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Technical Note

TN 009 : 2014

Issued date 3 March 2014
 Effective dates 3 March 2014 to 3 March 2015

Subject: Interpretation guide for SPG 0711.7 version 2.1

SPG 0711.7 *Inspection and testing of signalling – standard forms* version 2.1 issued on December 1 2012 shall be read in conjunction with the interpretations listed in Table 1:

Table 1 Interpretation to SPG 0711.7

Location	Reference role or title	Applied interpretation	Comment
1.2 – para 1	RailCorp System Safety Manual	TfNSW SMS	
1.2 – para 2, 3	RailCorp	RailCorp	Insert - As published on the ASA website
1.2 – para 4, 6	RailCorp	ASA website	
P 16 – Minor Signalling Work Package Authorisation	Regional	AEO (Sydney Trains)	
P 22 – Authorisation of Installation Work Package	Regional	AEO (Sydney Trains)	
P 55 - Authorisation of Commissioning Work Package	Regional	AEO (Sydney Trains)	
P 102 – Certificate of Acceptance	Regional	AEO (Sydney Trains)	
P 142 – Interface Coordination Plan	Regional (x2)	AEO (Sydney Trains)	
P 143 – Site Integrity Agreement & Site Assess't, 6 th box	Regional	AEO (Sydney Trains)	
P 144 – as above, 8/9 th boxes on page	Regional	AEO (Sydney Trains)	

Location	Reference role or title	Applied interpretation	Comment
P 146 – 3 rd Heading plus in text	Regional	AEO (Sydney Trains)	
P 149 – below 1 st heading	Regional	Sydney Trains	
P 150 - table	Regional – 13 references	AEO (Sydney Trains)	
P 151 - table	Regional – 9 references	AEO (Sydney Trains)	
P 152 – Interface Management Plan	RailCorp (land)	TfNSW	
P 155 – Interface Coordination Plan Agreement – 2 nd Signature box	Regional	AEO (Sydney Trains)	
P 159 – Mitigations: Acceptable Sighting – A2	RailCorp	AEO (Sydney Trains)	
P 168, 169, 170, 171 - Sighting Committee	Regional (x2)	AEO (Sydney Trains)	
General	RailCorp network	Is correct	All assets still belong to RailCorp until new entity is established

The above interpretations have been issued to contextualise the contents of SPG 0711.7 version 2.1 to the organisational context post July 1 2013.

Further generic interpretation guidance, which are published on the ASA website are provided in the documents listed in Table 2:

Table 2 Interpretation guides

Reference No	Title	Version	Issue date
TS 10762	Legacy RailCorp standards interpretation – management overview	1.0	28/06/2013
TS 10760	Guide to interpretation of organisational role and process references in RailCorp standards	1.0	17/06/2013
TS 10760 - SMS	Interpretation guide RailCorp SMS references within RailCorp engineering standards	1.0	17/06/2013

Authorisation

Signature	Technical content prepared by	Checked and approved by	Interdisciplinary coordination checked by	Authorised for release
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Position	Principal Engineer Signals Assurance	Lead Engineer Signals & Control Systems	Chief Engineer	Principal Manager Network Standards & Services

SPG 0711.7

INSPECTION AND TESTING OF SIGNALLING - STANDARD FORMS

Version 2.1

Issued December 2012

Owner: Chief Engineer Signals & Control Systems

Approved by: Warwick Allison
Chief Engineer
Signals & Control Systems

Authorised by: Paul Zammit
Principal Engineer
Signal Assurance

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Document control

Version	Date	Summary of change
1.0	30/05/07	Converted to RailCorp format and addition of Signal Sighting forms
1.1	11/09/2007	New form substituted for Sighting Form – Dwarf Signal
1.2	13/11/2007	New form inserted for Sighting Form – Guards Indicator
1.3	06/05/2008	New forms added for Level Crossing sighting
1.4	03/06/2008	Double Light Sighting Form updated
1.5	07/07/2008	Added Level Crossing Location Maintenance Visit Sheet
1.6	02/09/2009	New Signal Sighting Checklist added to the Signal Sighting Forms
1.7	07/09/2010	Signal Sighting forms – Single & double Lights –Remarks, add ref to 'OHW constraints', added 'Electrical Representative' to list of Sighting Committee; LX site Inspn form – Add item to check 'Vicinity of OHW/OH lines'. Application of TMA 400 format
1.8	08/03/2011	Inspection and testing strategy details Page 9 replace the words "Project Work Interface Agreement" with the words "Project Safety Agreement". Other pages affected are 16, 138, 141 and 148. Page 112 removed "CL – Clamp Lock" and added "SP-Spherolock".
1.9	6 March 2012	Added Point Operating Certificates for Claw Lock (TC-6B/C) and Spherolock Points (TC-6D/E) & removed reference to these points in form TC-6 (which becomes TC-6A).
2.0	27 September 2012	Amend 'Signal Sighting Checklist & Forms'. Parts B1, B2, D-12, D-13, D1 to D8, E1 & E2.
2.1	December 2012	Point Operating Certificates for Claw Lock (TC-6C) and Spherolock (TC-6E) updated to include operating bar detection Added question to Signal Sighting Checklist Section A – question 6)

Summary of changes from previous version

Summary of change	Section
Amended 'Go to Q9' to read 'Go to Q10'.	B1
Amended 'Go to Section C or Q9' to read 'Go to Section C or Q10'.	B2
Amended 'Go to Q12' to read 'Go to Q13'.	Section D – 12) pge 164
Amended 'Go to Q13' to read 'Go to Q14'.	Section D – 13) pge 164
Amended 'Return to Q11' to read 'Go to Q12'.	D1 pge 165
Amended 'Go to Q12' to read 'Go to Q13'.	D2 pge 165
Amended 'Go to Q13' to read 'Go to Q14'.	D3 pge 165
Amended 'Go to Q14' to read 'Go to Q15'.	D4 pge 165
Amended 'Go to Q15' to read 'Go to Q16'.	D5 pge 165
Amended 'Go to Q16' to read 'Go to Q17'.	D6 pge 166
Amended 'Return to Q16 to read 'Return to Q17'.	D7 pge 166
Amended 'Go to Q18' to read 'Go to Q19'.	E1 pge 166
Amended "Go to Q20' to read 'Go to Q20 or Q21'.	E2 pge 167

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1 Introduction

1.1 General

This Specification sets out the typical requirements for inspection and testing documentation to be used to provide objective evidence of the process of certifying new and altered signalling works.

1.2 References

This Specification shall be read in conjunction with the RailCorp System Safety Manual and associated Frameworks, Standards, Specifications and Elements.

This Specification shall be read in conjunction with companion RailCorp Infrastructure Engineering Specifications - Signalling:

- Specification SPG 0711.1 "Roles, Responsibilities and Authorities"
- Specification SPG 0711.2 "Plans, Programs, Documentation and Packages",
- Specification SPG 0711.3 "Inspection and Testing Principles",
- Specification SPG 0711.4 "Inspection and Testing Procedures",
- Specification SPG 0711.5 "Typical Inspections and Tests For Signalling Apparatus",
- Specification SPG 0711.6 "Interface Requirements and Procedures for Alterations",
- Specification SPG 0703 "Signalling Documentation and Drawings"
- Technical Manual TMG "Signalling Safeworking Procedures Manual J"

This Specification shall be read in conjunction with RailCorp Infrastructure Engineering Specifications – Signalling for Equipment and Construction:

- As published on the Engineering pages of the RailCorp Intranet.

Training and Competency Procedures as follows:

- TMGA 1415 "Reassessment of Signalling Infrastructure Workers".
- TMG1413 "Assessment of Signalling Infrastructure Workers – Licence to Practice".
- TMGA 1412 "Signal Engineers, Contract Personnel – Authorisation Status and Licensing Boards".
- Personnel – Logbook, training and licensing documents.

Signal Engineering Instructions and Guidelines:

- As issued from time to time and published on the Engineering pages of the RailCorp Intranet.

INSPECTION AND TESTING PLAN

<i>{Insert Project Name}</i>	
<i>{Insert Plan Title (If more than one plan is required)}</i>	
I&T Plan No. <i>{Insert.}</i>	File No. <i>{Insert}</i>

Prepared By: Commissioning Engineer	<i>{Insert Name}</i>
Date:	<i>{Insert Date}</i>

Reviewed and Approved By:

**See Authorisation Of Inspection & Test Strategy, Outline Plan
and Detailed Plan in Parts 1, 2 and 3**

Date of issue:		Revision		Copy Number:	
----------------	--	----------	--	--------------	--

Part 1 – Inspection and Testing Strategy

Project Name : -

Inspection and Testing Plan No. : -

Commissioning Engineer : -

Date : -

Prepared by : -

Name : -

Position : -

Signature : -

Date : -

Approved by : -

Name : -

Position : -

Signature : -

Date : -

Inspection & Testing Strategy Details

Provide detail and analysis where applicable:

Section 1 Implementation Strategy:

Section 2 Inspection and Testing Strategy including requirements from the Scope of Works, Project Safety Agreement and the Interface Coordination Plan

Section 3 Quality Assurance Strategy including requirements from the Scope of Works, Project Safety Agreement and the Interface Coordination Plan:

Section 4 Interface and Stagework requirements:

Section 5 Scope, methodologies and access limitations for inspection and testing of interface work:

Section 6 Scope, methodologies and responsibilities at commissioning – interlocking and design Integrity testing:

Section 7 Practices to be used to confirm the condition of existing signalling:

Section 8 Signalling Safeworking and relocation or removal of infrastructure requirements:

Section 9 Provisions to ensure that no ambiguity exists regarding the signalling system in use:

Section 10 Possession and Worksite Protection requirements:

Section 11 Inspection and testing personnel requirements:

Section 12 Organisation Chart for inspection and testing program

Section 13 Access requirements or restrictions:

Section 14 Requirements for the coordination with other works:

Section 15 Test equipment and site communication requirements

Section 16 Training and accreditation requirements:

Section 17 Special requirements:

Section 18 Schedule of reviews and approvals:

Section 19 Complete the Quality and Inspection & Testing Strategy Check Lists:

Version No:	Date:	Quality Assurance-Strategy including –Notification, Witness and Hold Points		Page 1 of		
Number/s / Location	Activity Type	Activity Details	N / W / H	Activity Details	N / W / H	
Eg. Foundations: Signal. No: Ground Frame: Telephone: Other:	Design Control Activities	Verify construct drawings		Pre-Site Testing		
	Process Inspections	Excavation		Supplier inspection		
		Pre-pour		Delivery Inspection		
		Back fill		Methodology		
	Client Requirements			3 rd Party requirements		
Cable Routes: Buried. From to G.S.T. From to G.L.T. From to Pits Turning Chambers:	Design Control Activities	Verify construct drawings		Pre-Site Testing		
	Process Inspections	Excavation		Supplier inspection		
		Pre-pour		Delivery Inspection		
		Back fill		Methodology		
	Client Requirements			3 rd Party requirements		
Trackside Installation: Cabling / jointing. Track circuit. Level Crossing. Other:	Design Control Activities	Verify construct drawings		Pre-Site Testing		
	Process Inspections	Excavation		Supplier inspection		
		Pre-pour		Delivery Inspection		
		Back fill		Methodology		
	Client Requirements			3 rd Party Requirements		
Locations: Base. Cabinet. Earth mat. Other:	Design Control Activities	Verify construct drawings		Pre-Site Testing		
	Process Inspections	Excavation		Supplier inspection		
		Pre-pour		Delivery Inspection		
		Back fill		Methodology		
	Client Requirements			3 rd Party requirements		
Signalling Equipment: Signals: Points: Trainstop. Relays. Track Circuit Equipment. Equipment Racks. Power Supply / Surge.	Design Control Activities	Verify to design drawings		Pre-Site Testing		
	Process Inspections	Relay Testing		Supplier inspection		
		Trainstop Cycling		Delivery Inspection		
		Storage/Transport		Methodology		
		Others:				

Inspection & Testing Strategy Check List		Design Control		Site Integrity Agreement	Accept Testing of Equipment	Inspection of Apparatus		Circuit Testing	Apparatus Function Testing	System Function Testing
		Correlation of Existing to Design	Document Status Control			Document Certification	General			
System /Apparatus										
1 Train Describer										
2 Remote Control Panel										
3 Remote Diagram										
4 Telemetry System (control, ind.)										
5 Local Control Panel										
6 Local Diagram										
7 Communications	External									
	(voice/data) Local									
8 Interlocking										
9 Distributed Controls										
10 Interfaces	At limit of work									
	Within limit of work									
11 Distributed Indications/Data Capture										
12 Electrical Power -	Supply									
	Distribution									
13 Compressed Air -	Supply									
	Distribution									
14 Cable Routes										
15 External Cabling										
16 Locations										
	Earthing / Surge protection									
	D.C. Power Supplies									
	Local A.C Power Supplies									
	Relays									
	Wires/Cables/Terminals									
17 Trackside Apparatus										
	Signals									
	Train Stops									
Structure										
	Releasing Arrangements									
	Track Circuits									
	Level Crossings									
Points										
	Indicators / Notice Boards									
	Safeworking phones									
18 Mechanical	Ground Frames									

Part 2 – Inspection and Testing Outline Plan

Project Name :

Inspection and Testing Plan No.

Stage :

Commissioning Engineer :

Date :

Prepared by :

Name :

Position :

Signature :

Date :

Approved by :

Name :

Position :

INSPECTION AND TESTING PLAN No.			OUTLINE PLAN STAGE :		
Project Name:			Commissioning Engineer:		
Activity	System / Apparatus	Certified By	Certification Documents	Standards/ Procedures	Time

Part 3 – Inspection and Testing Detailed Plan

Project Name :

Inspection and Testing Plan No:

Stage :

Commissioning Engineer :

Date :

Prepared by :

Name :

Position :

Signature :

Date :

Approved by :

Name :

Position :

Signature :

Date :

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MINOR SIGNALLING WORK PACKAGE AUTHORISATION

Minor Work Job Name :

Region and Location/s of the work :

Work Package Register No. :

Project Safety Agreement Registration Number:

Interface Coordination Plan No :

Approved Design Details :

Document Type	Design Name and Job No	Version
Circuit Book		
Signal Plan		
Other:		

Scope of Works : Scope of Works as included in W12F01.

Prepared by:		Approved in Principle by:	
Position:	Commissioning Engineer	Position:	Regional Signal Representative
Print Name:		Print Name:	
Sign;		Sign:	
Date:		Date:	

Inspection and Testing Plan – Minor Signalling Works						Version: Package No:	
LISTING OF SIGNALLING AND COMMUNICATIONS ASSETS - <u>New Or Altered</u>				LISTING OF SIGNALLING AND COMMUNICATIONS ASSETS; <u>Removed</u>			
Asset Type	Description	Asset Type	Description	Asset Type	Description	Asset Type	Description
SIGNALLING SAFEWORKING REQUIREMENT				OTHER REQUIREMENTS			
Activity	Where and When	Who is responsible		REQUIREMENT	DETAILS		
				Possession:			
				Other Parties			
				Personnel:			
				Special Considerations:			
				Waivers:			

Version No:	Date:	Minor Works. Installation – Inspection – Testing / Commissioning Detailed Plan & Signalling Safeworking Requirements				Page 1 of 1
Asset Type and Name/s	Activity Type	Activity Details	W.I No	Activity Details	W.I No	
	Design Control Activities	Correlation checking		Certification of Drawings		
	Inspection Activities	General Inspection		Warding/Indexing/Coding		
	Testing Activities	Documentation Check		Circuit Testing		
		Function Testing		System Testing		
	Other	Acceptance Testing		Operational Function Check		
	Design Control Activities	Correlation checking		Certification of Drawings		
	Inspection Activities	General Inspection		Warding/Indexing/Coding		
	Testing Activities	Documentation Check		Circuit Testing		
		Function Testing		System Testing		
	Other	Acceptance Testing		Operational Function Check		
	Design Control Activities	Correlation checking		Certification of Drawings		
	Inspection Activities	General Inspection		Warding/Indexing/Coding		
	Testing Activities	Documentation Check		Circuit Testing		
		Function Testing		System Testing		
	Other	Acceptance Testing		Operational Function Check		
	Design Control Activities	Correlation checking		Certification of Drawings		
	Inspection Activities	General Inspection		Warding/Indexing/Coding		
	Testing Activities	Documentation Check		Circuit Testing		
		Function Testing		System Testing		
	Other	Acceptance Testing		Operational Function Check		
	Design Control Activities	Correlation checking		Certification of Drawings		
	Inspection Activities	General Inspection		Warding/Indexing/Coding		
	Testing Activities	Documentation Check		Circuit Testing		
		Function Testing		System Testing		
	Other	Acceptance Testing		Operational Function Check		
SIGNALLING SAFEWORKING – MANUAL J		Equipment Book in / Out		Other		

Version No:	Date:	Minor Works. Installation – Inspection – Testing Quality Assurance-Strategy.			Page 1 of 1	
				<u>Notification, Witness and Hold Points</u>		
Number/s / Location	Activity Type	Activity Details	N / W / H	Activity Details	N / W / H	
Eg. Foundations: Signal. No: Ground Frame: Telephone: Other:	Design Control Activities	Verify construct drawings		Pre-Site Testing		
	Process Inspections	Excavation		Supplier inspection		
		Pre-pour		Delivery Inspection		
		Back fill		Methodology		
	Client Requirements			3 rd Party requirements		
Cable Routes: Buried. From to G.S.T. From to G.L.T. From to Pits Turning Chambers:	Design Control Activities	Verify construct drawings		Pre-Site Testing		
	Process Inspections	Excavation		Supplier inspection		
		Pre-pour		Delivery Inspection		
		Back fill		Methodology		
	Client Requirements			3 rd Party requirements		
Trackside Installation: Cabling / jointing. Track circuit. Level Crossing. Other:	Design Control Activities	Verify construct drawings		Pre-Site Testing		
	Process Inspections	Excavation		Supplier inspection		
		Pre-pour		Delivery Inspection		
		Back fill		Methodology		
	Client Requirements			3 rd Party Requirements		
Locations: Base. Cabinet. Earth mat. Other:	Design Control Activities	Verify construct drawings		Pre-Site Testing		
	Process Inspections	Excavation		Supplier inspection		
		Pre-pour		Delivery Inspection		
		Back fill		Methodology		
	Client Requirements			3 rd Party requirements		
Signalling Equipment: Signals: Points: Trainstop. Relays. Track Circuit Equipment. Equipment Racks. Power Supply / Surge.	Design Control Activities	Verify to design drawings		Pre-Site Testing		
	Process Inspections	Relay Testing		Supplier inspection		
		Trainstop Cycling		Delivery Inspection		
		Storage/Transport		Methodology		
		Others:				

Minor Signalling Work - Installation, Inspection, Testing and Commissioning Log						Log Page No.
Job Name:				Entered by: Commissioning engineer / Site manager / Work group leader / Team leader – Name and Signature:		
Line Item No.	Date/Time	Team	Reported By	Report	Action; Transferred to WI No; / See Line Item No.	

Checked and Signed off that items have been satisfactorily completed by:

Name: {Insert Name}
Position: {Insert Position Title}
Signature: _____ Date: {dd/mm/yy}

INSTALLATION WORK PACKAGE

{Insert Project Name}

{Insert Package Title (If more than one package is required)}

Installation Work Package

I&T Plan No. *{Insert.}*

(IWP) No. *{Insert}*

Prepared By: *{Insert Name}*

Commissioning Engineer

Date: *{Insert Date}*

Reviewed and Approved By:

See Authorisation Of Installation Work Package Page 3

Date of issue: *{Insert Date}*

Revision: *{Insert Rev No}*

Copy Number: *{Insert Copy #}*

Volume: *{Insert.}* of *{Insert.}*

Authorisation of Installation Work Package	
PROJECT: <i>{Insert Project Name}</i>	STAGE:
INSPECTION AND TESTING PLAN REFERENCE NO.:	WORK PACKAGE NO.:
<p style="text-align: center;">This INSTALLATION WORK PACKAGE is approved for use by:</p> <p>Signature : _____</p> <p>Name : _____ Date : _____</p> <p style="text-align: center;"><i>{Commissioning engineer}</i></p> <p>Signature : _____</p> <p>Name : _____ Date : _____</p> <p style="text-align: center;"><i>Regional signalling representative (Approved in principle)}</i></p>	

Register of Working Documents

Project: *{Insert Project Name}*

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(Copies of all forms listed below are enclosed)

[illegible]

Name: *{Insert Name}*
Position: *{Insert Position Title}*
Signature:

Date: {dd/mm/yy}

Project: *{Insert Project Name}*

Name: *{Insert Name}*
Position: *{Insert Position Title}*
Signature:

Date: {dd/mm/yy}

Project: *{Insert Project Name}*

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Project: *{Insert Project Name}*

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Project: *{Insert Project Name}*

Checked By

Name: *{Insert Name}*

Position: *{Insert Position Title}*

Signature: _____ **Date:** *{dd/mm/yy}*

Register of Quality Assurance Documentation

Project: *{Insert Project Name}*

Name: *{Insert Name}*
 Position: *{Insert Position Title}*
 Signature: _____ Date: *{dd/mm/yy}*

Type Approvals

Accreditation / Competency Certificates

Pre-Installation Test Certificates

Project: *{Insert Project Name}*

[illegible]

Name: *{Insert Name}*
Position: *{Insert Position Title}*
Signature:

Date: {dd/mm/yy}

Installation Inspection and Testing Log

[illegible]

[illegible]

Register of Installation Work Instructions

Project: *{Insert Project Name}*

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Issued December 2012

Prepared Installation Work Instructions

Installation Work Instruction		NO. <i>{INSERT}</i>	
		Sheet : <i>{x of y}</i>	
Project:		Stage:	
SHIFT TIME TO		DATE:	
TEAM LEADER:		Team No:	
Authorising Officer:		Date:	
Activity:			
Standards/Procedures/Drawings:			
Activity No.	Task No.	WORK DESCRIPTION	Time Completed

(See over for completion of Work Instruction)

WORK NOT COMPLETED				
ACT	TASK	DETAILS	TRANSFERRED	
			Log Line Item	WI No.

WORK STATUS STATEMENT		RECEIVED/CHECKED/ACTION STATEMENT	
<p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Position _____</p> <p>Signature: _____ Date _____</p>		<p>Name: _____</p> <p>Position _____</p> <p>Signature: _____ Date _____</p>	

Issued Work Instructions

Completed Work Instructions

Installation Inspection and Testing Status Certificate

INSTALLATION INSPECTION AND TESTING STATUS CERTIFICATE

PROJECT:

INSPECTION AND TESTING PLAN
REFERENCE NO. :

STAGE:

WORK PACKAGE
NO.:

REFER ATTACHED PAGE No.

(a) Installation Work Instructions YES/NO
Uncompleted Tasks

(b) Log YES/NO
Uncompleted Actions

(c) Approved Variations to YES/NO
Inspection and Testing Plan

(d) Approved Variations to YES/NO
Standards or Procedures

The installation inspection and testing activities listed on the above referenced Inspection and Testing Plan for this stage of the Project have been completed in accordance with the applicable Standards and Procedures as certified in this Installation Work Package with the exception of those items detailed above and included on the following pages.

All uncompleted Tasks and Actions have been transferred to the applicable Commissioning Work Package as detailed on this Certificate.

The installation inspection and testing as detailed above has been completed and is satisfactory.

Signature : _____

Name : _____

Date : _____

Commissioning Engineer

PAGE OF

PROJECT:

INSPECTION AND TESTING PLAN
REFERENCE NO. :

STAGE:

WORK PACKAGE
NO.:

INSTALLATION WORK INSTRUCTION UNCOMPLETED TASKS

[illegible]

PAGE OF

INSTALLATION INSPECTION AND TESTING STATUS CERTIFICATE	
PROJECT:	STAGE:
INSPECTION AND TESTING PLAN REFERENCE NO. :	WORK PACKAGE NO.:
APPROVED VARIATIONS TO INSPECTION AND TESTING PLAN	
VARIATION	APPROVED BY
PAGE OF	

INSTALLATION INSPECTION AND TESTING STATUS CERTIFICATE	
PROJECT:	STAGE:
INSPECTION AND TESTING PLAN REFERENCE NO. :	WORK PACKAGE NO.:
APPROVED VARIATIONS TO STANDARDS OR PROCEDURES	
VARIATION	APPROVED BY
PAGE OF	

Transmittals

COMMISSIONING WORK PACKAGE

<i>{Insert Project Name}</i>	
<i>{Insert Package Title (If more than one package is required)}</i>	
I&T Plan No. <i>{Insert.}</i>	Commissioning Work Package (CWP) No. <i>{Insert}</i>

Prepared By: Commissioning engineer	<i>{Insert Name}</i>
Date:	<i>{Insert Date}</i>

Reviewed and Approved By:
See Authorisation Of Commissioning Work Package Page 4

Date of issue: <i>{Insert Date}</i>	Revision: <i>{Insert Rev No}</i>	Copy Number: <i>{Insert Copy #}</i>
Volume: <i>{Insert.}</i> of <i>{Insert.}</i>		

Section 1 – Preparation

Authorisation of Commissioning Work Package	
PROJECT: <i>{Insert Project Name}</i>	STAGE:
INSPECTION AND TESTING PLAN REFERENCE NO.:	WORK PACKAGE NO.:
<p style="text-align: center;">This COMMISSIONING WORK PACKAGE is approved for use by:</p> <p>Signature : _____</p> <p>Name : _____ Date : _____</p> <p style="text-align: center;"><i>{ Commissioning engineer (Approved)}</i></p> <p>Signature : _____</p> <p>Name : _____ Date : _____</p> <p style="text-align: center;"><i>{Regional signalling representative (Approved in principle)}</i></p>	

Safeworking Forms & Permits

SAFEWORKING FORMS AND PERMITS			
PROJECT:		STAGE:	
INSPECTION AND TESTING PLAN		WORK PACKAGE	
REFERENCE NO. :		NO.:	
FORM No	REQUIRED	PERMITS	REQUIRED
BOOKING AUTHORITY NRF 003	YES / NO	HIGH VOLTAGE FEEDERS ISOLATION ORDERS	YES / NO
LOCKING CERTIFICATE Mechanical S.W.F.S4.304A	YES / NO	WORKING HIGH VOLTAGE INSTRUCTION	YES / NO
Relay Interlocking S.W.F.S4.304B	YES / NO	MAINS ACCESS PERMIT	YES / NO
Function Test S.W.F.S4.304C	YES / NO	SUBSTATION ACCESS PERMIT	YES / NO
		LOW VOLTAGE ACCESS PERMIT	YES / NO
		AUTHORITY FOR REMOVAL OF SUPPLY FROM 1500 VOLT SECTIONS	YES / NO
		1500 VOLT OVERHEAD WIRING PERMIT TO WORK	YES / NO
		ADVICE OF ALTERATIONS TO ELECTRICAL SYSTEM OPERATING DIAGRAMS	YES / NO
		INSTALLATION TEST REPORT	YES / NO
		LOCAL SUPPLY AUTHORITY NOTIFICATION OF ELECTRICAL WORK	YES / NO
CHECKED BY :			
NAME :			
POSITION :			
SIGNATURE :		DATE :	

Weekly Notices and Circulars

Scope of Works

**Including:
List of Working Drawings, and
List of Commissioning Activities**

Commissioning Program

Commissioning Notices

Prepared Pre-Commissioning Work Instructions

Pre-Commissioning Work Instruction		NO.	
		Sheet of	
PROJECT:		STAGE:	
INSPECTION AND TESTING PLAN REFERENCE NO. :		WORK PACKAGE NO.:	
SHIFT TIME TO		DATE:	
TEAM LEADER:		Team No:	
Authorising Officer:		Date:	
Prepared By:		Date:	
Activity:			
Standards/Procedures/Drawings			
Activity/Task No.		Report to HQ Every: Report by Radio CH:	Time Completed
		Phone No:	
ACT	TASK	WORK DESCRIPTION	

(Work Instruction Continued)

COMMENTS FOR POST REVIEW MEETING
REPORTING INSTRUCTIONS: <i>{As Arranged with Commissioning Engineer}</i>

COMMUNICATIONS DIRECTORY	
Headquarters: : Signal Boxes : Locations : Signal Post Telephones :	Emergency Numbers Police : Ambulance : Hospital : Operations Control : Elec Trouble :

WORK NOT COMPLETED				
ACT	TASK	DETAILS	TRANSFERRED	
			Log Line Item	WI No.

WORK STATUS STATEMENT The Work described above has been performed and recorded in accordance with the specified standard Name: _____ Position _____ Signature: _____ Date _____	RECEIVED/CHECKED/ACTION STATEMENT Name: _____ Position _____ Signature: _____ Date _____
---	--

Prepared Commissioning Work Instructions

Commissioning Work Instruction		NO.	
		Sheet of	
PROJECT:		STAGE:	
		WORK PACKAGE NO.:	
SHIFT TIME TO		DATE:	
TEAM LEADER:		Team No:	
Authorising Officer:		Date:	
Prepared By:		Date:	
Activity:			
Standards/Procedures/Drawings			
Activity/Task No's.		Report to HQ Every: Report by Radio CH: Phone No:	Time Completed
ACT	TASK	WORK DESCRIPTION	

(Work Instruction Continued)

COMMENTS FOR POST REVIEW MEETING
<p style="text-align: center;">REPORTING INSTRUCTIONS:</p> <p>Team Leaders are to report to the Headquarters at intervals shown on the front of this work instruction to advise progress and any problem that will delay completion of allocated activities and problems not directly related to your activities.</p>

COMMUNICATIONS DIRECTORY		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top; padding-right: 10px;"> Headquarters: : Signal Boxes : Locations : Signal Post Telephones : </td> <td style="width: 50%; vertical-align: top;"> Emergency Numbers Police : Ambulance : Hospital : Operations Control : Elec Trouble : </td> </tr> </table>	Headquarters: : Signal Boxes : Locations : Signal Post Telephones :	Emergency Numbers Police : Ambulance : Hospital : Operations Control : Elec Trouble :
Headquarters: : Signal Boxes : Locations : Signal Post Telephones :	Emergency Numbers Police : Ambulance : Hospital : Operations Control : Elec Trouble :	

WORK NOT COMPLETED				
ACT	TASK	DETAILS	TRANSFERRED	
			Log Line Item	WI No.

<p style="text-align: center;">WORK STATUS STATEMENT</p> <p style="text-align: center;">The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Position _____</p> <p>Signature: _____ Date _____</p>	<p style="text-align: center;">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Position _____</p> <p>Signature: _____ Date _____</p>
---	---

Prepared Post-Commissioning Work Instructions

Post-Commissioning Work Instruction		NO.	
		Sheet of	
PROJECT:		STAGE:	
		WORK PACKAGE NO.:	
SHIFT TIME TO		DATE:	
TEAM LEADER:		Team No:	
Authorising Officer:		Date:	
Prepared By:		Date:	
Activity:			
Standards/Procedures/Drawings			
Activity/Task No.	Task No.	Report to HQ Every: Report by Radio CH: Phone No:	Time Completed
ACT	TASK	WORK DESCRIPTION	

(Work Instruction Continued)

COMMENTS FOR POST REVIEW MEETING
<p style="text-align: center;">REPORTING INSTRUCTIONS:</p> <p>Team Leaders are to report to the Headquarters at intervals shown on the front of this work instruction to advise progress and any problem that will delay completion of allocated activities and problems not directly related to your activities.</p>

COMMUNICATIONS DIRECTORY		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top; padding: 5px;"> Headquarters: : Signal Boxes : Locations : Signal Post Telephones : </td> <td style="width: 50%; vertical-align: top; padding: 5px;"> Emergency Numbers Police : Ambulance : Hospital : Operations Control : Elec Trouble : </td> </tr> </table>	Headquarters: : Signal Boxes : Locations : Signal Post Telephones :	Emergency Numbers Police : Ambulance : Hospital : Operations Control : Elec Trouble :
Headquarters: : Signal Boxes : Locations : Signal Post Telephones :	Emergency Numbers Police : Ambulance : Hospital : Operations Control : Elec Trouble :	

WORK NOT COMPLETED				
ACT	TASK	DETAILS	TRANSFERRED	
			Log Line Item	WI No.

<p style="text-align: center;">WORK STATUS STATEMENT</p> <p style="text-align: center;">The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Position _____</p> <p>Signature: _____ Date _____</p>	<p style="text-align: center;">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Position _____</p> <p>Signature: _____ Date _____</p>
---	---

Minutes of Pre-Commissioning Meeting

Section 2 – Implementation

Register of Pre-Commissioning Work Instructions

Project: *{Insert Project Name}*

Page 74 of 180
Version 2.1

Register of Commissioning Work Instructions

Project: *{Insert Project Name}*

[illegible]

Register of Post-Commissioning Work Instructions

Project: *{Insert Project Name}*

[illegible]

Completed Pre-Commissioning Work Instructions

Completed Commissioning Work Instructions

Completed Post-Commissioning Work Instructions

Section 3 - Evaluation

Commissioning Certificate

Commissioning Certificate Part 1		No.:	
		Page 1 of 2	
Project Name:		Stage: C.W.P. No.:	
Location:		Contractor:	
Weekly Notice No.		Circular No.	
WORK DESCRIPTION -			
ITEM	WORK ACTIVITY	STATUS	SIGNATURE
1.0	WORK INSTRUCTIONS <i>All Checked and Actioned</i>		
2.0	COMMISSIONING LOG <i>All Entries Checked and Actioned</i>		
3.0	CONTROL TABLE FUNCTION TEST/DESIGN INTEGRITY CERTIFICATION		
3.1	MECHANICAL INTERLOCKING TESTS		
3.2	RELAY INTERLOCKING TESTS		
3.3	ROUTE SET INTERLOCKING TESTS		
3.4	C.B.I. TESTS		
3.5	AUTO-SECTION TESTS		
3.6	BLOCK INSTRUMENT AND STAFF INSTRUMENT TESTS		
3.7	LEVEL CROSSING TESTS		
3.8	ASPECT SEQUENCE TESTS		
3.9	POINTS CORRESPONDENCE TESTS		

Commissioning Certificate - Part 2		No.:	
		Page 2 of 2	
ITEM	DOCUMENT	STATUS	SIGNATURE
4.0	DOCUMENTS CHECKED, COMPLETE AND CERTIFIED		
4.1	TYPE APPROVALS		
4.2	ISSUED DESIGN DOCUMENTS (List in detail, Attach additional sheet if necessary)	Show the status of Inspection, testing and certification associated with each item listed.	
4.3	MODIFICATIONS (List first and last Nos)		
4.4	TRACK CIRCUITS: MASTER SHEETS (No.1 & 2) TRACK HISTORY CARDS		
4.5	TC-4 - TRAINSTOPS		
4.6	TC-6 - F.P.L. AND DETECTION		
4.7	TC-10 - LEVEL CROSSINGS		
4.8	TC-* (Any additional TC's as required)		
4.9	C.B.I. CERTIFICATES (List in detail, Attach additional sheet if necessary)		
5.0	EXCEPTIONS (List details of any work not to be not to be commissioned into use. Attach additional sheet if necessary.)		
COMMISSIONING STATEMENT - I CERTIFY THAT THE WORK AS DETAILED ON THIS CERTIFICATE HAS BEEN INSPECTED AND TESTED AND IS FUNCTIONAL AND FIT FOR PURPOSE IN ACCORDANCE WITH THE SPECIFIED REQUIREMENTS, AND READY TO BE BROUGHT INTO USE			
POSITION :			
NAME :			
SIGNATURE :			
DATE : TIME :			

Commissioning Log

Commissioning Log

Project: *{Insert Project Name}*

[illegible]

Checked By

Name: *{Insert Name}*
Position: *{Insert Position Title}*
Signature:

Date:{*dd/mm/yy*}

Attendance Book

Report on Post-Commissioning Meeting

Transmittals

TO:

FROM:.....

NAME:.....

SIGNATURE:.....

DATE:.....

PROJECT

•

I.W.P. No.

•

REMARKS:

For information contact:

Telephone:

RECEIPT ACKNOWLEDGEMENT

I acknowledge receipt of the above listed documents

Name :

Signature :

Date :

Please acknowledge by signing receipt acknowledgment and returning to sender.

HANDOVER DOCUMENTATION PACKAGE

<i>{Insert Project Name}</i>
<i>{Insert Package Title (If more than one package is required)}</i>

Prepared By: (Commissioning Engineer)	<i>{Insert Name}</i>
Date:	<i>{Insert Date}</i>

Date of issue: <i>{Insert Date}</i>	Revision: <i>{Insert Rev No}</i>	Copy Number: <i>{Insert Copy #}</i>
Volume: <i>{Insert.}</i> of <i>{Insert.}</i>		

Updated Asset Register

Interim Maintenance Copies of Design Documents

Spare Equipment

Equipment Manuals

Certificate of Practical Completion

Commissioning Work Package

Copies of Inspection and Test Records

Maintenance Issue of Design Documents

Certificate of Acceptance

Certificate of Acceptance

The *{Insert Project Name}* was
commissioned into use on *{insert Date}*
and is accepted.

Signed:

Commissioning engineer	Regional signalling representative
Name:	Name:
Position:	Position:
Date:	Date:
Signature:	Signature:

TEST AND CERTIFY (TC) FORMS and INSPECTION AND TESTING FORMS (ITF's)

TC 1(a). Colour Light Signal Test Certificate

TC – 1(A)..... COLOUR LIGHT SIGNAL TEST CERTIFICATE
--

LOCATION:	Record Value and / or Initial each Section as checked
-----------	---

SIGNAL No.	PRIMARY VOLTS	TOP GREEN	TOP YELLOW	TOP RED	BOTTOM GREEN	BOTTOM YELLOW / RTO	BOTTOM RED / MARKER		LENS COLOURS VERIFIED	ECR/FCOR FUNCTION		FOCUS TO
		SECONDARY VOLTS	SECONDARY VOLTS	SECONDARY VOLTS	SECONDARY VOLTS	SECONDARY VOLTS	SECONDARY VOLTS			LAMP OUT	FILAMENT FAIL	m

REMARKS:

Certified By: NAME _____	SIGNATURE: _____	DATE: ____/____/____
Received/Checked/Actioned By ;NAME _____	SIGNATURE: _____	DATE: ____/____/____

TC 1(b). Double Light Signal. Test Certificate (L.E.D)

TC – 1(b) DOUBLE LIGHT SIGNAL L.E.D TEST CERTIFICATE													
LOCATION: Km SIGNAL NUMBER: Controlled / Automatic Repeater/Co-Acting <i>Record Value and / or Initial each Section as checked</i>													
SIGNAL ASPECT	VOLTAGE TEST	R / R	G / R	G / Y	G / G	Y / R	Y / Y	#		Signal Profile & L.E.D Colours Verified	Function / Adjust Lamp Proving	Insulation Test	Focussed to "X" Metres
TOP GREEN	A.C Side												
	D.C Side												
TOP YELLOW	A.C Side												
	D.C Side												
TOP RED	A.C Side												
	D.C Side												
BOTTOM GREEN	A.C Side												
	D.C Side												
BOTTOM YELLOW	A.C Side												
	D.C Side												
BOTTOM RED	A.C Side												
	D.C Side												
#	A.C Side												
	D.C Side												
NOTES: # Add all Subsidiary Aspects, Route Indicators, "A" lights. Check of D.C side required (if possible) when a A.C voltage across an "off" aspect is significant.									REMARKS:				
Tested by: NAME _____									SIGNATURE: _____			DATE: ____ / ____ / 20 ____	
Received/Checked/Actioned By ;NAME _____									SIGNATURE: _____			DATE: ____ / ____ / 20 ____	

TC 1(c). Single Light Signal. Test Certificate (L.E.D)

TC – 1 (c) SINGLE LIGHT SIGNAL L.E.D TEST CERTIFICATE																				
LOCATION: Km SIGNAL NUMBER: Controlled / Automatic Repeater / Co-Acting (Record Value and / or Initial each Section as checked)																				
SIGNAL ASPECT	VOLTAGE TEST	Red / Marker	Yellow	Green	R.T.O or Low Speed	Shunt / Route indicator	Distant		Signal Profile & L.E.D Colours Verified	Function / Adjust Lamp Proving	Insulation Test	Focussed To "X" Metres								
							Yellow Remove main lamp for marker	Green												
GREEN	A.C Side																			
	D.C Side																			
YELLOW	A.C Side																			
	D.C Side																			
RED	A.C Side																			
	D.C Side																			
MARKER	A.C Side																			
	D.C Side																			
RTO or Low Speed	A.C Side																			
	D.C Side																			
SHUNT	A.C Side																			
	D.C Side																			
Route Indicator	A.C Side(1)																			
	A.C Side(2)																			
"A" Light	A.C Side (on)																			
	A.C Side (off)																			
NOTES: Check of D.C side required (if possible) when a A.C voltage across an "off" aspect is significant.							REMARKS:													
Tested by: NAME _____							SIGNATURE: _____										DATE: ____ / ____ / 20 ____			
Received/Checked/Actioned By ;NAME _____							SIGNATURE: _____			DATE: ____ / ____ / 20 ____										

TC 2A Cable Insulation Test Certificate


TC 2A

CABLE INSULATION TEST CERTIFICATE

No. _____

PROJECT:	Prepared By:
Location / Description:	Work Package No:

Cable Type	No of Cores	Specification No
From Location	To Location	Cable Name

Core No	Contin-uity	Insul Resist To Core			Core No	Contin-uity	Insul Resist To Core			Core No	Contin-uity	Insul Resist To Core		
		Core	Shield	Earth			Core	Shield	Earth			Core	Shield	Earth
Shield					17					34				
1					18					35				
2					19					36				
3					20					37				
4					21					38				
5					22					39				
6					23					40				
7					24					41				
8					25					42				
9					26					43				
10					27					44				
11					28					45				
12					29					46				
13					30					47				
14					31					48				
15					32					49				
16					33					50				

Weather Conditions:	Wet / Damp / Dry
Wire Count on each cable core termination correct	YES / NO

REMARKS

Note: Where insulation values are greater than the minimum value, boxes may be ticked. Actual value entries must be made where the figure is less than the minimum value, viz..

Core to core 100 M, (60 Mohm/km if cable > 500 m long)

Core to Shield 100 M, (60 Mohm/km if cable >500 m long);

Shield to Earth 10 M, (5 Mohm/km if cable > 500 m long)

<p style="text-align: center;">WORK STATUS STATEMENT</p> <p>The Insulation tests described above have been performed and the results recorded are in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p style="text-align: center;">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
---	--

TC 2B Cable Insulation Test Certificate

TC 2B

CABLE INSULATION TEST CERTIFICATE. No _____

PROJECT:	Prepared By:
Location / Description:	Work Package No:

Cable Type	Cable type	Cable Type
No of Cores	No of Cores	No of Cores
From To	From To	From To
Cable Name	Cable Name	Cable Name

Core No	Continuity	Insul Resist To			Core No	Continuity	Insul Resist To			Core No	Continuity	Insul Resist To		
		Core	Shield	Earth			Core	Shield	Earth			Core	Shield	Earth
Shield					Shield					Shield				
1					1					1				
2					2					2				
3					3					3				
4					4					4				
5					5					5				
6					6					6				

Cable Type	Cable Type	Cable Type
No of Cores	No of Cores	No of Cores
From To	From To	From To
Cable Name	Cable Name	Cable Name

Shield					Shield					Shield				
1					1					1				
2					2					2				
3					3					3				
4					4					4				
5					5					5				
6					6					6				

Weather Conditions:	Wet / Damp / Dry
Wire Count on each cable core termination correct	YES / NO

REMARKS

Note: Where insulation values are greater than the minimum value, boxes may be ticked. Actual value entries must be made where the figure is less than the minimum values, viz.
 Core to Core 100 M (60 Mohm/km if cable >500 m long);
 Core to Shield 100 M (60 Mohm/km if cable > 500 m long);
 Shield to Earth 10 M (5 Mohm/km if cable > 500 m long)

<p style="text-align: center;">WORK STATUS STATEMENT</p> <p>The Insulation tests described above have been performed and the results recorded are in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p style="text-align: center;">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
---	--

TC 2C Cable Insulation Test Certificate

TC 2C

CABLE INSULATION TEST CERTIFICATE No. _____

PROJECT:	Prepared By:
Location / Description:	Work Package No:

Cable Type	Cable type	Cable Type
No of Cores	No of Cores	No of Cores
From To	From To	From To
Cable Name	Cable Name	Cable Name

Core No	Contin-uity	Insul Resist To:			Core No	Contin-uity	Insul Resist To:			Core No	Contin-uity	Insul Resist To:		
		Core	Shield	Earth			Core	Shield	Earth			Core	Shield	Earth
Shield					Shield					Shield				
1					1					1				
2					2					2				
3					3					3				
4					4					4				
5					5					5				
6					6					6				
7					7					7				
8					8					8				
9					9					9				
10					10					10				
11					11					11				
12					12					12				
13					13					13				
14					14					14				
15					15					15				

Weather Conditions:	Wet / Damp / Dry
Wire Count on each cable core termination correct	YES / NO

REMARKS

Note: Where insulation values are greater than the minimum value, boxes may be ticked. Actual value entries must be made where the figure is less than the minimum values, viz

Core to Core 100 M (60 Mohm/km if cable >500 m long);

Core to Shield 100 M (60 Mohm/km if cable > 500 m long);

Shield to Earth 10 M (5 Mohm/km if cable > 500 m long)

<p style="text-align: center;">WORK STATUS STATEMENT</p> <p>The Insulation tests described above have been performed and the results recorded are in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p style="text-align: center;">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
---	--

Train Stop Test Certificate

TC - 4 TRAIN STOP TEST CERTIFICATE							
LOCATION:				Tests to be carried out in accordance with Manual			

TRAIN STOP No.	GAUGED	SAFETY LATCH	CONTACT ADJUSTED		TRAIN STOP No.	GAUGED	SAFETY LATCH	CONTACT ADJUSTED

REMARKS:								
----------	--	--	--	--	--	--	--	--

TEAM LEADER NAME: _____	SIGNATURE: _____	DATE: ____/____/____
Received/Checked/Actioned By NAME: _____	SIGNATURE: _____	DATE: ____/____/____

Pre - Site Test Certificate

TC 5

PRE - SITE TEST CERTIFICATE

No.-----

WP No:	Job/Contract No:	Prepared By:
Location / Description:		

Test	Tested by	
	Date	Tester's Signature
Apparatus - General Inspection		
Wire Count		
Null Count		
Bell Continuity Test		
Insulation Megger Test		

Equipment - Not Fitted [Wires run, crimped and labelled]

Equipment	Installed		Tested	
	Date	Signed	Date	Signed

REMARKS

Circulation:

Original - Attached firmly to the equipment in a protective envelope

Copy 1 - Commissioning Engineer, Copy 2 – Testing engineer, Copy 3 - Site office

Point Operating Test Certificate

TC – 6A POINTS OPERATING TEST CERTIFICATE
--

LOCATION:	Tests to be carried out in accordance with Manual
-----------	---

POINT END	TYPE*	AIR PRESSURE / OPERATING VOLTAGE	FACING POINT LOCK		DETECTION		INDICATION BOX			PLUNGER LOCK		RUN	SLIP**	MOTOR CUT OFF TIME	OPERATING TIME
		V	NORMAL	REVERSE	NORMAL	REVERSE	NORMAL	REVERSE	ESCAP	IN	OUT	AMPS	AMPS	SEC	SEC

REMARKS:

TEAM LEADER NAME: _____	SIGNATURE: _____	DATE: ____/____/____
Received/Checked/Actioned By NAME: _____	SIGNATURE: _____	DATE: ____/____/____

NOTES:

* TYPE: M - Mech., EP - EP, EM - Elec.

** With Induction Motors the difference between running current and slip current may not be measurable. Adjustments for each type of mechanism are given in the equipment manuals.

TC – 6B ELECTRIC CLAW LOCK POINTS OPERATING TEST CERTIFICATE IN-BEARER / ON-BEARER ** CONCRETE / TIMBER / STEEL **		
--	--	--

Tests to be carried out in accordance with Manual TMG E1341 & TMG E1343

REMARKS:

The diagram illustrates a locking set assembly. A blue dimension line indicates the **Lock Set Dimension** from the nominal position to the tolerance limits. The tolerance is specified as $-T$ and $+T$, with a specific tolerance value $T1$ noted. A blue arrow points to the **Nominal Locking Set Position**.

++ With Induction Motors, the difference between running current and slip current may not be measurable. Adjustments for each type of mechanism are given in the equipment manuals.

DATE: / /

DATE: ____/____/____

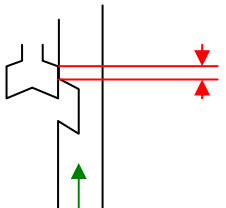
** Cross out not applicable

Point Operating Test Certificate

TC – 6C EP CLAW LOCK POINTS OPERATING TEST CERTIFICATE IN-BEARER / ON-BEARER **	CONCRETE / TIMBER / STEEL **
--	-------------------------------------

LOCATION:	Tests to be carried out in accordance with Manual TMG E1341 & TMG E1343
------------------	---

POINT END	STYLE *	SWITCH OPENING <i>Tangential 125-140mm 60kg 124-132mm 53kg 110-115mm</i>		REAR FLANGE OPENING <i>60mm +/- 5mm</i>		POINT LOCK TEST <i>Go 3.2mm No-Go 4.8mm</i>		CLAW LOCK COVERAGE (EP points) <i>HM open switch detector open when claw lock coverage on closed-switch is 25mm (20mm 53kg) or less</i>		OPERATING BAR DETECTION TEST (Catchpoints & Independent Switches) <i>U5A detector open when claw lock coverage on closed- switch is 25mm (20mm 53kg) or less</i>	PNEUMATIC MOTOR DETECTION TEST (where fitted) <i>Micro switches open when motor/operating bar travel is 4-5mm from the full Normal or full Reverse position.</i>		POINT SWITCH DETECTION TEST <i>Go 1mm No-Go 2mm + see note below</i>		CORRESPONDENCE TEST <i>includes Out of Correspondence refer to SPG 0711.4 for test combinations ✓ when complete</i>	PRESSURE SWITCH DETECTION n/c & n/o (where fitted) ✓ when complete	
		LHSC	RHSC	LHSC	RHSC	NOR	REV	NOR	REV	Closed Switch	NOR	REV	NOR	REV		NOR	REV

REMARKS:	<div style="text-align: center;"> <p style="color: red; margin: 0;"><u>Claw Lock Coverage</u></p> <p style="color: blue; margin: 0;">Measured with open-switch detection just broken</p>  </div>
----------	--

+ Ensure the contacts open when the detector roller has reached a position along the slide notch that would activate the contact block.

TESTER'S NAME: _____ SIGNATURE: _____ DATE: ____/____/____

Received/Checked/Actioned By NAME: _____ SIGNATURE: _____ DATE: ____/____/____

NOTES:

* (CONTROL VALVE) STYLE: **A / S / E / ES / T / N**

** Cross out not applicable

Point Operating Test Certificate (Electric Spherolock)

TC – 6D ELECTRIC SPHEROLOCK POINTS OPERATING TEST CERTIFICATE IN-BEARER / ON-BEARER ** CONCRETE / TIMBER / STEEL **															
LOCATION: Tests to be carried out in accordance with Manual TMG E1346 & TMG E1347															
POINT END	TYPE *	SWITCH OPENING <i>Tangential 125-127mm</i>		REAR FLANGE OPENING <i>60mm +/- 5mm</i>		POINT LOCK TEST <i>Go 1.6mm No-Go 3.2mm</i>		POINT SWITCH DETECTION TEST <i>Go 1mm No-Go 2mm + see note below</i>		CORRESPONDENCE TEST <i>includes Out of Correspondence</i> <i>refer to SPG 0711.4 for test combinations</i> <i>✓ when complete</i>	MOTOR OPERATION ++				
		LHSC	RHSC	LHSC	RHSC	NOR	REV	NOR	REV		Oper volts	Oper amps	Slip amps	Oper secs	Cut-out secs
REMARKS:															

+ Ensure the contacts open when the detector roller has reached a position along the slide notch that would activate the contact block.

++ With Induction Motors, the difference between running current and slip current may not be measurable. Adjustments for each type of mechanism are given in the equipment manuals.

TESTER'S NAME: _____ SIGNATURE: _____ DATE: ____/____/____

Received/Checked/Actioned By NAME: _____ SIGNATURE: _____ DATE: ____/____/____

NOTES:

* (MACHINE) TYPE: **D84M / TD 84M / 84M, (State if Mk I or Mk III)**

** Cross out not applicable

Point Operating Test Certificate

TC – 6E EP SPHEROLOCK POINTS OPERATING TEST CERTIFICATE IN-BEARER / ON-BEARER ** CONCRETE / TIMBER / STEEL **																	
LOCATION: Tests to be carried out in accordance with Manual TMG E1346 & TMG E1347																	
POINT END	STYLE *	SWITCH OPENING <i>Tangential 125-127mm</i>		REAR FLANGE OPENING <i>60mm +/- 5mm</i>		POINT LOCK TEST <i>Go 1.6mm No-Go 3.2mm</i>		SPHEROLOCK COVERAGE (EP points) <i>HM open switch detector open when operating bar travel from full Normal/Reverse is 20mm or less</i>		OPERATING BAR DETECTION TEST (Catchpoints & Independent Switches) <i>U5A detector open when operating bar travel from full Normal/Reverse is 20mm or less</i>		POINT SWITCH DETECTION TEST <i>Go 1mm No-Go 2mm + see note below</i>		CORRESPONDENCE TEST <i>includes Out of Correspondence refer to SPG 0711.4 for test combinations ✓ when complete</i>		PRESSURE SWITCH DETECTION n/c & n/o (where fitted) ✓ when complete	
		LHSC	RHSC	LHSC	RHSC	NOR	REV	NOR	REV	Closed Switch	NOR	REV		NOR	REV		

REMARKS:

+ Ensure the contacts open when the detector roller has reached a position along the slide notch that would activate the contact block.

TESTER'S NAME: _____ SIGNATURE: _____ DATE: ____/____/____

Received/Checked/Actioned By NAME: _____ SIGNATURE: _____ DATE: ____/____/____

NOTES:

* (CONTROL VALVE) STYLE: **A / S / E / ES / T / N**

** Cross out not applicable

Location Power Supply Test Certificate

TC - 7 LOCATION POWER SUPPLY TEST CERTIFICATE								
LOCATION					Tests to be carried out in accordance with Manual			
	VOLTAGE	CURRENT	VOLTS TO EARTH ACTIVE / POSITIVE	VOLTS TO EARTH COMMON / NEGATIVE	EARTH LEAKAGE DETECTORS			
120 V NORMAL SUPPLY					120 V		ECO TEST	
120 V EMERGENCY SUPPLY					PTS 120 V		INDICATION TEST	
50 V CHANNEL No1					INT 50V		PSI WARNING	
50 V CHANNEL No2					EXT 50 V		PSI FAIL	
REMARKS:								
TEAM LEADER NAME: _____				SIGNATURE: _____		DATE: ____/____/____		
Received/Checked/Actioned By NAME _____				SIGNATURE: _____		DATE: ____/____/____		

Motor Generator Test Certificate

TC - 8 MOTOR GENERATOR TEST CERTIFICATE						
Tests to be carried out in accordance with Manual						
LOCATION	BATTERY VOLTS		CYCLE TEST	RUN METER HOURS	OUTPUT VOLTAGE	FUEL TANK LEVEL
	CHARGER ON	CHARGER OFF				
REMARKS:						
<div style="display: flex; justify-content: space-between;"> <div>TEAM LEADER: NAME: _____</div> <div>SIGNATURE: _____</div> <div>DATE: ____/____/____</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>Received/Checked/Actioned By NAME: _____</div> <div>SIGNATURE: _____</div> <div>DATE: ____/____/____</div> </div>						

Circuit Breaker Test Certificate

TC - 9 CIRCUIT BREAKER TEST CERTIFICATE					
LOCATION					
C/B NUMBER OR NAME	C/B RATING AMPS	LOAD AMPS	C/B NUMBER OR NAME	C/B RATING AMPS	LOAD AMPS
REMARKS:					
TEAM LEADER NAME: _____			SIGNATURE: _____ / ____/ ____		
Received/Checked/Actioned By; NAME: _____			SIGNATURE: _____ DATE: ____/ ____/ ____		

DATE:

Level Crossing Test Certificate

TC - 10 LEVEL CROSSING TEST CERTIFICATE											
LEVEL CROSSING ROAD NAME:				LOCATION:				KILOMETRAGE:			

LAMP	LAMP VOLTS	LAMP FOCUS	LAMP	LAMP VOLTS	LAMP FOCUS	BATTERY CONDITIONS		LOAD CONDITIONS		BELL	
A			SS TIP			ALARM CARD SETTING		STANDING LOAD AMPS		SYDNEY SIDE VOLTS	
B			1			BUS VOLTS**		OPERATING LOAD AMPS		COUNTRY SIDE VOLTS	
C			2			CHARGE AMPS**		GATES RISE SECONDS		TIMER ADJUSTMENT	
D			CS TIP			BATTERY RECORD CARD COMPLETE		GATES LOWER SECONDS		CONTACT ADJUSTMENT	
E			1			CHARGER TAPPING (WHERE APPLICABLE)		GATES DELAY SECONDS			
F			2					BATTERY VOLTS##		UP SIDE ROAD	
G			PED 1							DOWN SIDE ROAD	
H			PED 2							UP TRACK	
J			PED 3					SIGNS		DOWN TRACK	
K			PED 4								
REMARKS:											
** Readings to be taken when charge rate has stabilised ## Switch battery charger off. Take voltage reading. Operate crossing for two (2) minutes and, with the crossing operating, take voltage reading (if gates fitted, with gates rising).											

TEAM LEADER NAME: _____	SIGNATURE: _____	DATE: ____/____/____
Received/Checked/Actioned By ; NAME: _____	SIGNATURE: _____	DATE: ____/____/____

TC 11

No. _____

[illegible]

Team Leader Name _____

Signature _____ **Date** _____

ITF 12

IRREGULARITIES FOUND IN TESTING

No_____

LOCATION / INTERLOCKING AREA: _____

DESIGN DRAWING REFERENCE No: _____

ISSUED TO COMMISSIONING ENGINEER

By Testing Engineer _____ DATE _____

APPROVED BY COMMISSIONING ENGINEER

SIGNATURE: _____ DATE _____

ISSUED TO COMMISSIONING ENGINEER

CERTIFICATION INSPECTION AND TESTING CHECKLISTS

ITF 13/0 Certification Inspection and Test Summary Checklist

No	Apparatus	Type Approval	Manufacturer Test Certificates	Apparatus Inspections		Circuit & Insulation Tests	Apparatus Function Test	Control & Interlocking Tests	Test from Operators Interface	Aspect Sequence Tests	Test Documentation			Date	Signature
				General	Warding/ Indexing/ Pin Coding						Design Drawings	Check Lists	Certificates		
1	Signals														
2	Train Stops														
3	Track Circuits														
4	Points														
5	Ground Frames / Releasing Switches														
6	Level Crossings														
7	Locations														
8	Central Interlocking														
9	Cables Main														
10	Cables Local														
11	Panel Processor														
12	Local Control Panel														
13	Remote Control / Indication														
14	Train Describer														
15	Operator Interface														
16	Power Supplies Electric														
17	Air Supplies														
18	Earthing/ Surge & Lightning Protection														
19	Signal Telephones														
20	Redundant Equipment														
21	Test Copies, Master Test Copies														

REMARKS:

Commissioning Engineer; NAME: _____

SIGNATURE: _____

DATE: ____/ ____/ ____

13.1(a) Checklist for Colour Light Signal

ITF 13/1(a)

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:
Location / Description:		Work Package No:
Specifications & Drawings		Date:
Apparatus: COLOUR LIGHT SIGNAL	Number/ Name:	Standard: SC00410201SP
Type Name:	Type Classification:	SC00410202SP/
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials
1	Equipment types & configurations & installation physically correct to specifications/ drawings	
2	Anti-phantom devices, site screens, hoods, backgrounds fitted and correct, as applicable.	
3	Filament fail relays, flasher units, pulsating units, circuit operation correct.	
4	Test Certificate of readings of parameters, completed & correct.	
5	Lamp proving relays/modules, circuit operation correct.	
6	Cables, cabling, terminations correct.	
7	Circuit continuity tests, wire/null counts, correct.	
8	Insulation tests, correct.	
9	Local circuit function test, correct.	
10	Aspects correct and Aspect Sequence Tests correct. (see TC 13/20)	
11	No residual voltages on lights when fuse removed.	
12	Padlocks, locks fitted and correct.	
13	Ladders, landings, cages, secure and correct.	
14	Lens systems, colour, spread, deflection sectors, correct.	
15	Lamp types, LED types correct.	
16	Route indicators, junction repeaters, circuit operation correct.	
17	Signal installation as per Approved Signal Sighting Form (attached)	
18	Final focus/alignment and sighting correct.	
19	Occupational Health & Safety/Environmental compliance, correct	
20	Workmanship to best practice, equipment in good condition	
21	Redundant equipment securely inoperative, made safe/removed.	
22	Ready for commissioning into use.	

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.1(b) Checklist for L.E.D Colour Light Signal

ITF 13/1(b)

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings			Date:
Apparatus: COLOUR LIGHT L.E.D SIGNAL		Number/ Name:	Standard: SC00410201SP
Type Name:		Type Classification:	SC00410202SP/
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Site screens, hoods, backgrounds fitted and correct, as applicable.		
3	Flasher units, pulsating timer adjusted to 640ms "off" & 200ms"on", circuit operation correct.		
4	Test Certificate TC-1 (a),or (b) of readings of parameters, completed & correct.		
5	Lamp proving relays/modules, circuit operations correct.		
6	Cables, cabling, terminations correct.		
7	Circuit continuity tests, wire/null counts, correct.		
8	Insulation tests correct.		
9	Local circuit function test, correct.		
10	Aspects correct and Aspect Sequence Test correct. (see TC 13/20)		
11	No residual voltages on lights when fuse removed.		
12	Padlocks, locks fitted and correct.		
13	Ladders, landings, cages, secure and correct.		
14	For Operating circuits not utilising twisted pair cabling, conduct "No Volts" tests for each aspect level and with all fuses removed.		
15	LED types, indicators/repeaters sizes and colours correct.		
16	Route indicators, junction repeaters, stencil indicators circuit operation correct.		
17	Signal installation as per Approved Signal Sighting Form (attached)		
18	Brightness / Final focus / alignment and sighting correct.		
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.2 Checklist for Points

ITF 13/2

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings		Date:	
Apparatus: POINTS	Number/ Name:	Standard: SC00410201SP	
Type Name:	Type Classification:	SC00410202SP/	
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Points operation, including, multiple drives correct.		
3	Separate detectors correct.		
4	ESML/EOL lock & key, warding/indexing, positioning correct.		
5	Point stretcher bars, rodding, tie plates, insulations fitted & correct.		
6	Nuts and fittings secured and locked.		
7	Facing point lock adjustment and detection test correct.		
8	Point switch detection adjustment test correct.		
9	Circuit continuity tests, wire/null counts correct.		
10	Insulation test correct.		
11	Local circuit function test correct.		
12	Point correspondence test correct.		
13	ESML/EOL & emergency manual operation test correct.		
14	ESML/EOL lock contacts operated by key & put signals to stop.		
15	Cables, cabling, terminations correct.		
16	Test certificate of readings of parameters completed & correct.		
17	Point cut-off timer operation correct.		
18	Padlocks, locks, fitted and correct.		
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.3 Checklist for Ground Frames/Electric Releasing Switches

ITF 13/3

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings			Date:
Apparatus: GROUND FRAMES/ELECTRIC RELEASING SWITCHES		Number/ Name:	Standard: SC00410201SP
Type Name:	Type Classification:	SC00410202SP	
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Lever nameplates correct, notice boards correct.		
3	Catchrod contacts, lever rotaries contacts, adjustments correct.		
4	Electric lever lock drop contact adjustment correct.		
5	Releasing switch rotary contacts, lock drop contact, adjustment correct.		
6	Annett locks and keys, warding and inscriptions, correct.		
7	Mechanical frame interlocking test, correct.		
8	Other mechanical locking, test correct.		
9	Dummy bars fitted on interlocking machines, where required.		
10	XL locks, SL locks fitted and correct, where applicable.		
11	Channel iron rodding runs, secure, correct.		
12	Cranks secure and crank adjustments, correct.		
13	Releasing switch/ground frame separation correct.		
14	Padlocks, locks, fitted and correct.		
15	Circuit continuity tests, wire/null counts correct.		
16	Insulation tests correct.		
17	Local circuit function tests correct.		
18	Releasing switch/ground frame operation correct.		
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		
REMARKS:			

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.4 Checklist for Trainstop

ITF 13/4

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings		Date:	
Apparatus: TRAINSTOP		Number/ Name:	Standard: SC00410201SP SC00410202SP
Type Name:	Type Classification:		
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Protection ramp fitted, ballast guard fitted, and correct.		
3	Mounting secure, arm adjustment nut locked in position.		
4	Operation correct to gauge.		
5	Oil & hydraulic fluids, type & level correct.		
6	Forced feed lubrication effective.		
7	Safety latch contact adjustment correct, manual suppression prevented.		
8	Trainstop arm contacts open if trainstop arm breaks.		
9	Cables, cabling, terminations correct.		
10	Contact adjustments and operation, correct.		
11	Test Certificate completed and correct.		
12	Circuit continuity tests, wire/null counts correct.		
13	Insulation tests correct.		
14	Local circuit function tests correct.		
15	Trainstop arm failure to normalise holds signal in rear at stop.		
16	Trainstop contacts test in signal repeater circuits, correct.		
17	24 hour, 24 operations per hour, & hold clear/leakage, bench tests correct.		
18	Padlock, locks fitted and correct.		
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.5 Checklist for Track Circuit

ITF 13/5 CERTIFICATION INSPECTION AND TEST CHECKLIST No _____

PROJECT:		Prepared By:	
Location / Description:			Work Package No:
Specifications & Drawings			Date:
Apparatus: TRACK CIRCUIT		Number/ Name:	Standard: SC00410201SP SC00410202SP/
Type Name:		Type Classification:	
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Track circuit limits, fouling/clearance points, block joints, dead sections, correct.		
3	Impedance bonds, electrolysis bonds, spark gaps, traction bonding correct.		
4	Track circuit bonding correct.		
5	No spurious connections or earths, spark gaps open circuit.		
6	Track circuit leads, cables, cabling, terminations correct.		
7	Surge protection and earthing correct.		
8	Circuit continuity tests, wire/null counts correct.		
9	Insulation tests correct.		
10	Test certificates of readings of parameters completed and correct.		
11	Equal rail currents 50Hz AC double rail track circuits.		
12	Polarity/phase reversal between similar type track circuits, correct.		
13	Nil/negligible residual receiver/relay voltage when feed fuse removed.		
14	Drop away shunt test, fixed shunt tests (all extremities, mid points) correct.		
15	Correspondence through tests correct.		
16	Track stick circuit operation correct.		
17	Padlocks, locks fitted and correct.		
18	Occupational Health & Safety/Environmental compliance, correct		
19	Workmanship to best practice, equipment in good condition		
20	Redundant equipment securely inoperative, made safe/removed.		
21	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p align="center">The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.6 Checklist for Level Crossing

ITF 13/6

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings		Date:	
Apparatus: LEVEL CROSSING	Number/ Name:	Standard: SC00410201SP	
Type Name:	Type Classification:	SC00410202SP/6	
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Warning strike in distances correct.		
3	Train warning boards, speed boards, penalty notices, road signs & markings, correct.		
4	Focus/alignment lights correct.		
5	Bells/audible warning devices orientation, sound levels correct.		
6	Cables, cabling, terminations correct.		
7	Boom/gate mechanisms adjustments correct		
8	AC power supply correct.		
9	Battery and battery charger adjustment, alarms, PSI's, correct		
10	Test switch operation correct.		
11	Emergency switch operation correct		
12	Padlocks, security locks fitted and correct		
13	Circuit continuity tests, wire/null counts correct		
14	Insulation tests correct.		
15	Local circuit function tests correct.		
16	Operating sequence function test correct.		
17	Test Certificate of readings of parameters completed and correct.		
18	Operation of LX monitor correct.		
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		
REMARKS:			

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.7 Checklist for Power Supplies

ITF 13/7

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings		Date:	
Apparatus: POWER SUPPLIES	Number/ Name:	Standard: SC00410201SP	
Type Name:	Type Classification:	SC00410202SP/ 7, 8, 9, 11	
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Fuses & circuit breakers, settings, ratings, discrimination, correct.		
3	Surge protection & earthing correct.		
4	Earth resistance tests correct.		
5	Battery, battery charger adjustment, alarm card adjustment, correct.		
6	Test Certificate of reading of parameters completed and correct.		
7	Power supply isolation and insulation and freedom from earths, correct.		
8	Polarity/phase correct.		
9	Voltage regulation & mains voltage drop all loads, test correct.		
10	Emergency changeover operation (on line), correct.		
11	Uninterruptible power supply operation, correct.		
12	Loadings correct, spare capacity correct.		
13	Earth leakage detectors adjustment & operation, correct.		
14	Mains Failure Plant cut-in & operation, correct.		
15	Status indicators and alarms operation, correct.		
16	Extra channel of dual channel supports max. load, test correct.		
17	Busbars, cables, cabling, terminations, correct.		
18			
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		
REMARKS:			

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.10 Checklist for Timer Relays/Units

ITF 13/10

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings			Date:
Apparatus: TIMER RELAYS/UNITS		Number/ Name:	Standard: SC00410201SP SC00410202SP
Type Name:	Type Classification:		
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Actual time tested to specified time, correct, for the following timer relays/units:		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22	Ready for commissioning into use.		
REMARKS:			

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.11 Checklist for Cables

ITF 13/11 CERTIFICATION INSPECTION AND TEST CHECKLIST No _____

PROJECT:		Prepared By:	
Location / Description:			Work Package No:
Specifications & Drawings			Date:
Apparatus: CABLES		Number/ Name:	Standard: SC00410201SP
Type Name:		Type Classification:	SC00410202SP/ 11
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Spare core availability correct.		
3	All ends terminated or properly sealed, no loose wires.		
4	Continuity tests, wire/null counts correct.		
5	Test Certificate of readings of parameters completed & correct.		
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
---	---

13.15 Checklist for Telemetry/Panel Processor

ITF 13/15

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:			Work Package No:
Specifications & Drawings			Date:
Apparatus: TELEMETRY/PANEL PROCESSOR		Number/ Name:	Standard: SC00410201SP
Type Name:		Type Classification:	SC00410202SP/15
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Software versions correct.		
3	Hardware correct.		
4	Start up test correct.		
5	Shut down test correct.		
6	Power supply interruption test correct.		
7	Arbitration test and seamless changeover, correct.		
8	Circuit continuity test, wire/null counts correct.		
9	Insulation tests correct.		
10	Local circuit function tests correct.		
11	Correspondence tests, correct.		
12	Maintenance facilities, correct.		
13	Fault finding procedure test, correct.		
14	Performance parameters including response times, correct.		
15	Self test & field module isolation facilities, correct.		
16	24 hour system error test correct.		
17	Spares availability, correct.		
18			
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
---	---

13.16 Checklist for Control Console/Indicator Diagram

ITF 13/16

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:			Work Package No:
Specifications & Drawings			Date:
Apparatus: CONTROL CONSOLE/ INDICATOR DIAGRAM		Number/ Name:	Standard: SC00410201SP
Type Name:		Type Classification:	SC00410202SP/16
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation	Correct	Initials
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Faceplate correct, VDU layout, symbols correct.		
3	Cables, cabling, terminations, correct.		
4	Circuit continuity tests, wire/null counts, correct.		
5	Insulation tests correct.		
6	Local circuit function tests correct (alarms, indications, controls).		
7	Correspondence through tests correct.		
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.17 Checklist for Location

ITF 13/17 **CERTIFICATION INSPECTION AND TEST CHECKLIST** No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings		Date:	
Apparatus: LOCATION	Number/ Name:	Standard: SC00410201SP	
Type Name:	Type Classification:	SC00410202SP/17	
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Racks, mountings, labelling, equipment positions, correct.		
3	Cables, cabling, terminations, correct.		
4	Ventilation, cooling, separation heat sensitive/heat producing equipment, correct.		
5	Water proof, dust proof, fire proof, rodent proof, vandal resistant, correct.		
6	Earthing correct.		
7	Circuit continuity tests, wire/null counts correct.		
8	Insulation tests, correct.		
9	Local circuit function tests correct.		
10	Through circuit tests, correct.		
11	Local interlocking, test correct.		
12	Power supplies correct.		
13	Spares availability, correct.		
14	Spare space, correct.		
15	Telephones operation, telecommunications equipment, correct.		
16	Padlocks, locks, fitted & correct.		
17	Access correct.		
18	Central Interlocking, Function Test to Control Tables, correct.		
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.18 Checklist for Computer Based Interlockings

ITF 13/18

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:		Work Package No:	
Specifications & Drawings		Date:	
Apparatus: COMPUTER BASED INTERLOCKINGS		Number/ Name:	Standard: SC00410201SP
Type Name:	Type Classification:	SC00410202SP/	
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation, Correct	Initials	
1	Equipment types & configurations & installation physically correct to specifications/ drawings		
2	Type approved for intended use.		
3	Software versions correct.		
4	Hardware correct.		
5	All checksums correct.		
6	Software simulation test correct.		
7	Installed software matches tested software.		
8	All system interfaces test correct.		
9	Response times correct.		
10	Other performance criteria correct.		
11	Function test to Control Tables correct.		
12			
13			
14			
15			
16			
17			
18			
19	Occupational Health & Safety/Environmental compliance, correct		
20	Workmanship to best practice, equipment in good condition		
21	Redundant equipment securely inoperative, made safe/removed.		
22	Ready for commissioning into use.		

REMARKS:

<p align="center">WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p align="center">RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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13.20 Checklist for Aspect Sequence

ITF 13/20

CERTIFICATION INSPECTION AND TEST CHECKLIST

No _____

PROJECT:		Prepared By:	
Location / Description:			Work Package No:
Specifications & Drawings			Date:
Apparatus: ASPECT SEQUENCE		Number/ Name:	Standard: SC00410201SP
Type Name:		Type Classification:	SC00410202SP/
No	Inspection /Test Performed: Equipment /Labelling/Installation/Operation, Correct	Initials	
1	Aspect correct and Aspect Sequences correct for the following signals.		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13	Aspects correct for the following existing signals at interfaces:		
14			
15			
16			
17			
18			
19			
20			
21			
22			

REMARKS:

<p>WORK STATUS STATEMENT</p> <p>The Work described above has been performed and recorded in accordance with the specified standard</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>	<p>RECEIVED/CHECKED/ACTION STATEMENT</p> <p>Name: _____</p> <p>Designation _____</p> <p>Signature: _____ Date _____</p>
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MEASURING INSTRUMENT / TOOL CALIBRATION / TEST RECORD

ITF 14 MEASURING INSTRUMENT/TOOL CALIBRATION/TEST RECORD No. _____

INSTRUMENT / TOOL TYPE	SERIAL No.	CALIBRATION / TEST CORRECT		
		NAME	SIGNATURE	DATE

INSTRUMENT / TOOL TYPE	SERIAL No.	REPAIRS REQUIRED

INTERFACE COORDINATION PLAN

INTERFACE COORDINATION PLAN	SIGNALLING WORK
------------------------------------	------------------------

In addition to the provisions included in the Project Safety Agreement this Plan nominates personnel and interface matters between the parties.

Design Job No:		Work Description / Location:		Interface Coordination Plan Version:	No:
1.	Regional Signal Representative:	Name:	Contact Details:		
2.	Regional Maintenance Engineer:	Name:	Contact Details:		
3.	Train Control Systems Representative	Name: N/A?	Contact Details		
4.	Track work Representative	Name: N/A?	Contact Details		
5.	Electrical Representative:	Name: N/A?	Contact Details		
6.	Commissioning Engineer Signalling:	Name:	Contact Details		
7.	Other:	Name:	Contact Details		
8.	Other:	Name:	Contact Details:		

Program activities requiring Notification, Witness or Hold points: Examples follow				
Milestone / Activity Description.	Who	N= Notify	W= Witness	H= Hold
1. Configuration Approval.	<u>R.R</u>			H
2. Detailed Site Survey Approval.	<u>Metro Div</u>			H
3. Site Integrity Agreement provisions.	R.R & M.E			H
4. Installation Work package.	R.R			H
5. Trench Backfill inspection.	<u>R.R</u>		W	
6. ULX / Track Restoration.	<u>Track Rep</u>		W	
7. Other				
8. Pre-pour inspections.	<u>R.R</u>	N		
9. Other				
10. Commissioning Work Package.	R.R			H
11. Other				
12. Practical Completion - Minor defects.	R.R			H

INTERFACE IDENTIFICATION

Does the project have management and/or functional interfaces to other areas?

<input type="checkbox"/> Signal Design	<input type="checkbox"/> Control Systems	<input type="checkbox"/> Communications
<input type="checkbox"/> Engineering	<input type="checkbox"/> Track	<input type="checkbox"/> Electrical
<input type="checkbox"/> Operations	<input type="checkbox"/> Train Crew	<input type="checkbox"/> Station Staff
<input type="checkbox"/> Other:	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

Details of the actions required across each interface are to be included in the Interface Management Plan sections of this Plan.

SITE INTEGRITY AGREEMENT & SITE ASSESSMENT

The parties are to assess the condition of existing infrastructure, interface locations and signalling equipment in the vicinity of the works.

Are pre-existing spare cables/cores to be utilised by this project?	<input type="checkbox"/> Yes	If yes, detail any conditions: <i>Enter detail here as applicable</i>
	<input type="checkbox"/> No	
Is any pre-existing equipment to be utilised / reused by this project?	<input type="checkbox"/> Yes	If yes, detail any conditions: <i>Enter detail here as applicable</i>
	<input type="checkbox"/> No	
Will there be redundant material as a result of this project?	<input type="checkbox"/> Yes	If yes, detail any disposal requirement: <i>Enter detail here as applicable</i>
	<input type="checkbox"/> No	
Is there any other signal jobs current at the location or for which the submission of "Certified Office Copies" (COC) is outstanding?	<input type="checkbox"/> Yes	If yes, Detail: <i>Enter detail here as applicable</i>
	<input type="checkbox"/> No	
Is there any new or altered signal design for the area not yet updated to Maintenance Copies?	<input type="checkbox"/> Yes	If yes, Detail
	<input type="checkbox"/> No	
When more than one signalling alteration is being performed in a location, the Regional signal representative is to ensure that the accountability for all the work in that location is clearly allocated to one Commissioning engineer	<input type="checkbox"/> Yes	Details and Name:
	<input type="checkbox"/> No	<i>Enter detail here as applicable</i>
Has the assessment identified any requirements for track, civil or electrical infrastructure particularly associated with access, reliability and / or maintainability of the signalling infrastructure.	<input type="checkbox"/> Yes	If yes, Detail the requirement
	<input type="checkbox"/> No	<i>Enter detail here as applicable</i>

Site Integrity Agreement & Site Assessment (Continued)

Will the staging of the work require temporary detection to be fitted to out of use points requiring cyclic maintenance?	<input type="checkbox"/>	Yes	If yes, Asset engineer to arrange configuration changes, Maintenance engineer to arrange scheduled maintenance.
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Where the new and altered signalling work is associated with scope included in a Project Safety Agreement agreed between the Region and another project manager eg. Track, civil, electrical or other 3 rd party, the agreement shall include development / implementation of a signalling specific Interface Coordination Plan.	<input type="checkbox"/>	Yes	Include the responsible 3 rd party project manager in the sign off of this interface coordination plan.
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Is there any transfer of responsibilities from the region associated with authority to excavate, supervision and provision and maintenance of signalling, communications and services search information	<input type="checkbox"/>	Yes	If yes, Provide details
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Has the "Electrical risk Assessment" identified any hazards and agreed on precautions to be adopted and responsibilities?	<input type="checkbox"/>	Yes	If yes, Provide details
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Where signals are being converted to LED type – has the inspection revealed any read through issues and precautions to be adopted	<input type="checkbox"/>	Yes	If yes, Provide details
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Details of insulation records are to be advised by the Region, particularly known defects.	<input type="checkbox"/>	Yes	If yes, Provide details
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Is there any "other works agreed to be concurrently implemented in the location / s	<input type="checkbox"/>	Yes	If yes, Provide details
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Due to the large scale of change-overs for this job the Regional representative agrees that a minimal portion of the wire disconnection's may be completed following the "booking into use"	<input type="checkbox"/>	Yes	If yes, Provide details
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
The Regional signal representative authorises work to commence in the following location / s	<input type="checkbox"/>	Yes	If yes, Provide details
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Other:	<input type="checkbox"/>	Yes	If yes, Provide details
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>

[illegible]

SIGNALLING ACCESS ARRANGEMENTS

Access to relay room / location permitted between:	<input type="checkbox"/>	00:00 – 00:00 on weekdays, any time on weekends	
	<input type="checkbox"/>	Other: Click here	
Special access required (eg. Electronic token):	<input type="checkbox"/>	Yes	Detail: Enter detail here as applicable
	<input type="checkbox"/>	No	
Material to be stored on-site:	<input type="checkbox"/>	Yes	Detail: Enter detail here as applicable
	<input type="checkbox"/>	No	
Notes: Enter any special conditions relating to the access required for this project			

OPERATIONAL ISSUES

Are there any operational issues to be managed by the project?	<input type="checkbox"/>	Yes
	<input type="checkbox"/>	No
List - including responsibility assignment:		

REGIONAL SIGNALLING REPRESENTATIVE

For each signalling works project the Asset engineer, signals (or as otherwise nominated) shall perform the following activities in the capacity of Regional signal representative:

- Provides a single point gateway between the project and the region, progresses, monitors and reports on internal metropolitan division aspects of the required processes
- Distribution and control of project design documentation
- Provide interface coordination within the Metropolitan division for project matters
- Review and approve in principle - minor work, installation and commissioning work packages
- Collaborate and manage the provision of track possessions, including rail traffic coordination and provision of test locomotives and SAFE Notices
- Attend regular project review meetings
- Attend the pre-and post commissioning meetings
- Other duties as nominated as follows:

The Commissioning Engineer shall update Project Explorer on a monthly basis.
Nominate any other reporting requirements for this project. If so, detail:
[N/A](#)

TRAINING REQUIREMENTS

Are there any training requirements to be managed by the project?	<input type="checkbox"/>	Yes
	<input type="checkbox"/>	No
List - including responsibilities:		

CONFIGURATION CONTROL

The Asset engineer, signals shall:

- Raise the CCR if required for this project
- Inform the Commissioning engineer if any further configuration documentation is required
- Inform the Commissioning engineer when the configuration changes have been approved
- Ensure that applicable Ellipse application is updated to reflect any changes resulting from this project
- Close out CCR processes

Note that no site works will commence until the Commissioning Engineer has been formally notified that the configuration changes (if applicable) have been formally approved by the CCB.

The Commissioning engineer shall:

- Assist the Asset engineer, signals with the configuration change process as required
- Ensure that any site work does not commence until the configuration changes have been approved by the CCB
- Provide the Asset engineer, signals with a listing of new, altered and removed assets

This list shall be provided not less than [Click here](#) weeks prior to commissioning

TYPE APPROVALS, TRIALS OR WAIVERS

Is there signalling type approval issues related to this project?	<input type="checkbox"/>	Yes
	<input type="checkbox"/>	No
Does the work include any registered engineering trials or waivers?	<input type="checkbox"/>	Yes
	<input type="checkbox"/>	No

COMMISSIONING THE WORKS - REQUIREMENTS

Is there a requirement for post-commissioning standby cover to be provided by this project?	<input type="checkbox"/>	Yes	If yes, detail:
	<input type="checkbox"/>	No	<i>Enter detail here as applicable</i>
Are there any issues relating to the commissioning of this project? If so, detail: <i>N/A</i>			

PRE -EXISTING SAFETY ISSUES:

Is there any employee safety issues, risks and mitigation strategies used by maintenance personnel to be communicated and incorporated in the planning and site safety management system to be utilised by the construction group?	<input type="checkbox"/>	Yes
	<input type="checkbox"/>	No
List - including who is responsible:		

SIGNALLING MAINTENANCE RESPONSIBILITY

Maintenance shall ensure personnel are trained on the use of the equipment being installed, and are competent to work on the new/altered equipment.	<input type="checkbox"/>	Yes	Detail: <i>Enter detail here as applicable</i>
	<input type="checkbox"/>	No	
Determining and organising any new or revised holding of spare equipment is the responsibility of maintenance	<input type="checkbox"/>	Yes	Detail: <i>Enter detail here as applicable</i>
	<input type="checkbox"/>	No	
Arrange maintenance personnel involvement in the works, ensure familiarity with the scope, and location/s affected by the work and any identification / marking in use to distinguish them	<input type="checkbox"/>	Yes	Detail: <i>Enter detail here as applicable</i>
	<input type="checkbox"/>	No	
Post-Commissioning - arrange attendance for follow up activities, eg points adjustments due to track settlement and stand-by.	<input type="checkbox"/>	Yes	Detail: <i>Enter detail here as applicable</i>
	<input type="checkbox"/>	No	
Is there any other maintenance responsibilities for the Project?	<input type="checkbox"/>	Yes	Detail: <i>Enter detail here as applicable</i>
	<input type="checkbox"/>	No	
Collaborate for the review of work packages	<input type="checkbox"/>	Yes	Detail: <i>Enter detail here as applicable</i>
	<input type="checkbox"/>	No	
Collaborate and attend the detailed site assessment inspection and the development of the Site Integrity Agreement	<input type="checkbox"/>	Yes	Detail: <i>Enter detail here as applicable</i>
	<input type="checkbox"/>	No	

MAINTENANCE DOCUMENTATION

The documentation requirements relating to the construction, commissioning and handover are covered in this section of the document.

From the commencement of electrical construction, a circuit book shall be left on site at a location specified below. This circuit book shall be left on site until commissioning.

The circuit book shall be left at: *Enter location where Construction Copy will be left*

Is there any other maintenance documentation issues relating to this project (such as stage-work)? If so, detail:

N/A

DOCUMENTATION & HANDOVER SCHEDULE

Documentation shall be provided to the Regional representative as specified below:

- Interim Maintenance Circuit Books

On Commissioning: No. Copies: Location:

Next Business Day: No. Copies: Location:

On Commissioning: New Track History cards, copies of FPL/ Detection and Trainstop TC forms
Other:

- Handover Package 14 Days or Other:

- Signed COC Circuit book / Signal plan / T.I.P. 28 days or Other :

Construction documents			Required?	
•	As Built	Detailed Site Survey Drawings	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	As Built	Signal Sighting Forms	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	As Built	Installation Drawings	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	As Built	Structures and Buildings	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	As Built	Mechanical Drawings	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	As Built	Airline schematic & Detailed Installation Drawings	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	As Built	Level Crossing layout Plans	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	As Built	Clearance diagrams	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	Other:	N/A	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No
•	Other:	N/A	<input type="checkbox"/>	Yes
			<input type="checkbox"/>	No

HANDOVER DOCUMENTATION PACKAGE

The Handover Documentation Package shall include copies of the following:

- IBA Forms
- Commissioning Certificate
- Copies of new Track History Cards and TC Forms

Is there any other documentation required as part of the handover package? (Eg. Copy of work package, manufacturer certificates, equipment manuals, etc.)

- Other: N/A
- Other: N/A

CHECKLIST FROM THE INSPECTION AND TESTING SPECIFICATIONS.					
SPEC / CLAUSE	SUMMARY OF REQUIREMENT	Applicable	SPEC / CLAUSE	SUMMARY OF REQUIREMENT	Applicable
0711.1 / CI 5.1.	Project Safety Agreement to be agreed	<input type="checkbox"/> Yes <input type="checkbox"/> No	0711.2 / CI 4.2.1	Detailed Site surveys to be GIS / CAD	<input type="checkbox"/> <input type="checkbox"/> Yes
0711.1 / CI 6.1	Accuracy of existing designs at interfaces, consult Commissioning engineer re - status.	<input type="checkbox"/> <input type="checkbox"/> No	0711.2 / CI 4.2.1	Detailed Site surveys to be Interim to GIS / CAD	<input type="checkbox"/> <input type="checkbox"/> No
0711.1 / CI 6.4	Consult and agree with the Project engineer re-safe access to equipment	<input type="checkbox"/> Yes <input type="checkbox"/> No	0711.2 / CI 5.2	Weekly Notice advertising to be arranged by Regional Representative in collaboration with Commissioning engineer	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes
0711.1 / CI 6.7	Regional Rep to collaborate for the provision of track possessions, SAFE Notices, Weekly Notice, Test Locomotives, Arrange for follow up maintenance activities post Commissioning	<input type="checkbox"/> <input type="checkbox"/> Yes No	0711.2 / CI 6.1 & 6.2	Maintenance of equipment registers is the responsibility of the Regional asset manager / engineer with information provided by the Commissioning engineer	<input type="checkbox"/> No <input type="checkbox"/> Yes
0711.1 / CI 6.7	Regional representative to approve in principle the Installation and Commissioning (or Minor Works) Packages	<input type="checkbox"/> <input type="checkbox"/> Yes No	0711.2 / CI 6.2	Asset registers, Regional signal representative to provide details of the format.	<input type="checkbox"/> No <input type="checkbox"/> Yes
0711.1 / CI 6.7	Collaborate the implementation of the works with the regional personnel	<input type="checkbox"/> Yes <input type="checkbox"/> No	0711.2 / CI 8.1	Regional representative to agree that work may be documented in a Minor Work Package	<input type="checkbox"/> No <input type="checkbox"/>
0711.2 / CI 2.1	A job status review including status of other modifications/jobs issued for the area to be conducted	<input type="checkbox"/> Yes <input type="checkbox"/> No	0711.6 CI 1.6	The Regional signal representative shall ensure that an Interface Coordination Plan and a Project Safety Agreement are agreed with all Regional stakeholders prior to authorising site work to commence	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes
0711.2 / CI 2.7	Signal design shall be issued via the Regional signal representative	<input type="checkbox"/> <input type="checkbox"/> Yes No	0711.6 CI 1.6	The Regional signal representative and the Commissioning engineer are responsible for updating Interface Coordination Plan during the project lifecycle	<input type="checkbox"/> No <input type="checkbox"/> Yes
0711.2 / CI 2.7	Commissioning engineer shall return all design via the Regional signal representative	<input type="checkbox"/> <input type="checkbox"/> No	0711. CI		<input type="checkbox"/> No <input type="checkbox"/>
0711.2 / CI 2.7	The Regional signal representative shall distribute interim maintenance copies to the required maintenance locations	<input type="checkbox"/> Yes <input type="checkbox"/> No	0711. CI		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes

No

Requirements may be further detailed in the following NOTES section.

INTERFACE MANAGEMENT PLAN – Signalling and Train Control Systems							
Activity	Details of Agreement	Required?		Activity	Details of Agreement	Required?	
Regional Rep Design Coordination	Regional Rep to coordinate/ Other:	<input type="checkbox"/>		Train Control Systems		<input type="checkbox"/>	
		<input type="checkbox"/> Yes	No			<input type="checkbox"/> Yes	
Progress report to Regional Rep	Requirement:	<input type="checkbox"/>		Train Control Systems	To attend Management Meetings as required	<input type="checkbox"/>	
		<input type="checkbox"/>				<input type="checkbox"/> No	
Regional Rep Management Meetings	To occur every () Weeks	<input type="checkbox"/> Yes		Train Control Systems	Inspection and Testing Certification Documentation requirements:	<input type="checkbox"/> Yes	
		<input type="checkbox"/> No				<input type="checkbox"/> No	
		<input type="checkbox"/> Yes				<input type="checkbox"/>	
Regional Rep Services Searches	To be provided by region	<input type="checkbox"/>		Train Control Systems	Commissioning coordination and resource sharing requirements	<input type="checkbox"/>	
		<input type="checkbox"/> No				<input type="checkbox"/> No	
		<input type="checkbox"/>				<input type="checkbox"/>	
Regional Rep Detailed Site Surveys	Update existing as supplied by regional Rep OR/	<input type="checkbox"/> Yes		Train Control Systems	Stand by requirements	<input type="checkbox"/> Yes	
		<input type="checkbox"/> No				<input type="checkbox"/> No	
		<input type="checkbox"/> Yes				<input type="checkbox"/>	
Regional Rep Detailed Site Surveys	New to be produced to GIS Standards OR/	<input type="checkbox"/>		Train Control Systems	Other	<input type="checkbox"/>	
		<input type="checkbox"/> No				<input type="checkbox"/> No	
		<input type="checkbox"/> Yes				<input type="checkbox"/> Yes	
Regional Rep Detailed Site Surveys	New to be produced using AutoCad	<input type="checkbox"/>				<input type="checkbox"/>	
		<input type="checkbox"/> No				<input type="checkbox"/> No	
		<input type="checkbox"/> Yes	No			<input type="checkbox"/> Yes	
		<input type="checkbox"/>				<input type="checkbox"/> No	
		<input type="checkbox"/>	No			<input type="checkbox"/> Yes	No
		<input type="checkbox"/> Yes				<input type="checkbox"/>	
		<input type="checkbox"/>	No			<input type="checkbox"/> Yes	No
		<input type="checkbox"/> Yes				<input type="checkbox"/>	
		<input type="checkbox"/>	No			<input type="checkbox"/> Yes	No
		<input type="checkbox"/>				<input type="checkbox"/>	

Requirements may be further detailed in the following NOTES section.

INTERFACE MANAGEMENT PLAN - .Others							
Activity	Details to be agreed	Required?		Activity	Details to be Agreed	Required?	
Electrical, Power and Lighting	New supply points,	<input type="checkbox"/>	Yes	Track, Track work	Other	<input type="checkbox"/>	Yes
		<input type="checkbox"/>				<input type="checkbox"/>	
Electrical, Power and Lighting	Upgrading of new supply points	<input type="checkbox"/>		Civil, Civil work	Embankment widening and drainage work	<input type="checkbox"/>	Yes
		<input type="checkbox"/>	No			<input type="checkbox"/>	No
Electrical, Power and Lighting	Other	<input type="checkbox"/>	Yes	Civil, Civil work	Roadways and access points	<input type="checkbox"/>	Yes
		<input type="checkbox"/>	No			<input type="checkbox"/>	No
Electrical, Traction supply	Air gap locations	<input type="checkbox"/>	Yes	Civil, Civil work	Level Crossing arrangements	<input type="checkbox"/>	Yes
		<input type="checkbox"/>	No			<input type="checkbox"/>	No
Electrical, Traction supply	Overhead wiring clearances	<input type="checkbox"/>	Yes	Civil, Civil work	Other	<input type="checkbox"/>	
		<input type="checkbox"/>	No			<input type="checkbox"/>	No
Electrical, Traction supply	Arrangements at substations and section huts	<input type="checkbox"/>	Yes	External Parties - RTA	Approaches and Road markings at Level crossing	<input type="checkbox"/>	Yes
		<input type="checkbox"/>				<input type="checkbox"/>	No
Electrical, Traction supply	New Overhead wiring Structures	<input type="checkbox"/>	No	External Service Owners	Approvals, locations, protection and supervision for services on RailCorp Land	<input type="checkbox"/>	Yes
		<input type="checkbox"/>	Yes			<input type="checkbox"/>	No
Electrical, Traction supply	Other	<input type="checkbox"/>	No	External Service Owners	Other	<input type="checkbox"/>	Yes
		<input type="checkbox"/>	Yes			<input type="checkbox"/>	No
Track, Track work	New track Infrastructure,	<input type="checkbox"/>		Others		<input type="checkbox"/>	Yes
		<input type="checkbox"/>	No			<input type="checkbox"/>	No
Track, Track work	Track drainage & reconditioning requirements – track circuit reliability	<input type="checkbox"/>	Yes	Others		<input type="checkbox"/>	Yes
		<input type="checkbox"/>	No			<input type="checkbox"/>	No
Track, Track work	Points - new and reconditioning requirements	<input type="checkbox"/>	Yes	Others		<input type="checkbox"/>	Yes
		<input type="checkbox"/>	No			<input type="checkbox"/>	No
		<input type="checkbox"/>	Yes No			<input type="checkbox"/>	No

Requirements may be further detailed in the following NOTES section

[illegible]

NOTES

[illegible]

INTERFACE COORDINATION PLAN AGREEMENT

The works are authorised to proceed recognising the provisions set out in this Interface Coordination Plan:

Submitted By:

Commissioning Engineer

Name:

Signature:

Date:

Agreed By:

Regional Signalling Representative

Name:

Signature:

Date:

Agreed By

Maintenance Engineer Signalling

Name:

Signature:

Date:

Agreed By

Other: Train Control Systems

Name:

Signature:

Date:

Agreed By

Other: Electrical Representative

Name:

Signature:

Date:

Agreed By

Other: Track Representative

Name:

Signature:

Date:

Agreed By

Other

Name:

Signature:

Date:

SIGNAL SIGHTING CHECKLIST & FORMS

Questions

The user should go through all questions in order unless directed otherwise. It is recommended that a nominated representative should lead the Signal Sighting Committee through the checklist and ensure that all questions are answered and all committee members' opinions are captured. The checklist has been designed to complement the expertise of signal sighting committee members, so full participation is essential.

The order of the questions has been carefully prioritised to ensure that the most important questions relating to driver sighting of the signal are asked first.

The arrows '↓' or '→' direct the user to the next question or the associated mitigation(s) as described in the Action column.

Mitigations

If an answer is selected that directs the user to a mitigation, these are described in separate tables ('A1', 'A2', etc).

The mitigations have been prioritised to support the user in identifying which should be performed first. Therefore it is important to note that: Mitigations must be addressed in the order provided.

The form should be used to record all mitigation measures that are implemented and any decisions made regarding the type of mitigation to implement.

Date:		Design location:	
Signal number:		Actual location: (if different from design location)	
Reason for Sighting: (new signal, LED upgrade, etc)		Track details: e.g. Single, Multiple or, Bi-directional lines	
Additional comments:			

	Section A - MINIMUM ACCEPTABLE SIGHTING	No	Yes	Action																									
1)	Is there anything that will cause the driver to have an interrupted sighting, for the final approach to the signal? (i.e. the last 50m)	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to A1																									
2)	Does the driver have a total sighting time that is less than the minimum 6 seconds sighting time? The minimum sighting distances for typical line speeds are shown in the table below: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Line speed (kph):</td> <td>30</td><td>40</td><td>45</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td><td>115</td><td>130</td><td>145</td> </tr> <tr> <td>Distance (m):</td> <td>55</td><td>72</td><td>75</td><td>93</td><td>110</td><td>129</td><td>147</td><td>165</td><td>183</td><td>200</td><td>239</td><td>266</td> </tr> </table>	Line speed (kph):	30		40	45	50	60	70	80	90	100	115	130	145	Distance (m):	55	72	75	93	110	129	147	165	183	200	239	266	<input type="checkbox"/> ↓
Line speed (kph):	30	40	45	50	60	70	80	90	100	115	130	145																	
Distance (m):	55	72	75	93	110	129	147	165	183	200	239	266																	
3)	Is the signal positioned on the right hand side of the running line?	Go to <input type="checkbox"/> Q4	<input type="checkbox"/> ↓																										
If yes:	Why is the signal on the right-hand side? (CHOOSE ALL THAT APPLY):			Go to A2																									
	a) One with no running approach, e.g. At the end of a crossing loop in a single line section; or where trains start from sidings, terminal platforms or other non-running line situations.		<input type="checkbox"/> →																										
	b) For the wrong running direction in bi-directionally signalled double line sections		<input type="checkbox"/> →																										
	c) Likely to conflict with the positions of other signals already sighted		<input type="checkbox"/> →																										
		d) Obstructed by an object on the LHS that limits sighting and is physically impossible to move without incurring excessive costs (e.g. providing special mounting arrangement, overhead structure or undertaking substantial earthworks)		<input type="checkbox"/> →																									
	Is there a line immediately to the right of the signal that it could be confused as applying to? (which could be more likely to occur if the signal is on a bend)	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to A3																									
4)	Is the height of the signal (single or double aspect) different to other signals on the same line or adjacent signals on parallel lines?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to A4																									
5)	Is the signal located between parallel running lines in the same direction?	Go to <input type="checkbox"/> Q6	<input type="checkbox"/> ↓																										
If yes:	Is it possible that the signal could be confused as applying to the other running line? (e.g. which could occur if the signal is on a bend)	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to A5																									
	Is the signal spacing different to those on parallel lines?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to A6																									
6)	Is there a possibility that a driver could 'read through' the signal to a signal in advance and mistake the less restrictive indication for their signal? or Is there a possibility that the driver could 'read through' the signal in rear to the proposed signal and mistake the less restrictive indication for their signal?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to A7																									
7)	Is the signal located on a platform or at the end of a platform?	Go to <input type="checkbox"/> Section B	<input type="checkbox"/> ↓																										
If yes:	Is the signal placed less than 15m from the departure end of the platform?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to A8																									
	Is the signal sighting (from the driver's seated position) hindered or obscured when the train is stationary at the platform?	<input type="checkbox"/> ↓	<input type="checkbox"/> →																										
		Go to Section B																											

	Mitigations: Acceptable Sighting	☑	Action
A1	<p>The signal location is not suitable.</p> <ol style="list-style-type: none"> 1. Reposition the signal further forward or rearward to increase the sighting distance. 2. If this is not possible and the new signal cannot be moved, the Signal Design Engineer must justify why the signal cannot be moved and why a suboptimal location has been selected. If the signal cannot be moved consider: <ol style="list-style-type: none"> I. Installing a co-acting signal; II. If on a post, moving the signal to a gantry; III. Using a repeater. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Go to Q3
A2	Running signals shall be placed to the left of the track in the direction of travel. Seek approval from the appropriate RailCorp representative to place the signal at the right of the track and consider installing a co-acting signal (may need to be a dwarf signal) on the left side of the running line to improve the driver's detection of the signal.	<input type="checkbox"/>	Go to Q4
A3	If the signal could be mistaken as applying to another line, as well as possibly being missed by the driver on the correct line. The signal must be relocated so that it is on the left hand side. If this really isn't possible then a co-acting signal should be installed on the left hand side and consider installing an arrow sign to indicate to drivers which line the RHS signal applies to.	<input type="checkbox"/>	
A4	<p>Where practicable, signal heights should be consistent, providing that this does not make the signal less visible to the driver. This rule is more important for signals on the right-hand side.</p> <p>In some situations the signal may have to be raised to make it visible (see D11 for exceptions).</p>	<input type="checkbox"/> <input type="checkbox"/>	Go to Q5
A5	<p>Consider the following list of mitigations and select the most appropriate to make the signal less confusing for the driver:</p> <ol style="list-style-type: none"> 1. Move the signal so that it is clear which line it applies to. If possible the signal should be aligned with signals on parallel lines so that they line up (NB they may need to be staggered to achieve this on a bend). 2. Consider installing a retro reflective arrow plate/ sign to indicate to drivers which line the RHS signal applies to. 3. Consider installing a longer hood or some other way of making the correct signal clear for the driver. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Return to Q5
A6	Where headways on adjacent parallel lines are different, signals should be arranged so that they line up where possible to make it easier for drivers to determine which signal applies to their line. This may not be possible with all signals on the two lines – but should be considered where signals are closely located.	<input type="checkbox"/>	

	Mitigations: Acceptable Sighting	☑	Action
A7	<p>Consider the risk and impact of the driver reading through the signal and the following possible mitigations in priority order:</p> <ol style="list-style-type: none"> 1. Use LED signals where possible to make the target signal more conspicuous 2. Consider a screen for lights from outside of the rail corridor, e.g. traffic light; 3. Change the light intensity or focus; 4. Make the signal background larger or increase the size of the hood; <p>(NB this will not improve the situation for night viewing).</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Go to Q7
A8	<p>Ensure that the signal is located so that the driver can clearly read the signal aspect when stopped at the platform. Place the signal at least 15 metres from the departure end of the station platform (or the top of the platform ramp). If track geometry or other obstruction forces the signal closer to the platform consider the following mitigations to provide the best sighting for the driver:</p> <ul style="list-style-type: none"> Installing a co-acting signal; Raising the signal on a gantry or a higher post; Relocating the signal; Raising or lowering the signal heads; Install tri colour or multi lamp route indicators to achieve 4 above; Changing the focus of the signal (NB some signals on platforms may need to be focused away from the driver to prevent excessive brightness at night). 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Go to Section B

Acceptable Sighting: Justification for mitigation measures adopted

Please provide additional detail about decisions that are taken

	Section B - INTERRUPTIONS	No	Yes	Action
8)	Are there any objects that could interrupt the driver's 6 second sighting at line speed?	Go to <input type="checkbox"/> Section C	<input type="checkbox"/> ↓	
9)	On approach to the signal (excluding the last 50m from the signal, which must be kept clear), do the interruptions to signal sighting make up 20% or more of the total sighting distance to the signal?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to B1
10)	Is the interruption caused by: (CHOOSE ALL THAT APPLY)			
	Foliage?		<input type="checkbox"/> →	Go to B2
	A fixed object such as: a cutting, a crest of a hill, a building, a stanchion, platform fence, equipment, furniture, overhead line equipment?		<input type="checkbox"/> →	Go to B3
	Trains on other lines (e.g. train approaching on an adjacent track on a right hand curve or a train in a siding on a left hand curve)?		<input type="checkbox"/> →	
	The signal being in a tunnel or underground?		<input type="checkbox"/> →	
	Other: please describe		<input type="checkbox"/> →	

	Mitigations: Interruptions	<input checked="" type="checkbox"/>	Action
B1	If the interruptions make up more than 20% of the sighting distance the signal location is not suitable. The signal sighting committee should work with the Signal Design Engineer to improve signal sighting.	<input type="checkbox"/>	Go to Q10
B2	If foliage is causing the interruption it should be removed or trimmed and a maintenance plan should be set. Consultation with other rail network providers may be required. Make the signal stand out more, e.g. by using LEDs.	<input type="checkbox"/> <input type="checkbox"/>	Go to Section C or Q10
B3	The cause of the interruption must be captured and the most appropriate mitigation justified to provide the best sighting for the driver. Review the aspect sequence that is used; if the signal is frequently encountered at caution then interruption of the driver's view may increase the SPAD risk for the signal in advance. Consider the following list of mitigations which are placed in order of consideration: <div style="margin-left: 20px;"> Reviewing the object causing the interruption for removal; Installing an LED signal; Moving the signal horizontally to increase the sighting (this must not put the signal within the structure gauge or ideally further than 2.5m from the running face of the nearest rail); Installing a co-acting signal; Installing a repeater; Placing the signal on a gantry or on a higher post; Raising or lowering the signal heads; Install Tri colour or multi lamp route indicators to achieve 7 above; Investigate if the line speed can be reduced to achieve the minimum signal sighting. </div>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Go to Section C

Section C - DISTRACTIONS		No	Yes	Action
11)	Are there possible operational distractions that may affect the driver's sighting of the signal?	Go to <input type="checkbox"/> Section D	<input type="checkbox"/> ↓	
	Is the signal positioned near a section of track where: (CHOOSE ALL THAT APPLY)			
	The signal is near (within 50m of) a lineside sign?		<input type="checkbox"/> →	Go to C1
	The signal is located at a gradient change or station stop that requires the driver to power up or brake within the LAST 50m of the sighting distance?		<input type="checkbox"/> →	
	It is likely that the driver will be attending to another duty (e.g. checking timetable, using train operating system etc) when they need to sight the signal? <i>Provide details:</i>		<input type="checkbox"/> →	
	Is it likely that another operational factor may distract the driver's attention from the signal? (E.g. level crossing, another train, platform) <i>Provide details:</i>		<input type="checkbox"/> →	
	Other <i>Provide details:</i>		<input type="checkbox"/> →	

Mitigations: Distractions		☑	Action
C1	Understand the nature of the distraction and the possible effect on train management. The distraction should be removed if possible. If it is an operational issue then this should be reviewed with the appropriate train crewing representative. If there is a sign that could be a distraction, consider changing the location of the signal or the sign to minimise the distraction. Otherwise, if the distraction is serious, consider the following: 1. Installing an LED signal; 2. Installing a co-acting signal or a repeater.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Go to Section D

Interruptions and Distractions: Justification for mitigation measures adopted

Please provide additional detail about decisions that are taken

Section D - SIGNAL DESIGN		No	Yes	Action
12)	Is the signal placed on a post?	Go to <input type="checkbox"/> Q13	<input type="checkbox"/> ↓	
If yes:	Is the horizontal centre of the signal post not located between 2.2 and 2.5m from the running face of the nearest rail?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to D1
	Is the height of the red aspect positioned significantly lower or higher than 3m above rail level for a single light or 2.3m for a double light signal?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	
	Is the lamp type or the intensity of all signal aspects not matched to the previous signal and the next signal? (could increase the possibility of read through)	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to D2
13)	Is the signal placed on a gantry?	Go to <input type="checkbox"/> Q14	<input type="checkbox"/> ↓	
If yes:	Is the lamp type or the light intensity of all signal aspects not matched to other signals on the gantry?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to D3
14)	Is the signal out of focus or alignment so that it is does not provide the train driver with optimum sighting of signal indications?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to D4
15)	Is the track bi-directional?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to D5
16)	Is the signal positioned near a live overhead wiring air gap so that an electric train stopped at the signal will span an air gap?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to D6
17)	Is the signal in a tunnel?	Go to <input type="checkbox"/> Section E	<input type="checkbox"/> ↓	
If yes:	Is the signal positioned so that it is not close to the driver's eye level?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to D7
	Is the signal located near a tunnel exit?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to D8
	Go to Section E			

Mitigations: Signal Design		<input checked="" type="checkbox"/>	Action
D1	<p>These nominal ranges are specified in ESG100.1, however, if the signal sighting can be improved then some adjustment is acceptable. For vertical height the red aspect of post mounted running signal aspects should be positioned to provide a stop aspect as close as practical to driver's eye level, in accordance with the requirements of the structural gauge, and having regard to the different types of trains likely to pass the signal.</p> <p>Guidelines for exceptions: Where it is necessary to observe an aspect over the top of a train on an adjacent track, observe an aspect over a rise, or through a series of curves or if there are other physical lineside obstructions such as the face of a rock cutting.</p>	<input type="checkbox"/>	Return to Q12
D2	<p>If the Lamp type and intensity are not matched to surrounding signals, this should be justified on the signal sighting form. Consider the risk and impact of the driver reading through the signal and the following possible mitigations in priority order:</p> <ul style="list-style-type: none"> Use LED signals where possible; Consider a screen for lights from outside of the rail corridor, e.g. traffic lights; Change the light intensity or focus; Make the signal background larger or increase the size of the hood. <p>(NB this will not improve the situation for night viewing)</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Go to Q13
D3	<p>Where possible, modify the signal so they are consistent.</p> <p>If this is not possible, refocus the signal to better match the neighbouring signals.</p>	<input type="checkbox"/> <input type="checkbox"/>	Go to Q14
D4	<p>Refocus the signal to provide the driver with optimum sighting. The correct lens should be used to achieve best sighting. Spread light lenses reduce the intensity of the indication and should not be used unless the approach to the signal is sharply curved and/or the maximum sighting distance is less than 250m.</p> <p>For running signals the signal should be aligned toward the defined sighting point or the previous signal, whichever is the least distance.</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Go to Q15
D5	<p>1. Optimise signal position in the correct (or primary) direction.</p> <p>2. Match the signal height and spacing to neighbouring running signals on the same line to make it easier for drivers to determine which signal applies to their line. If this is not possible, describe why the signal height and spacing will not match on the sighting form and investigate the most appropriate mitigation to provide the best sighting from the drivers position:</p> <ul style="list-style-type: none"> Changing the signal background to make the signal more conspicuous; Installing a co-acting signal; Installing a repeater. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Go to Q16

D6	Since the last pantograph on an 8 car intercity electric set is approximately 175 metres from the front of the set, the signal should be placed at least 200 metres from the centre of the overlap (air gap) bay, if the air gap is on the approach side of the signal. If this is not possible move the position of the overhead wiring air gap. NB Avoid locating signals such that any part of the signal or the maintainer servicing the signal is within 1.5 metres of any live overhead pull-off or isolating insulator.	<input type="checkbox"/> <input type="checkbox"/>	Go to Q17
D7	SPG 0706 states that the signal lamp case should be mounted so that the top red aspect is between 2250 mm and 2550 mm above rail level. If this cannot be achieved, the justification should be recorded on the sighting form.	<input type="checkbox"/>	Return to Q17
	If the signal is near a tunnel exit reduce the effect of light on the signal aspect. Consider repositioning the signal so that it is further away from the exit. Consider the use of LED signals if it will make the signal easier to see.	<input type="checkbox"/>	Go to Section E

	Section E - ENVIRONMENT	No	Yes	Action
18)	Is the signal located in front of a dark, light or cluttered background that will disrupt a clear sighting of the signal?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to E1
19)	Can sunlight shine into the signal lens from the front of the signal (sun is behind driver) and reduce visibility or create washout or phantom effects?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to E2
20)	Can sunlight shine into the signal from the rear of the signal (sun shines into the driver's face) to cause glare and make it hard to see the signal?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	
21)	Are there any other sources of light that may disrupt a clear sighting of the signal (e.g. traffic lights, street lights, floodlights)?	<input type="checkbox"/> ↓	<input type="checkbox"/> →	Go to E3
		END		

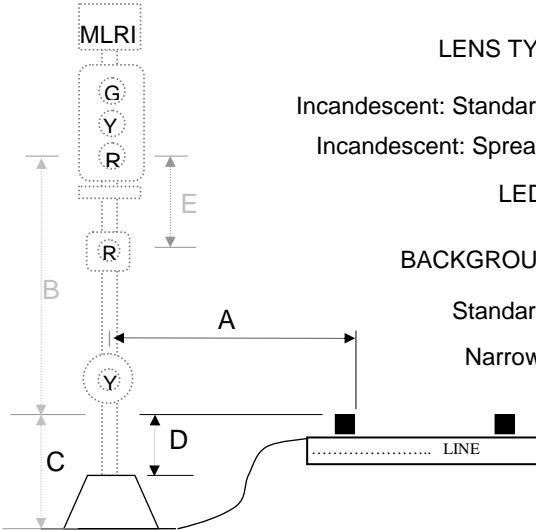
	Mitigations: Environment	<input checked="" type="checkbox"/>	Action
E1	The signal should be made to stand out from the background Attach a larger background to the signal to enhance the contrast between the signal and background Use LEDs if they will enhance the visibility of the signal aspect.	<input type="checkbox"/> <input type="checkbox"/>	Go to Q19

Signal Design and Environment: Justification for mitigation measures adopted	
Please provide additional detail about decisions that are taken	

SIGNAL SIGHTING FORM - SINGLE LIGHT

PROJECT:			
LOCATION:		DESIGN JOB No:	

SIGNAL No:			
DESIGN LOCATION:		ACTUAL LOCATION:	
km		km	



LENS TYPE

Incandescent: Standard ☐

Incandescent: Spread ☐

LED ☐

BACKGROUND

Standard ☐

Narrow ☐

A	mm	B	mm
C	mm	D	mm
E	mm		

LOCATION PLAN

← SYDNEY
COUNTRY →

..... SIGNAL
& TELEPHONE

SIGHTING DISTANCE **Metres**

Distance from signal to OHWS / Bridge / kilometre post No

..... metres Sydney Side* / Country Side*
(* Delete whichever is not applicable)

Reference Drawing No:

FORM OF SIGNAL SHALL BE TAKEN FROM THE SIGNALLING PLAN FOR THE WORK – Reference Drawings from Specification SPG 1571
HEIGHT OF SIGNAL (B) IS FROM TOP OF RAIL TO THE TOP MOST MAINLINE RED INDICATION.

Remarks—Sighting Restrictions, Sighting Screens, Special foundation requirements, Access restrictions, OHW constraints, etc.

SIGHTING COMMITTEE

Date:

Representative	Name	Signature	Division / Region	Position
Regional Operations				
Regional Signal Representative				
Train Crewing				
Commissioning Engineer				
Signal Design Representative				
Contractor			Company:	
Electrical Representative				
Other:				

SIGNAL SIGHTING FORM - DWARF SIGNAL

PROJECT:	
LOCATION:	DESIGN JOB No:

SIGNAL No:			
DESIGN LOCATION:	km	ACTUAL LOCATION:	km

LENS TYPE

Incandescent: Standard ☐

Incandescent: Spread ☐

LED ☐

BACKGROUND

Standard ☐

Narrow ☐

LOCATION PLAN

← SYDNEY
COUNTRY →

..... SIGNAL
& TELEPHONE

SIGHTING DISTANCE Metres

Distance from signal to OHWS / Bridge / kilometre post No

..... metres Sydney Side* / Country Side*
(*Delete whichever is not applicable)

Reference Drawing No:

A	mm	B	mm
C	mm	D	mm
E	mm		

FORM OF SIGNAL SHALL BE TAKEN FROM THE SIGNALLING PLAN FOR THE WORK – Reference Drawings from Specification SPG 1571
HEIGHT OF SIGNAL (B) IS FROM TOP OF RAIL TO THE TOP OF THE CASE.

Remarks—Sighting Restrictions, Sighting Screens, Special foundation requirements, Access restrictions etc.

SIGHTING COMMITTEE

Date:

Representative	Name	Signature	Division / Region	Position
Regional Operations				
Regional Signal Representative				
Train Crewing				
Commissioning Engineer				
Signal Design Representative				
Contractor			Company:	
Other:				

SIGNAL SIGHTING FORM – GUARDS INDICATOR

PROJECT:		DESIGN JOB No:	
LOCATION:		PLATFORM:	
SIGNAL No GUARDS INDICATOR APPLIES TO:		No OF GI REQUIRED:	
DESIGN LOCATION:	km	ACTUAL LOCATION:	km

		Lens Type Inc. Standard <input type="checkbox"/> Inc. Spread <input type="checkbox"/> LED <input type="checkbox"/> Background Standard <input type="checkbox"/> Narrow <input type="checkbox"/> Hoods Standard <input type="checkbox"/> Extended <input type="checkbox"/>	LOCATION PLAN City Country
A <input type="text"/> mm B <input type="text"/> mm C <input type="text"/> mm <u>Post</u> <u>Wall</u> <u>Awning</u> <u>L Bracket</u> * Mounted	Sighting Distance <input type="text"/> metres The Guards Indicator is <input type="text"/> metres from the City End and <input type="text"/> metres from the Country End Red is new. Grey exists.		

Remarks—Sighting Restrictions, Sighting Screens, Special foundation requirements, Access restrictions etc.

SIGHTING COMMITTEE

Date:

Representative	Name	Signature	Division / Region	Position
Regional Operations				
Regional Signal Representative				
Train Crewing				
Commissioning Engineer				
Signal Design Representative				
Contractor			Company:	
Other:				

LEVEL CROSSING SIGHTING FORMS

Date/Time of Insp: _____

Safety Brief Carried Out

☐ Yes ☐ No

Consider	Comments / Issues	Non- Frangible Items ()
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Signage		Fog ()
---------	--	---------

11	11		
12	12		

Line Marking	

Vegetation	

Visual Constraints	

Speed of Traffic	
------------------	--

Volume of Traffic	
-------------------	--

Road Upgrading	
1	100
2	100
3	100
4	100
5	100
6	100
7	100
8	100
9	100
10	100
11	100
12	100
13	100
14	100
15	100
16	100
17	100
18	100
19	100
20	100
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89	100
90	100
91	100
92	100
93	100
94	100
95	100
96	100
97	100
98	100
99	100
100	100

Position of Hut	
-----------------	--

Road Conditions	
-----------------	--

Vicinity of OHW/OH

lines	
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With reference to this form and notes, the undersigned have agreed on the number and position of Advanced Warning Lights and / or alternative improvement to crossing active protection as applicable.

Organisation	Name	Signature	Position	Date
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Level Crossing Site Inspection

LOCATION: _____ ROAD NAME: _____ KILOMETRAGE: _____

NOTE: SKETCH TO BE ATTACHED

SYDNEY SIDE CONFIGURATION			COUNTRY SIDE CONFIGURATION		
LIGHTS	REQUIRED (Yes/No)	FOCAL DISTANCE	LIGHTS	REQUIRED (Yes/No)	FOCAL DISTANCE
E,F			A,B		
G,H			C,D		
ADDITIONAL - SAME POST			ADDITIONAL - SAME POST		
ADDITIONAL - NEW POST			ADDITIONAL - NEW POST		
ADVANCE WARNING LIGHTS			ADVANCE WARNING LIGHTS		
MISCELLANEOUS					
LINE SPEED UP DIRECTION		LINE SPEED DOWN DIRECTION			
AUTOMATIC APPROACH (Yes/No)		"B" DOUBLE ROAD TRAFFIC (Yes/No)			
TRACK SHUNT CONDITIONS (Poor/Good)		TRACK BALLAST CONDITIONS (Poor/Good)			
BOOMS REQUIRED - TYPE (Yes/No)		BOOMS DOWN - BELL OFF (Sydney Side / Country Side)			
BELL TIMER REQUIRED (Yes/No)		SHUNTERS PUSHBUTTONS (Yes/No)			
NUMBER OF AND TYPE OF RAIL TRAFFIC		SHUNT ENHANCEMENT REQ. (Yes/No)			
POWER SUPPLY ARRANGEMENTS		EXISTING TRACK CIRCUIT TYPE			

NAME: _____ SIGNATURE: _____ POSITION: _____ DATE: _____

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Stakeholder Site Inspection and Authority to Commission

In relation to the level crossing installation works at:

Works Package No. _____ and in accordance with drawing(s):

A site inspection has been carried out with outstanding issues to be addressed as indicated in the following table.

Outstanding Issues	Action by	by Date

The following representatives acknowledge that the requirements of their respective organisations have been met, with the exception of any outstanding items as listed above, and give authority for commissioning of the works.

Organisation	Name	Signature	Position	Date

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Gated Pedestrian Crossing Assessment Sheet

Crossing Location:-----

Date Visited:-----

-----Name of Inspector:-----

ASSESSMENT CRITERIA						YES	NO
1	How many tracks: Mark up sketch.	One	Two	Three	Four		
2	Is the crossing used for station access.						
3	Is the crossing located immediately adjacent to a road crossing.						
4	Is the crossing located on an obviously curved section of track or a crossover.						
5	Does the corral layout significantly differ from that shown & if so, mark up sketch.						
6	Is the crossing perpendicular to track. If not, mark approximate angle on sketch.						
7	Have you marked all critical base dimensions in either the table shown overleaf or on the sketch.						
8	On sketch, mark in the installed signage & positions. Signage may not need to be the latest version shown, but it does need to fulfil the intent shown.						
9	Are there contrasting delineation strips along both edges of the crossing.						
10	Are there tactile strips along both edges of the crossing.						
11	What is the surface over the track made of:	Concrete	Asphalt	Timber	Other		
12	What are the type of sleepers under the crossing:			Concrete	Timber		
13	Is the pathway over the tracks relatively flat with no significant trip hazards.						
14	Is there super elevation between far rails of more than ~50mm.						
15	Is the widest flange gap in the walking surface wider than 75mm.						
16	Does either pathway leading up to the tracks ramp downwards towards the track.						
17	Is there a permanent opening as per dimension 'C' between the fully open motorised gate and the emergency exit fencing, of at least 850mm.						
18	Is the fencing associated with the crossing generally in good condition.						
19	What are the walking surfaces in the corrals made of:	Concrete	Asphalt	Timber	Other		
20	What are the walking surfaces leading up to the corrals made of:	Concrete	Asphalt	Timber	Other		
21	Are there any steps incorporated into the access path leading up to the crossing.						
22	Is some form of area lighting provided over the tracks and corrals.						
23	Is some form of area lighting provided on pathways leading up to the corrals.						
24	Are both 'don't walk' lights and both tone generators provided and functioning.						
25	Are tactile pads provided at gates as shown on the sketch.						
26	Are the emergency exit gates fitted with a latch.						
27	Are the emergency exit gates fitted with functional spring close hinges.						
28	Is the motorised gate leaf fitted with chevron warning tape.						
29	Does the motorised gate have a rubber buffer strip on the leading edge.						

If a question is not applicable, write NA.

If associated with a road crossing and there are two pedestrian crossings, fill out two separate forms. Identify which side of the road the crossing is located on.

COMMENTS:

Sheet 1 of 3

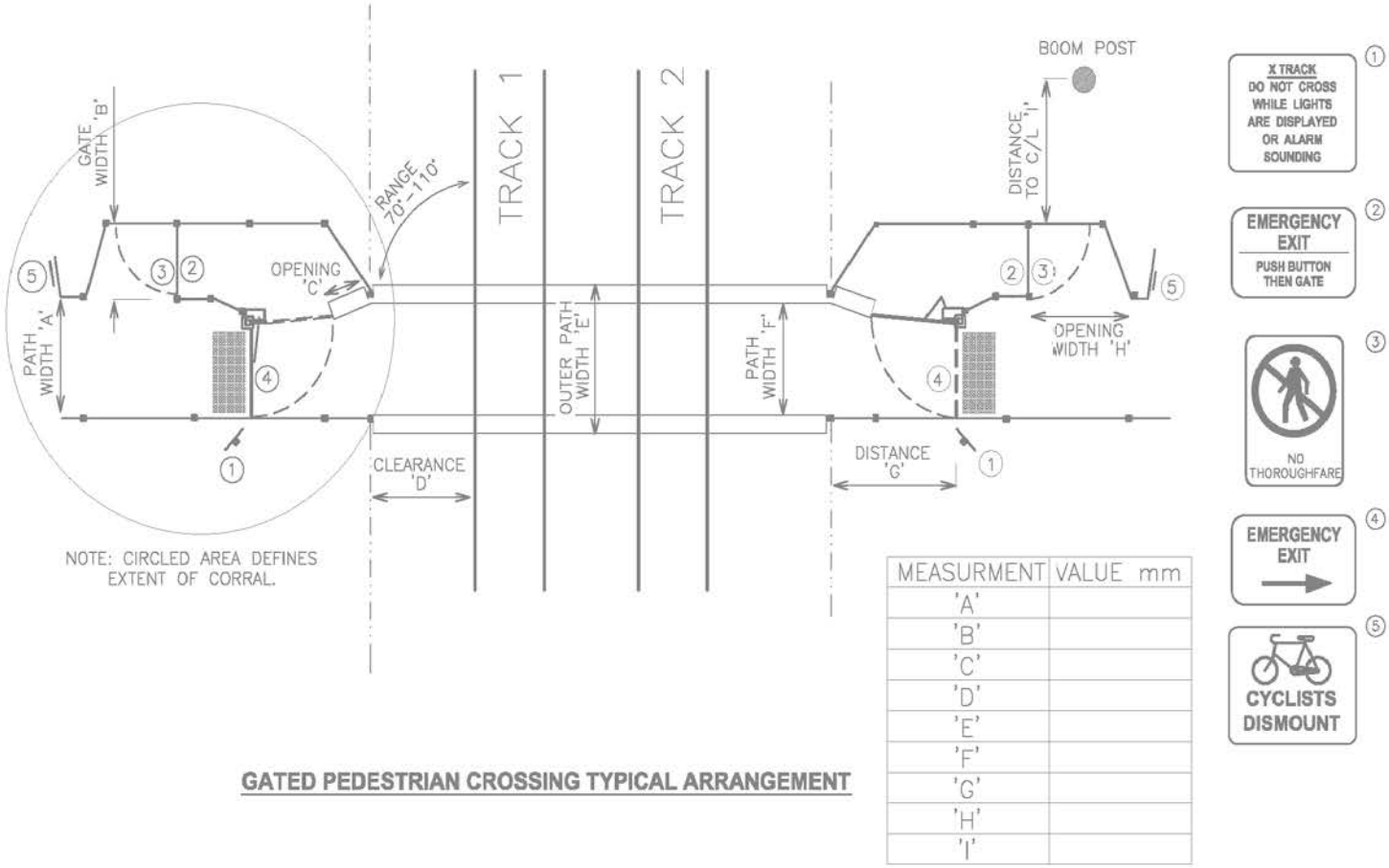
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SKETCH UP CROSSING USING GRID BELOW

TRACK 1

Sheet 2 of 3

Scale 300mm grid



Level Crossing Location Maintenance Visit Sheet

Location: _____

Date of Visit

Charge Current (A)
(500ma into Battery)
Float voltage (V)

Under voltage Alarm (V)
(12.2V – 10 Cell or 14.64V – 12 Cell)
MR6 Diode Check

Electrolyte Level

Lamp Voltage
SS & CS (6 Monthly)
Operating Load Current (A)

Voltage of Cells Under Load
(Lowest Cell & Battery Voltage)
After 2 Minutes Operation
Earth Leakage (AC)
Active & Common Bus
Earth Leakage (DC)
Positive and Negative Bus
Alignment of Lamps

Lamp Changeout

Monitor

Remarks

Signature