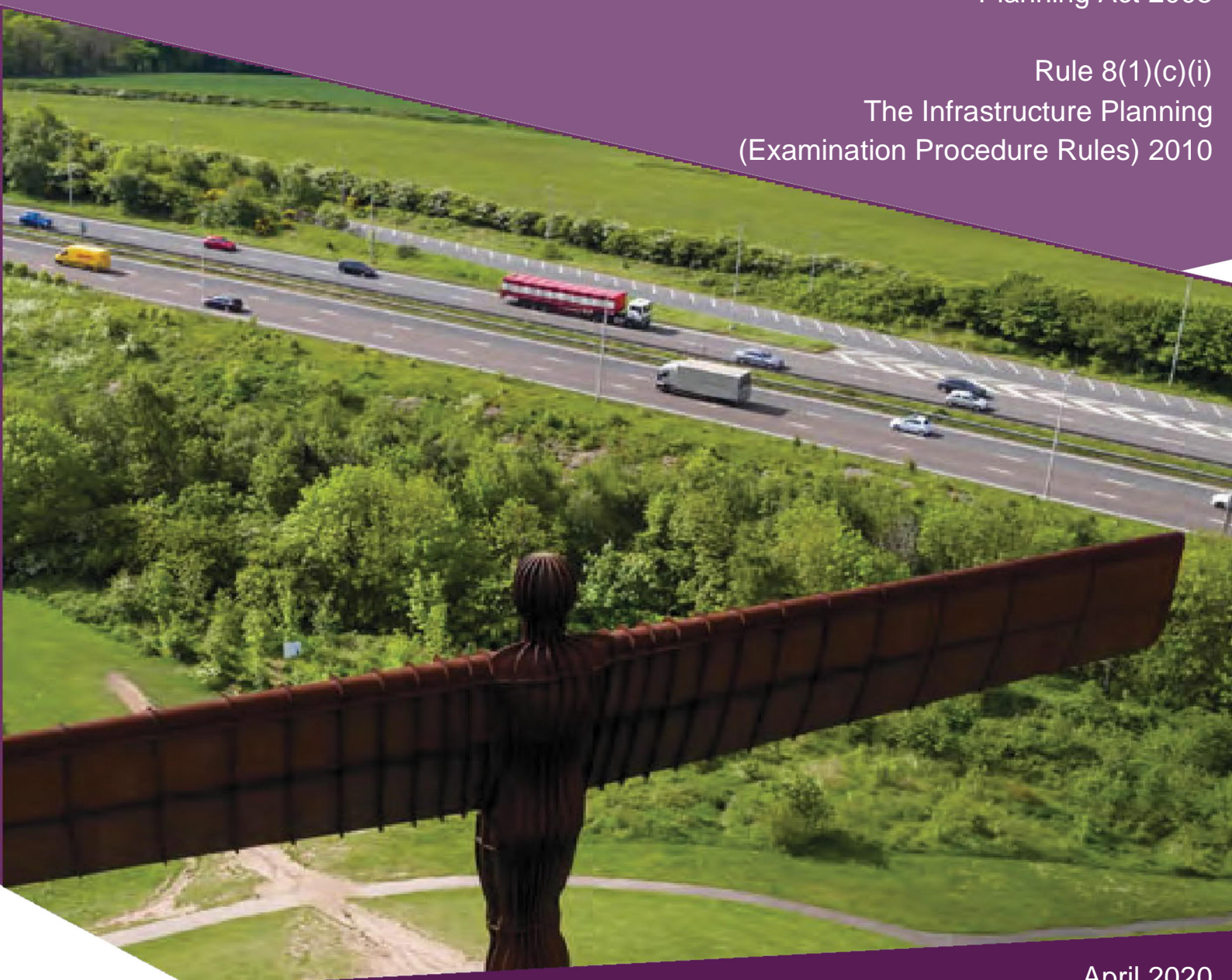
Scheme Number: TR010031

Gantry Details

Planning Act 2008

Rule 8(1)(c)(i)

The Infrastructure Planning
(Examination Procedure Rules) 2010



Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Examination Procedure Rules) 2010**

The A1 Birtley to Coal House
Development Consent Order 20[xx]

Gantry Details

Rule Number:	Rule 8(1)(c)(i)
Planning Inspectorate Scheme Reference	TR010031
Application Document Reference	Appendix 2.0B
Author:	A1 Birtley to Coal House Project Team, Highways England

Version	Date	Status of Version
Rev 0	20 April 2020	For Issue

CONTENTS

1	Introduction	1
2	Common Details.....	1
2.2	Sign fundamentals.....	1
2.3	Destinations.....	1
2.4	Sign Face Design	1
2.5	Sign locations	1
2.6	Provision of Gantries	3
3	Specific Details.....	3
3.2	J66 (Eighton Lodge) Southbound Diverge.....	4
3.3	J65 (Birtley) Southbound Diverge.....	4
3.4	J66 (Eighton Lodge) Northbound Diverge	4
3.5	J67 (Coal House) Northbound Diverge.....	5
4	Gantry Structural Requirements.....	6
4.2	Cost Effective Forms	6
4.3	Access Provisions For Maintenance.....	6
4.4	VRS Arrangements.....	6
4.5	Environmental Considerations.....	6
4.6	Gantry Structural Forms	7
	Appendix A – Gantry Locations and Tolerances Plan.....	9
	Appendix B – Gantry General Arrangement drawings	10

1 Introduction

1.1.1 This appendix details the justification for the provision and location of 14 gantry mounted direction signs proposed for the A1 Birtley to Coal House Scheme.

2 Common Details

2.1.1 This section gives common details which relate to the direction signs proposed for the scheme. Specific details for each gantry mounted direction sign are given in Chapter 3.

2.2 Sign fundamentals

2.2.1 Signs are a fundamental aspect of UK highway network and are used to provide information to drivers to enable them to traverse the highways safely and effectively. Direction signs are used to provide driver information about the location, type and layout of junctions, and the destinations available.

2.3 Destinations

2.3.1 A sign strategy for the scheme has been developed to define the destinations to be used on the signs. It has been prepared with appropriate skill and care by a qualified organization (The Applicant) to achieve the purpose of the operation of the scheme as part of the strategic road network.

2.4 Sign Face Design

2.4.1 The sign face design complies with legislation and associated guidance Statutory Instrument 2016 No. 362 The Traffic Signs Regulations and General Directions 2016; and the Traffic Signs Manual.

2.4.2 During the Preliminary Design the sign face design has been rationalised to reduce the size of the sign faces. The sign faces are shown on the Gantry General Arrangement Drawings within Appendix B.

2.5 Sign locations

2.5.1 At grade separated junctions, multiple direction signs are required to provide an acceptable level of safety. These are listed below:

- 1 Mile (or $\frac{2}{3}$ mile) Advanced Direction Sign;
- $\frac{1}{2}$ Mile (or $\frac{1}{3}$ mile) Advanced Direction Sign;
- Final Direction Sign; and
- Confirmatory Direction Sign.

2.5.2 The Advanced and Final Direction Signs are located relative to the Exit Datum Point (EDP), this is defined based on the junction type as below:

- At junctions with no lane drop such as a Taper Diverge at J66 (Eighton Lodge) southbound, it is located at the start of the taper to the diverge lane as shown on Figure 1;

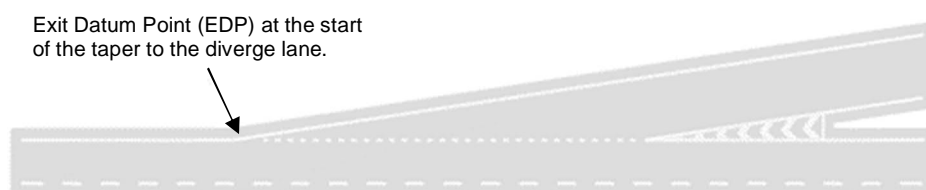


Figure 1: Location of the Exit Datum Point at a Taper Diverge layout.

- At junctions with a lane drop where a single lane widens to two lanes prior to the diverge tip of the nose markings it is the greater upstream of 200 metres from the diverge tip of the nose markings and the start of the taper where the carriageway widens from a one lane to a two lane drop, such as:
 - A Lane Drop at Parallel Diverge at J65 (Birtley) southbound and J67 (Coal House) northbound (as per Figure 2); or
 - A Lane Drop at Taper Diverge at J66 (Eighton Lodge) northbound (as per Figure 3).

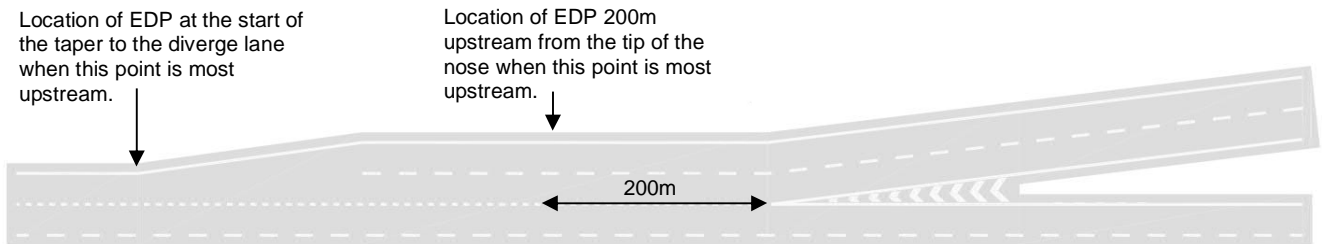


Figure 2: Location of the Exit Datum Point at a Lane Drop at Parallel Diverge layout.

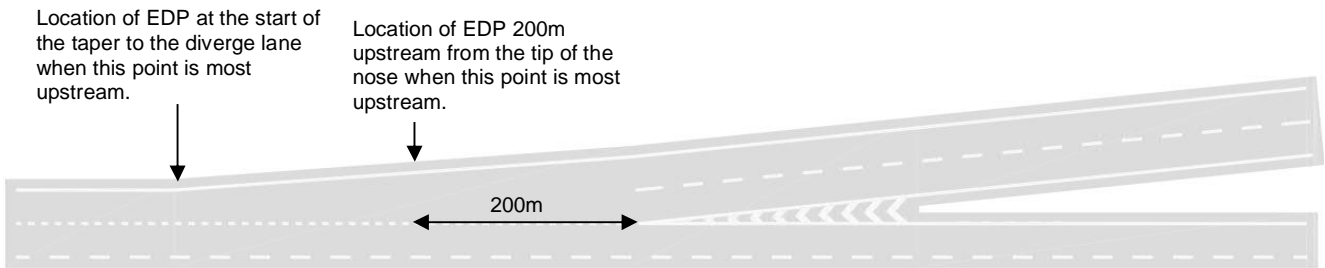


Figure 3: Location of the Exit Datum Point at a Lane Drop at Taper Diverge layout.

2.5.3 The Advanced Direction Signs have the following hierarchy for their required locations as shown on Figure 4:

- Signs at 1 mile (1609m) and $\frac{1}{2}$ mile (804m) from the EDP; or
- Signs within a tolerance of 10% upstream and 20m downstream of 1 mile and $\frac{1}{2}$ mile from the EDP; or
- Signs at $\frac{2}{3}$ mile + 10% (1180m) and $\frac{1}{3}$ mile + 10% (590m) from the EDP; or
- Signs within a tolerance of 10% upstream and 20m downstream of $\frac{2}{3}$ mile and $\frac{1}{3}$ mile from the EDP

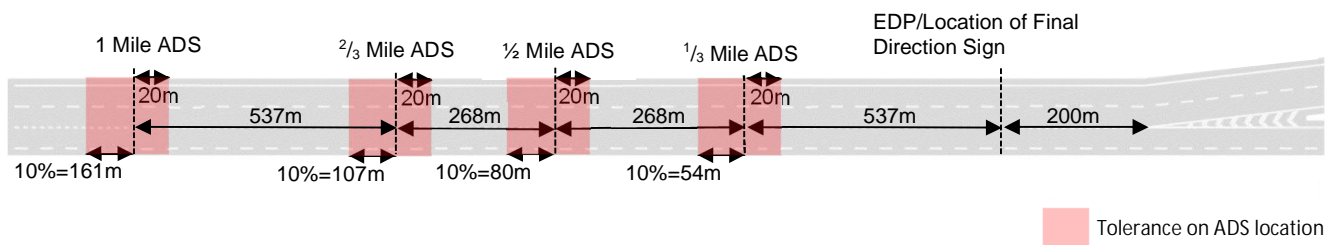


Figure 4: Tolerances on ADS locations

2.5.4 Reductions between levels in the hierarchy is only permitted due to site or construction constraints.

- 2.5.5 The preferred location for the Final Direction Sign is at the EDP. If this is not feasible, the sign should be located within a tolerance of the EDP and up to 50m upstream of the EDP as shown on Figure 5.

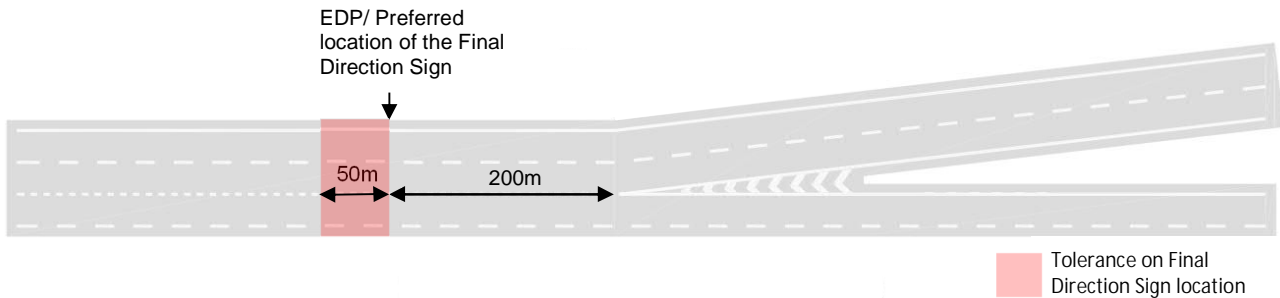


Figure 5: Preferred location and the permitted tolerance on the location of the Final Direction Sign.

- 2.5.6 The Confirmatory Direction Sign is located relative to the diverge nose. The preferred location is within a tolerance of between 30m and 50m from the tip of the nose as shown on Figure 6.

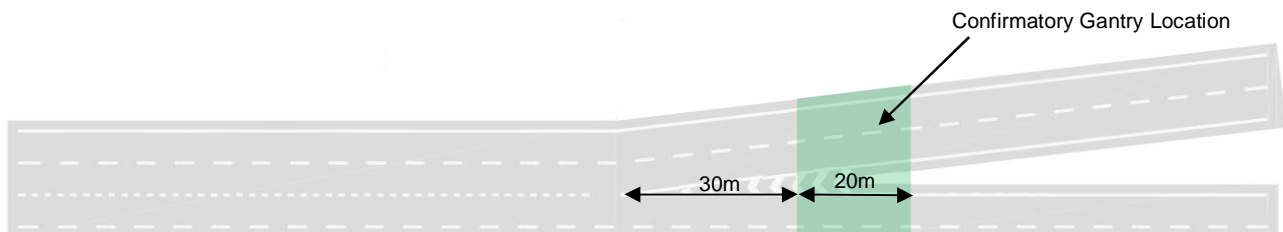


Figure 6: Location of the Confirmatory Direction Sign

2.6 Provision of Gantries

- 2.6.1 Direction signs are most commonly provided on posts and mounted in the verge (verge signs), however there are several factors where provision of verge signs increases the risk of vehicular accidents. These are:
- On roads of more than two lanes, verge signs may be obscured by high sided vehicles in the nearside lane, which introduces a risk of driver confusion, late manoeuvres and side swipe / rear shunt accidents; and
 - On roads which have closely spaced grade separated junctions; and / or junctions with lane drops, verge signs divert driver's attention away from traffic ahead and behind, increasing the risk of a loss of driver awareness and rear shunts / side swipe accidents.
- 2.6.2 The diverges at J66 (Eighton Lodge) southbound, J65 (Birtley) southbound, J66 (Eighton Lodge) northbound and J67 (Coal House) northbound have:
- A 4 lane mainline;
 - The below spacings between junctions (3km spacing is considered closely spaced):
 - 2km between J67 (Coal House) and J66 (Eighton Lodge);
 - 1.5km between J66 (Eighton Lodge) and J65 (Birtley); and
 - Lane drops (with the exception of J66 southbound diverge (Eighton Lodge))
- 2.6.3 Gantries are required to mitigate the above risks associated with verge signs.

3 Specific Details

- 3.1.1 The specific locations proposed for each gantry sign are described within this section in relation to the preferred sign locations given within section 2.4 and are shown on the Gantry Locations and Tolerances Plan within Appendix A.
- 3.1.2 To allow the applicant to respond appropriately to unknown constraints being encountered during further design development and construction, an allowance for variation of the gantry locations has been included within the DCO. This is as per the tolerance for each sign as described in paragraphs 2.5.3, 2.5.5 and 2.5.6. Examples of unknown constraints include poor ground conditions and unknown 3rd party assets. The tolerances are shown on the Gantry Locations and Tolerances Plan within Appendix A.
- 3.1.3 The applicant has endeavoured to use the minimum number of gantry mounted signs whilst remaining in accordance with standards.

3.2 J66 (Eighton Lodge) Southbound Diverge

SG001 – 1 Mile (²/₃) Advanced Direction Sign

- 3.2.1 A ¹/₃ Mile sign is proposed instead of a ¹/₂ Mile sign (detailed in 3.2.2), as such a ²/₃ mile sign is proposed at the preferred location.

SG002 - ¹/₂ Mile (¹/₃) Advanced Direction Sign

- 3.2.2 The location (including tolerances) of the ¹/₂ Mile sign would be within the extents of the proposed 3, 6 and 7 span Allerdene Viaduct Options. As such a ¹/₃ Mile sign is proposed at the preferred location.

SG003 - Final Direction Sign

- 3.2.3 The final direction sign is proposed at its preferred location.

SG004 - Confirmatory Direction Sign

- 3.2.4 The confirmatory direction sign is proposed at its preferred location.

3.3 J65 (Birtley) Southbound Diverge

SG005 - 1 Mile (²/₃) Advanced Direction Sign

- 3.3.1 As a ¹/₃ Mile sign is proposed instead of a ¹/₂ Mile ADS (detailed in 3.3.2), as such a ²/₃ mile sign is proposed at the preferred location..

SG006 - ¹/₂ Mile (¹/₃) Advanced Direction Sign

- 3.3.2 The location of a ¹/₂ Mile sign (including tolerances) would be upstream of the J66 (Eighton Lodge) merge. As such vehicles joining at the merge would only have the final direction sign to provide junction information, increasing the risk of late manoeuvres and associated accidents. A ¹/₃ Mile sign is proposed at its most downstream tolerance to provide the maximum opportunity for drivers to assimilate the sign information and reduce the risk of late manoeuvres.

SG007 - Final Direction Sign

- 3.3.3 The final direction sign is proposed at its preferred location.

SG008- Confirmatory Direction Sign

- 3.3.4 The confirmatory direction sign is proposed at its preferred location.

3.4 J66 (Eighton Lodge) Northbound Diverge

1 Mile ($\frac{2}{3}$) Advanced Direction Sign

- 3.4.1 The location of both the 1 Mile and $\frac{2}{3}$ Mile sign (including tolerances) would be upstream of the J65 (Birtley) Merge. Due to the merge and diverge layouts proposed there is no sign face layout available which would comply with standards. Any attempted provision would be unusual and increase the risk of driver confusion / associated accidents.

SG009- $\frac{1}{2}$ Mile ($\frac{1}{3}$) Advanced Direction Sign

- 3.4.2 The location of a $\frac{1}{2}$ Mile sign (including tolerances) would be obscured by North Side Overbridge. As such, the $\frac{1}{3}$ Mile direction sign is proposed at its preferred location.

SG010 - Final Direction Sign

- 3.4.3 The final direction sign is proposed at its preferred location.

SG011 -Confirmatory Direction Sign

- 3.4.4 The confirmatory direction sign is proposed at its preferred location.

3.5 J67 (Coal House) Northbound Diverge

1 Mile ($\frac{2}{3}$) Advanced Direction Sign

- 3.5.1 The location of a 1 Mile sign (including tolerances) would be upstream of the J66 (Birtley) Merge. Due to the merge and diverge layouts proposed there is no sign face layout available which would comply with standards. Any attempted provision would be unusual and increase the risk of driver confusion / associated accidents.

- 3.5.2 The location of a $\frac{2}{3}$ Mile sign would be within the merge extents and may not be perceived / comprehended by merging drivers. As such, it is considered that a $\frac{1}{2}$ Mile sign would maximise the opportunity for drivers to assimilate the junction information.

SG012 - $\frac{1}{2}$ Mile ($\frac{1}{3}$) Advanced Direction Sign

- 3.5.3 The $\frac{1}{2}$ Mile direction sign is proposed at its preferred location.

SG013 - Final Direction Sign

- 3.5.4 The Final Direction Sign location (including tolerances) would be mid span for the various viaduct options. This would require amendments to the lengths of the spans and may require an additional pier and foundations, which would incur significant additional cost. The final direction sign is proposed 10m downstream of its preferred location / tolerance to minimise these impacts to the proposed Allerdene Viaduct.

SG014 - Confirmatory Direction Sign

- 3.5.5 The confirmatory direction sign is proposed at its preferred location.

4 Gantry Structural Requirements

- 4.1.1 The highway upgrade requires the installation of 14No. gantry mounted direction signs between A1 Birtley to Coalhouse.
- 4.1.2 The proceeding information provides details of some of the key constraints considered when developing the gantry structural forms.

4.2 Cost Effective Forms

- 4.2.1 The applicant's policies require that the gantries should be simple cost-effective solutions that are easy to build. This inclines toward gantries comprising light weight steel type construction that can be prefabricated and readily transported/assembled and lifted into position. The lightweight superstructure will also reduce the size and complexity of foundations further simplifying construction and thereby having a positive impact on cost.

4.3 Access Provisions For Maintenance

- 4.3.1 Initial discussions with the HE SES and the Area 14 MAC team show both are in agreement regarding the provision of non-access ADS gantries. Justification for this is access is considered critical only for gantries which will be supporting technology. Those supporting ADS type signs are generally non access on the basis that maintenance access (to urgently repair VMS type signs and inform traffic) is not anticipated.
- 4.3.2 Any maintenance for the ADS gantry superstructure would be carried out within traffic management for which the level of risk to both workers and members of the public would be assessed and controlled prior to the commencement of the works.
- 4.3.3 The HE SES and Area 14 MAC have also expressed a preference to avoid gantry leg supports being located within the carriageway central reserve thereby minimising risk and disruption to traffic associated with access to gantry supports within the central reserve and remove the health and safety risk to maintenance operatives resulting from the need to access the central reserve.

4.4 VRS Arrangements

- 4.4.1 The most economic verge arrangement where space allows, is the gantry foundation being set back behind a detached 'H1' barrier. Where sufficient space is not available, a 'H1' or 'H2' system can be attached to the foundation but this is considered to be more costly.
- 4.4.2 The redline boundary at the majority of the gantry locations limits additional land take, therefore the latter option to attach VRS to the gantry foundation is currently applied at all locations.
- 4.4.3 Sufficient headroom clearance (5.7m including allowance for sag and deflection) will be provided at the gantries to remove the need to design the superstructure for vehicle impact loading. However, it is anticipated that the edge of carriageway at all gantry locations is <4.5m. Therefore, the foundation plinth shall be designed for the effects of vehicular collision loading.

4.5 Environmental Considerations

- 4.5.1 The scheme is in an environmentally sensitive zone (i.e. adjacent to Angel of the North, built up residential areas etc.). Therefore, the structural form should comprise light open type gantry structures which provide some visibility through the structure. This approach favours steel truss type as oppose solid concrete structural gantry forms. During the detailed design the size of structural steel members shall be rationalised to further minimise visual intrusion.
- 4.5.2 The number of gantries potentially impacting the sight lines of the Angel of the North has been rationalised from 20No. to 14No. via refinements in the highway and technology design during the preliminary design. In addition, the gantry height shall be at the optimum level to inform traffic and provide safe clearance of abnormal loads (in accordance with standards) beneath the structure. These refinements further limit potential visual obstruction of the Angel of the

North.

4.6 Gantry Structural Forms

4.6.1 The proposed form of gantries are based on the assumptions/constraints listed below, some of which have been referred to previously:

- Gantries shall comprise simple, cost effective structural forms
- Gantries shall comprise light weight steel type construction that can be prefabricated and readily transported/assembled and lifted into position
- All gantries shall be non-access type
- The gantries will support no equipment other than fixed text ADS signs
- Due to additional land take restrictions, the VRS shall be tied into gantry foundation plinths which shall be designed to sustain vehicle impact loads
- The Location of gantry support legs in the central reservation will be avoided

4.6.2 The gantries shall comprise one of the following type, commonly used on the Highways England network;

- Long Span Truss Type Cantilever Gantries – for span up to 19m
- Super Span Truss Portal Gantries – with supports positioned either side of the A1 verge

4.6.3 Long Span Truss Type Cantilever Gantries: For span lengths between 14m-19m a long span truss cantilever gantry is normally provided. They typically consist of a truss boom structure supporting the signboard over a single carriageway as shown in Figure 7:



Figure 7

- 4.6.4 Super span Truss Portal Gantries: For spans greater than 19m, a portal gantry is more likely to be a cost-effective option compared to a cantilever gantry. They comprise a truss boom superstructure capable of spanning both carriageways without intermediate supports within the central reserve. Refer to Figure 8 and 9:



Figure 8



Figure 9

- 4.6.5 The proposed steel truss type cantilever and portal gantry structures are proprietary gantry types that satisfy design standards and can be easily installed with reduced initial capital cost. They also provide good value with regards with limited long-term maintenance liabilities whilst providing a light weight open structural form that is less visually intrusive, particularly with regard to sight lines of the Angel of the North.
- 4.6.6 Refer to Appendix A for the proposed Gantry Locations and Tolerances plan.
- 4.6.7 Refer to Appendix B for outline Gantry General Arrangement drawings.

Appendix A – Gantry Locations and Tolerances Plan







JUNCTION 67
COAL HOUSE

LAMESLEY

JUNCTION 66
EIGHTON LODGE

BIRTLEY

JUNCTION 65
BIRTLEY

- KEY
-  ORDER LIMITS
 -  LOCAL AUTHORITY BOUNDARY
 -  THE SCHEME (SHOWN FOR ILLUSTRATIVE PURPOSES ONLY)
 -  PROPOSED CANTILEVER GANTRY
 -  PROPOSED SUPERSPAN GANTRY
 -  PROPOSED GANTRY TOLERANCE

SCALE 1:10000



Rev.	Date	Description	By	Eng' CDR	Disc' CDR	App'd
0	20/04/20	APPLICATION ISSUE				

Suitability: S0

PINS Reference Number: **TR010031/APP/2.3(A)**



Project Title: **A1 BIRTLEY TO COAL HOUSE**

Drawing Title: **GANTRY LOCATIONS AND TOLERANCES**

Scale	Drawn	Eng. Check	Approved	Authorised
NTS	C.Cooper	M.Birkett	M.Birkett	N.Rawcliffe

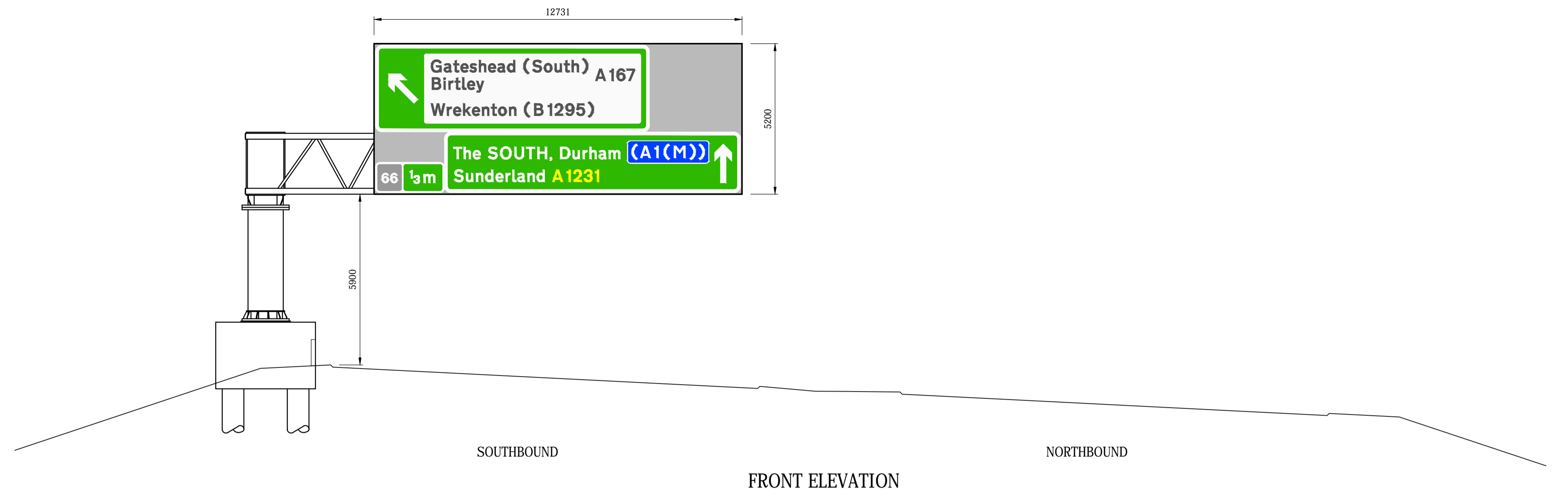
Original Size	Date	Originator	Volume	Revision
A1	20/04/20	WSP	LSI	0

Section: ZZ | Type: DR | ID: ZL | Direction: 43010 | Role: 3

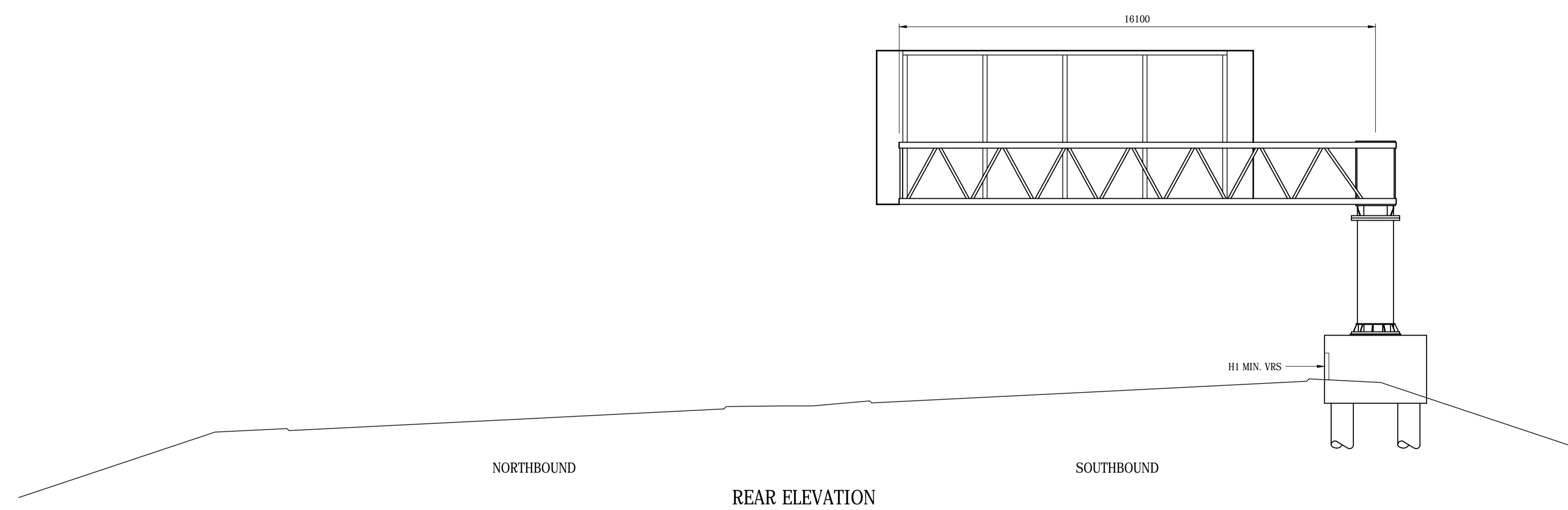
Appendix B – Gantry General Arrangement drawings

DO NOT SCALE

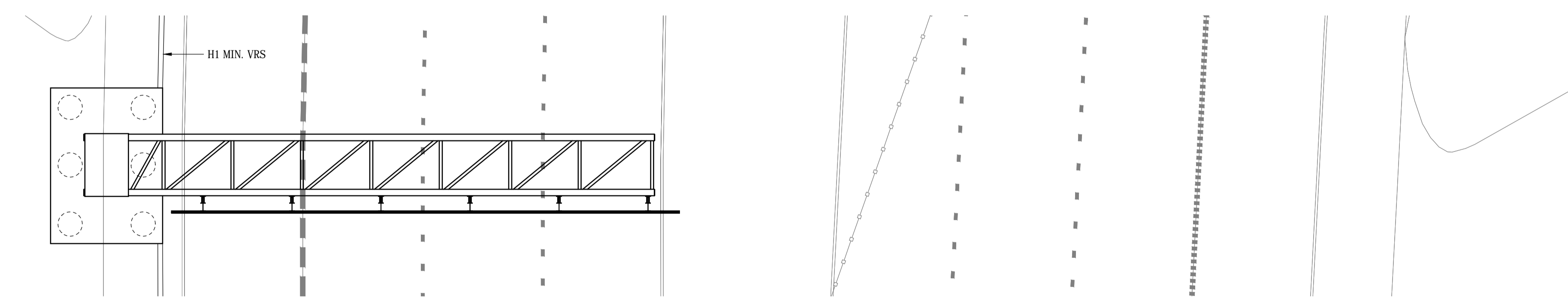
Millimetres
0 10 100



FRONT ELEVATION



REAR ELEVATION



PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
-------	----------	-------------	----	-----	-----

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com

Client

Project Title: A1 BIRTLEY TO COALHOUSE

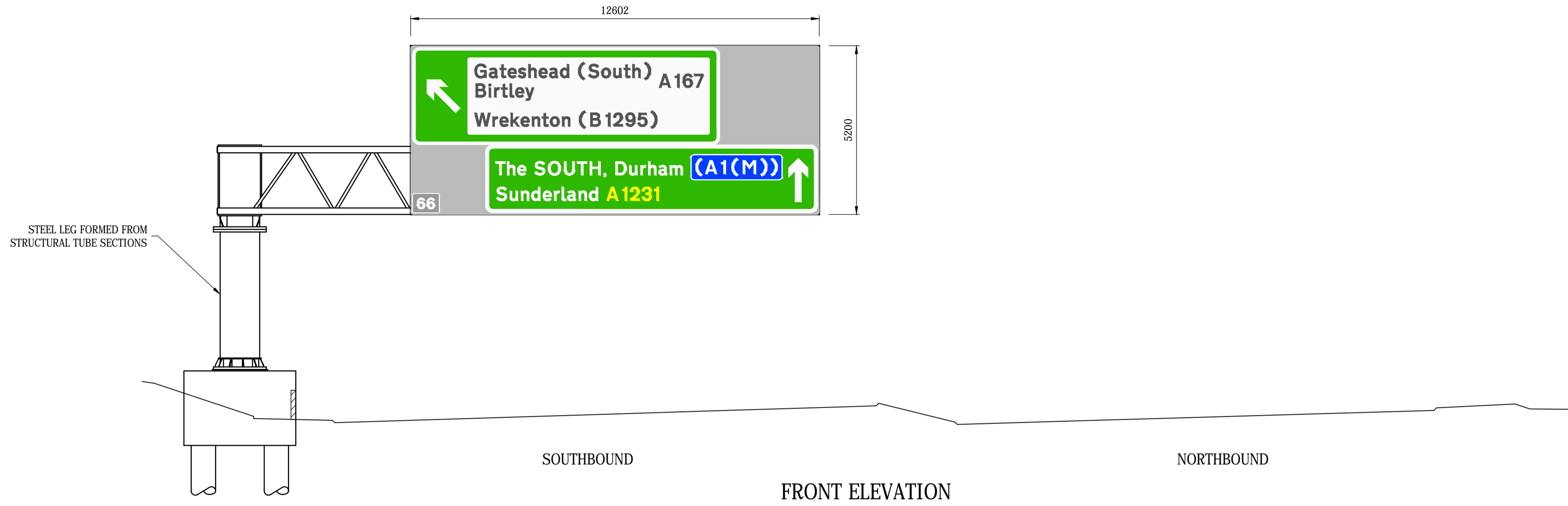
Drawing Title: GANTRY SG002
INDICATIVE ARRANGEMENT

Scale	1:100	Drawn	SB	Checked	---	Approved	SJB	Authorised	---
Original Size	Date	Nov 2017	Date	---	Date	Nov 2017	Date	---	---

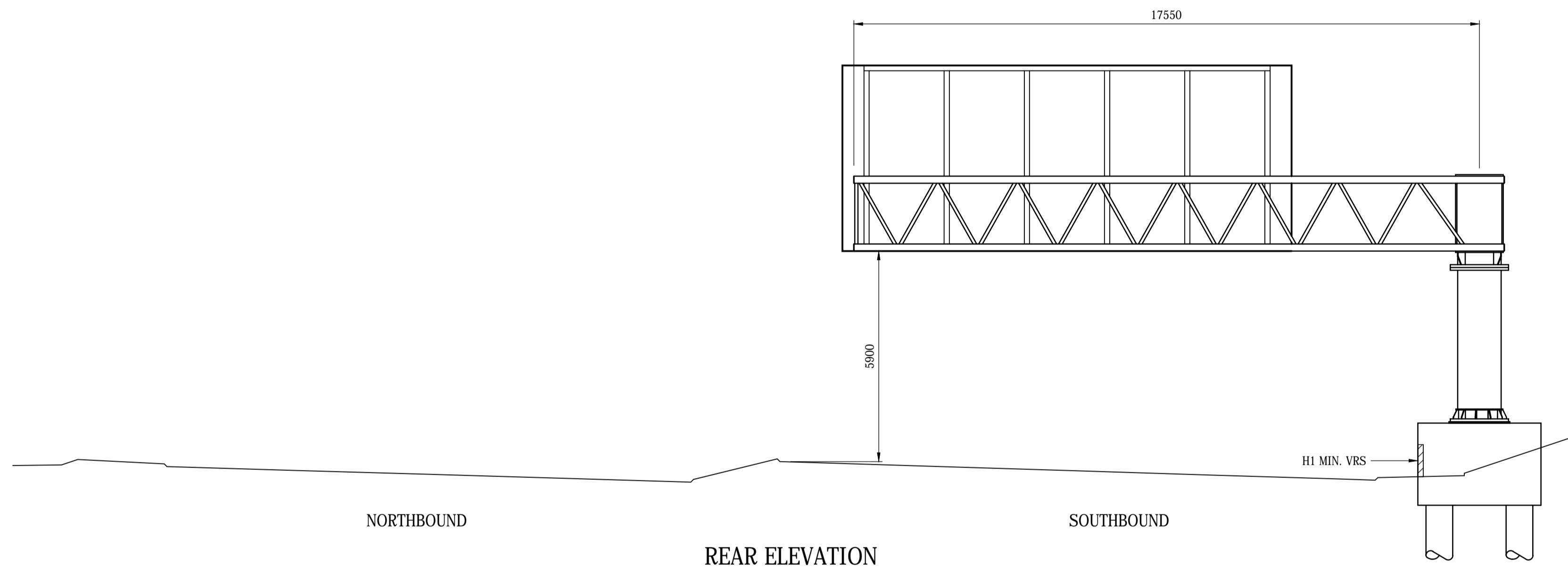
Drawing Status: PRELIMINARY
Suitability: S0

Drawing Number	Project	HE551462	Originator	RAM	Volume	SGY	Project Ref. No.	Revision	P01.1
Location	SG002	Type	SK	Role	CB	Number	0001		

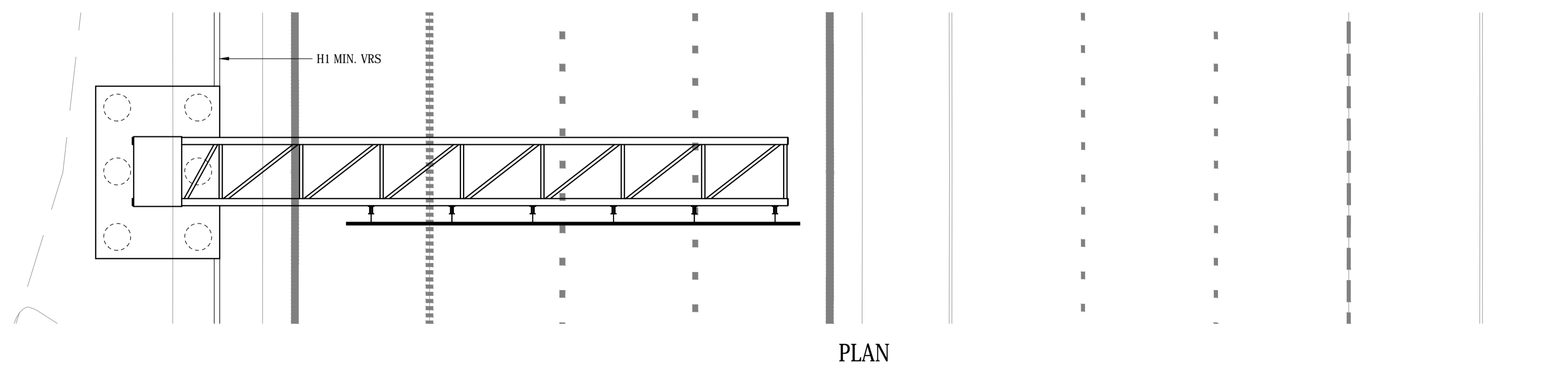
DO NOT SCALE



FRONT ELEVATION



REAR ELEVATION



PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB



Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com



Client
Project Title
A1 BIRTLEY TO COALHOUSE

Drawing Title
**GANTRY SG003
INDICATIVE ARRANGEMENT**

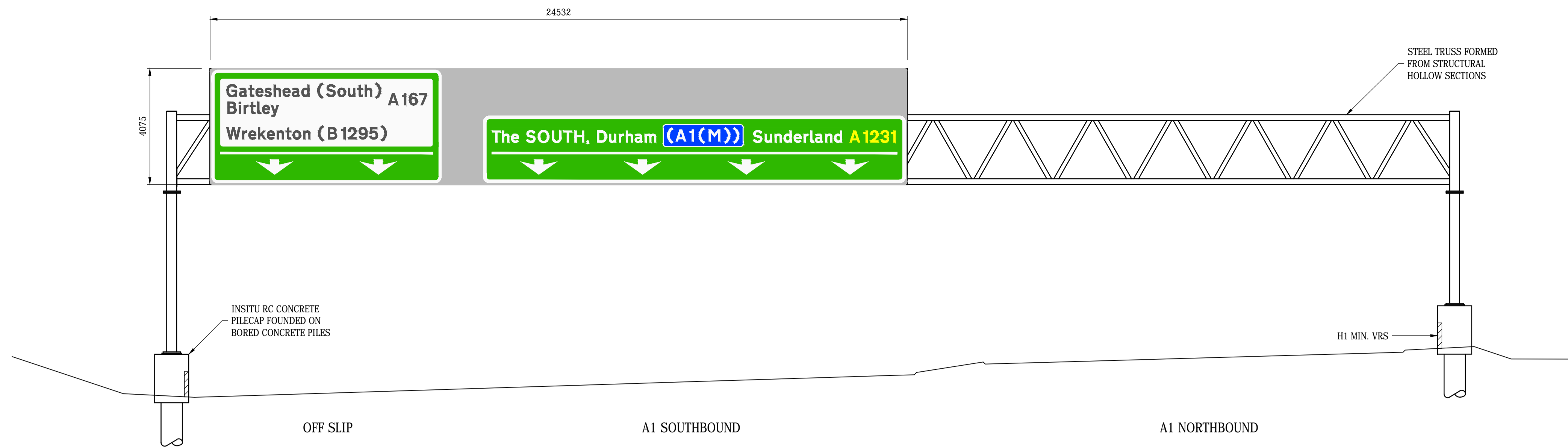
Scale 1:100	Drawn ACL	Checked ---	Approved SJB	Authorised ---
Original Size Date Nov 2017	Date ---	Date Nov 2017	Date ---	Date ---

Drawing Status PRELIMINARY	Suitability S0
--------------------------------------	--------------------------

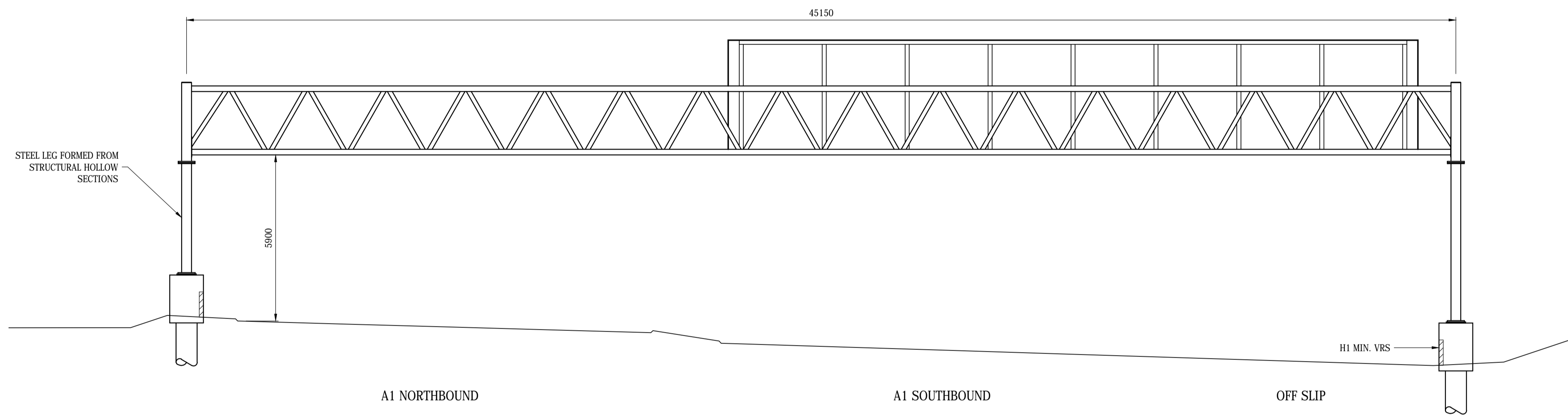
Drawing Number Project HE551462	Originator RAM	Volume SGY	Project Ref. No. P01.1
Location SG003	Type SK	Role CB	Number 0001

DO NOT SCALE

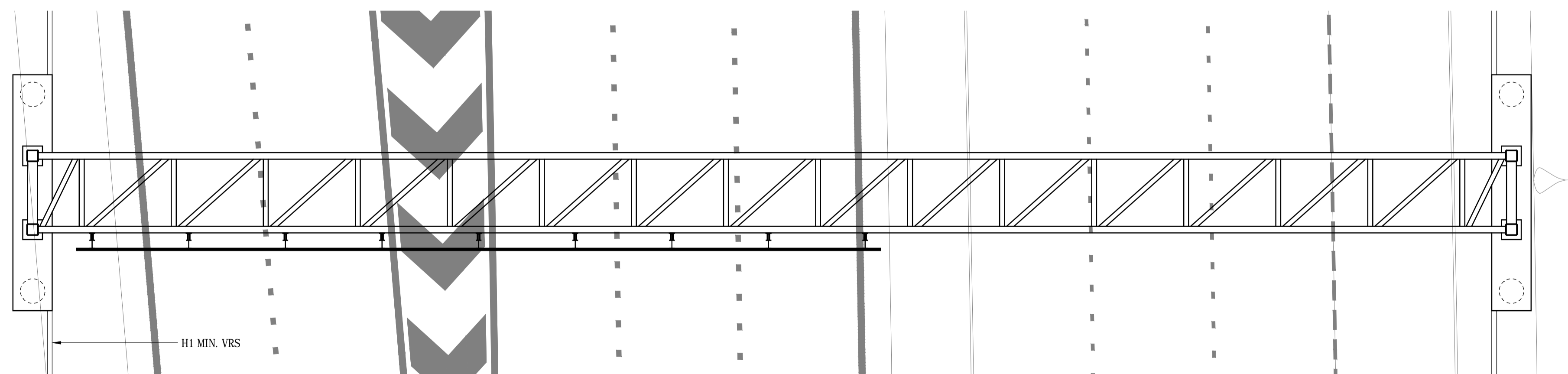
Millimetres
0 10 100



FRONT ELEVATION



REAR ELEVATION



PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com

Client

Working on behalf of
**highways
england**

Project Title **A1 BIRTLEY TO COALHOUSE**

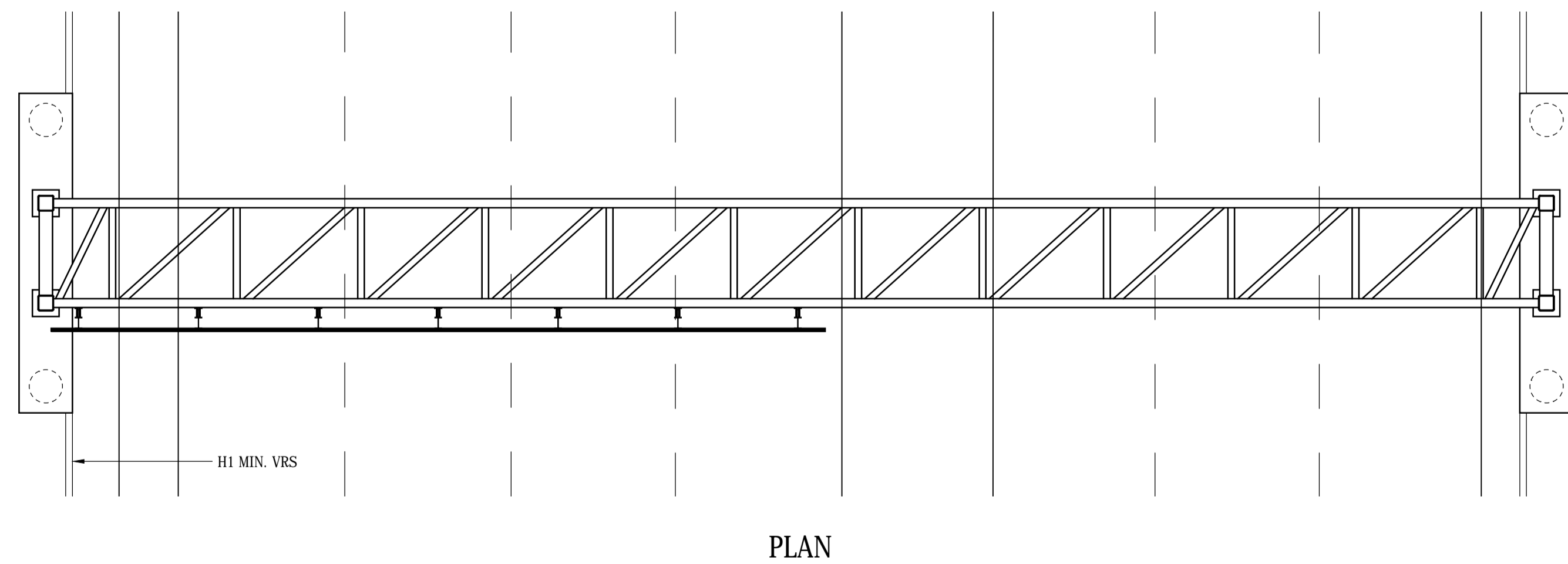
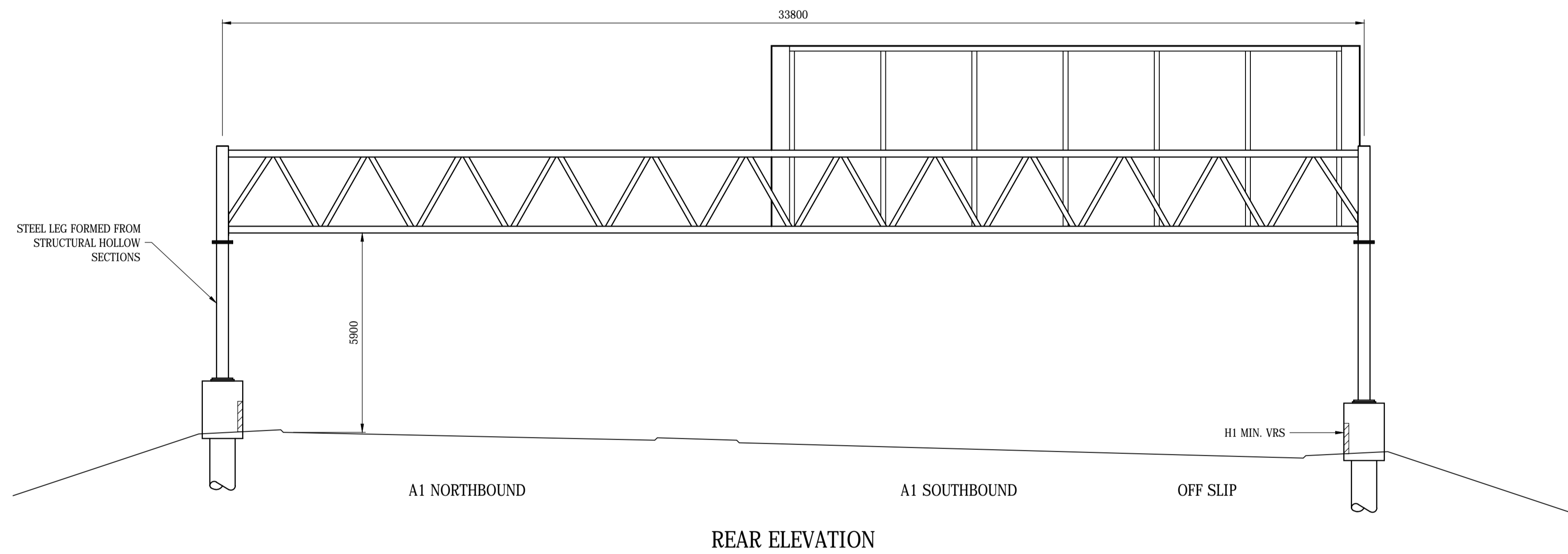
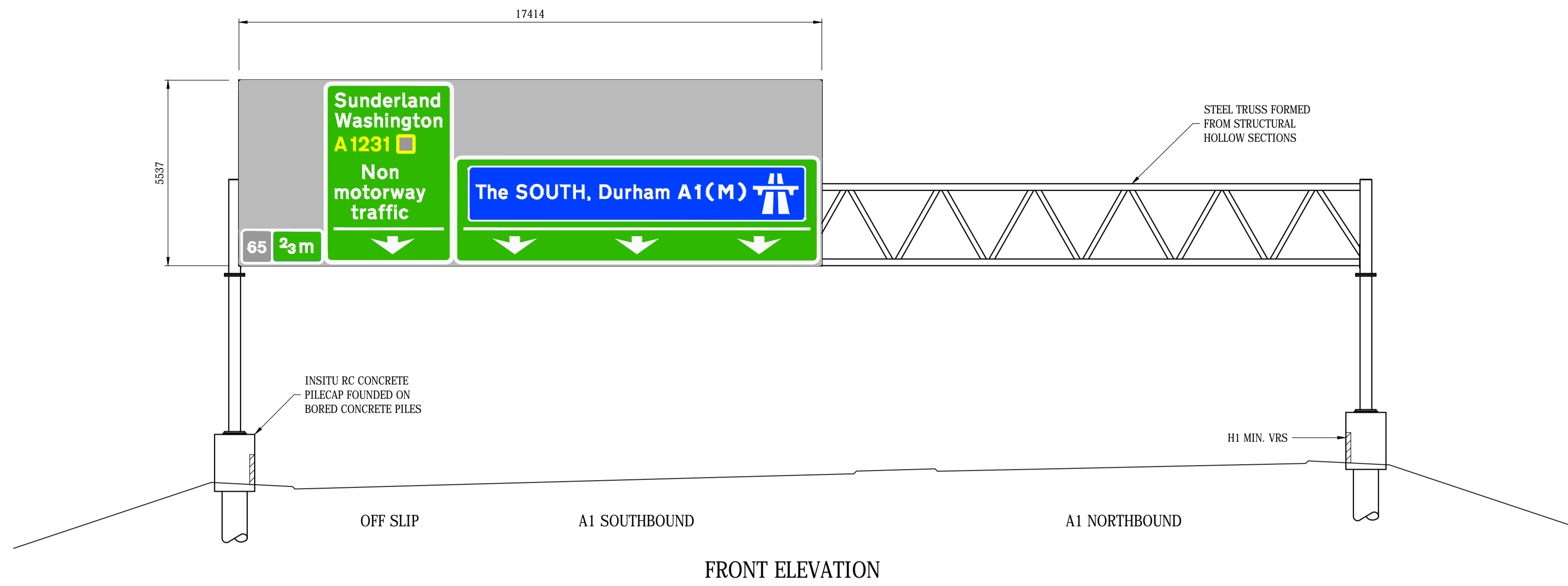
Drawing Title **GANTRY SG004
INDICATIVE ARRANGEMENT**

Scale	Drawn	Checked	Approved	Authorised
1:100	SB	---	SJB	---
Original Size	Date	Date	Date	Date
	Nov 2017	---	Nov 2017	---

Drawing Status **PRELIMINARY** Suitability **S0**

Drawing Number	Project	Originator	Volume	Project Ref. No.
HE551462	RAM	SGY		
SG004	SK	CB	0001	Revision
	Location	Type	Role	Number
				P01.1

DO NOT SCALE



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
-------	----------	-------------	----	-----	-----

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com

Client

Working on behalf of
**highways
england**

Project Title
A1 BIRTLEY TO COALHOUSE

Drawing Title
**GANTRY SG005
INDICATIVE ARRANGEMENT**

Scale	1:100	Drawn	SB	Checked	---	Approved	SJB	Authorised	---
Original Size	Date	Nov 2017	Date	---	Date	Nov 2017	Date	---	---

Drawing Status
PRELIMINARY

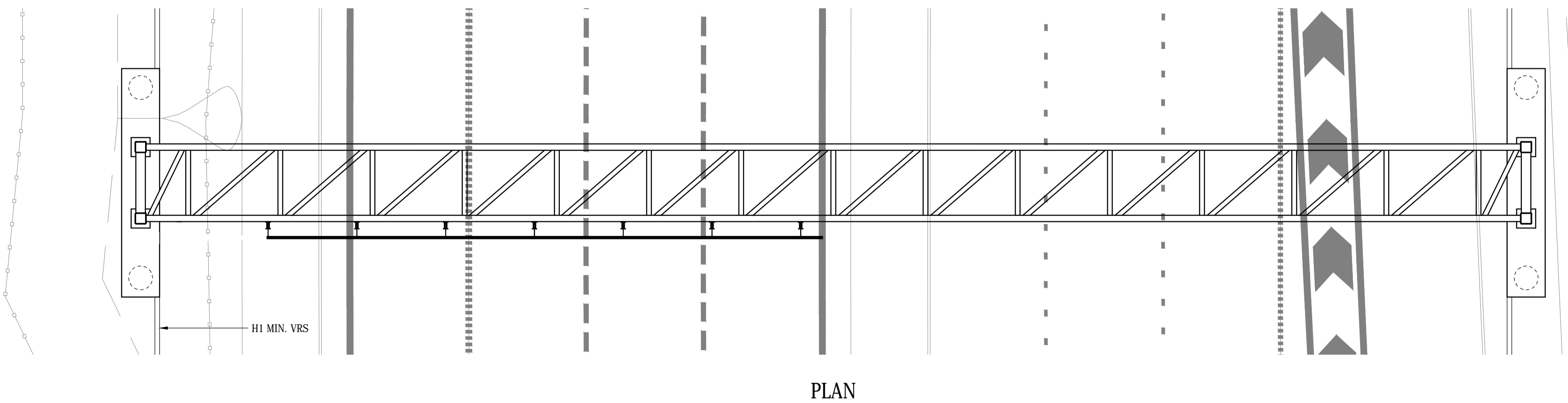
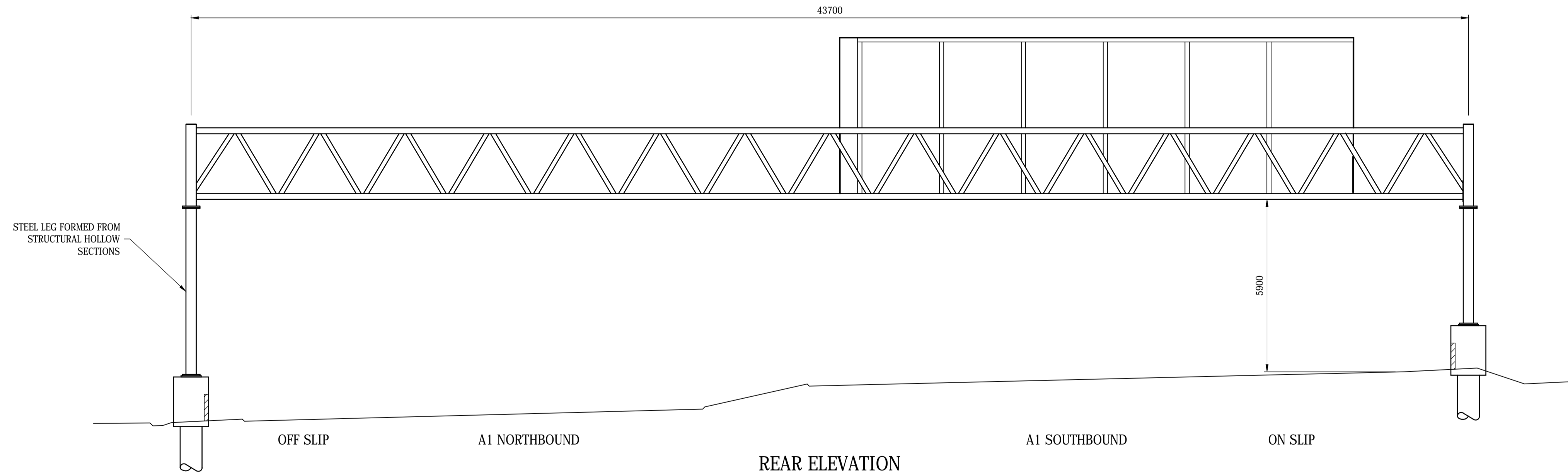
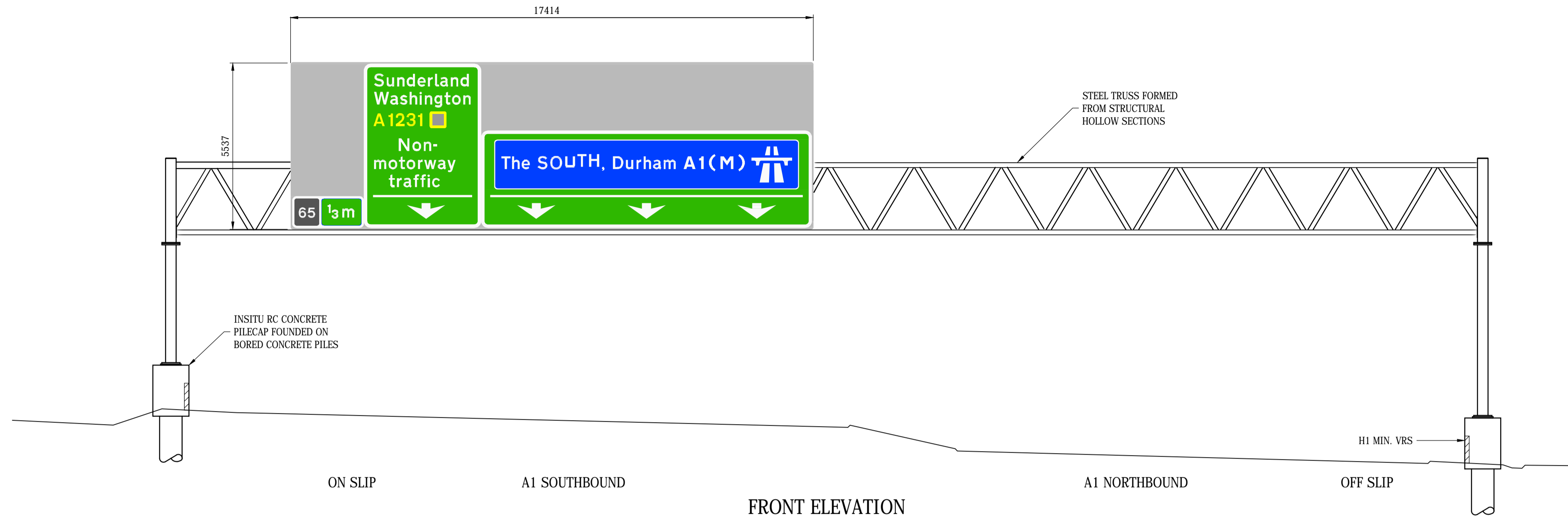
Suitability
S0

Project	HE551462	Originator	RAM	Volume	SGY	Project Ref. No.	
Location	SG005	Type	SK	Role	CB	Number	0001
Revision							P01.1

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

DO NOT SCALE



P01.1	05/12/17	PRELIMINARY	SB	---	SJB
Rev.	Date	Description	By	Chk'd	App'd

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+44 (0) 113 395 6200, F+44 (0) 113 395 6201
wsp.com

Client

Working on behalf of

**highways
england**

Project Title

A1 BIRTLEY TO COALHOUSE

Drawing Title

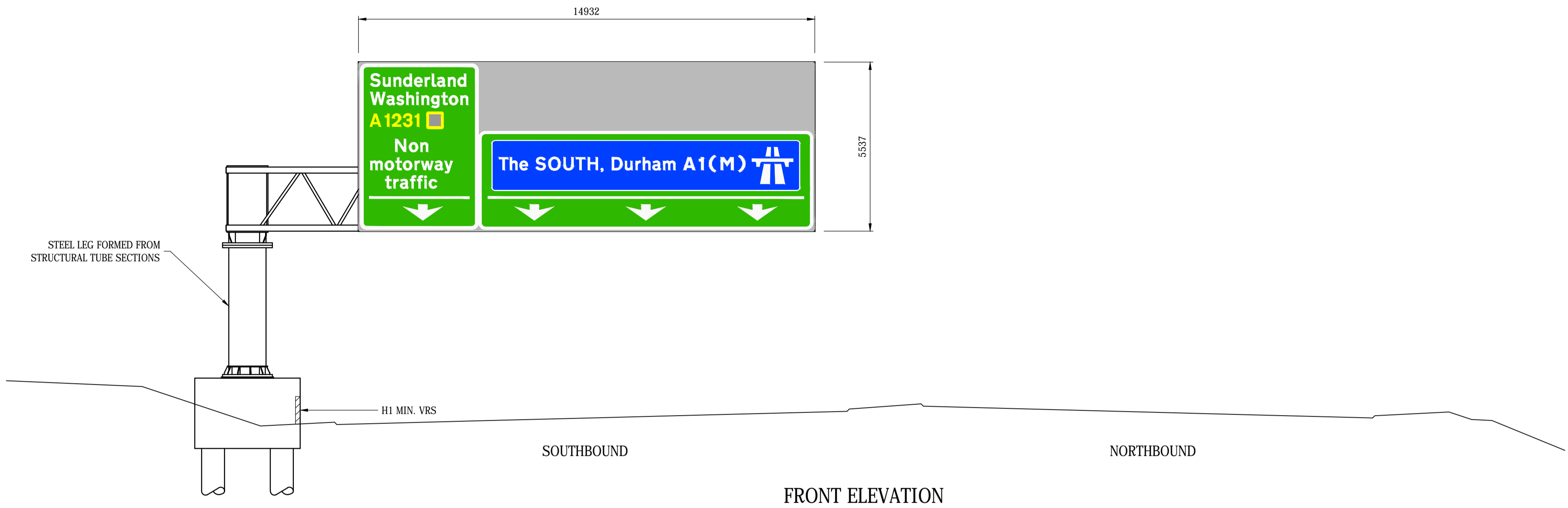
**GANTRY SG006
INDICATIVE ARRANGEMENT**

Scale	1:100	Drawn	SB	Checked	---	Approved	SJB	Authorised	---	
Original Size	Date	Date	---	Date	Nov 2017	Date	---	Date	---	
Drawing Status	PRELIMINARY								Suitability	S0
Drawing Number	HE551462	Project	SG006	Originator	RAM	Volume	SGY	Project Ref. No.		
Location	SK	Type	CB	Role	0001	Number		Revision	P01.1	

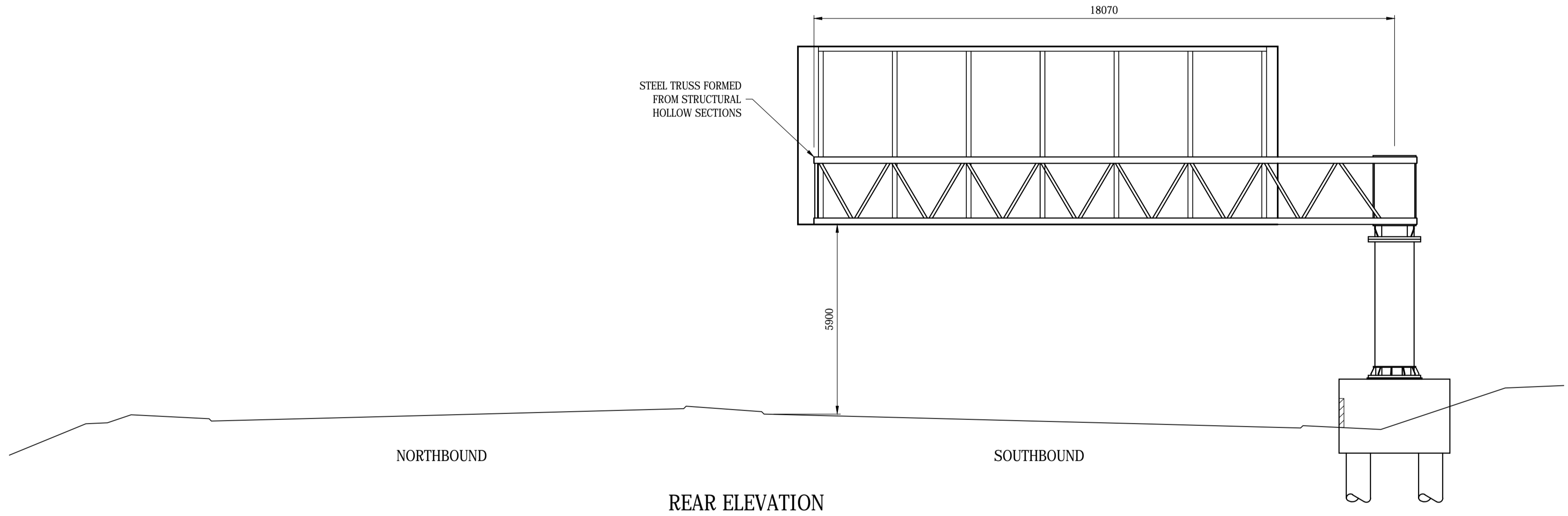
DO NOT SCALE

Millimetres

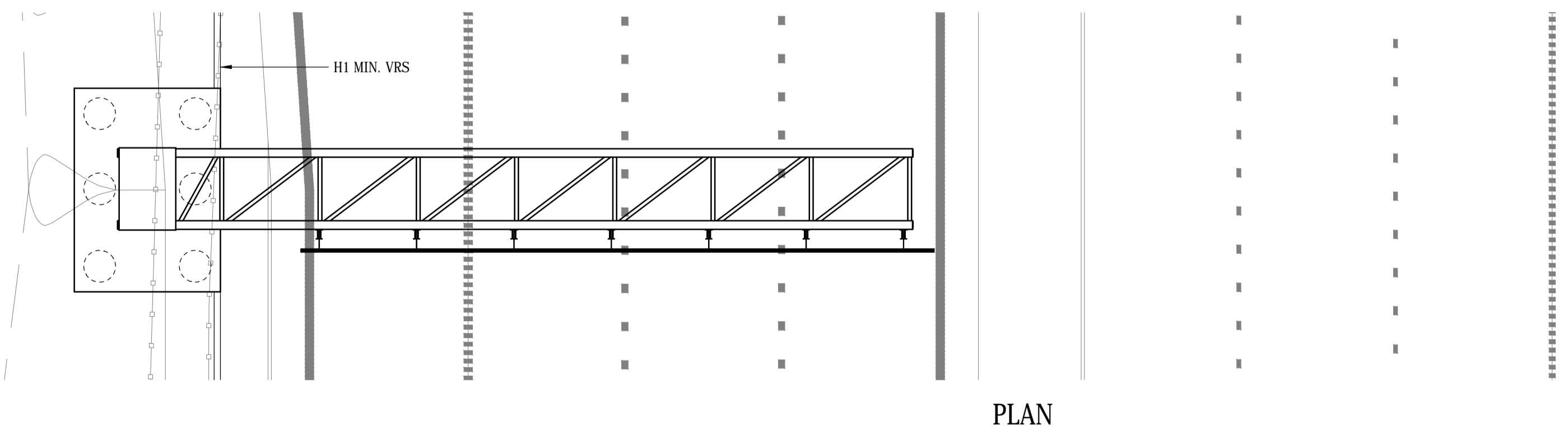
0 10



FRONT ELEVATION



REAR ELEVATION



PLAN

- NOTES**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
 4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
 5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB



Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com

Client

Working on behalf of

Project Title
A1 BIRTLEY TO COALHOUSE

Drawing Title
GANTRY SG007
INDICATIVE ARRANGEMENT

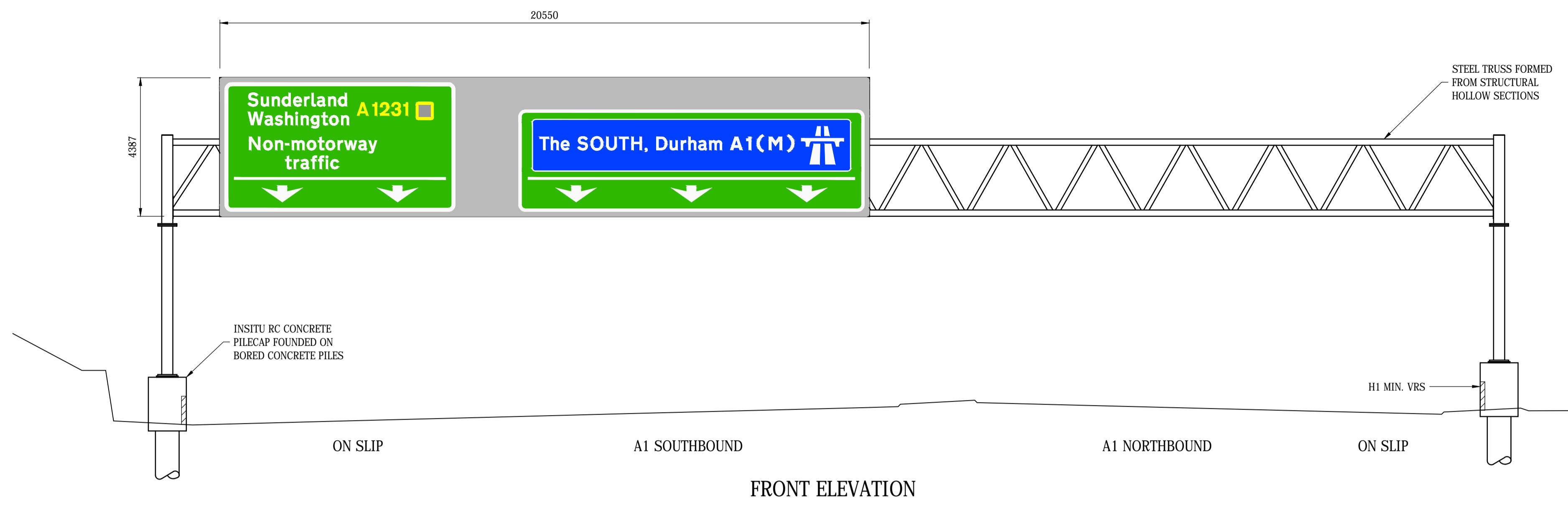
Scale	Drawn	Checked	Approved	Authorised
1:100	ACL	---	SJB	---
Original Size	Date	Date	Date	Date
Nov 2017	---	Nov 2017	---	---

Drawing Status
PRELIMINARY
Suitability
S0

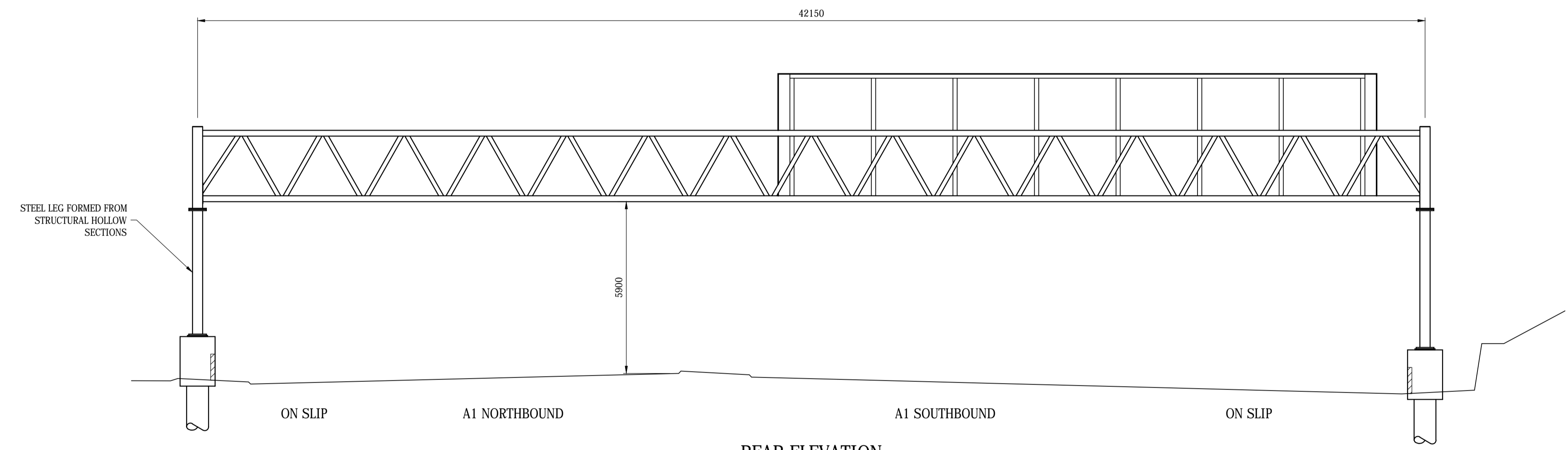
Drawing Number	Project	Originator	Volume	Project Ref. No.
HE551462	RAM	SGY	---	---
Location	Type	Role	Number	Revision
SG007	SK	CB	0001	P01.1

DO NOT SCALE

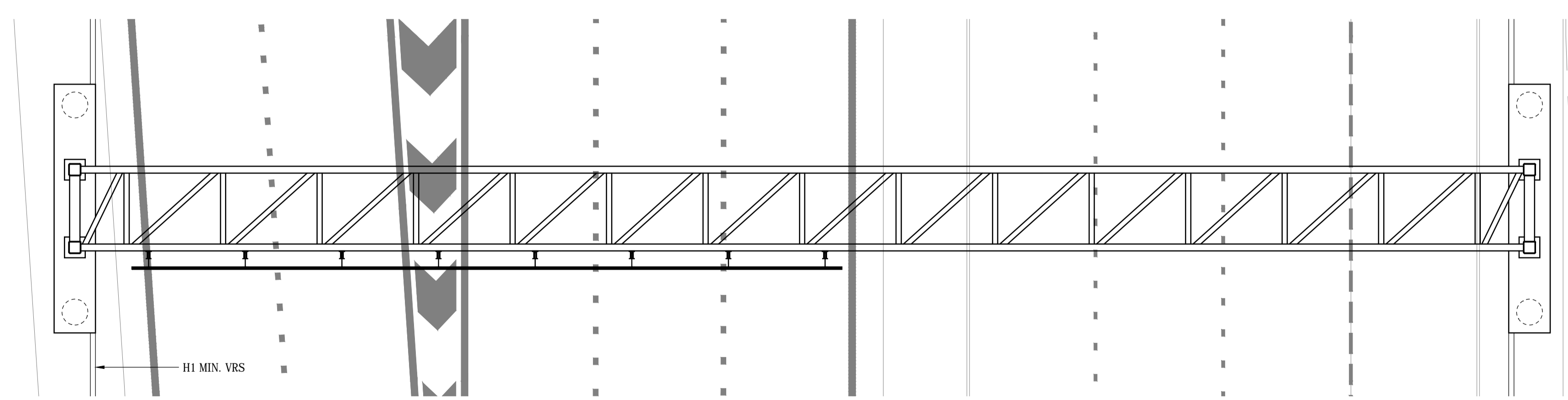
Millimetres
0 10 100



FRONT ELEVATION



REAR ELEVATION



PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chkd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
-------	----------	-------------	----	-----	-----

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com

Working on behalf of

**highways
england**

Project Title **A1 BIRTLEY TO COALHOUSE**

Drawing Title **GANTRY SG008
INDICATIVE ARRANGEMENT**

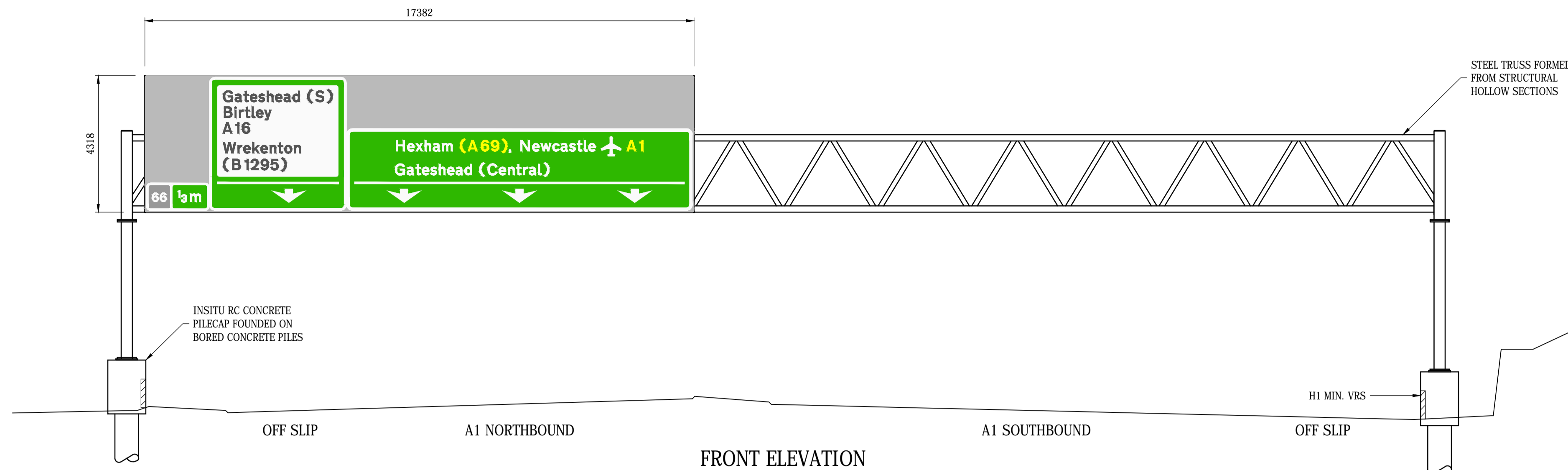
Scale	1:100	Drawn	SB	Checked	---	Approved	SJB	Authorised	---
Original Size	Date	Nov 2017	Date	---	Date	Nov 2017	Date	---	---

Drawing Status **PRELIMINARY** Suitability **S0**

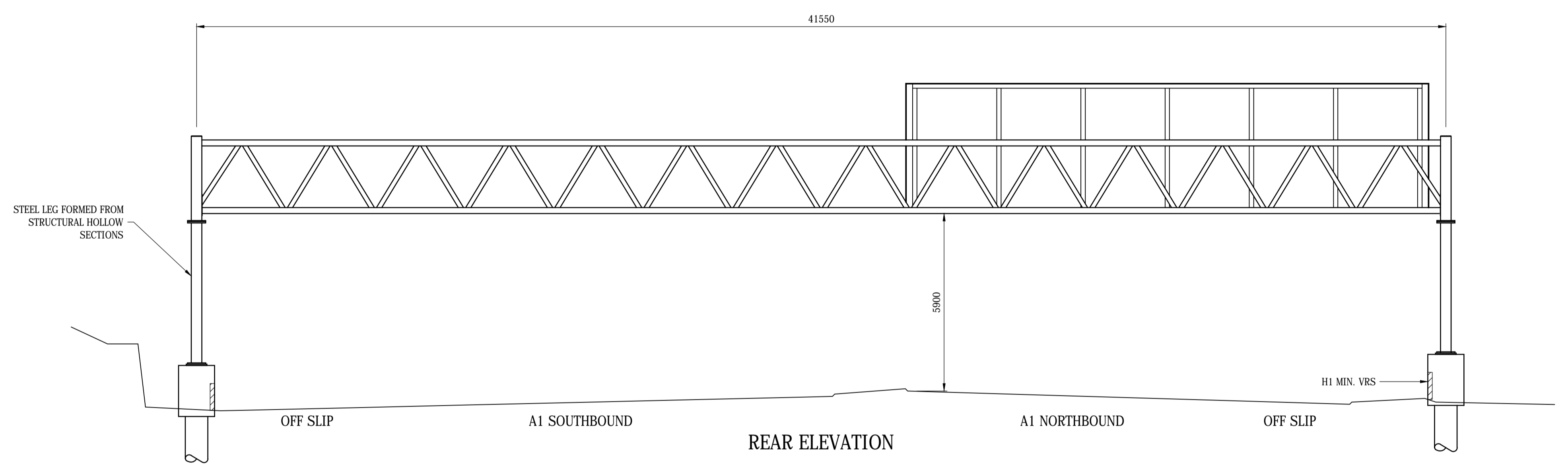
Project	HE551462	Originator	RAM	Volume	SGY	Project Ref. No.	
Location	SG008	Type	SK	Role	CB	Number	0001
							P01.1

DO NOT SCALE

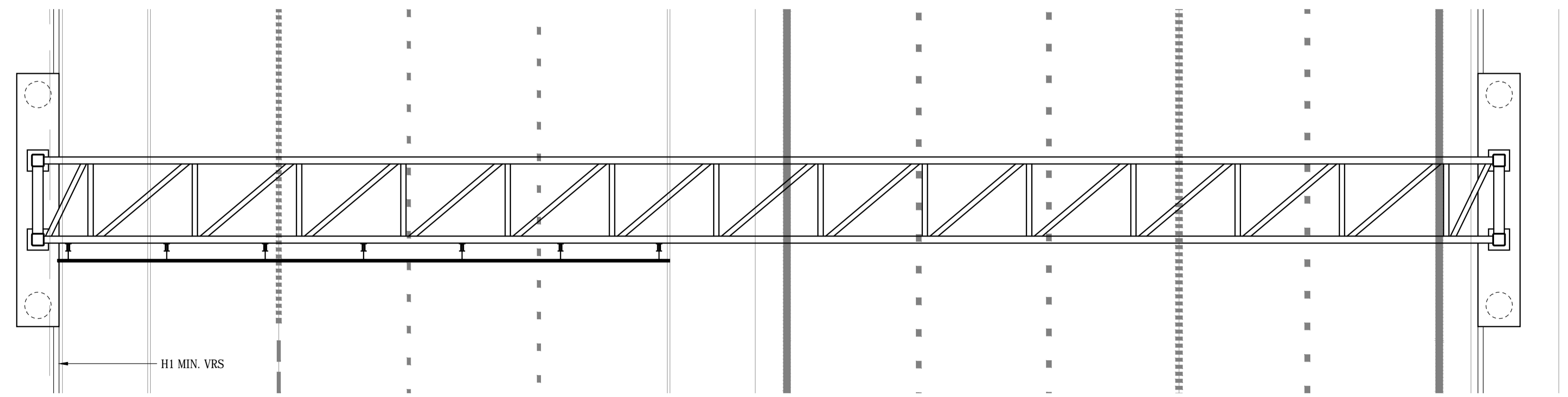
Millimetres
0 10 100



FRONT ELEVATION



REAR ELEVATION



PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
-------	----------	-------------	----	-----	-----

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com

Client
Working on behalf of
highways
england

Project Title
A1 BIRTLEY TO COALHOUSE

Drawing Title
GANTRY SG009
INDICATIVE ARRANGEMENT

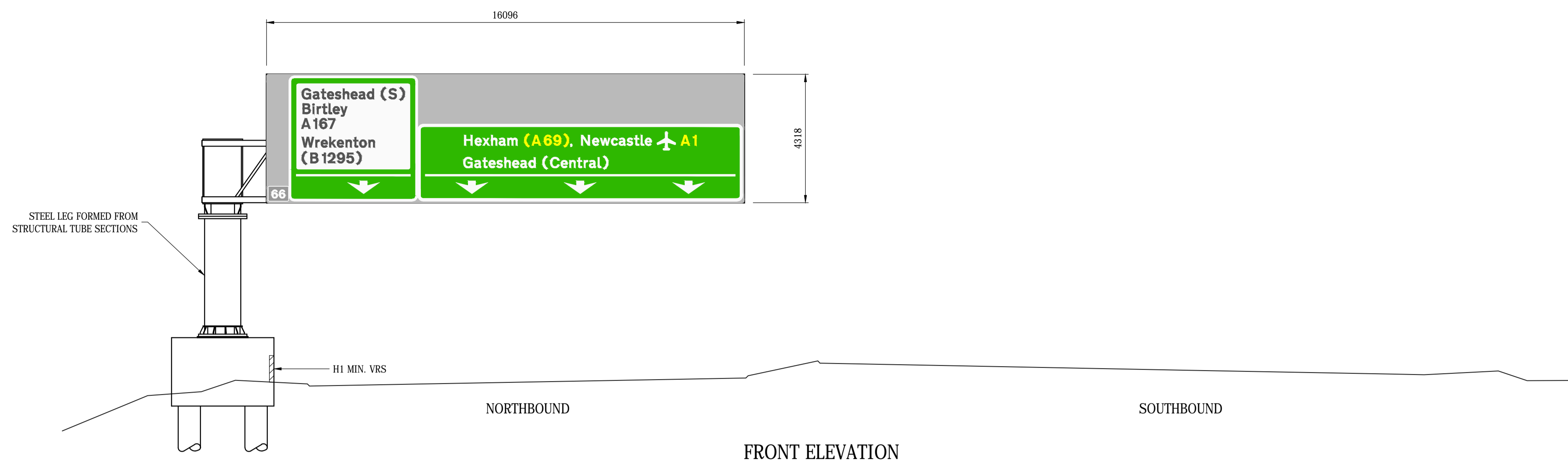
Scale	1:100	Drawn	SB	Checked	---	Approved	SJB	Authorised	---
Original Size	Date	Date	Date	Date	Date	Date	Date	Date	Date
	Nov 2017	---	Nov 2017	---	Nov 2017	---	Nov 2017	---	---

Drawing Status
PRELIMINARY

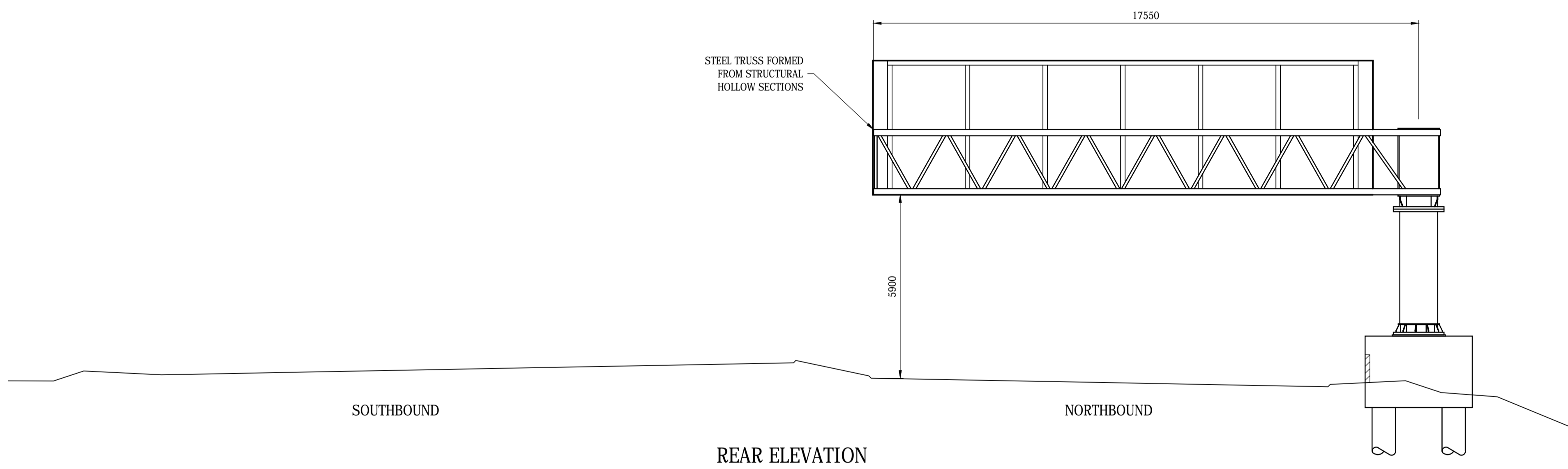
Suitability
S0

Drawing Number	Project	Originator	Volume	Project Ref. No.
HE551462	RAM	SGY		
SG009	SK	CB	0001	Revision
Location	Type	Role	Number	
				P01.1

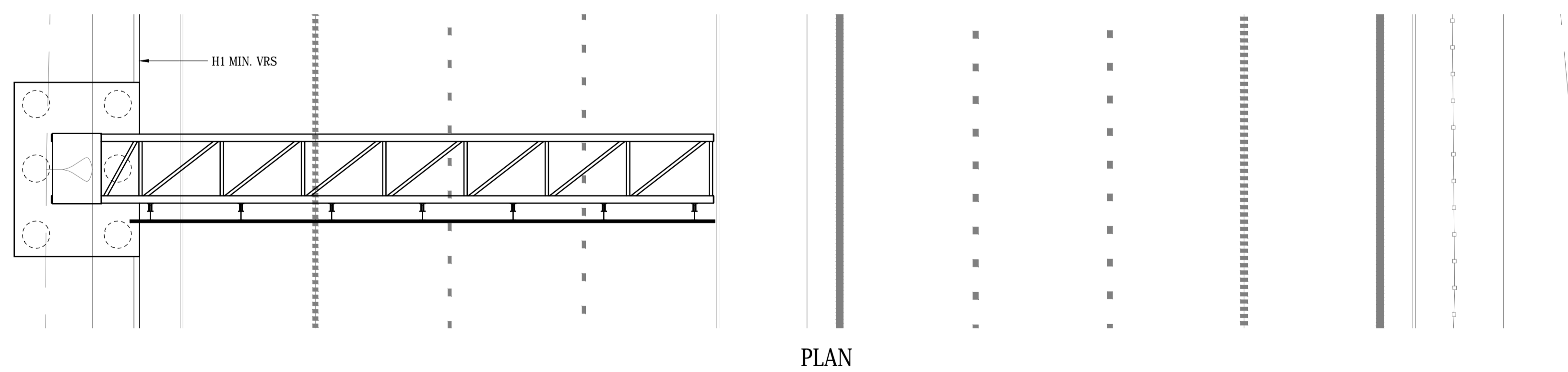
DO NOT SCALE



FRONT ELEVATION



REAR ELEVATION



PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
-------	----------	-------------	----	-----	-----



Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com



Project Title: A1 BIRTLEY TO COALHOUSE

Drawing Title: GANTRY SG010
INDICATIVE ARRANGEMENT

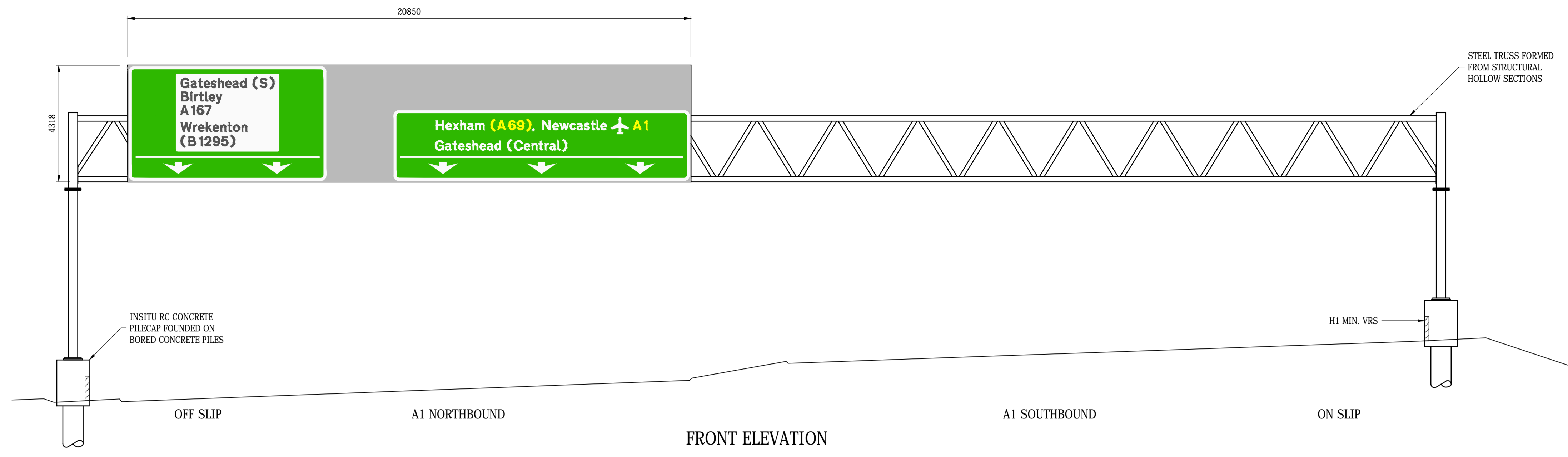
Scale	1:100	Drawn	ACL	Checked	---	Approved	SJB	Authorised	---
Original Size	Date	Nov 2017	Date	---	Date	Nov 2017	Date	---	Date

Drawing Status	PRELIMINARY	Suitability	S0
----------------	-------------	-------------	----

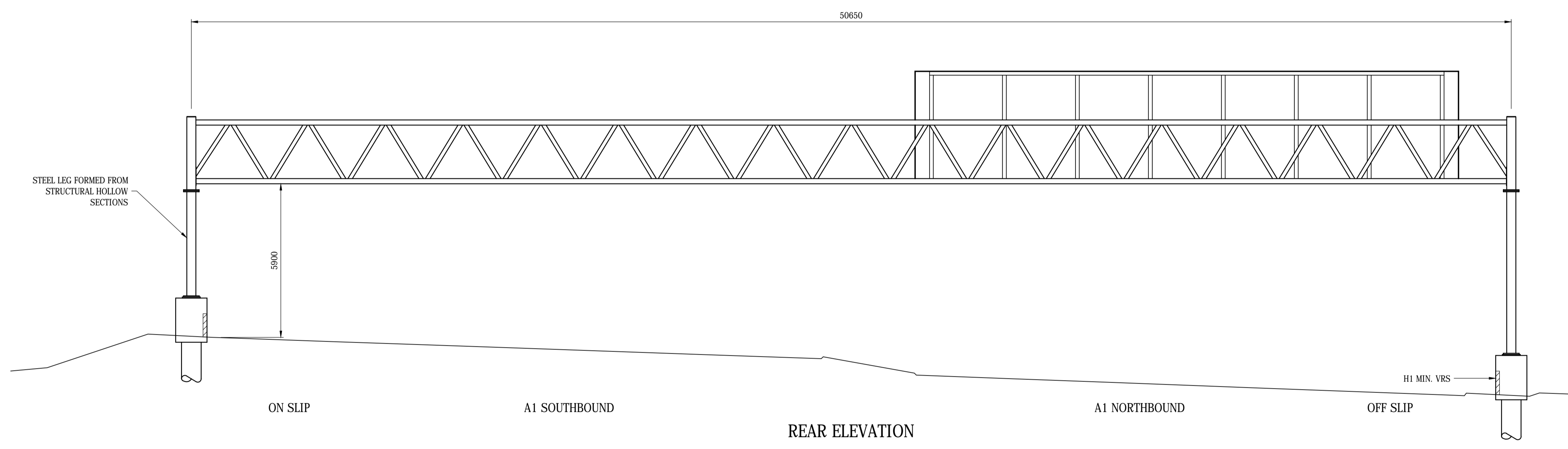
Drawing Number	Project	HE551462	Originator	RAM	Volume	SGY	Project Ref. No.	Revision	P01.1
Location	SG010	Type	SK	Role	CB	Number	0001		

DO NOT SCALE

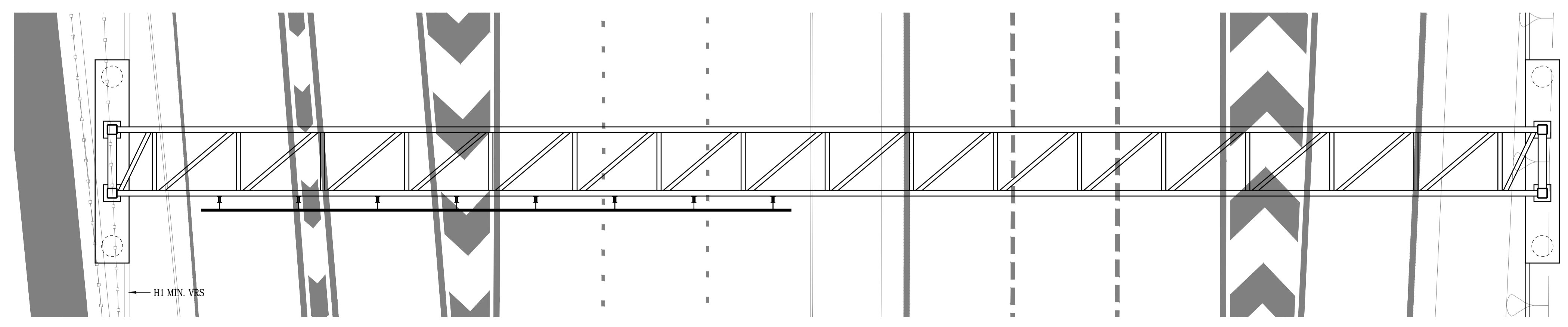
Millimetres
0 10 100



FRONT ELEVATION



REAR ELEVATION



PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
-------	----------	-------------	----	-----	-----

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+44 (0) 113 395 6200, F+44 (0) 113 395 6201
wsp.com

Working on behalf of
**highways
england**

Project Title: **A1 BIRTLEY TO COALHOUSE**

Drawing Title: **GANTRY SG011
INDICATIVE ARRANGEMENT**

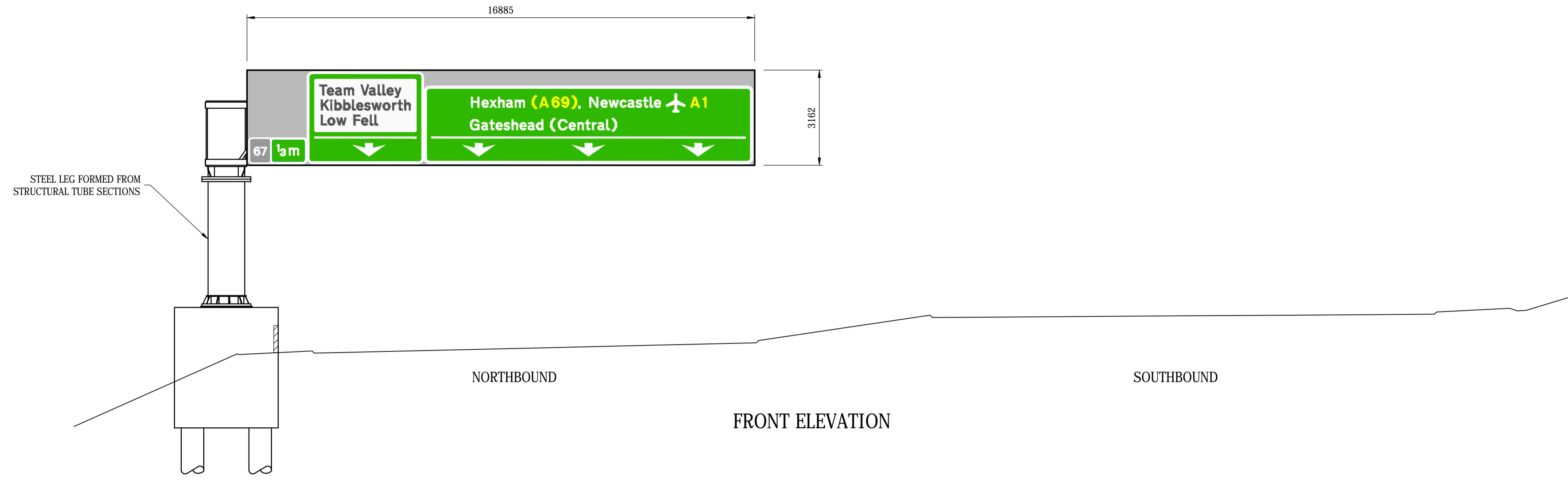
Scale	1:100	Drawn	SB	Checked	---	Approved	SJB	Authorised	---
Original Size	Date	Date	Nov 2017	Date	---	Date	Nov 2017	Date	---

Drawing Status: **PRELIMINARY** Suitability: **S0**

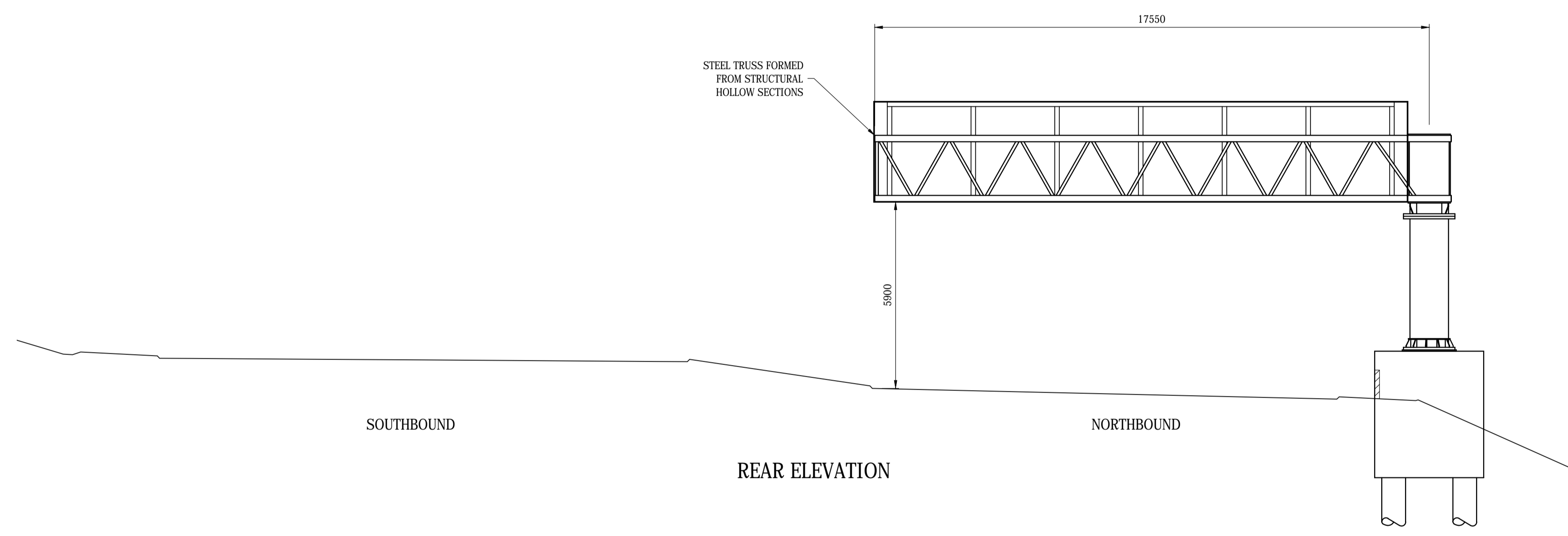
Project	HE551462	Originator	RAM	Volume	SGY	Project Ref. No.	
Location	SG011	Type	SK	Role	CB	Number	0001
							P01.1

DO NOT SCALE

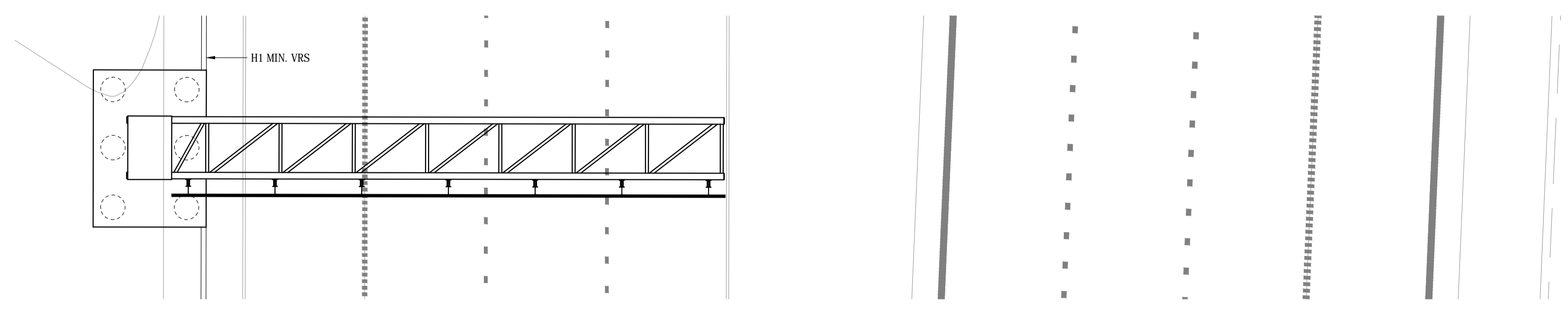
Millimetres
0 10 100



FRONT ELEVATION



REAR ELEVATION



PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
Rev.	Date	Description	By	Chk'd	App'd

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
-------	----------	-------------	----	-----	-----

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com

Client

Working on behalf of
**highways
england**

Project Title **A1 BIRTLEY TO COALHOUSE**

Drawing Title **GANTRY SG012
INDICATIVE ARRANGEMENT**

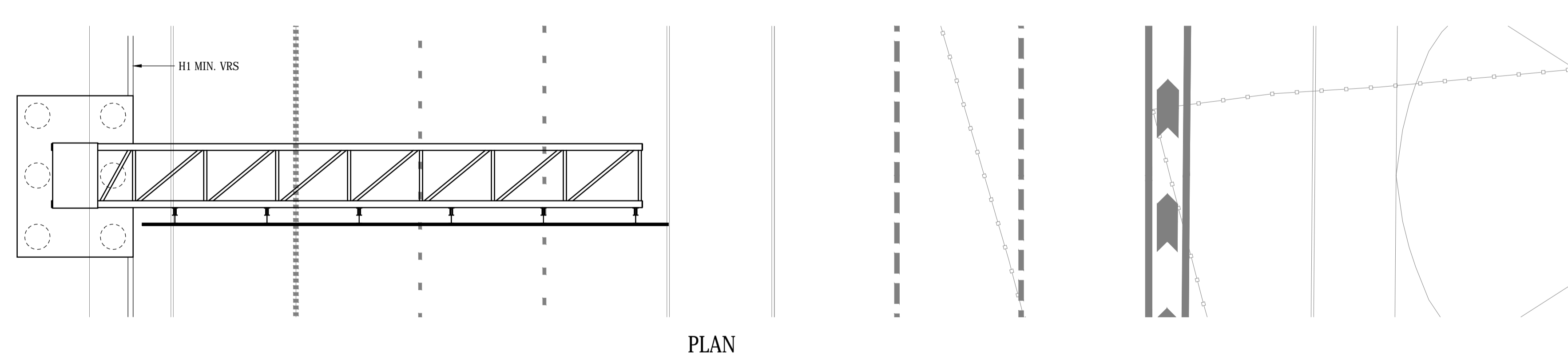
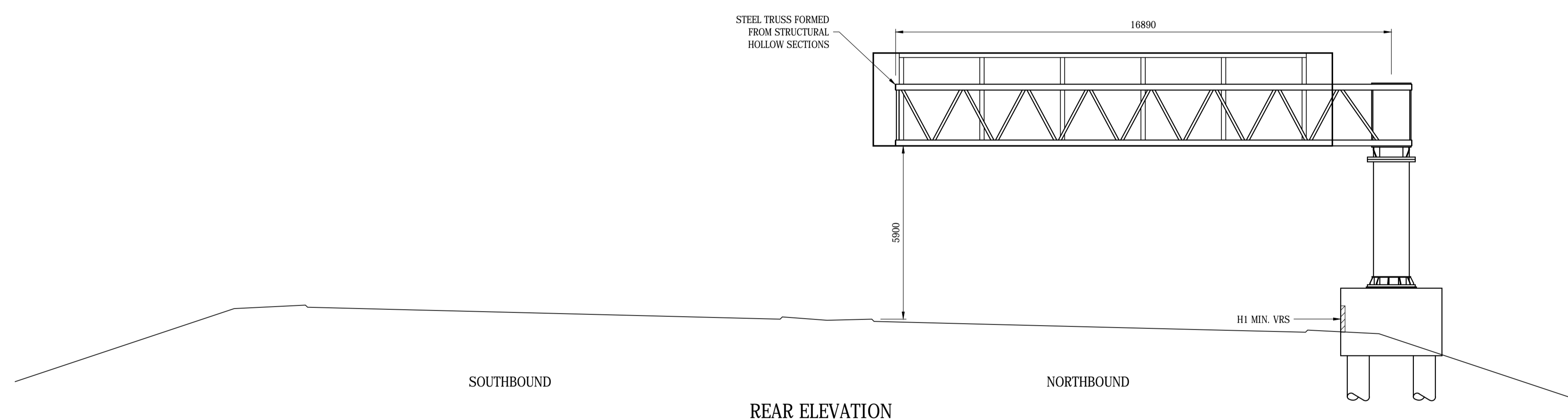
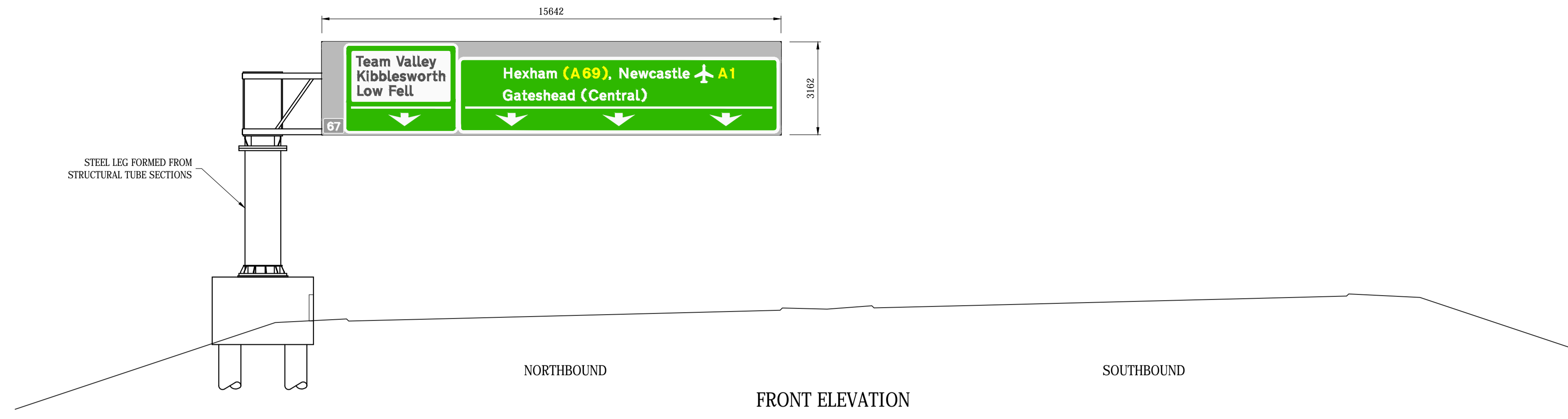
Scale	Drawn	Checked	Approved	Authorised
1:100	ACL	---	SJB	---
Original Size	Date	Date	Date	Date
	Nov 2017	---	Nov 2017	---

Drawing Status **PRELIMINARY** Suitability **S0**

Project	Originator	Volume	Project Ref. No.
HE551462	RAM	SGY	
Location	Type	Role	Number
SG012	SK	CB	0001
			P01.1

DO NOT SCALE

Millimetres
0 10 100



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
Rev.	Date	Description	By	Chk'd	App'd

P01.1	05/12/17	PRELIMINARY	SB	---	SJB
-------	----------	-------------	----	-----	-----

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+ 44 (0) 113 395 6200, F+ 44 (0) 113 395 6201
wsp.com

Client

Working on behalf of
**highways
england**

Project Title **A1 BIRTLEY TO COALHOUSE**

Drawing Title **GANTRY SG013
INDICATIVE ARRANGEMENT**

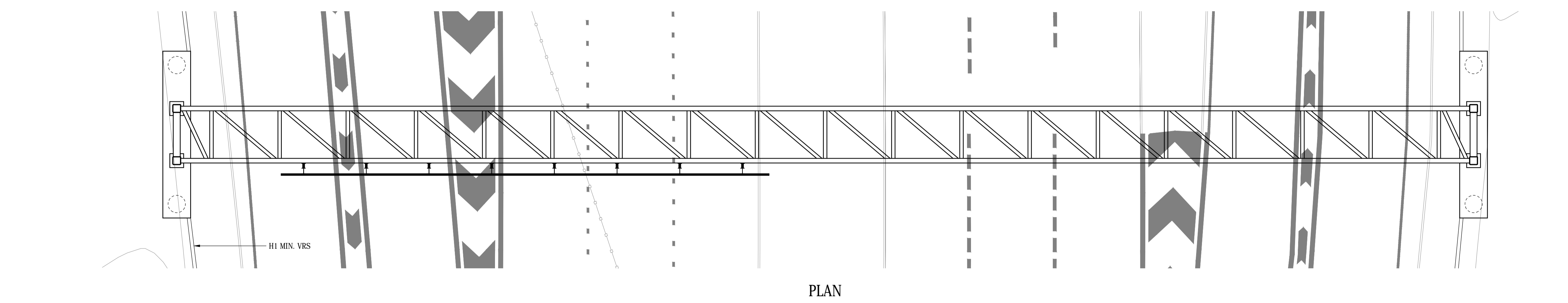
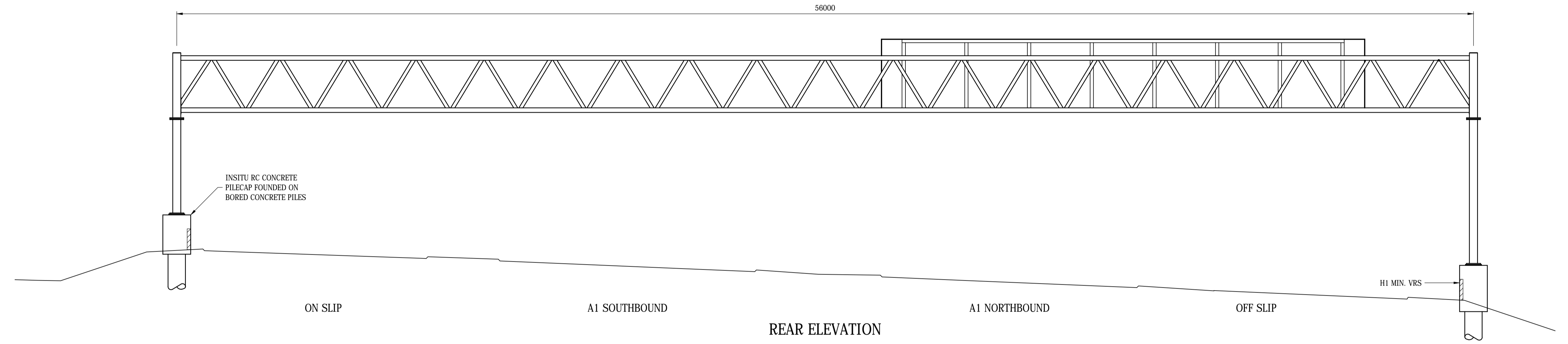
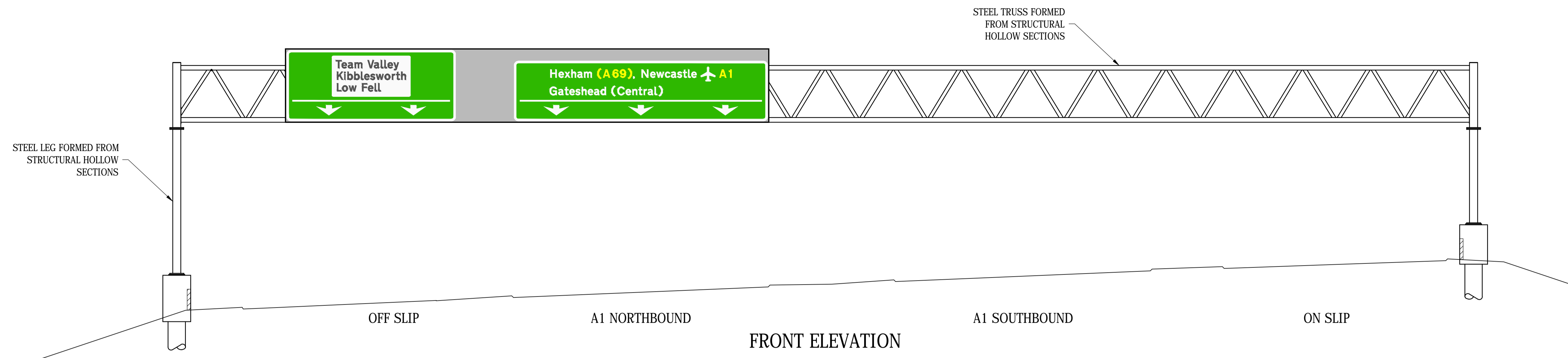
Scale	1:100	Drawn	SB	Checked	---	Approved	SJB	Authorised	---
Original Size	Date	Date	---	Date	Nov 2017	Date	---	Date	---

Drawing Status **PRELIMINARY** Suitability **S0**

Drawing Number	Project	Originator	Volume	Project Ref. No.
HE551462	RAM	SGY		
SG013	SK	CB	0001	Revision
Location	Type	Role	Number	P01.1

DO NOT SCALE

Millimetres
0 10 100



FRONT ELEVATION

REAR ELEVATION

PLAN

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATED TO SITE DATUM UNLESS NOTED OTHERWISE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT CONTRACT DRAWINGS.
4. THE GANTRY DESIGN IS THE COPYRIGHT OF RAMBOLL AND USE OF THIS DESIGN IS LICENSED FOR THE PURPOSES OF CONSTRUCTION FOR THE LICENSED PROJECTS ONLY.
5. THE GANTRY ARRANGEMENTS SHOWN ARE INDICATIVE AND SUBJECT TO CONFIRMATION AS PART OF THE DETAILED DESIGN PROCESS.

Rev.	Date	Description	By	Chk'd	App'd
P01.1	05/12/17	PRELIMINARY	SB	---	SJB

wsp

Three White Rose Office Park, Millshaw Park Lane, Leeds, LS11 0DL, UK
T+44 (0) 113 395 6200, F+44 (0) 113 395 6201
wsp.com

Client

Working on behalf of
**highways
england**

Project Title **A1 BIRTLEY TO COALHOUSE**

Drawing Title
**GANTRY SG014
INDICATIVE ARRANGEMENT**

Scale	Drawn	Checked	Approved	Authorised
1:100	SB	---	SJB	---
Original Size	Date	Date	Date	Date
	Nov 2017	---	Nov 2017	---

Drawing Status **PRELIMINARY** Suitability **S0**

Project	Originator	Volume	Project Ref. No.
HE551462	RAM	SGY	
Location	Type	Role	Number
SG014	SK	CB	0001
			P01.1