

M3

Junction 9 Improvement Scheme

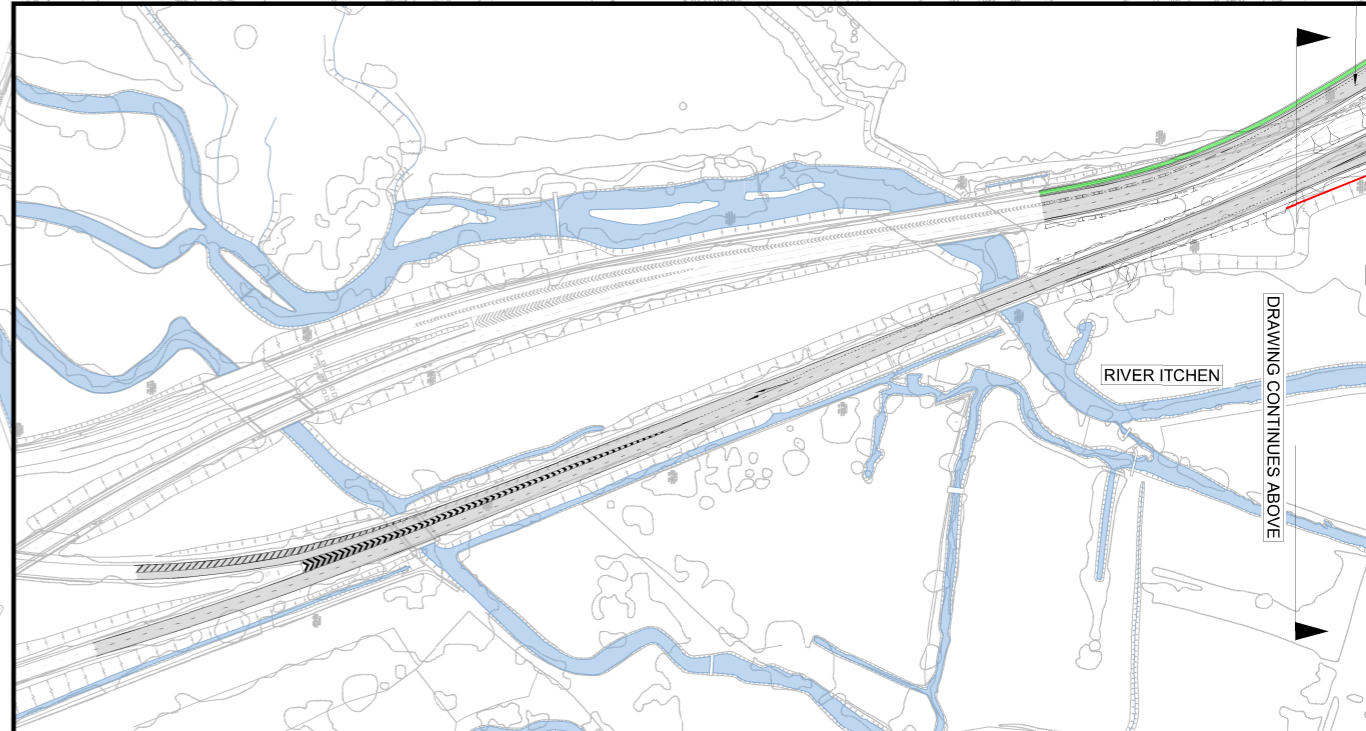
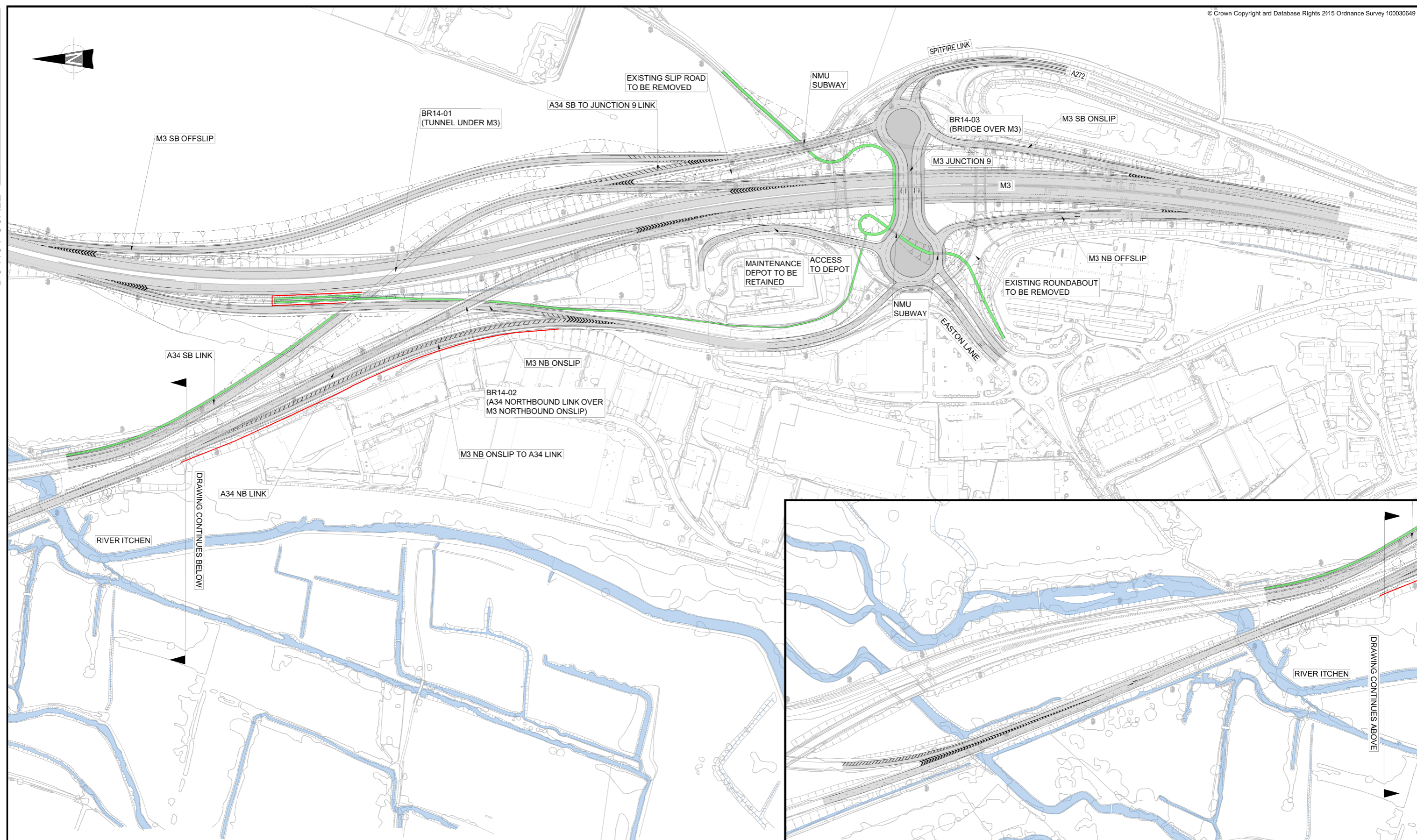
PCF Stage 2 – Scheme Assessment Report

Appendix F

PCF STAGE 2 OPTION DRAWINGS

DO NOT SCALE

Millimetres
0 10 100



NOT FOR CONSTRUCTION
Information shown on this drawing is at the early stages of conceptual development. Therefore, this drawing is for information only. The alignment shown is indicative and is subject to changes.

KEY:

- Proposed Carriageway
- Bridge Deck
- Proposed Non Motorised User Path
- Retaining Wall/ Abutment Wall
- River Itchen

Rev.	Date	Description	By	CHK'd	App'd	
P04	13/10/2017			BL	DR	DB
P03	27/09/2017	Addition of Kingsworth path and road marking changes		BL	DR	DB
P02	01/08/2017	Modification to NE offslip and SB onslips		UA	DR	DB
P01	14/06/2017	For Stage Approval		AT	DR	DB

Client	Project	Location
WSP	HE551511	M3J9PCF2

Drawing Status: **SUITABLE FOR STAGE APPROVAL**

Suitability: **S3**

wsp

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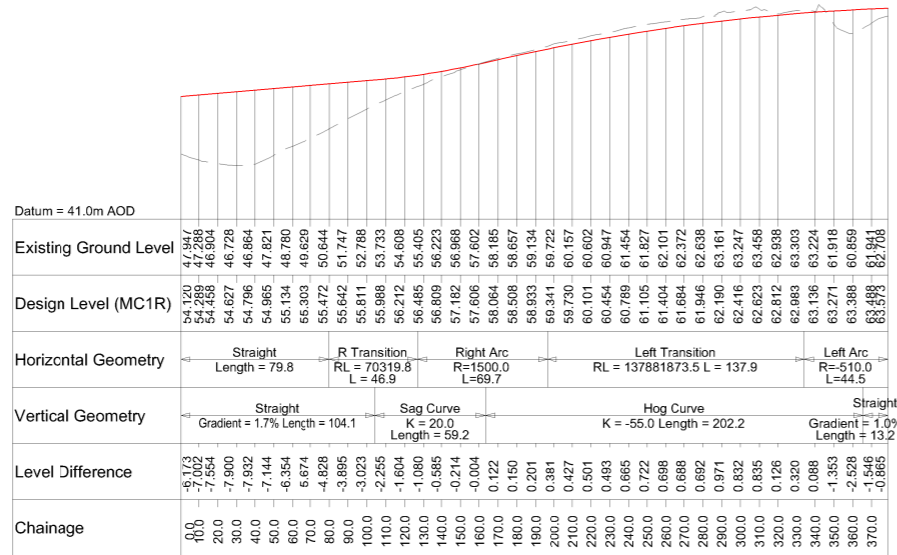
Working on behalf of

highways england

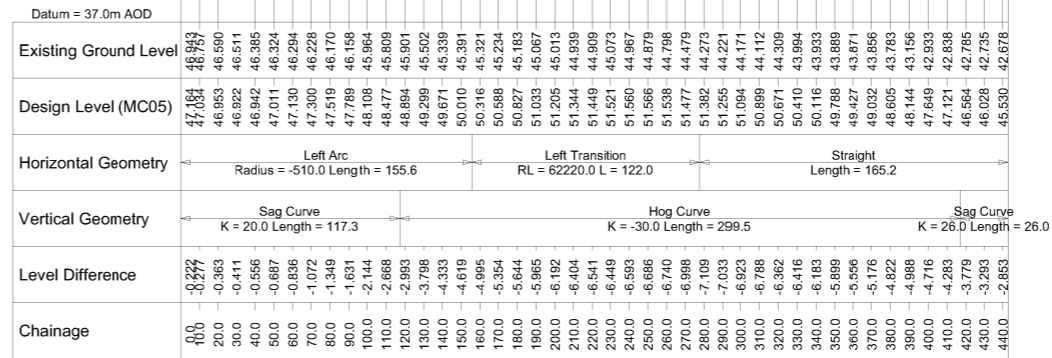
REGIONAL INVESTMENT PROGRAMME M3 JUNCTION 9					
Drawing Title: OPTION 14 SHEET 1 OF 4 100KPH THREE STEP RELAXATION UNDER M3 LAYOUT PLAN					
Scale: 1:2000	Drawn: M.Sahoo	Checked: Dileep R	Approved: D.Brooks	Authorised: ---	
Original Size: A1	Date: 14/06/2017	Date: 14/06/2017	Date: 14/06/2017	Date: ---	
Drawing Number: HE551511	Project: M3J9PCF2	Originator: WSP	Volume: HGN	Project Ref. No: ---	
Location: ---	Type: DR	Role: CH	Number: 10001	Revision: ---	P04

DO NOT SCALE

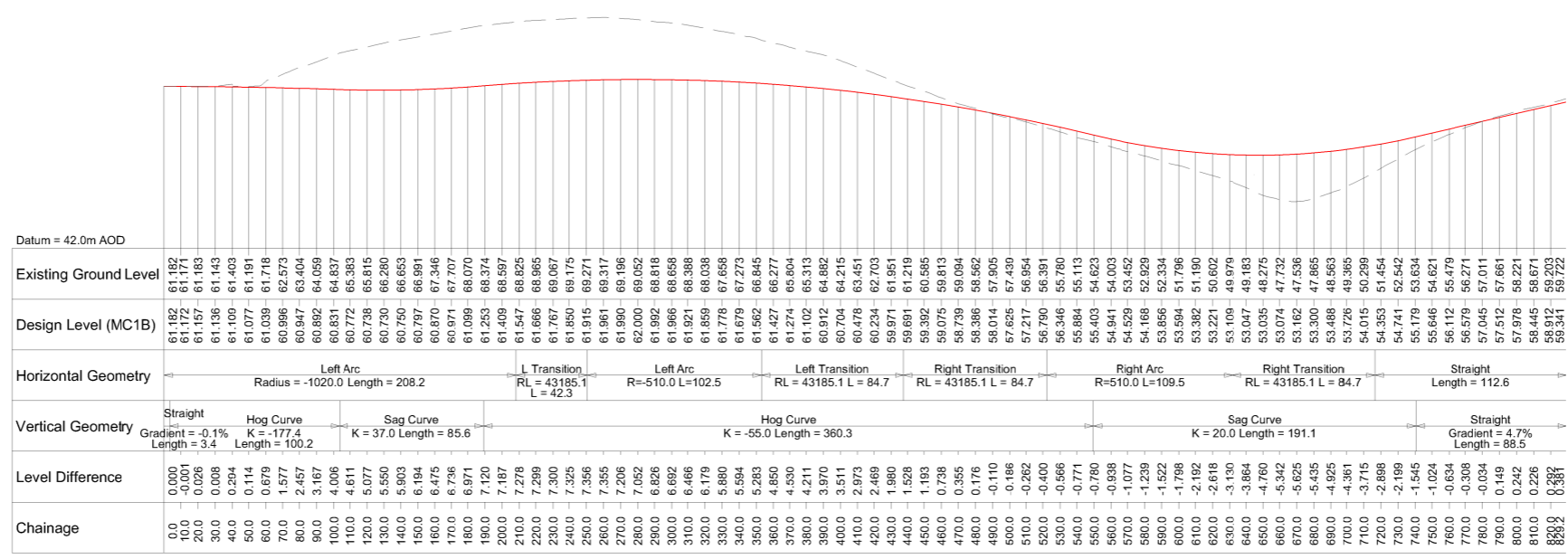
100
0 10
Millimetres



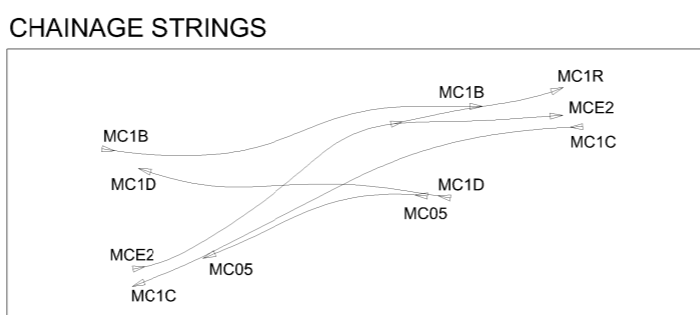
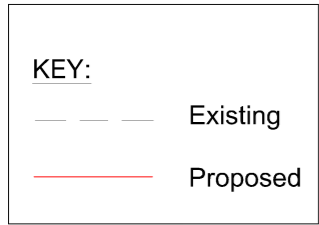
LONGITUDINAL SECTION OF MC1R, PROFILE
Scale: 1:2000 H, 1:400V



LONGITUDINAL SECTION OF A34 LNK ROAD - MC05, PROFILE
Scale: 1:2000 H, 1:400V



LONGITUDINAL SECTION OF MC1B, PROFILE
Scale: 1:2000 H, 1:400V

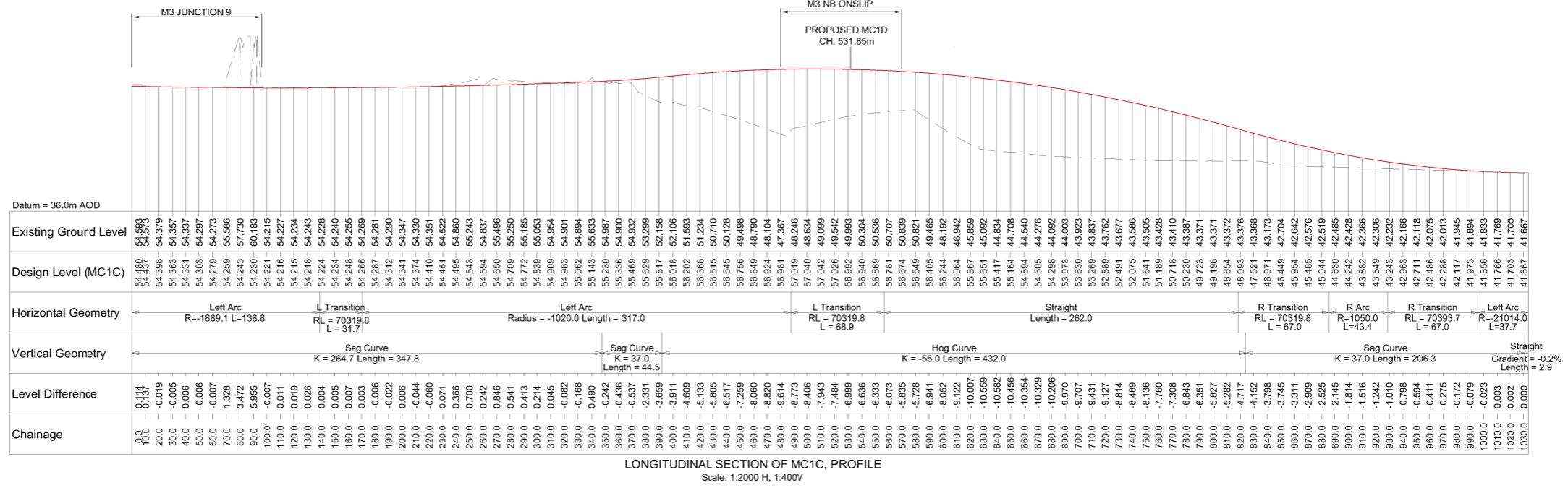


Rev.	Date	Description	By	Chk'd	App'd
P01	20/01/17	FIRST ISSUE			

Drawing Status	Suitability	Project Title
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 4th Floor, 6 Devonshire Square, London, EC2M 4YE, UK T+44 (0) 207 337 1700, F+44 (0) 207 337 1701 wsp.com		
Drawing Title OPTION 14 SHEET 3 OF 4 100KPH THREE STEP RELAXATION UNDER M3 LONGSECTIONS		
Scale	Drawn	Checked
AS SHOWN	M.Sahoo	D.Brooks
Original Size	Date	Date
A1	20/04/17	20/04/17
Drawing Number	Originator	Volume
HE551511	WSP	HGN
Project	Type	Role
M3J9PCF2	DR	CH
Location	Number	Project Ref. No.
	10012	P01.1

DO NOT SCALE

100
Millimetres
0 10

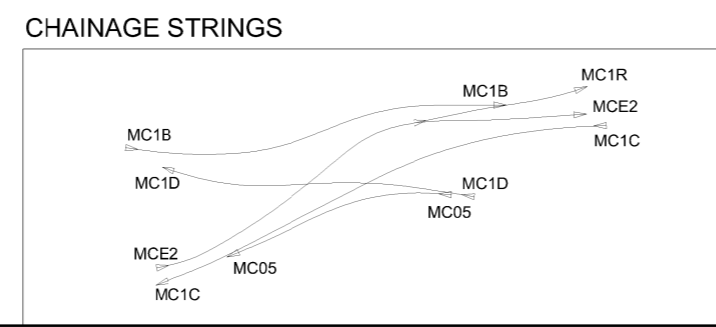


LONGITUDINAL SECTION OF MC1C, PROFILE
Scale: 1:2000 H, 1:400V

KEY:

--- Existing

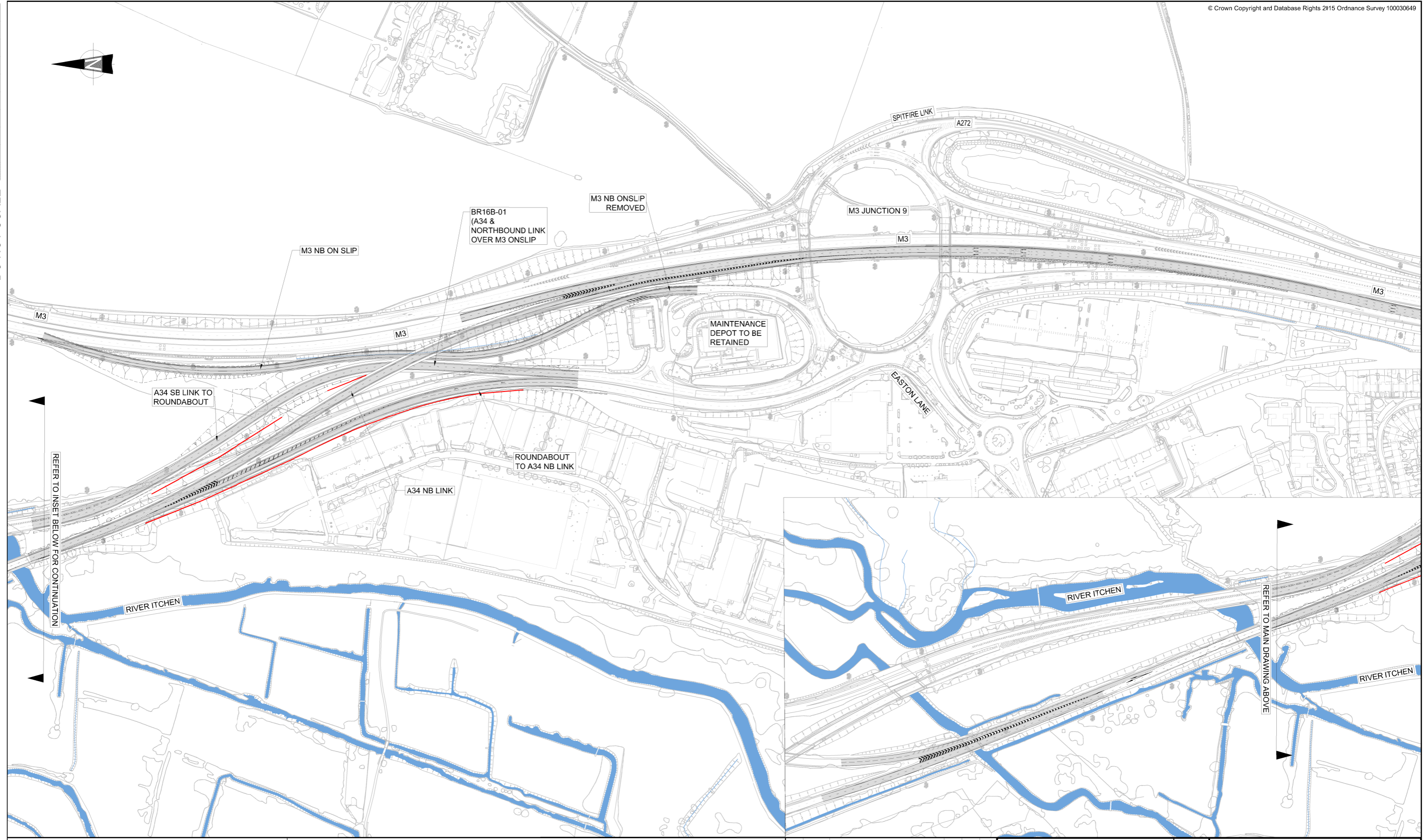
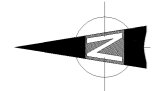
— Proposed



Rev.	Date	Description	By	Chk'd	App'd
P01	20/01/17	FIRST ISSUE			

Drawing Status	Suitability	Project Title		
INITIAL STATUS OR WIP	S0	REGIONAL INVESTMENT PROGRAMME M3 JUNCTION 9		
 4th Floor, 6 Devonshire Square, London, EC2M 4YE, UK T+44 (0) 207 337 1700, F+44 (0) 207 337 1701 wsp.com		Drawing Title		
		OPTION 14 SHEET 4 OF 4 100KPH THREE STEP RELAXATION UNDER M3 LONGSECTIONS		
Client	 Working on behalf of highways england			
Scale	Drawn	Checked	Approved	Authorised
AS SHOWN	M.Sahoo	D.Brooks	D.Brooks	---
Original Size	Date	Date	Date	Date
A1	20/04/17	20/04/17	20/04/17	---
Drawing Number	Originator	Volume	Project Ref. No.	
HE551511	WSP	HGN	---	
M3J9PCF2	DR	CH	10013	P01.1
Location	Type	Role	Number	Revision

DO NOT SCALE
 Millimetres
 0 10 100



REFER TO INSET BELOW FOR CONTINUATION

REFER TO MAIN DRAWING ABOVE

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KEY:

- Proposed Carriageway
- Bridge Deck
- Retaining Wall/ Abutment Wall
- River Itchen

Rev.	Date	Description	By	CHK'd	App'd
P03	13/10/2017		BL	DR	DB
P02	01/08/2017	Modification to NB onslip	UA	DR	DB
P01	14/06/2017	For Stage Approval	AT	DR	DB

Drawing Status		Suitability		Project Title	
SUITABLE FOR STAGE APPROVAL		S3		REGIONAL INVESTMENT PROGRAMME M3 JUNCTION 9	

wsp

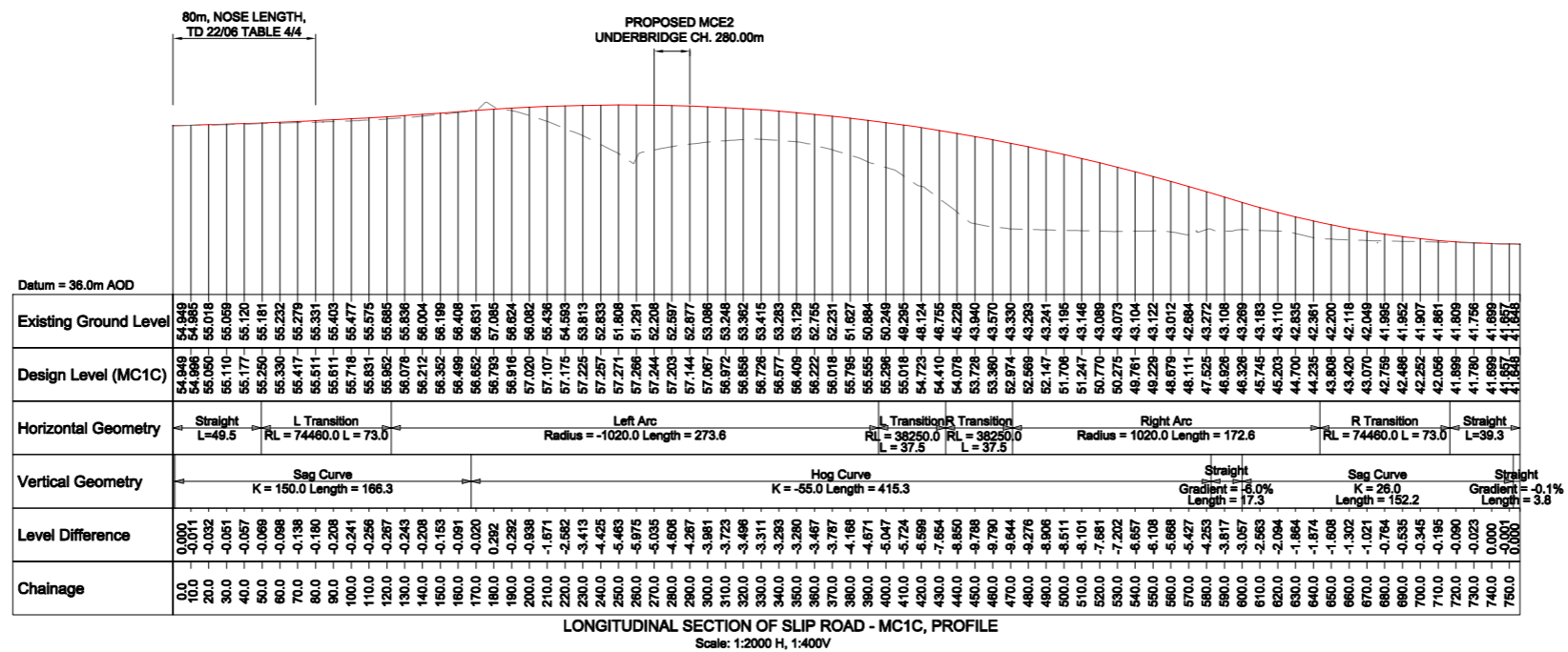
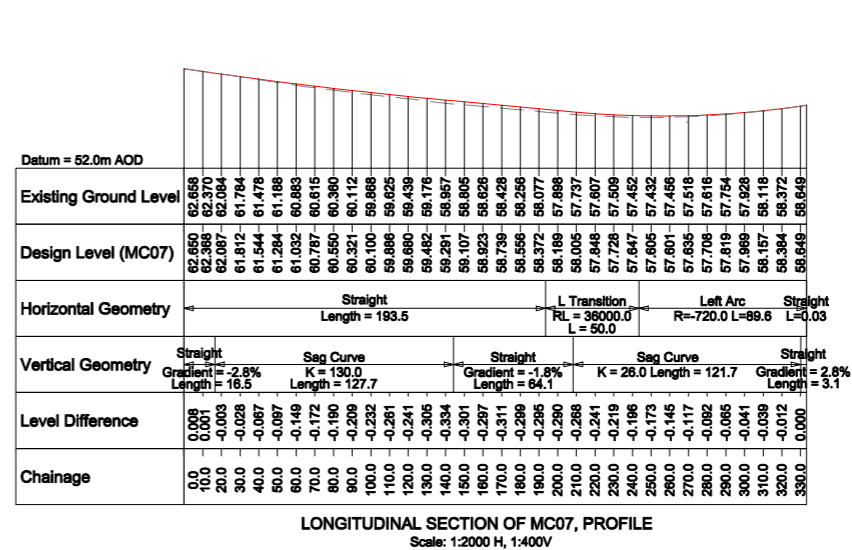
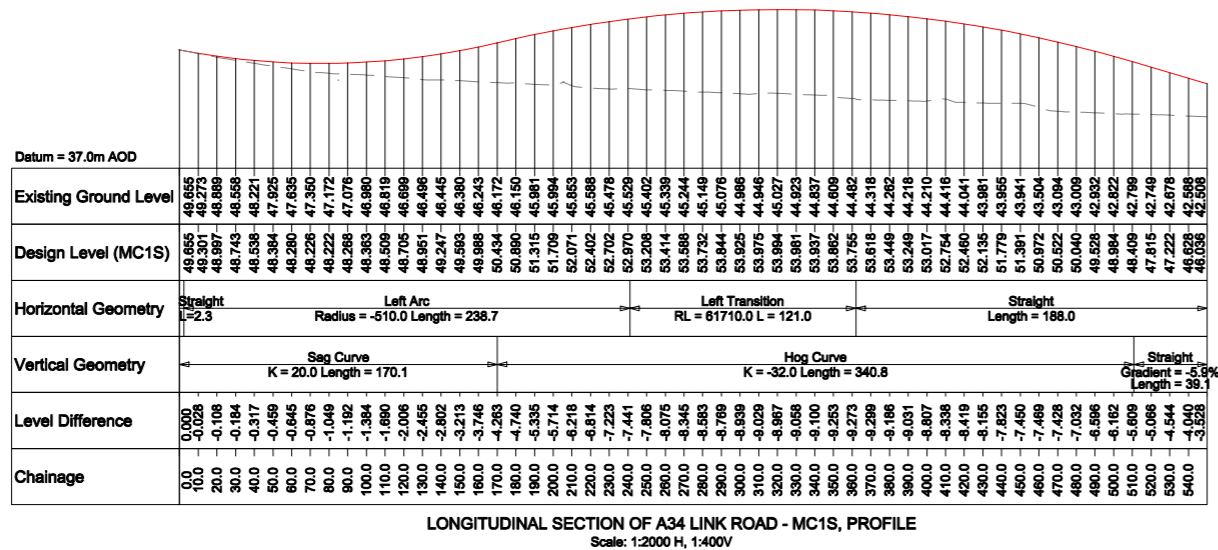
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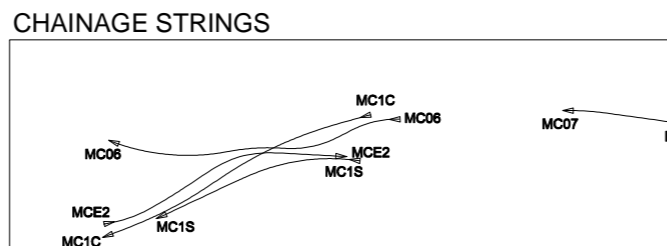
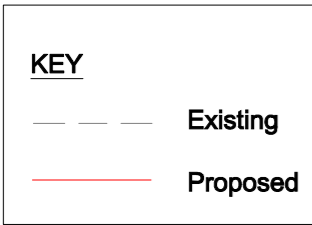
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Scale	Drawn	Checked	Approved	Authorised	
1:2000	M.Sahoo	Dileep.R	D.Brooks	---	
Original Size	Date	Date	Date	Date	
A1	14/06/2017	14/06/2017	14/06/2017	---	
Drawing Number		Project		Project Ref. No.	
HE551511		WSP		HGN	
Location	Type	Role	Volume Number	Revision	
M3J9PCF2	DR	CH	10101	P03	

DO NOT SCALE



80m, NOSE LENGTH,
TD 22/06 TABLE 4/4

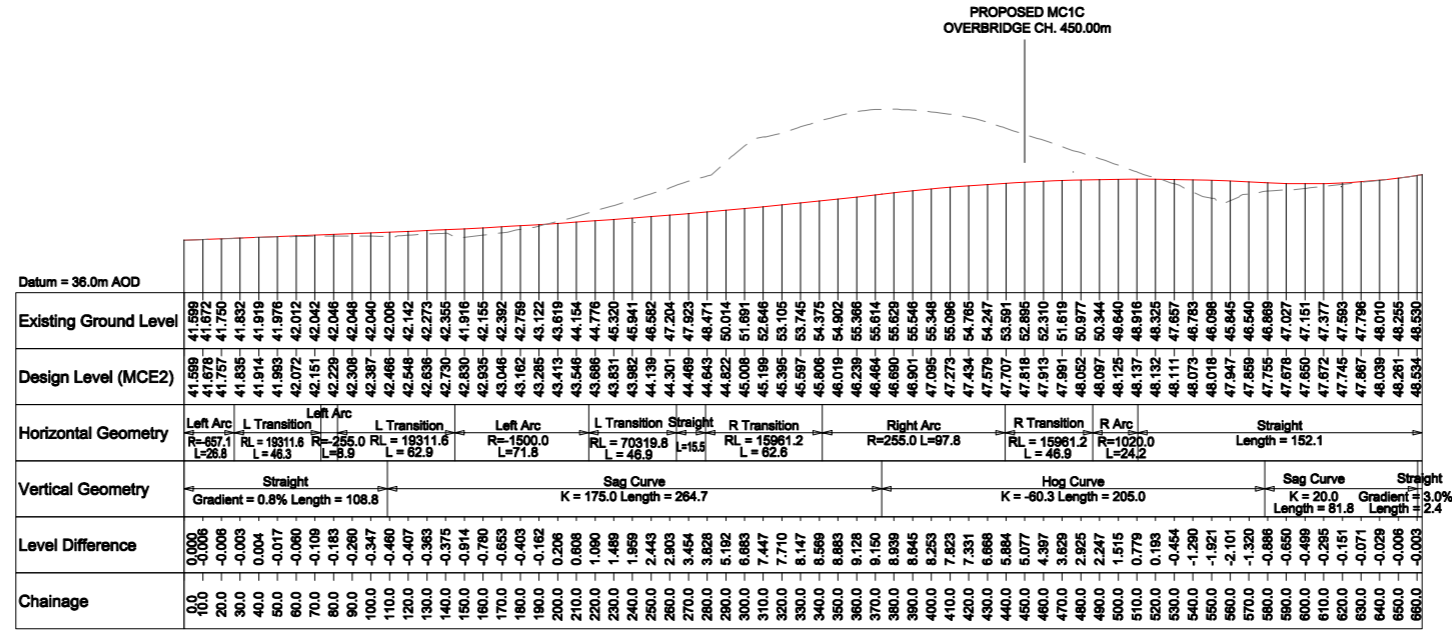
PROPOSED MCE2
UNDERBRIDGE CH. 280.00m



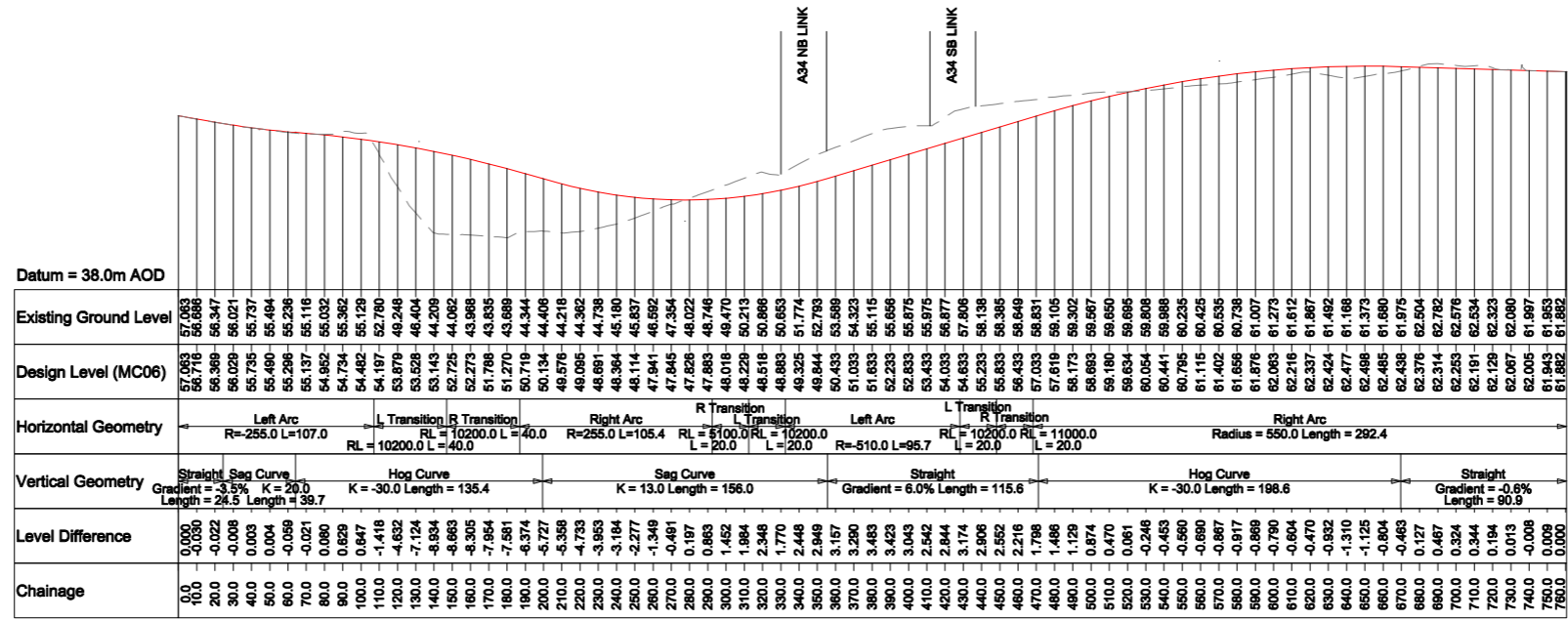
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 4th Floor, 6 Devonshire Square, London, EC2M 4YE, UK T+ 44 (0) 207 337 1700, F+ 44 (0) 207 337 1701 wsp.com		Drawing Title		Checked		Approved	
		OPTION 16B SHEET 2 OF 3 120KPH FREE FLOW NORTHBOUND DESIGN LONGSECTIONS		D.Brooks		D.Brooks	
Scale	Drawn	Date	Date	Date	Date	Date	Date
AS SHOWN	M.Sahoo	28/04/17	28/04/17	28/04/17	28/04/17	28/04/17	28/04/17
Original Size	Project		Originator		Volume		Project Ref. No.
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Client		Project		Location		Revision	
Working on behalf of 		M3J9PCF2		DR CH		10111	
P01		24/01/17		FIRST ISSUE		AT DB DB	
Rev.	Date	Description		By	Chk'd	App'd	

DO NOT SCALE

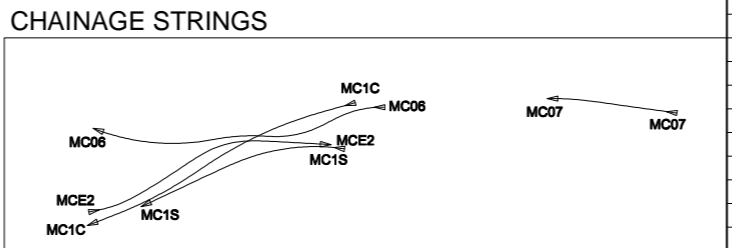
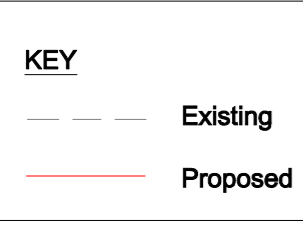
Millimetres



LONGITUDINAL SECTION OF MCE2, PROFILE
Scale: 1:2000 H, 1:400V



LONGITUDINAL SECTION OF MC06, PROFILE
Scale: 1:2000 H, 1:400V



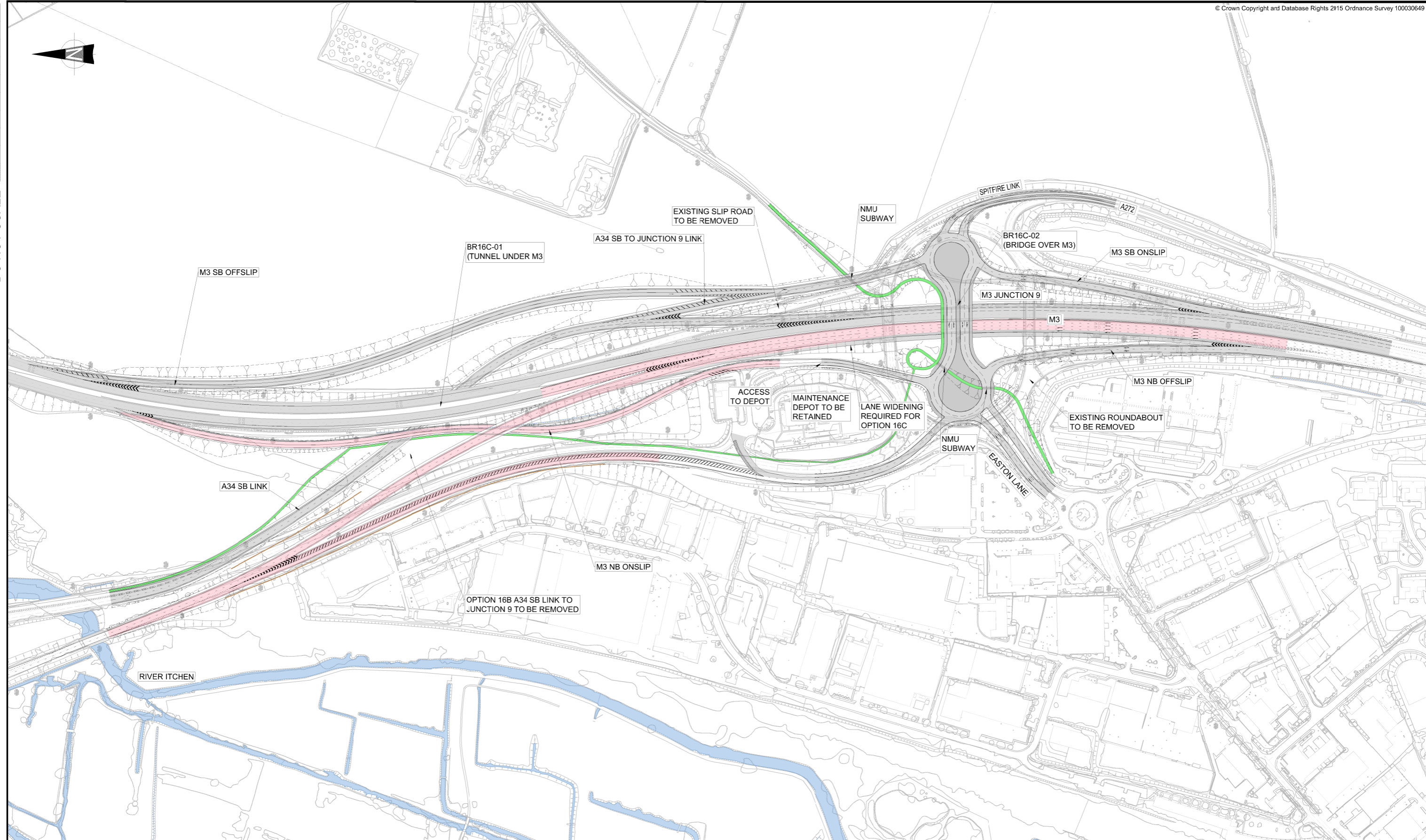
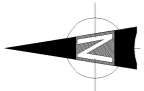
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<p>4th Floor, 6 Devonshire Square, London, EC2M 4YE, UK T+ 44 (0) 207 337 1700, F+ 44 (0) 207 337 1701 wsp.com</p>				Drawing Title OPTION 16B SHEET 3 OF 3 120KPH FREE FLOW NORTHBOUND DESIGN LONGSECTIONS					
Scale	AS SHOWN	Drawn	M.Sahoo	Checked	D.Brooks	Approved	D.Brooks	Authorised	---
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Drawing Number	HE551511	Originator	WSP	Volume	HGN	Project Ref. No.		P01.1	
Project	M3J9PCF2	DR	CH	10112	Number	Revision		---	
Location		Type		Role		Number			
Rev.	Date	Description	By	Chk'd	App'd				
P01	24/01/17	FIRST ISSUE				AT	DB	DB	

DO NOT SCALE

Millimetres

0 10

100



NOT FOR CONSTRUCTION
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- KEY:**
- Option 16C Carriageway
 - River Itchen
 - Bridge Deck
 - Option 16B Carriageway
 - Non Motorised User Path
 - Retaining Wall / Abutment Wall

Rev.	Date	Description	By	CHK'd	App'd
P04	13/10/2017		BL	DR	DB
P03	01/08/2017	Modification to NB Onslip	UA	DR	DB
P02	19/06/2017	Revised M3 Northbound Onslip alignment	UA	DR	DB
P01	14/06/2017	For Stage Approval	AT	DR	DB

Drawing Status: **SUITABLE FOR STAGE APPROVAL**

Suitability: **S3**

Project Title: **REGIONAL INVESTMENT PROGRAMME M3 JUNCTION 9**



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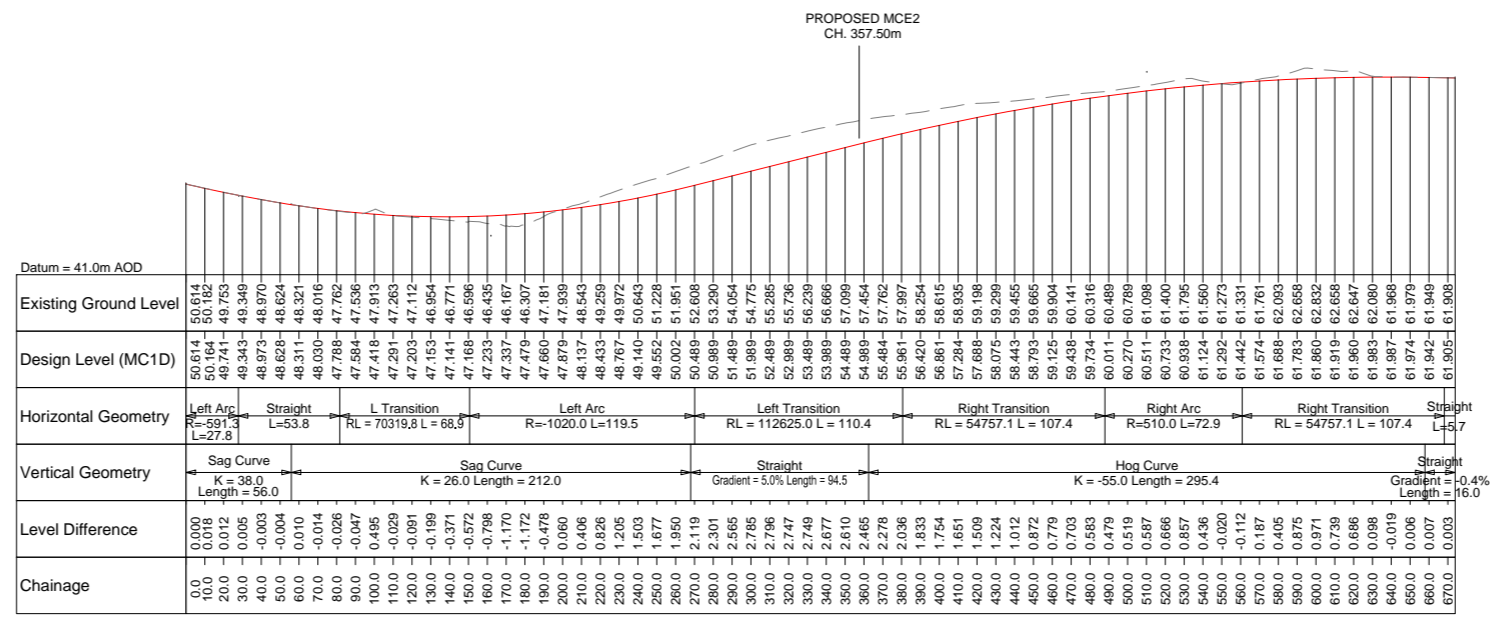
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Original Size	Date	Date	Date	Date
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Drawing Number	Project	Originator	Volume	Project Ref. No.
HE551511	WSP	HGN		
Location	Type	Role	Number	Revision
M3J9PCF2	DR	CH	10201	P04

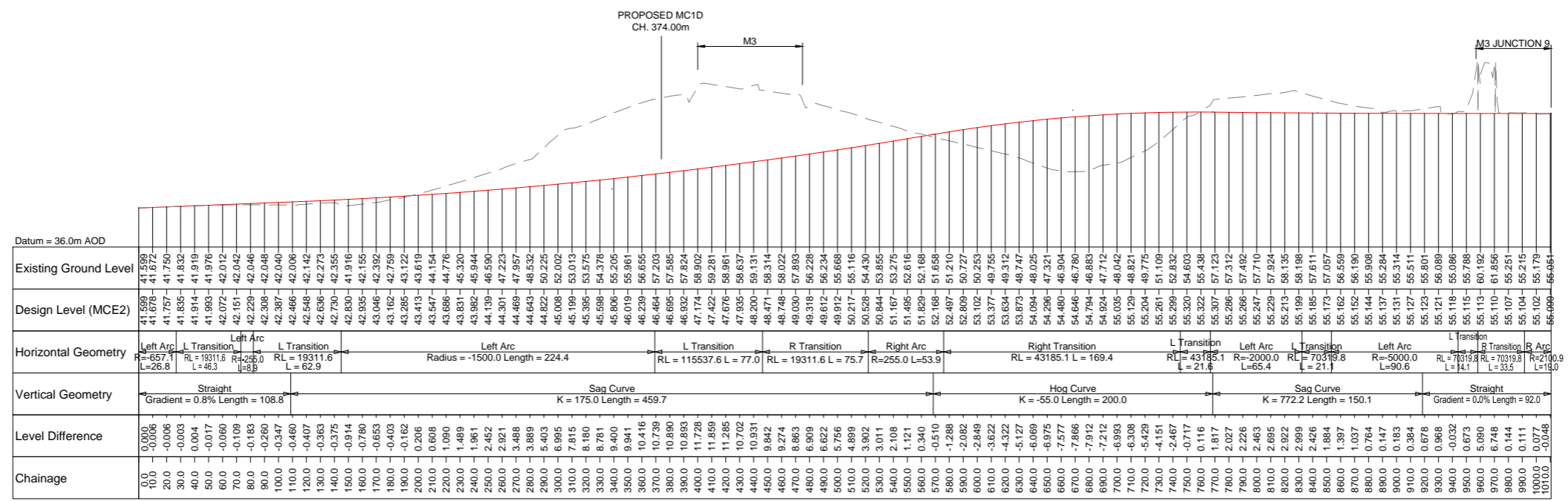
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Millimetres

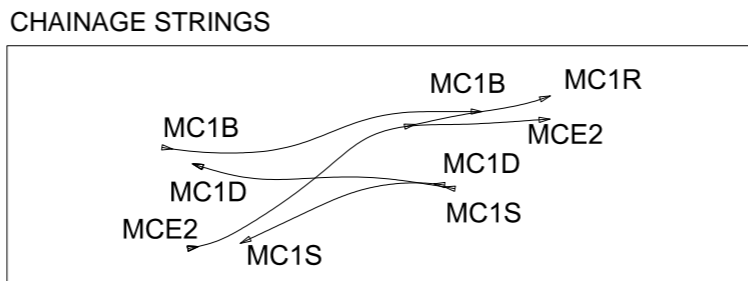
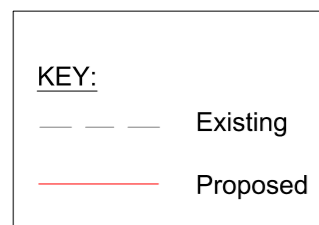
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LONGITUDINAL SECTION OF MC1D, PROFILE
Scale: 1:2000 H, 1:400V



LONGITUDINAL SECTION OF MCE2, PROFILE
Scale: 1:2000 H, 1:400V



Rev.	Date	Description	By	Chk'd	App'd
P02	24/01/17	FIRST ISSUE			

Drawing Status: INITIAL STATUS OR WIP

Suitability: S0

Project Title: REGIONAL INVESTMENT PROGRAMME M3 JUNCTION 9

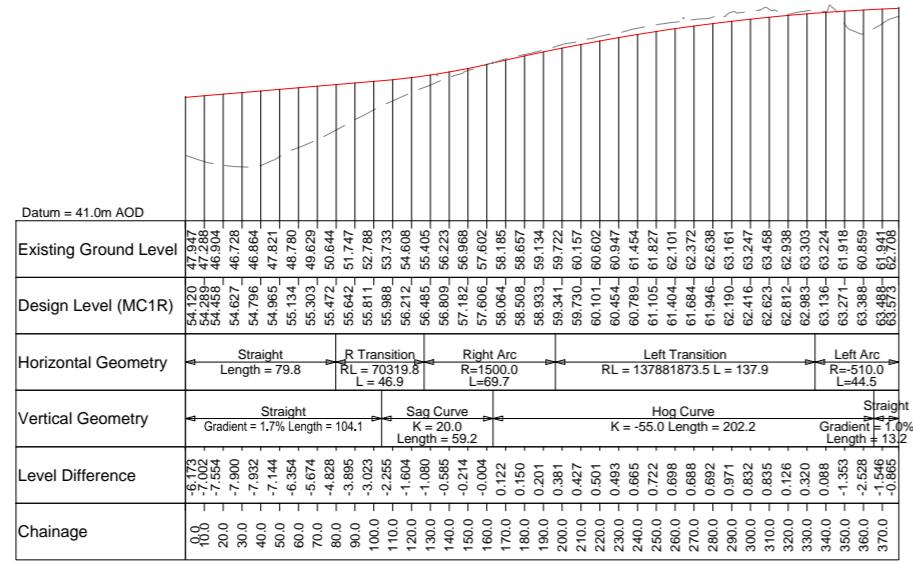
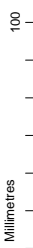
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Project: M3J9PCF2

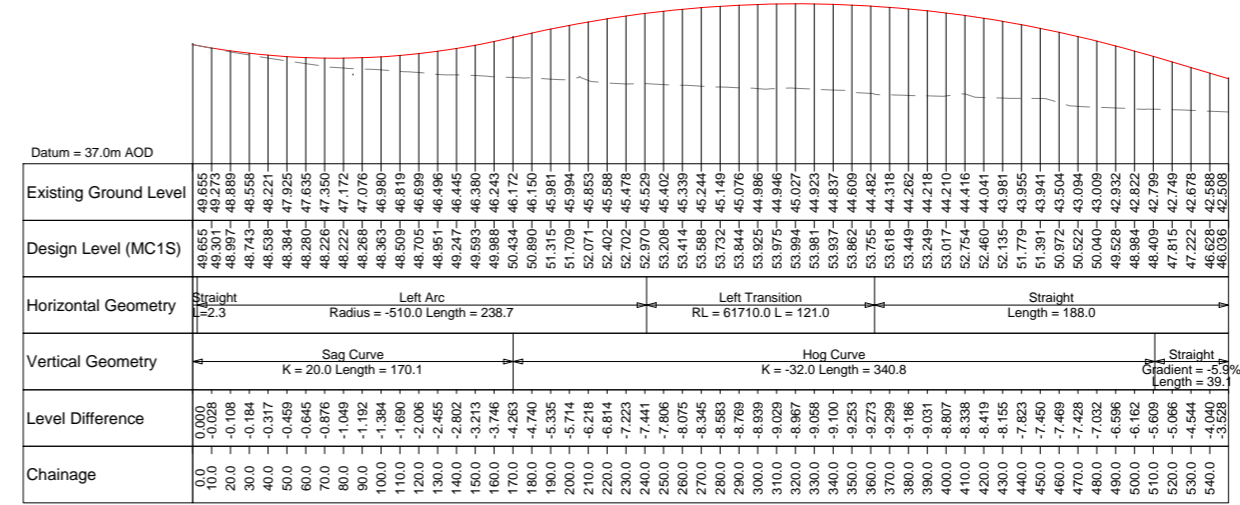
Client: Working on behalf of highways england

Scale	Drawn	Checked	Approved	Authorised
AS SHOWN	M.Sahoo	D.Brooks	D.Brooks	---
Original Size	Date	Date	Date	Date
A1	20/04/17	20/04/17	20/04/17	---
Drawing Number	Project	Volume	Project Ref. No.	Revision
HE551511	WSP	HGN	M3J9PCF2	P01.1
Location	Type	Role	Number	
	DR	CH	10211	

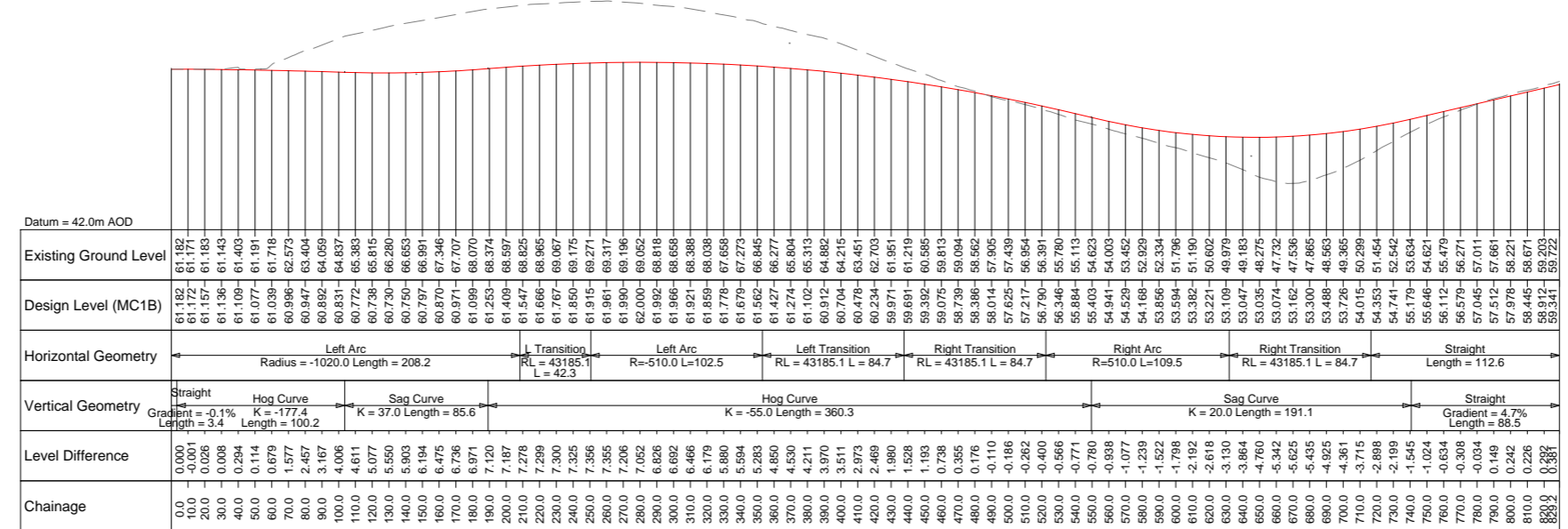
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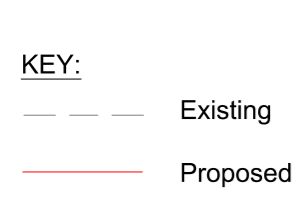
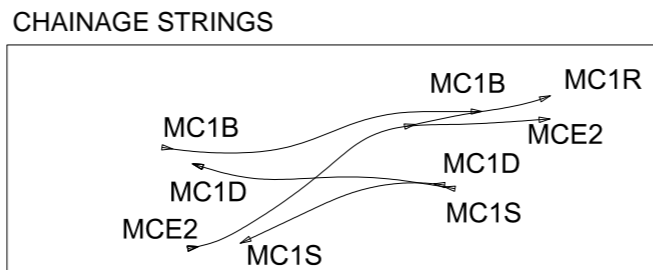
LONGITUDINAL SECTION OF MC1R, PROFILE
Scale: 1:2000 H, 1:400V



LONGITUDINAL SECTION OF A34 LINK ROAD - MC1S, PROFILE
Scale: 1:2000 H, 1:400V



LONGITUDINAL SECTION OF MC1B, PROFILE
Scale: 1:2000 H, 1:400V



Drawing Status		Sustainability		Project Title			
INITIAL STATUS OR WIP		S0		REGIONAL INVESTMENT PROGRAMME M3 JUNCTION 9			
 4th Floor, 6 Devonshire Square, London, EC2M 4YE, UK T+44 (0) 207 337 1700, F+44 (0) 207 337 1701 wsp.com							
Client							
Drawing Number		Checked		Approved		Authorised	
HE551511		M.Sahoo		D.Brooks		D.Brooks	
Project		Date		Date		Date	
M3J9PCF2		20/04/17		20/04/17		20/04/17	
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P01.1		HGN					

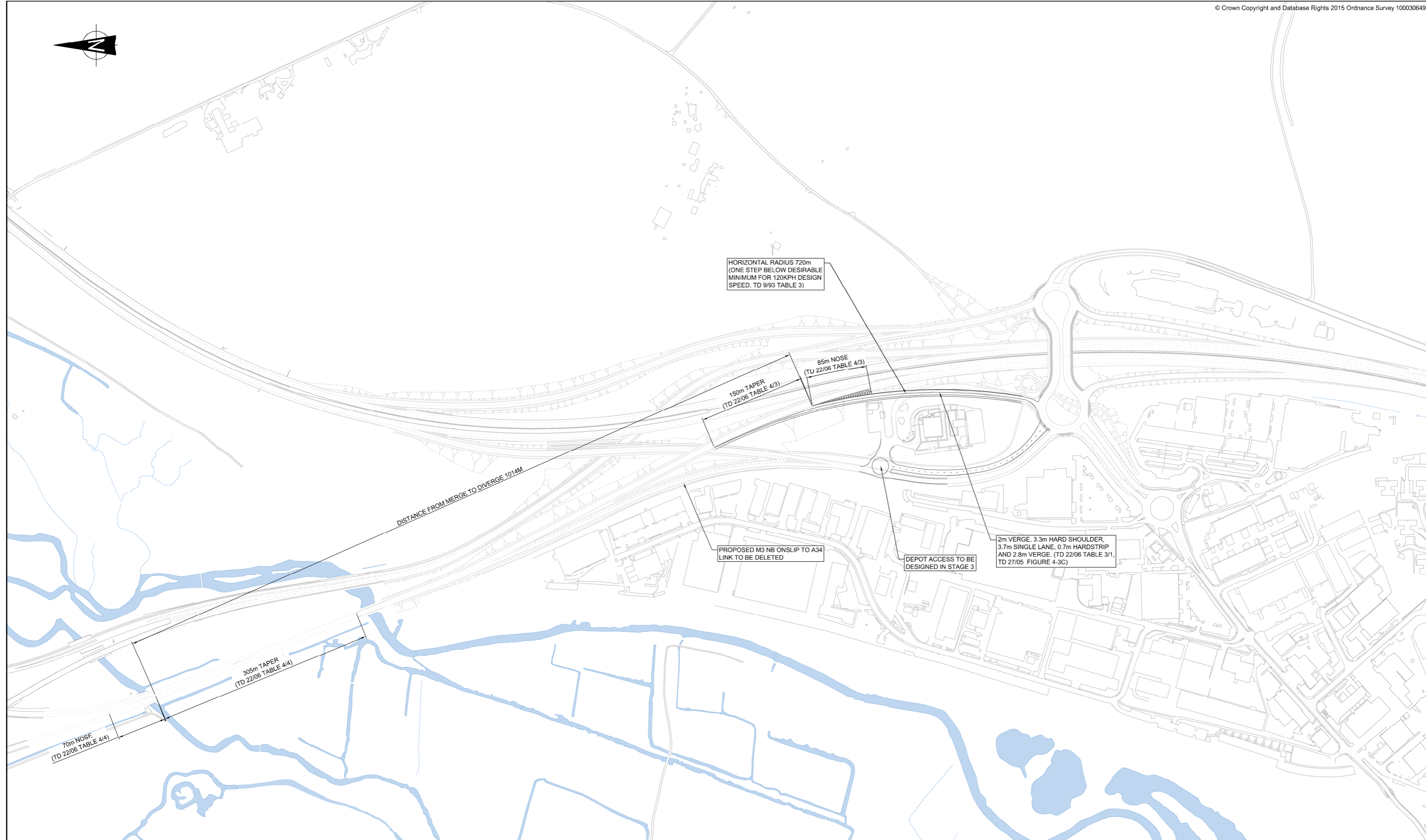
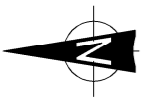
Rev.	Date	Description	By	Chk'd	App'd
P02	24/01/17	FIRST ISSUE			

Appendix G

A33 DIVERGE ALTERNATIVES SKETCHES



DO NOT SCALE

Millimetres
0 10 100



KEY

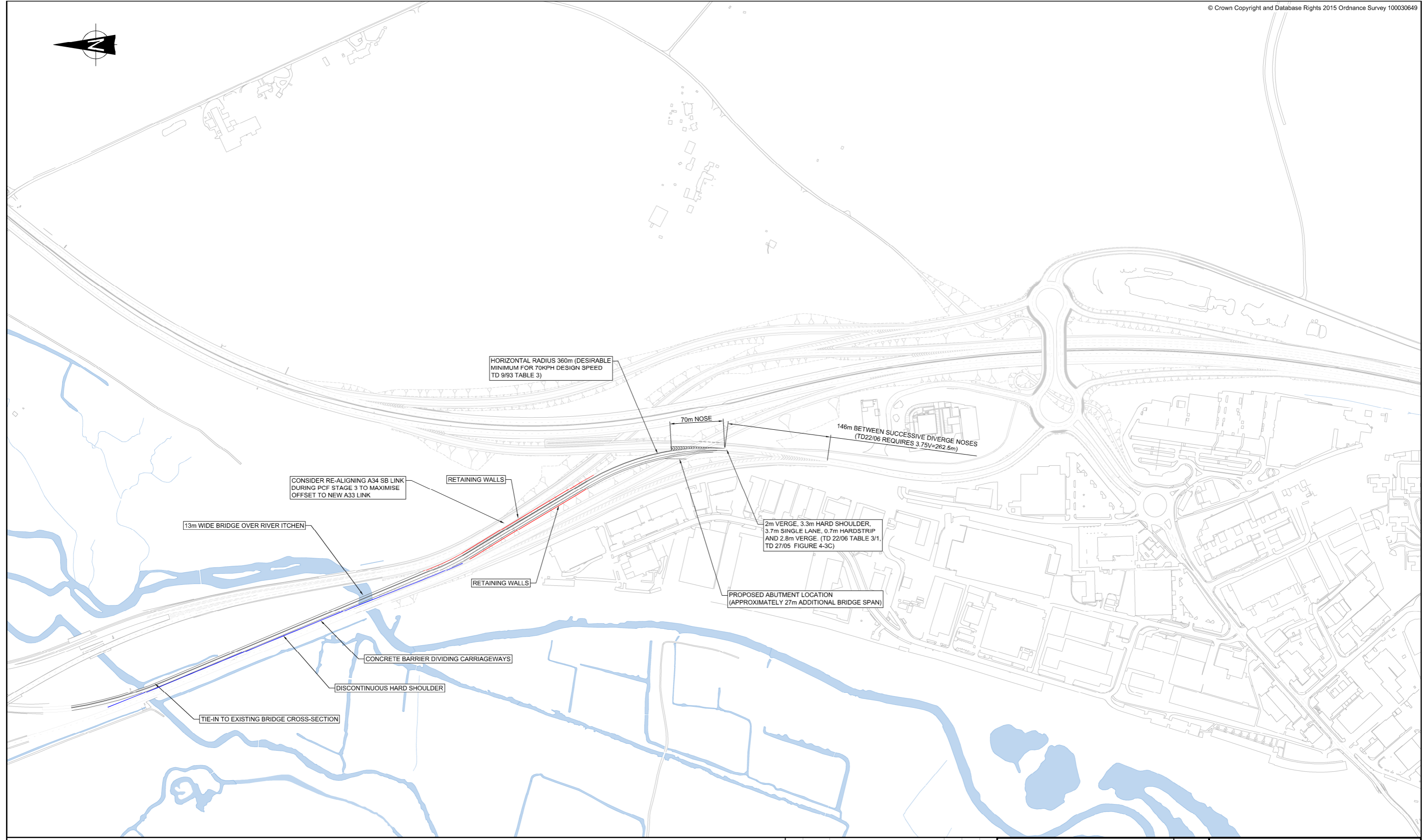
Rev.	Date	Description	By	Chk'd	App'd

Drawing Status SUITABLE FOR STAGE APPROVAL		Suitability S3		Project Title REGIONAL INVESTMENT PROGRAMME M3 JUNCTION 9			
 4th Floor, 6 Devonshire Square, London, EC2M 4YE, UK T+ 44 (0) 207 337 1700, F+ 44 (0) 207 337 1701 wsp.com		Drawing Title OPTION 14 A33 ALTERNATIVE LINK 2					
		Scale 1:2500	Drawn U. Amir	Checked Dileep.R	Approved D.Brooks	Authorised ---	
Client 		Original Size A1	Date 09/02/18	Date 09/02/18	Date 09/02/18	Date ---	
Drawing Number HE551511		Project M3J9PCF2		Originator WSP	Volume HGN	Project Ref. No. P01	
Location		Type SK	Role CH	Number 10040	Revision		

DO NOT SCALE



Millimetres

0 10 100



KEY

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status	SUITABLE FOR STAGE APPROVAL	Suitability	S3	Project Title	REGIONAL INVESTMENT PROGRAMME M3 JUNCTION 9						
 4th Floor, 6 Devonshire Square, London, EC2M 4YE, UK T+ 44 (0) 207 337 1700, F+ 44 (0) 207 337 1701 wsp.com				Drawing Title	OPTION 14 A33 ALTERNATIVE LINK 3						
				Scale	1:2500	Drawn	U. Amir	Checked	Dileep.R	Approved	D.Brooks
Client	Working on behalf of 			Original Size	A1	Date	09/02/18	Date	09/02/18	Date	09/02/18
Drawing Number	HE551511	Project	M3J9PCF2	Originator	WSP	Volume	HGN	Project Ref. No.	P01		
Location	M3J9PCF2	Type	SK	Role	CH	Number	10041	Revision	P01		

Appendix H

APPRAISAL SUMMARY TABLES

Appraisal Summary Table - Option 14		Date produced:	24/05/2018		Contact:					
Name of scheme: M3 Junction 9 Improvement Description of scheme: Option 14: Same as PCF Stage 1 Option 14, which is a variant of WSP Option 4 (as per PCF Stage 0 report), providing free-flow links between the A34 and M3 (S) with the A34 southbound link passing under the M3. Under this option, the existing roundabout will be replaced by a dumbbell junction. Due to convergence issues with the overall model run, the economic assessment was undertaken using 2026 forecast years traffic model results only, with zero growth assumptions from 2026 onwards					Name:					
					Organisation:					
					Role:	Promoter/Official				
Impacts	Summary of key impacts	Assessment								
		Quantitative			Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp			
Economy	Business users & transport providers	Value of journey time changes (£)			NA	£48.593m	NA			
	Net journey time changes (£)			£50.799m						
	0 to 2min	2 to 5min	> 5min							
	£36.388m	£14.003m	£0.408m							
Reliability impact on Business users	NA				NA	£1.123m				
Regeneration	NA				NA	NA				
Wider Impacts	This is assumed to be 10% of the business user benefit	NA			NA	£4.8593m				
Environmental	Noise	In the short term the majority of dwellings in the calculation area are predicted to have an impact of negligible magnitude, the exceptions being two dwellings with a minor adverse impact and one dwelling with a minor beneficial impact. Including mitigation, residual impacts are predicted to be negligible adverse at worst. In the long-term, noise impacts are predicted to be negligible adverse at worst. The negative monetary valuation is a reflection that there are more dwellings falling within a higher noise level band compared to those falling within a lower noise band as a result of the scheme for both opening and future years. Considering the wider road network, no significant adverse impacts are anticipated that can be attributed to scheme.			Households with increased daytime noise in forecast year = 247 Households with reduced daytime noise in forecast year = 12			NA	-£604,268	NA
	Air Quality	Net improvement in local air quality but an overall negative impact on nitrogen oxides emissions. There are no Pollution Climate Mapping links exceeding the limit value. The scheme does not result in any limit value exceedances or worsen any existing exceedances. Within Winchester Air Quality Management Area the scheme will result in increased concentrations at receptors on some links; however, no exceedances will be caused or made worse by the scheme.			Assessment Score PM10: -154 NO2: -308 Emissions NOx: +328 tonnes			NA	NPV of change in PM10 concentration: +£372,072 NPV of change in NOx emissions: -£154,552 Total NPV of change in air quality: +£217,519	NA
	Greenhouse gases	The appraisal reflects a net increase in vehicle kilometres travelled over the modelled road network. Uncertainties include: no forecast of traffic growth beyond 2041, beyond this no change has been assumed; no forecast emission factors after 2030. From 2030 it has been assumed that 2030 emission factors apply up to 2082. There is no account of carbon dioxide emissions from power generating sources for electric vehicles. The appraisal is based on traffic data from fixed demand traffic modelling.			Change in non-traded carbon over 60y (CO2e) 534,628 Change in traded carbon over 60y (CO2e) 0			NA	NPV -£23,943,163	
	Landscape	The scheme has the potential to have an adverse effect on the South Down National Park, which can be reduced to slight adverse with mitigation. The loss of trees, hedgerows and open fields would result in a moderate effect during construction reducing to neutral after planting matures. There is potential for a slight adverse visual effect after mitigation on two residential properties, two public rights of way and the amenity space near Cassandra Road.			NA			Slight adverse	NA	
Townscape	Townscape will have a neutral impact as a result of the works not extending into urban areas.			NA			Neutral	NA		
Historic Environment	The option is likely to be intrusive in the setting and will adversely affect the appreciation and understanding of the characteristics of the historic environmental resource. Additionally, without mitigation it would potentially have a major direct impact on the regionally or locally significant historic environment, resulting in loss of features such that their integrity is substantially compromised. The option could potentially have up to a large adverse effect on non-designated below-ground archaeological remains and earthworks. However, this can be reduced to a neutral effect with mitigation. There is the potential for the option to have a slight adverse effect on the setting of a cluster of designated assets within Worthy Park. As this is not considered to be a significant effect, no mitigation measures have been recommended.			NA			Slight adverse	NA		
Biodiversity	The Assessment made assumes that reasonable mitigation (including avoidance, mitigation and on-site compensation measures will be included within the scheme). The audit trail in this case is detailed within the Environment Assessment Report and associated appendices. It is important to note that there is some uncertainty to these assessments, in particular with regard to features associated with the River Itchen SAC SSSI and potential effects relating to impacts to water quality and supply.			NA			Neutral	NA		
Water Environment	The assessment of slight adverse is given due to the extent of the proposed works, the importance of the Principal chalk aquifer on a regional scale, and the use of the aquifer for potable water supply to a large area/ population. The National and European designations of the River Itchen magnify the significance of potential effects and the potential pollution of surface water runoff may impact upon the Water Framework Directive status of the River Itchen, and the protected ecosystems. If mitigation measures are put in place, such as the implementation of an effective water drainage strategy and the diversion of groundwater flows to reduce baseflow losses, these potential impacts could be significantly reduced to slight adverse.			NA			Slight adverse	NA		
Social	Commuting and Other users	The scheme provides moderate commuting and other user benefits, with majority of time benefits, similar to business users, is between 0-2 minutes.			Value of journey time changes (£)			NA	£26.737m	NA
				Net journey time changes (£)						
	0 to 2min	2 to 5min	> 5min							
	£19.514m	£13.852m	£-1.688m							
	Reliability impact on Commuting and Other users	M3 junction 9 will result in moderate reliability benefits						NA	£2.276m	
	Physical activity	These impacts primarily concern schemes which are aimed at cycling and walking. As such interventions are not part of the M3 Junction 9 scheme proposals, it was not deemed appropriate to consider the impacts on physical activity.						NA	NA	
	Journey quality	Journey quality primarily concerns public transport journeys where travellers will be affected by the quality aspects of their surroundings and other aspects of the journey. A number of the attributes could be assessed such as route certainty, fear of accidents, and frustration. As the impact of the M3 Junction 9 scheme proposals are considered to be neutral in this aspect, it was not deemed appropriate to consider them.						NA	NA	
	Accidents	The scheme achieves the objective of improving safety.			Personal Injury Accident saving: 50 Casualty Saving: Fatal - 3, Serious - 13, Slight - 74			NA	£4.373m	
	Security	Since the impact of the M3 Junction 9 scheme is expected to have negligible security impacts, this analysis was excluded from the appraisal.						NA	NA	NA
	Access to services	The accessibility appraisal focuses on public transport accessibility. As the M3 Junction 9 scheme proposals are predominantly addressing highway trips, this analysis was excluded from the analysis.						NA	NA	NA
Affordability	The affordability assessment is related to changes in monetary cost of travel, mainly public transport costs and user charges. As the M3 Junction 9 scheme proposals are predominantly addressing highway trips, and do not lead to significant changes to public transport, this analysis was excluded from the analysis.						NA	NA	NA	
Severance	The distributional impact of severance follows the same rationale used in the social analysis (Unit A4.1) where this assessment is dependent on whether the scheme has an impact on pedestrian movements or whether the infrastructure presents a physical barrier to pedestrian movement. As the M3 Junction 9 scheme proposals do not impact pedestrian movement, it was not deemed appropriate to consider the impacts on severance.						NA	NA	NA	
Option and non-use values	The TAG Unit (A4.1) states that these should be assessed if the scheme includes measures that will substantially change the availability of a transport scheme, e.g. opening or closing a rail or bus service. It also indicates that these values are often associated with rail services but are equally applicable to other public transport schemes and road infrastructure. As the M3 Junction 9 scheme proposals do not include any measures involving changing public transport services, it is proposed that these potential impacts are excluded from the appraisal.			NA			NA	NA		
Public Accounts	Cost to Broad Transport Budget	Scheme will be funded by Highways England through the RIS 1 programme			The value is PVC				£82.4m	
	Indirect Tax Revenues	There would be an increase in the tax being paid to the Exchequer							£12.338m	

Appraisal Summary Table - Option 16B		Date produced:	24/05/2018		Contact:						
Name of scheme:		M3 Junction 9 Improvement			Name						
Description of scheme:		Option 16B: This is the same as PCF Stage 1 Option 16B, partial free-flow Northbound which is a variant of WSP Option 4 (as per PCF Stage 0 report) providing incremental delivery of Option 14. This provides a free-flow for the A34 northbound, which has a 120kph design speed. The southbound A34 would still use the existing A34 through the Junction 9 roundabout. This option is considered to facilitate potential scheme capital costs within the affordable budgets of RIS1. Due to convergence issues with the overall model run, the economic assessment was undertaken using 2026 forecast years traffic model results only, with zero growth assumptions from 2026 onwards			Organisation						
					Role						
					Promoter/Official						
Impacts	Summary of key impacts	Assessment									
		Quantitative			Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp				
Economy	Business users & transport providers	Value of journey time changes(£)			NA	£7.643m	NA				
		Net journey time changes (£)									
		0 to 2min	2 to 5min	> 5min							
	Reliability impact on Business users	NA			NA	£0.523m					
	Regeneration	NA			NA	NA					
	Wider impacts	This is assumed to be 10% of the business user benefit			NA	£0.7643m					
Environmental	Noise	In the short term the vast majority of dwellings in the calculation area are predicted to have an impact of negligible magnitude, the exception being one dwelling with a minor adverse impact. Including mitigation, residual impacts are predicted to be negligible adverse at worst. In the long-term, noise impacts are predicted to be negligible adverse at worst. The positive monetary valuation is a reflection that there are more dwellings falling within a lower noise level band compared to those falling within a higher noise band as a result of the scheme in the future year, even though the opposite is the case in the opening year. Considering the wider road network, no significant adverse impacts are anticipated that can be attributed to the scheme.			Households with increased daytime noise in forecast year = 27 Households with reduced daytime noise in forecast year = 106			NA			
	Air Quality	Net improvement in local air quality but an overall negative impact on nitrogen oxides emissions. There are no Pollution Climate Mapping links exceeding the limit value. The scheme does not result in any limit value exceedances or worsen any existing exceedances. Within Winchester Air Quality Management Area the scheme will result in increased concentrations at receptors on some links; however, no exceedances will be caused or made worse by the scheme.			Assessment Score PM10: -42 NO2: -40 Emissions NOx: +95 tonnes			NA			
	Greenhouse gases	The appraisal reflects a net increase in vehicle kilometres travelled over the modelled road network. Uncertainties include: no forecast of traffic growth beyond 2038, beyond this no change has been assumed; no forecast emission factors after 2030. From 2030 it has been assumed that 2030 emission factors apply up to 2082. There is no account of carbon dioxide emissions from power generating sources for electric vehicles. The appraisal is based on traffic data from fixed demand traffic modelling.			Change in non-traded carbon over 60y (CO2e) 419,795 Change in traded carbon over 60y (CO2e) 0			NA			
	Landscape	The scheme has the potential to have an adverse effect on the South Down National Park, which can be reduced to neutral with mitigation. The loss of trees, hedgerows and open fields would result in a slight adverse effect during construction reducing to neutral after planting matures. There is potential for a slight adverse visual effect after mitigation on two public rights of way and the amenity space near Cassandra Road.			NA			Slight adverse			
	Townscape	Townscapes will have a neutral impact as a result of the works not extending into urban areas.			NA			Neutral			
	Historic Environment	The option is likely to be intrusive in the setting and will adversely affect the appreciation and understanding of the characteristics of the historic environmental resource, however, this can be reduced to slight adverse with mitigation. Without mitigation, it would potentially have a major direct impact on the regionally or locally significant historic environment, resulting in loss of features such that their integrity is substantially compromised. The option could potentially have up to a large adverse effect on non-designated below-ground archaeological remains and earthworks. However, this can be reduced to a neutral effect with mitigation. There is the potential for the option to have a slight adverse effect on the setting of a cluster of designated assets within Worthy Park.			NA			Slight adverse			
	Biodiversity	The Assessment made assumes that reasonable mitigation (including avoidance, mitigation and on-site compensation measures will be included within the scheme). The audit trail in this case is detailed within the Environment Assessment Report and associated appendices. It is important to note that there is some uncertainty to these assessments, in particular with regard to features associated with the River Itchen SAC SSSI and potential effects relating to impacts to water quality and supply.			NA			Neutral			
	Water Environment	The assessment of slight adverse is given due to the extent of the proposed works, the importance of the Principal chalk aquifer on a regional scale, and the use of the aquifer for potable water supply to a large area/ population. The National and European designations of the River Itchen magnify the significance of potential effects and the potential pollution of surface water runoff may impact upon the Water Framework Directive status of the River Itchen, and the protected ecosystems. If mitigation measures are put in place, such as the implementation of an effective water drainage strategy and the diversion of groundwater flows to reduce baseflow losses, these potential impacts could be significantly reduced to slight adverse.			NA			Slight adverse			
Social	Commuting and Other users	The scheme provides commuting and other user dis-benefits. There are benefits for trips >5 minutes, but disbenefits for trips <2 minutes. There are small time benefits for trips which are between 2-5 minutes.			Value of journey time changes(£) £1.93m Net journey time changes (£)			NA			
		0 to 2min			2 to 5min				> 5min		
		£20.09m			£2.003m				£20.017m		
	Reliability impact on Commuting and Other users	NA			NA			£1.070m			
	Physical activity	These impacts primarily concern schemes which are aimed at cycling and walking. As such interventions are not part of the M3 Junction 9 scheme proposals, it was not deemed appropriate to consider the impacts on physical activity.			NA			NA			
	Journey quality	Journey quality primarily concerns public transport journeys where travellers will be affected by the quality aspects of their surroundings and other aspects of the journey. A number of the attributes could be assessed such as route certainty, fear of accidents, and frustration. As the impact of the M3 Junction 9 scheme proposals are considered to be neutral in this aspect, it was not deemed appropriate to consider them.			NA			NA			
	Accidents	The scheme achieves the objective of improving safety.			Personal Injury Accident saving: 42 Casualty Saving: Fatal - 2, Serious - 6, Slight - 82			£3.047m			
	Security	Since the impact of the M3 Junction 9 scheme is expected to have negligible security impacts, this analysis was excluded from the appraisal.			NA			NA			
	Access to services	The accessibility appraisal focuses on public transport accessibility. As the M3 Junction 9 scheme proposals are predominantly addressing highway trips, this analysis was excluded from the analysis.			NA			NA			
	Affordability	The affordability assessment is related to changes in monetary cost of travel, mainly public transport costs and user charges. As the M3 Junction 9 scheme proposals are predominantly addressing highway trips, and do not lead to significant changes to public transport, this analysis was excluded from the analysis.			NA			NA			
	Severance	The distributional impact of severance follows the same rationale used in the social analysis (Unit A4.1) where this assessment is dependent on whether the scheme has an impact on pedestrian movements or whether the infrastructure presents a physical barrier to pedestrian movement. As the M3 Junction 9 scheme proposals do not impact pedestrian movement, it was not deemed appropriate to consider the impacts on severance.			NA			NA			
	Option and non-use values	The TAG Unit (A4.1) states that these should be assessed if the scheme includes measures that will substantially change the availability of a transport scheme, e.g. opening or closing a rail or bus service. It also indicates that these values are often associated with rail services but are equally applicable to other public transport schemes and road infrastructure. As the M3 Junction 9 scheme proposals do not include any measures involving changing public transport services, it is proposed that these potential impacts are excluded from the appraisal.			NA			NA			
Public Account	Cost to Broad Transport Budget	Scheme will be funded by Highways England through the RIS 1 programme			The value is PVC			£49.8m			
	Indirect Tax Revenues	There would be an increase in the tax being paid to the Exchequer						£6.947m			

Appraisal Summary Table - Option 16C		Date produced:	24/05/2018	Contact:				
Name of scheme:	M3 Junction 9 Improvement	Name		Organisation		Role	Promoter/Official	
Description of scheme:	Option 16B+16C: This is effectively a phased delivery of Option 14, and involves implementing Option 16B first and then the remainder as Option 16C to deliver the full junction improvement. This will involve construction of Option 16B, which would open to traffic in 2022, followed by the rest of the scheme (Option 16C) construction from 2027, open to traffic in 2029. The latter provides a free-flow movement for the A34 southbound trips, and junction 9 dumbbell roundabout. The economic analysis for this assessment is based on the results from the full SRTM results (i.e. with modelled years 2019, 2026, 2036 and 2041), unlike the remaining options which are based on 2026 modelled year assessment. This is due to the phased nature of the option, making it difficult to replicate the updated assessments as in the remaining options.	Role		Organisation		Role	Promoter/Official	
Impacts	Summary of key impacts	Assessment						
		Quantitative		Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp		
Economy	Business users & transport providers	The scheme provides moderate business user benefits, with majority of time benefits between 0-2 minutes.	Value of journey time changes (£) £74,239m		NA	£56,717m	NA	
		Net journey time changes (£)						
		0 to 2min	2 to 5min	> 5min				
		£42.837m	£32.389m	£-0.994m				
	Reliability impact on Business users	NA	NA		NA	£1,123m		
	Regeneration	NA	NA		NA	NA		
	Wider impacts	This is assumed to be 10% of the business user benefit	NA		NA	£5,6717m		
Environmental	Noise	In the short term (Option 16B) the vast majority of dwellings in the calculation area are predicted to have an impact of negligible magnitude, the exceptions being two dwellings with a minor adverse impact and one dwelling with a minor beneficial impact. Including mitigation, residual impacts are predicted to be negligible adverse at worst. In the long-term (Option 16B+16C), noise impacts are predicted to be negligible adverse at worst. The negative monetary valuation is a reflection that there are more dwellings falling within a higher noise level band compared to those falling within a lower noise band as a result of the scheme for both opening and future years. Considering the wider road network, no significant adverse impacts are anticipated that can be attributed to scheme.	Households with increased daytime noise in forecast year = 173 Households with reduced daytime noise in forecast year = 11		NA	£-399,674	NA	
	Air Quality	Net improvement in local air quality but an overall negative impact on nitrogen oxides emissions. There are no Pollution Climate Mapping links exceeding the limit value. The scheme does not result in any limit value exceedances or worsen any existing exceedances. Within Winchester Air Quality Management Area the scheme will result in increased concentrations at receptors on some links, however, no exceedances will be caused or made worse by the scheme.	Assessment Score PM10: -42 NO2: -40 Emissions NOx: +284 tonnes		NA	NPV of change in PM10 concentration: -£324,535 NPV of change in NOx emissions: -£130,067 Total NPV of change in air quality: +£194,467	NA	
	Greenhouse gases	The appraisal reflects a net increase in vehicle kilometres travelled over the modelled road network. Uncertainties include: no forecast of traffic growth beyond 2038, beyond this no change has been assumed; no forecast emission factors after 2030. From 2030 it has been assumed that 2030 emission factors apply up to 2082. There is no account of carbon dioxide emissions from power generating sources for electric vehicles. The appraisal is based on traffic data from fixed demand traffic modelling.	Change in non-traded carbon over 60y (CO2e) 476,604 Change in traded carbon over 60y (CO2e) 0		NA	NPV -£21,365,833		
	Landscape	The scheme has the potential to have an adverse effect on the South Down National Park, which can be reduced to slight adverse with mitigation. The loss of trees, hedgerows and open fields would result in a moderate effect during construction reducing to neutral after planting matures. There is potential for a slight adverse visual effect after mitigation on two residential properties, two public rights of way and the amenity space near Cassandra Road.	NA		Slight adverse	NA		
	Townscapes	The scheme will have a neutral impact as a result of the works not extending into urban areas.	NA		Neutral	NA		
	Historic Environment	The option is likely to be intrusive in the setting and will adversely affect the appreciation and understanding of the characteristics of the historic environmental resource. Additionally, without mitigation it would potentially have a major direct impact on the regionally or locally significant historic environment, resulting in loss of features such that their integrity is substantially compromised. The option could potentially have up to a large adverse effect on non-designated below-ground archaeological remains and earthworks. However, this can be reduced to a neutral effect with mitigation. There is the potential for the option to have a slight adverse effect on the setting of a cluster of designated assets within Worthy Park. As this is not considered to be a significant effect, no mitigation measures have been recommended.	NA		Slight adverse	NA		
	Biodiversity	The Assessment made assumes that reasonable mitigation (including avoidance, mitigation and on-site compensation measures) will be included within the scheme. The audit trail in this case is detailed within the Environment Assessment Report and associated appendices. It is important to note that there is some uncertainty to these assessments, in particular with regard to features associated with the River Itchen SAC SSSI and potential effects relating to impacts to water quality and supply.	NA		Neutral	NA		
	Water Environment	The assessment of slight adverse is given due to the extent of the proposed works, the importance of the Principal chalk aquifer on a regional scale, and the use of the aquifer for potable water supply to a large area/ population. The National and European designations of the River Itchen magnify the significance of potential effects and the potential pollution of surface water runoff may impact upon the Water Framework Directive status of the River Itchen, and the protected ecosystems. If mitigation measures are put in place, such as the implementation of an effective water drainage strategy and the diversion of groundwater flows to reduce baseflow losses, these potential impacts could be significantly reduced to slight adverse.	NA		Slight adverse	NA		
Social	Commuting and Other users	The scheme provides moderate commuting and other user benefits, with majority of time benefits, similar to business users, is between 0-2 minutes.	Value of journey time changes (£) £0m		NA	£30,833m	NA	
		Net journey time changes (£)						
		0 to 2min	2 to 5min	> 5min				
		£30.311m	£23.509m	£-13.672m				
		Reliability impact on Commuting and Other users	NA	NA		NA	£2,276m	
		Physical activity	These impacts primarily concern schemes which are aimed at cycling and walking. As such interventions are not part of the M3 Junction 9 scheme proposals, it was not deemed appropriate to consider the impacts on physical activity.	NA		NA	NA	
		Journey quality	Journey quality primarily concerns public transport journeys where travellers will be affected by the quality aspects of their surroundings and other aspects of the journey. A number of the attributes could be assessed such as route certainty, fear of accidents, and frustration. As the impact of the M3 Junction 9 scheme proposals are considered to be neutral in this aspect, it was not deemed appropriate to consider them.	NA		NA	NA	
		Accidents	The scheme achieves the objective of improving safety.	Personal Injury Accident saving: 35 Casualty Saving: Fatal - 2, Serious - 9, Slight - 52		NA	£3,017m	
		Security	Since the impact of the M3 Junction 9 scheme is expected to have negligible security impacts, this analysis was excluded from the appraisal.	NA		NA	NA	NA
		Access to services	The accessibility appraisal focuses on public transport accessibility. As the M3 Junction 9 scheme proposals are predominantly addressing highway trips, this analysis was excluded from the analysis.	NA		NA	NA	NA
	Affordability	The affordability assessment is related to changes in monetary cost of travel, mainly public transport costs and user charges. As the M3 Junction 9 scheme proposals are predominantly addressing highway trips, and do not lead to significant changes to public transport, this analysis was excluded from the analysis.	NA		NA	NA	NA	
	Severance	The distributional impact of severance follows the same rationale used in the social analysis (Unit A4.1) where this assessment is dependent on whether the scheme has an impact on pedestrian movements or whether the infrastructure presents a physical barrier to pedestrian movement. As the M3 Junction 9 scheme proposals do not impact pedestrian movement, it was not deemed appropriate to consider the impacts on severance.	NA		NA	NA	NA	
	Option and non-use values	The TAG Unit (A4.1) states that these should be assessed if the scheme includes measures that will substantially change the availability of a transport scheme, e.g. opening or closing a rail or bus service. It also indicates that these values are often associated with rail services but are equally applicable to other public transport schemes and road infrastructure. As the M3 Junction 9 scheme proposals do not include any measures involving changing public transport services, it is proposed that these potential impacts are excluded from the appraisal.	NA		NA	NA		
Public Accounts	Cost to Broad Transport Budget	Scheme will be funded by Highways England through the RIS 1 programme	The value is PVC			£98.0m		
	Indirect Tax Revenues	There would be an increase in the tax being paid to the Exchequer				£11,309m		