



C305- Eastern Running Tunnels

I&M Close Out Report for FAR-LIS-London Underground Metropolitan Line (Include Barbican & Moorgate Station) LU/16/17/20

CRL Document Number: C305-DSJ-C2-RGN-CRG03-50413

Supplier Document Number:

Contract MDL reference C08.079

1. Contractor Document Submittal History:

Revision:	Date:	Prepared by:	Checked by:	Approved by:	Reason for Issue:
2.0	11-08-16	[Redacted]	[Redacted]	[Redacted]	For Approval

2a. Stakeholder Review Required? YES NO

Stakeholder submission required: LU NR DLR RfL LO Other: _____

Purpose of submission: For no objection For information

This document has been reviewed by the following individual for coordination, compliance, integration and acceptance and is acceptable for transmission to the above stakeholder for the above stated purpose.

Sign: [Redacted] Role: [Redacted] Name: [Redacted] Date: 18/8/16

Sign: _____ Role: _____ Name: _____ Date: _____

2b. Review by Stakeholder (if required):

Stakeholder Organisation	Job Title	Name	Signature	Date	Acceptance
					<input type="checkbox"/>

3. Acceptance by Crossrail:

Crossrail Review and Acceptance Decal	
This decal is to be used for submitted documents requiring acceptance by Crossrail.	
<input checked="" type="checkbox"/>	Code 1. Accepted. Work May Proceed
<input type="checkbox"/>	Code 2. Not Accepted. Revise and resubmit. Work may proceed subject to incorporation of changes indicated
<input type="checkbox"/>	Code 3. Not Accepted. Revise and resubmit. Work may not proceed
<input type="checkbox"/>	Code 4. Received for information only. Receipt is confirmed
(e) [Redacted]	Print Name: [Redacted] Position: [Redacted] Date: 18/08/16
Acceptance by Crossrail does not relieve the designer/supplier from full compliance with their contractual obligations and does not constitute Crossrail approval of design, details, calculations, analyses, test methods or materials developed or selected by the designer/supplier.	

GEOCISA UK		C305-CLOUT-20160509		
I&M Close Out Report for FAR-LIS-London Underground Metropolitan Line(Include Barbican & Moorgate Station) LU/16/17/20				
C305 Crossrail Eastern Running Tunnels				
This Statement is the intellectual property of GEOCISA and is part of the Management, Environment and Quality System of the same Company.				
Current Version of the Documents & Signatures :				
Revision:	Date:	Prepared by:	Checked by:	Engineering Approved by:
2.0	11-08-16			
Document History :				
Revision:	Date:	Prepared by:	Checked by:	Engineering Approved by:
1.0	10-05-16			
2.0	11-08-16			

CONTENTS

1.	CLOSE OUT REPORT PURPOSE	2
2.	LOCATION OF THE WORKS	2
3.	DOCUMENTATION SUMMARY	2
4.	SUMMARY OF INSTRUMENTATION	3
5.	c305 CONSTRUCTION ACTIVITIES	3
6.	SUMMARY OF C704 DATA	4
7.	C305 MANUAL VERIFICATION READINGS	27
8.	SUMMARY	72

APPENDIX A: DECOMMISSIONING AGREEMENT

APPENDIX B: LEVELLING MARKS

Learning Legacy Document

1. CLOSE OUT REPORT PURPOSE

The purpose of this close out report is to summarise the monitoring data related to C305 construction activities recorded by the C704 monitoring system. This report incorporates the existing C704 decommissioning agreement for this asset (*C704 Instrumentation Decommissioning Agreement Hammersmith & City and Metropolitan Lines and Disused Thameslink between Barbican and Moorgate Stations: C704-XRL-C-AAG-CR088-50001*) in which, the C704 monitoring system shows that the settlement is at an acceptably small rate and can now be decommissioned.

To provide a summary of the effects of C305 construction activities on the asset, the C305 manual verification readings have been reviewed alongside the C704 automatic monitoring system for completeness. This report has been produced to close out the requirement for C305 monitoring reviews in connection with this asset.

CRL works and works by others at Liverpool Street and Farringdon station construction affected LU/20 and LU/16 assets prior to and post C305 works. In these areas, only movement due to the passage of the TBM's is considered in this report.

2. LOCATION OF THE WORKS

The instrumentation included within this report is situated in Drive Y Area 12, and includes the following London Underground (LU) assets: the Hammersmith & City and Metropolitan Lines running tunnels, the adjacent Disused Thameslink Tunnel (LU17), Moorgate Station (LU20) and Barbican Station (LU16). The project chainages run between 76590 and 77350 (See table in chapter 5).

3. DOCUMENTATION SUMMARY

CROSSRAIL NUMBER	DOCUMENT NAME	REASON FOR ISSUE
C305-XRL-C2-RGN-CR088-50001	C305 Baseline Monitoring Report LU/16,17 & 20 Metropolitan, Hammersmith & City and Circle Lines – Tracks, structures and stations	Baseline Monitoring Report
C704-SOL-C2-RGN-CR088-50062	C704 Installation Report for Monitoring of Barbican to Moorgate Hammersmith & City Line Running Tunnel. Rev. 1.0	Installation report
C704-SOL-C2-RGN-CR088-50053	C704 Installation Report for Monitoring of Barbican to Moorgate Disused Tunnel	Installation report
C704-SOL-C2-RGN-CR088-50083	C704-Installation Report for LU/17	Installation report
C701-ITM-C-RGN-M135-50002	C701 Moorgate Metropolitan Line Monitoring 3D Geodetic Prisms and Robotic Total Station Installation Report	Installation report
C701-ITM-C-RGN-M135-50004	Monitoring System for CW62 on the Metropolitan Line at Moorgate Station	Installation report
C701-ITM-C-RGN-M135-50005	C701 Installation Report for the Monitoring System for the Disused Thameslink and Metropolitan Line Platform Areas at Moorgate Station	Installation report
C701-ITM-C-RGN-CR088-50001	C701 Instrumentation and Monitoring Installation Report for the Monitoring System Installation at Farringdon	Installation report

C305-DSJ-C2-STP-CRG03-50049	C305 Specific Action Plan Y038: CP5A Ground Movement	Specific Action Plan (SAP)
C305-DSJ-C-STP-CRG03-50061	C305 Specific Action Plan Y035: LU 16/17/20 Metropolitan, Circle and Hammersmith & City Lines / Moorgate and Barbican Stations	Specific Action Plan (SAP)
C704-XRL-C-AAG-CR088-50001	C704 Instrumentation Decommissioning Agreement Hammersmith & City and Metropolitan Lines and Disused Thameslink between Barbican and Moorgate Stations	Decommissioning Agreement

4. SUMMARY OF INSTRUMENTATION

The total number of instruments covered by this report includes:

- 1115 No. 3D Prisms.
- 1728 No. Levelling marks– (see appendix B for coordinate locations and initial elevation readings).

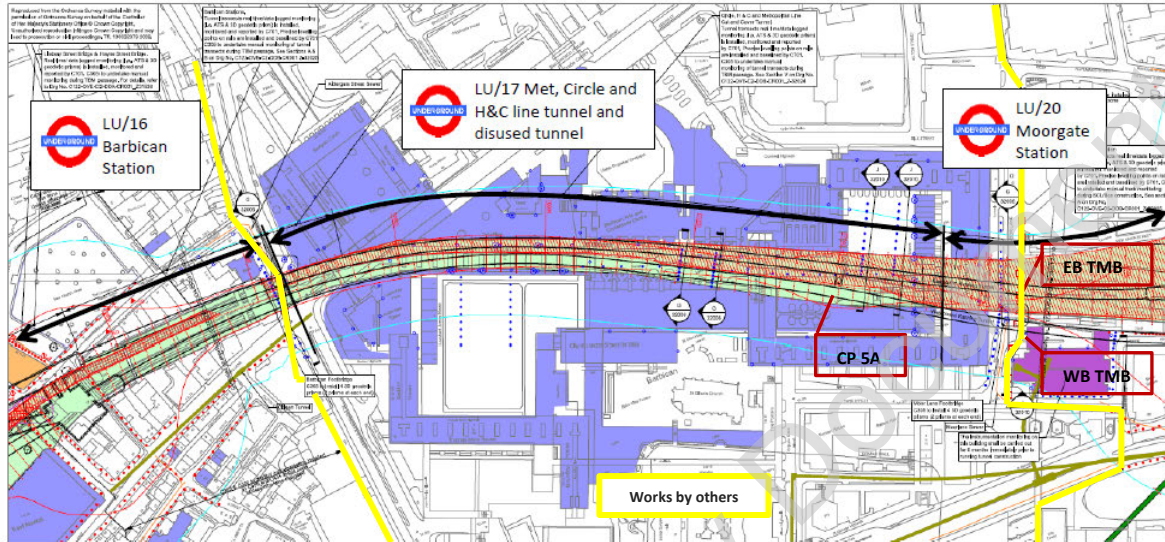
5. C305 CONSTRUCTION ACTIVITIES

Cross Passage 5A Construction	Start	Finish
Depressurisation	1 st September 2015	3 th December 2015
Excavation	5 th October 2015	11 th November 2015

DRIVE Y Running Tunnel Construction	RINGS	PROJECT CHAINAGE	DATES
Eastbound (EB) Tunnel Boring Machine (TBM) Passage	3911 – 4369	76590 – 77330	07/04/2015 to 11/05/2015
Westbound (WB) Tunnel Boring Machine (TBM) Passage	4013 – 4477	76590 – 77350	13/04/2015 to 26/05/2015

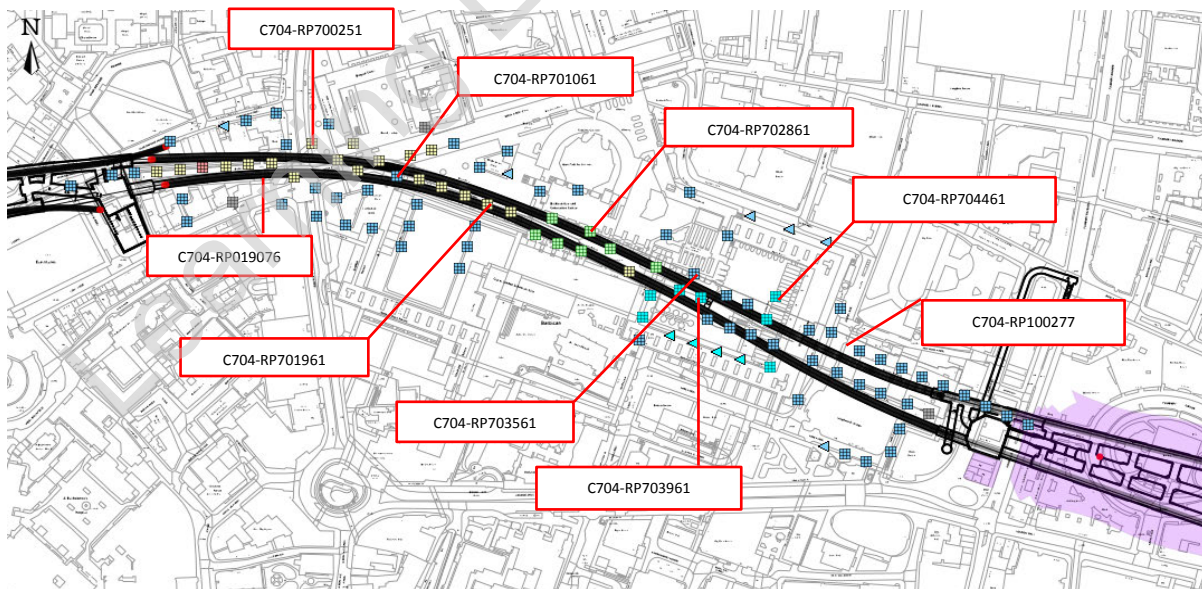
6. SUMMARY OF C704 DATA

The sketch below shows the location of CP5A, the alignment of Eastbound and Westbound Crossrail tunnels and the different location of the London Underground assets (stations and lines) included in this document:



In order to summarise the data in relation to the construction of Crossrail tunnels and CP5A, a number of selected prisms (located above the centre of the Crossrail tunnel alignment) were specifically chosen to relate any movement to these construction activities.

The sketch below shows the location of these prisms.



Location of the prisms:

PRISMS	LU Track	LOCATION
C704-RP019076		Barbican Station
C704-RP700251	Barbican to Moorgate	Masonry Tunnel
C704-RP701061	Barbican to Moorgate	Covered Way
C704-RP701961	Barbican to Moorgate	Covered Way
C704-RP702861	Barbican to Moorgate	Covered Way
C704-RP703561	Barbican to Moorgate	Covered Way
C704-RP703961	Barbican to Moorgate	Covered Way
C704-RP704461	Barbican to Moorgate	Covered Way
C704-RP100277		Moorgate Station

The table below summarises the movement recorded by the prisms listed above.

Activity	Horizontal Displacement X (mm)								
	C704-RP019076	C704-RP700251	C704-RP701061	C704-RP701961	C704-RP702861	C704-RP703561	C704-RP703961	C704-RP704461	C704-RP100277
EB TBM Passage	0	-1	-1	0	+3	0	0	0	0
WB TBM Passage	-1	0	-1	0	0	0	0	0	0
CP5A	N/A	N/A	N/A	N/A	N/A	0	0	-2	N/A

Activity	Horizontal Displacement Y (mm)								
	C704-RP019076	C704-RP700251	C704-RP701061	C704-RP701961	C704-RP702861	C704-RP703561	C704-RP703961	C704-RP704461	C704-RP100277
EB TBM Passage	0	-5	-2	-3	-2	-2	-3	-1	0
WB TBM Passage	-3	0	-2	-2	-2	-1	0	-1	-1
CP5A	N/A	N/A	N/A	N/A	N/A	0	+2	0	N/A

Activity	Maximum Settlement Z(mm)								
	C704-RP019076	C704-RP700251	C704-RP701061	C704-RP701961	C704-RP702861	C704-RP703561	C704-RP703961	C704-RP704461	C704-RP100277
EB TBM Passage	-4	-5	-5	-5	-2	-4	-3	-3	-5
WB TBM Passage	-4	-4	-4	-6	-2	-2	-1	-1	-1
CP5A	N/A	N/A	N/A	N/A	N/A	+3	+0.5	+2	N/A

The graphs below are taken from the automatic readings from the **C704** system and illustrate the related construction activities. Trigger values shown on the graphs are as per C305-DSJ-CRG03-50061 Specific Action Plan Y035: LU 16/17/20 Metropolitan, Circle and Hammersmith and City Lines/Moorgate and Barbican Stations.

LU/20 Trigger Values for LU Moorgate Metropolitan line station & ticket hall assets						
Asset Group	Settlement (mm)			Horizontal Displacement (mm)		
	Green	Amber	Red	Green	Amber	Red
Moorgate Station	10	15	20	±5	±7	±10
Retaining wall W298	15	20	25	±5	±7	±10
Retaining wall W299	50	60	75	±10	±15	±20
Moorgate Ticket Hall	50	60	75	-	-	-
Station platforms	20	25	30	±5	±10	±15
Circle Line bridge	10	15	20	±5	±7	±10

LU/17 Trigger Values Running Tunnel Construction only				
Asset Group	Asset description	Trigger Values (mm)		
		Green	Amber	Red
Twin masonry tunnels & attached structures	Settlement (mm)	15	20	25
	Horizontal Displacement (mm)	±3	±5	±10
Covered way & attached structures	Settlement (mm)	14	18	23
	Horizontal Displacement (mm)	±3	±5	±10

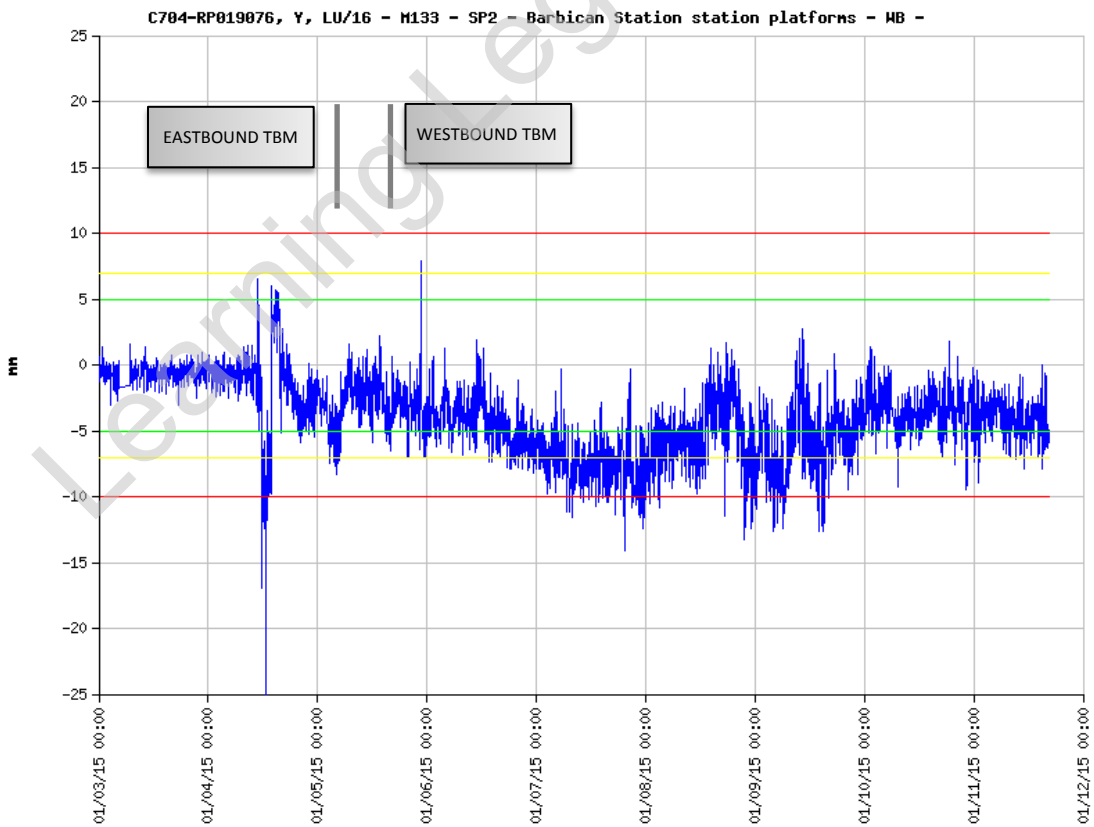
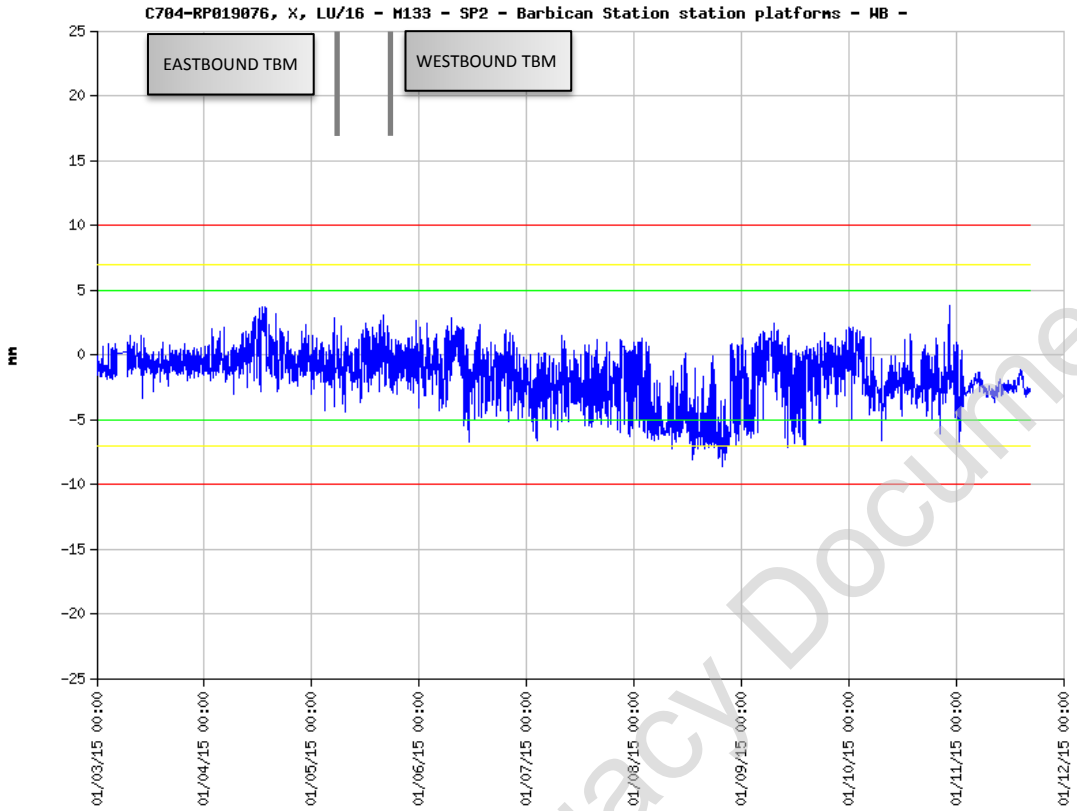
LU/16 Trigger Values								
Grouped Assets	Asset number	Asset description	Settlement (mm)			Horizontal Displacement (mm)		
			Green	Amber	Red	Green	Amber	Red
Barbican Station – Station platforms and canopies, lighting standards and retaining walls	M133	Assets between M133/MOR/025 & M133/MIR/070	30	35	40	±5	±7	±10
		Assets between M133/MIR/070 & M133/MIR/000	10	15	20	±5	±7	±10
Barbican Station	M133	Assets with supports on platforms M133/SP1 and M133 SP4	5	10	15	5	7	10
		Assets with supports on platforms M133/SP2 and M133 SP3	10	15	20	5	7	10

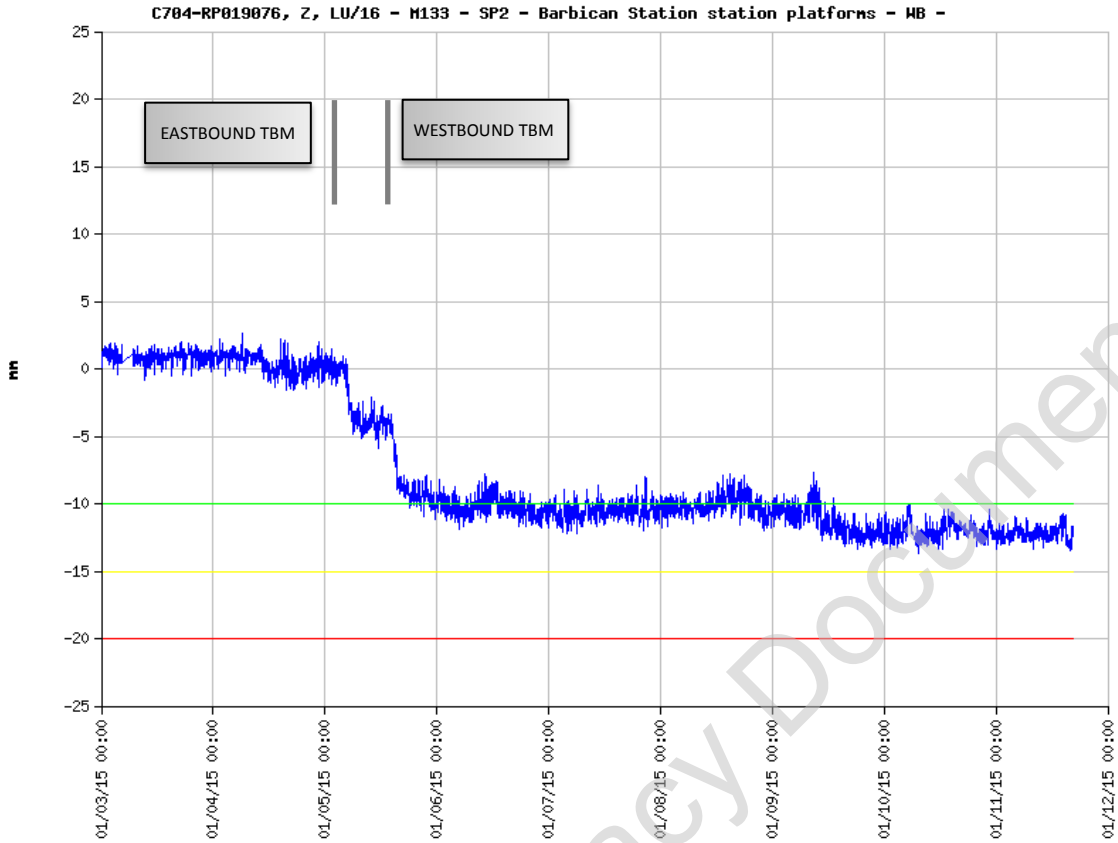
Ground Movement Alert Value for Cross Passage Construction		
		Construction Alert
Settlement (mm)	Cross Passage Excavation	4
	Dewatering	3
	Total	7

As it can be observed in the following graphs, all movements induced by C305 tunnelling works were within the specified trigger values; however some spiky readings have been recorded. It is to be noted the movement in the X and Y direction for prisms west of C704-RP703561 recorded a drift between mid-June to end of September 2015; this was not due to C305 activities.

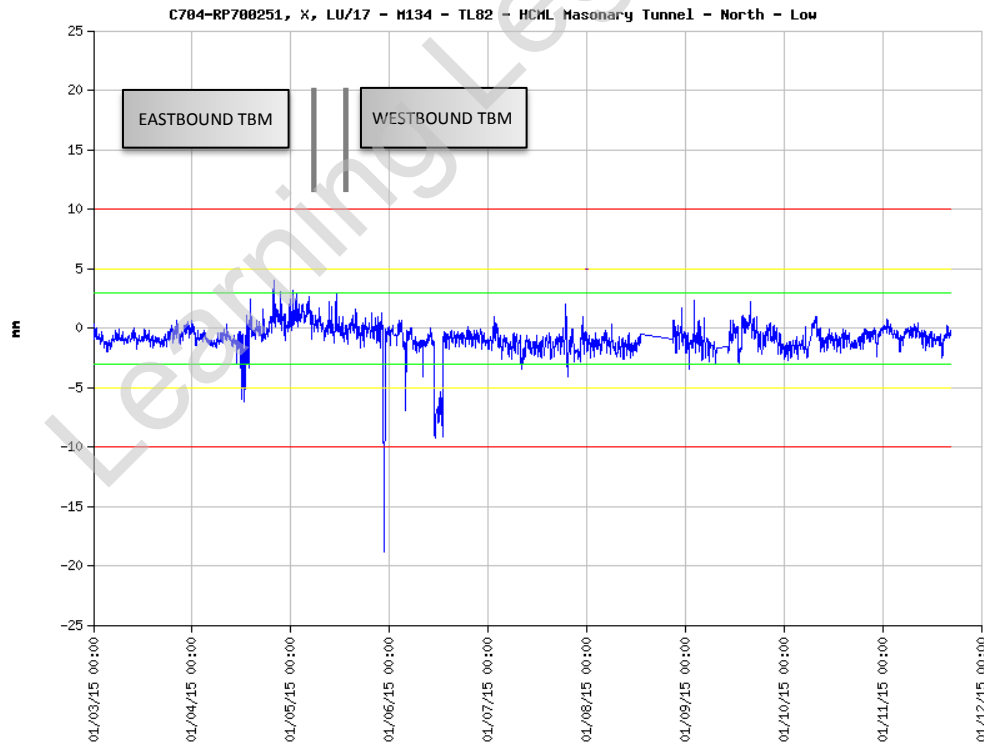
Learning Legacy Document

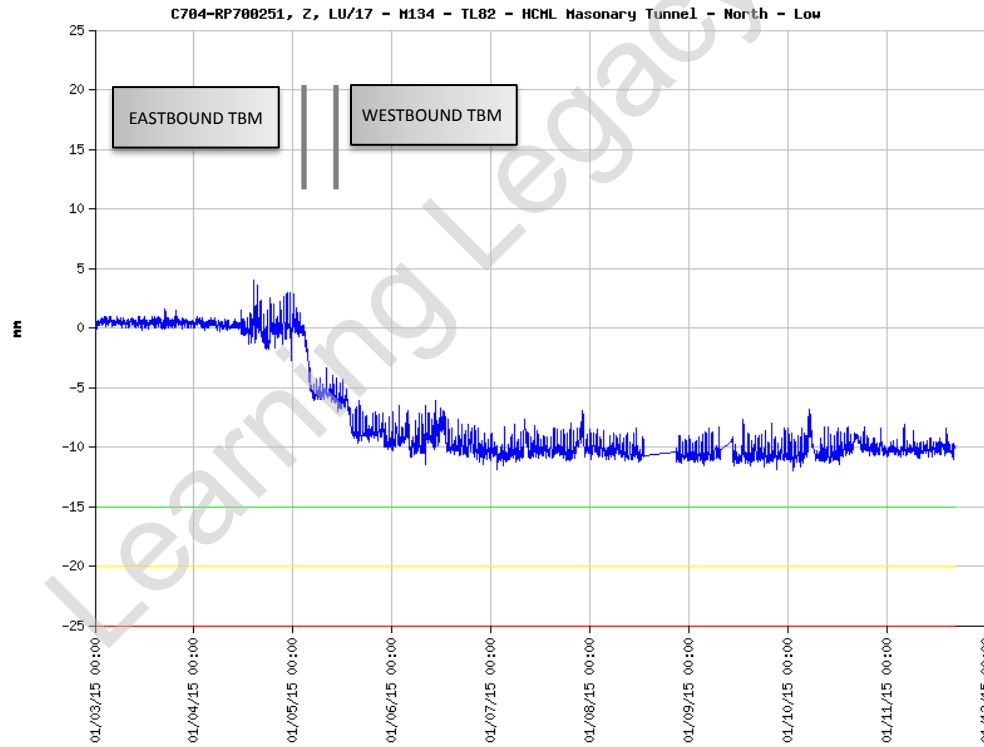
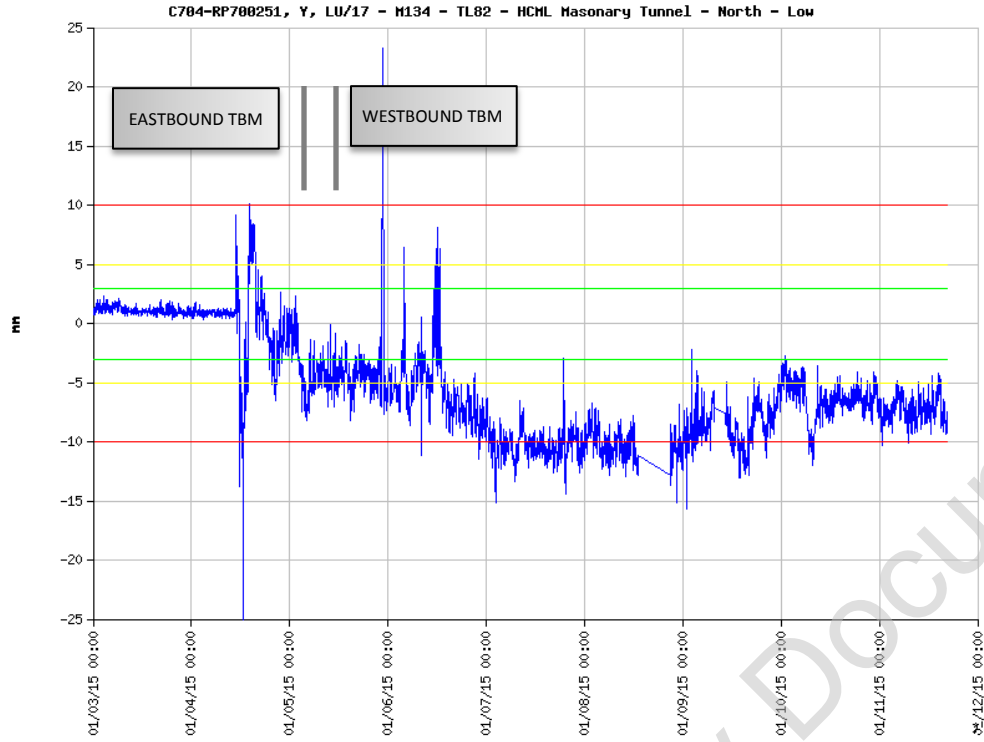
C704-RP019076:



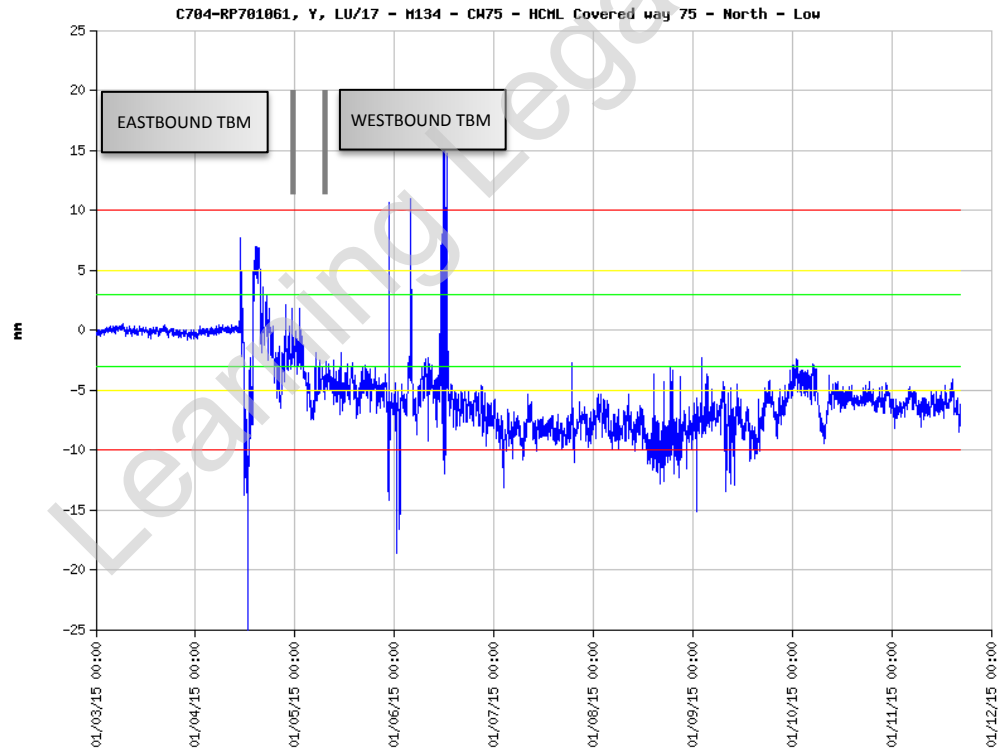
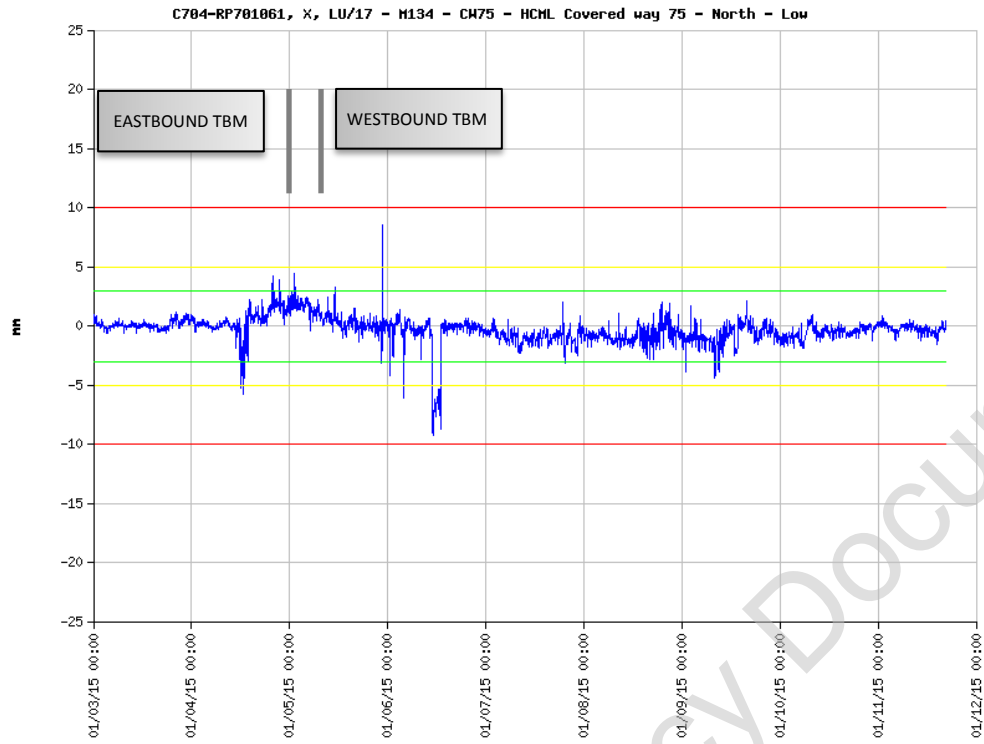


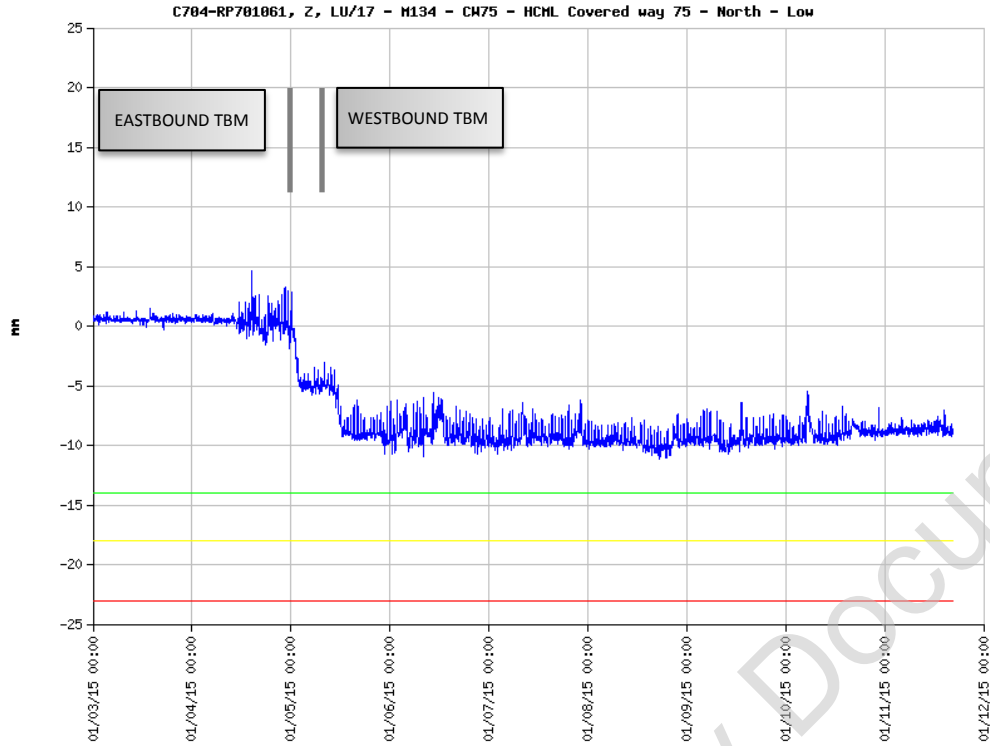
C704-RP700251:



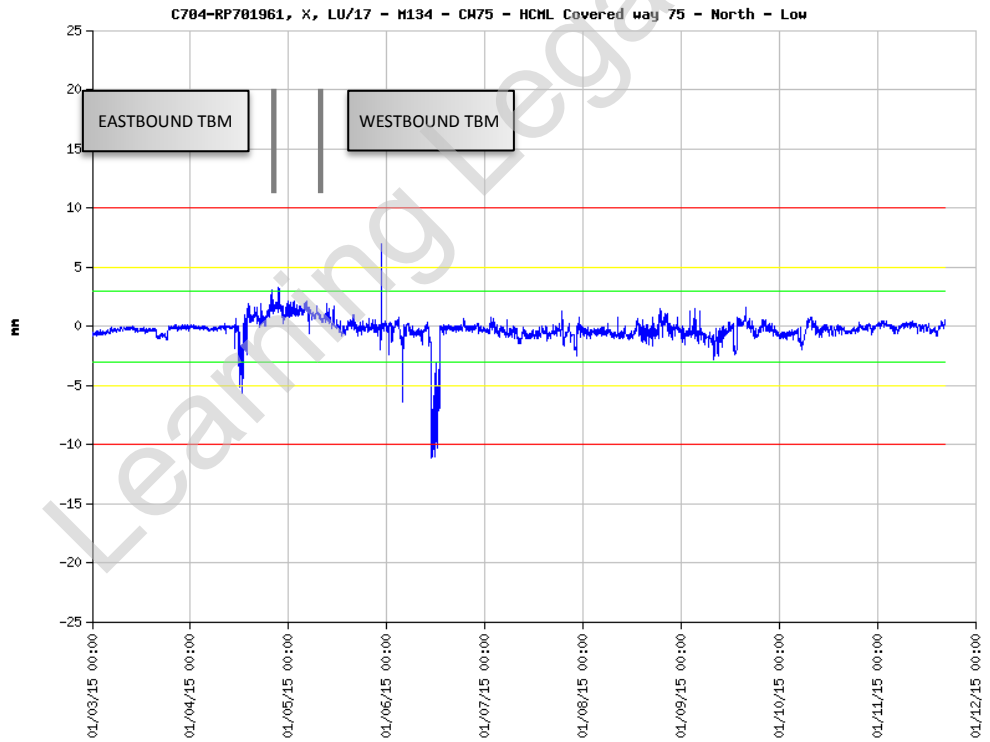


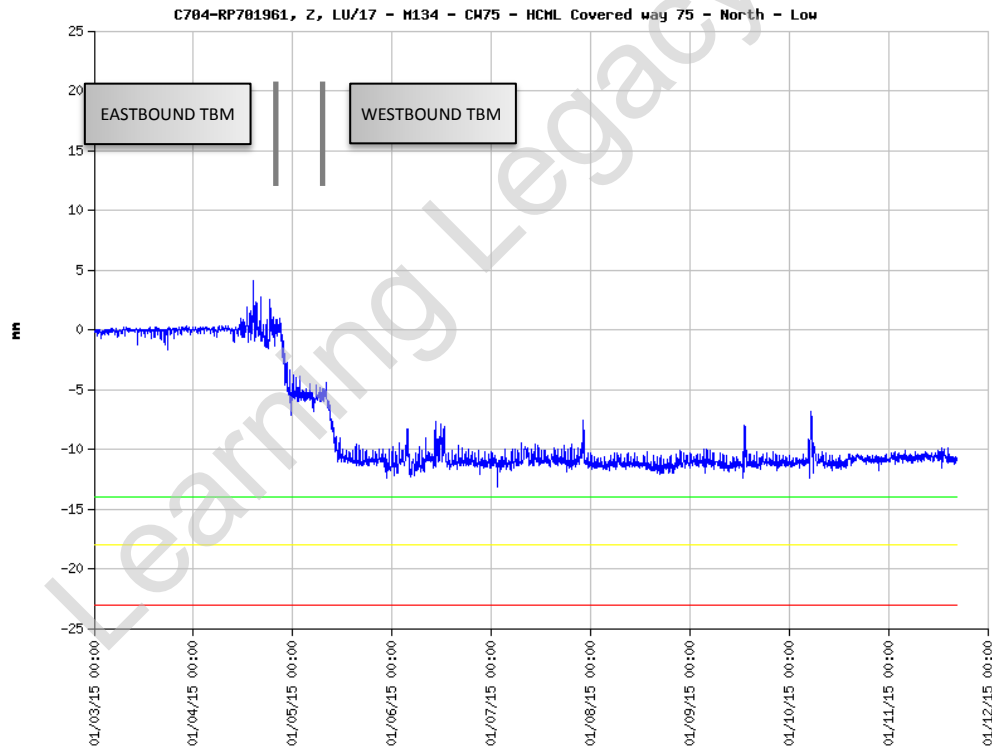
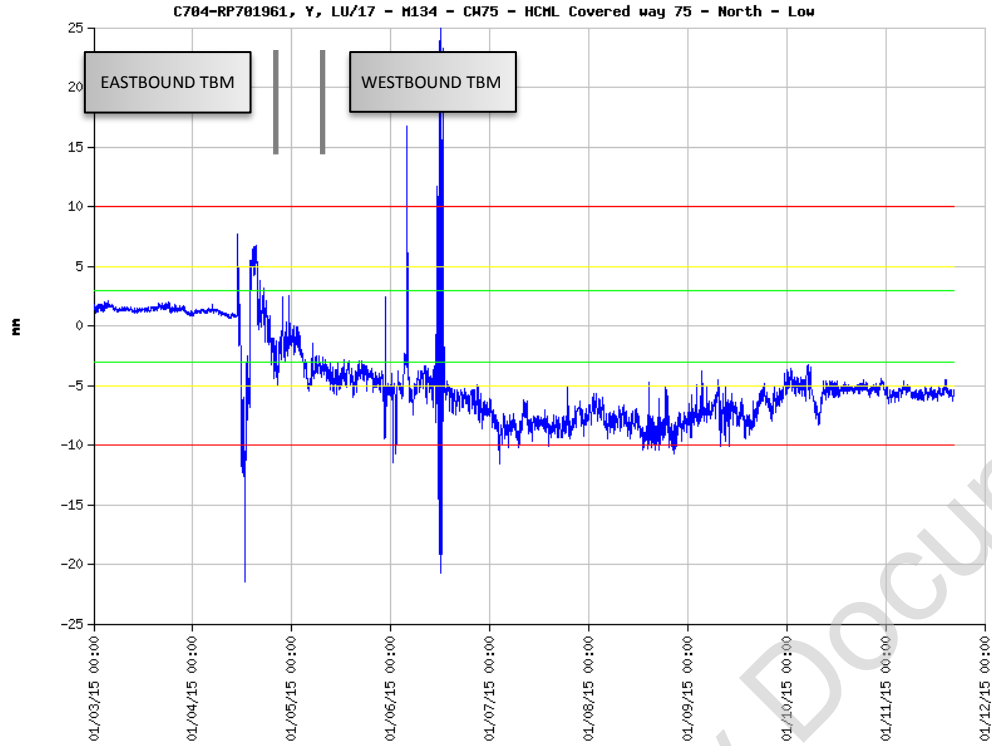
C704-RP701061:



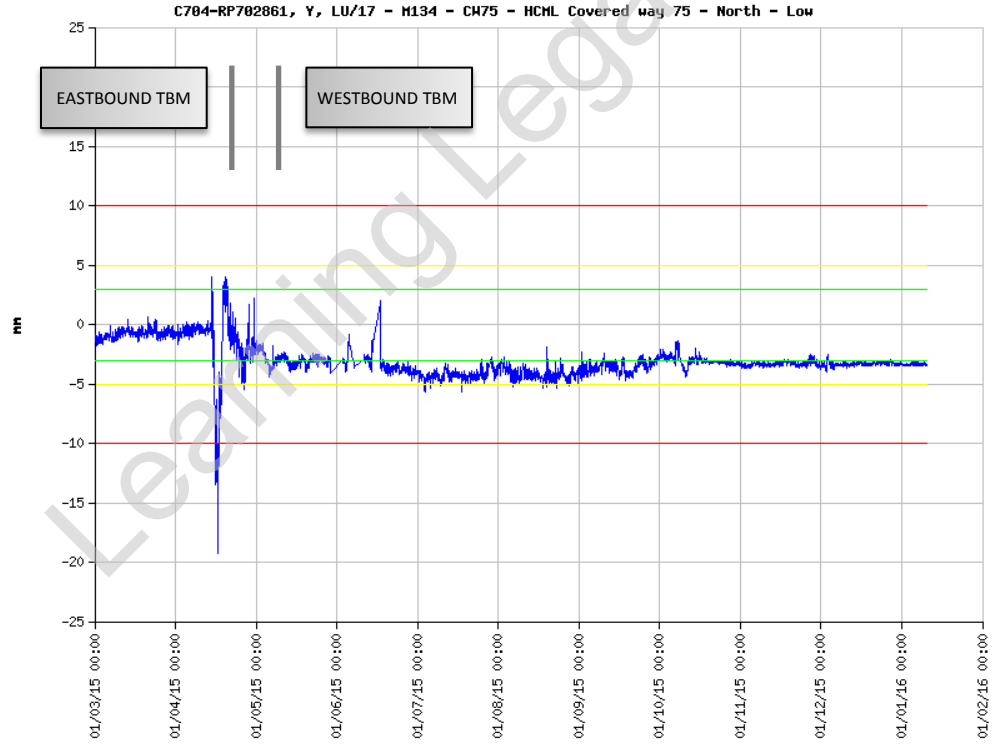
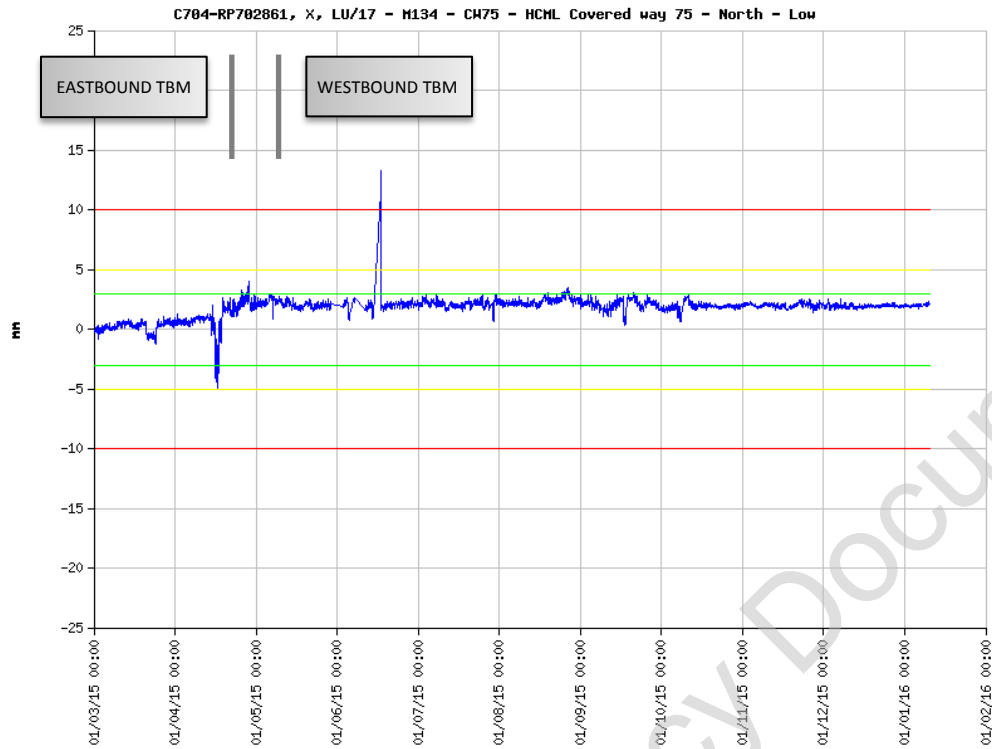


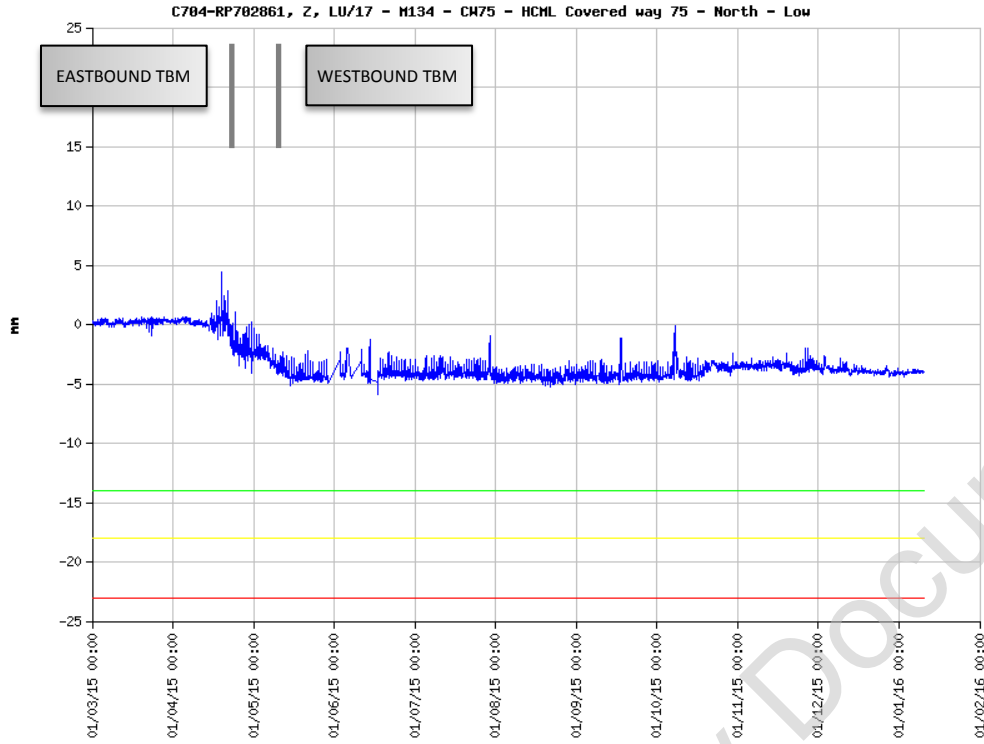
C704-RP701961:



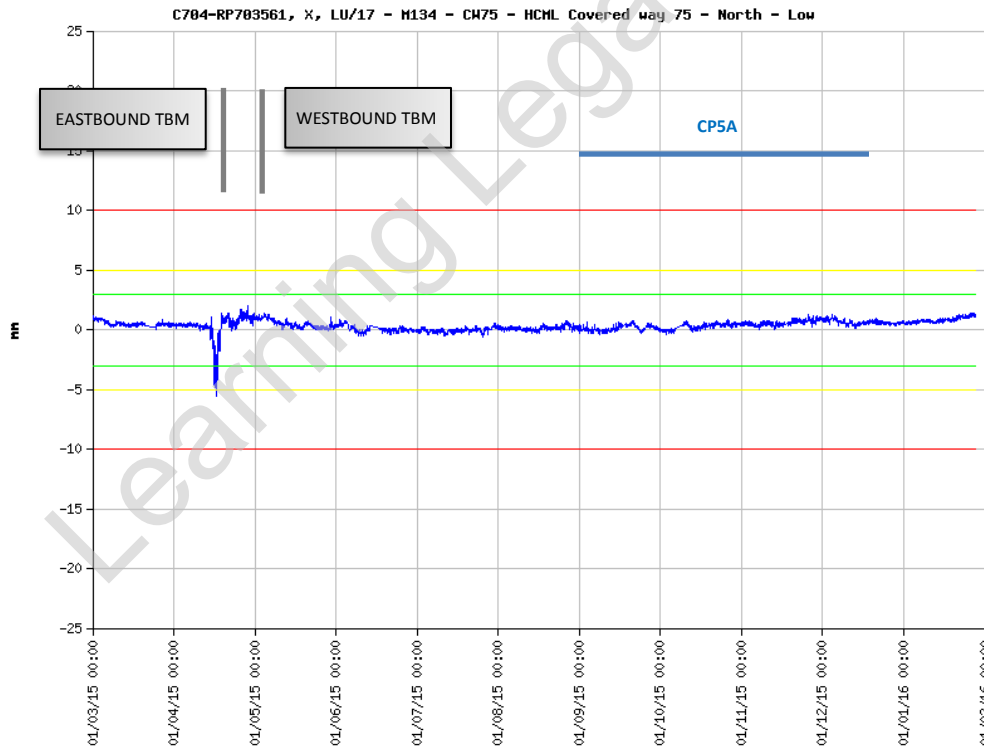


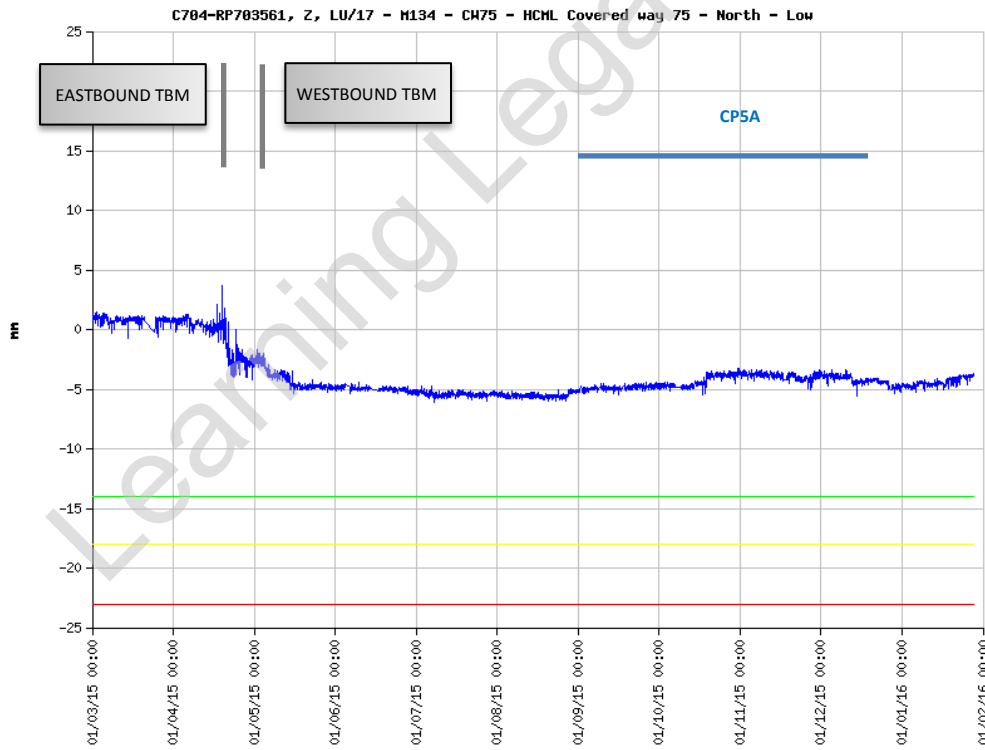
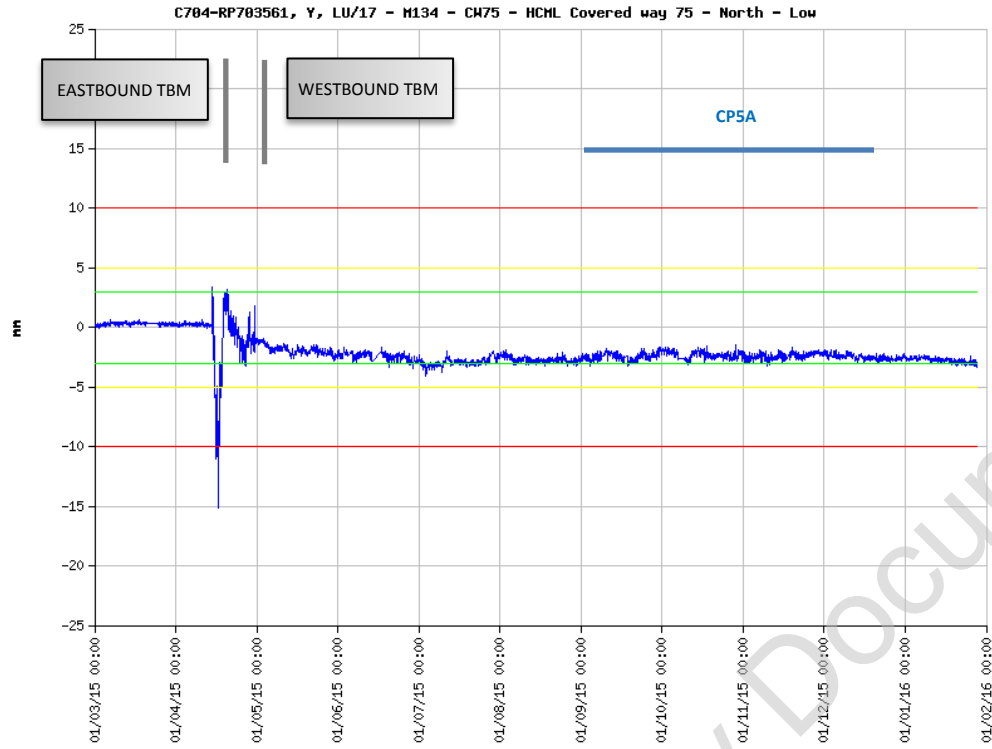
C704-RP702861:



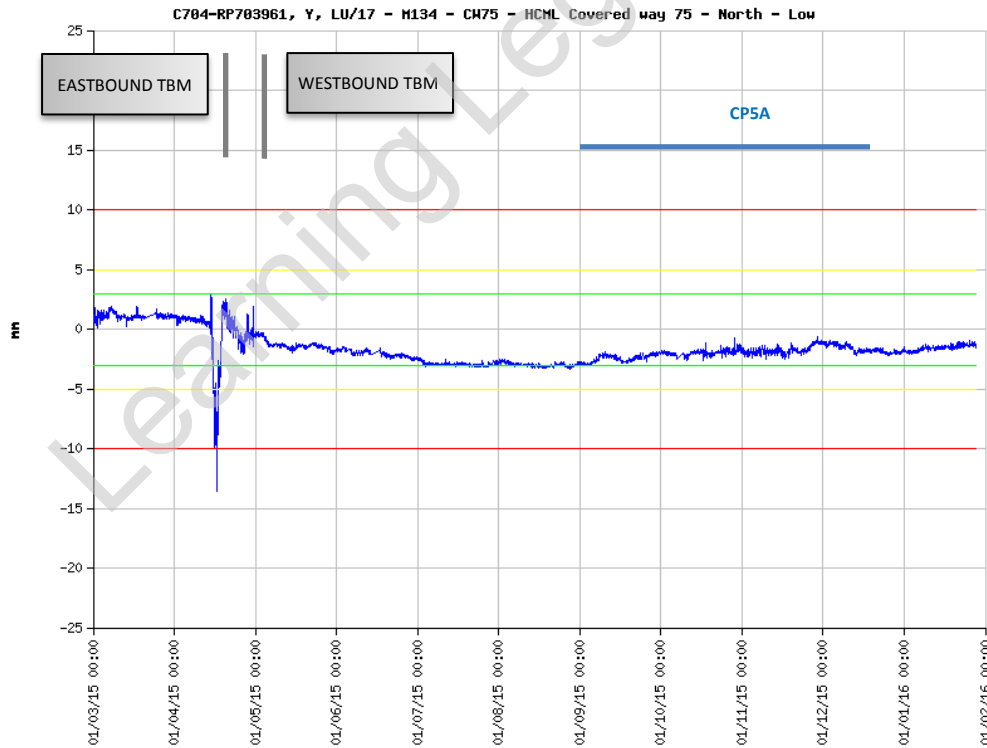
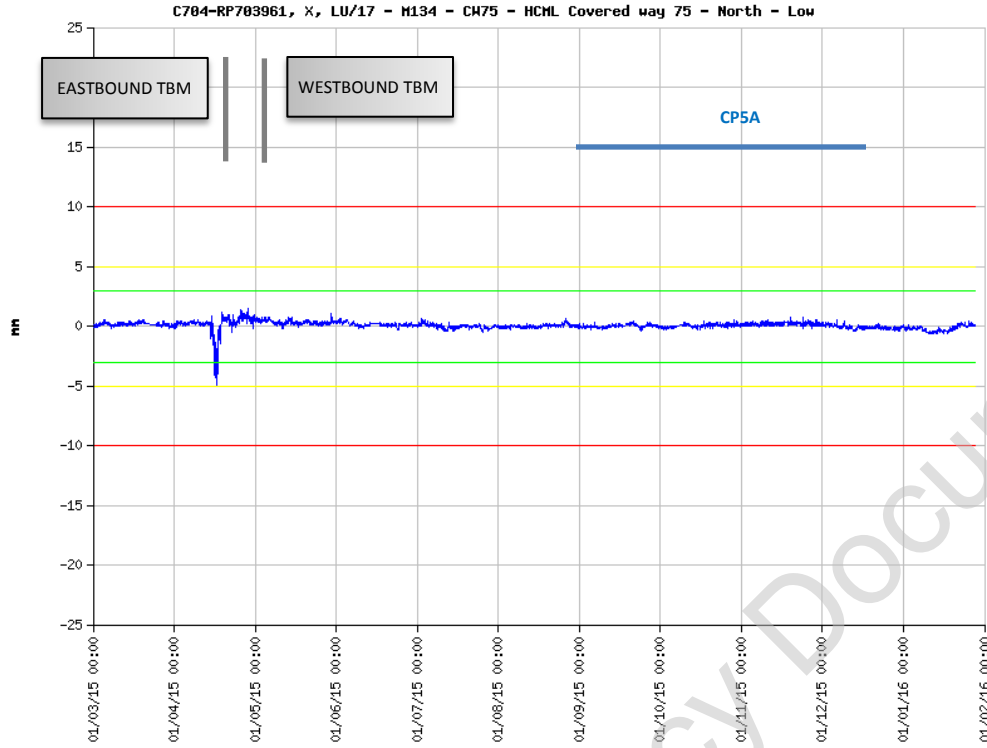


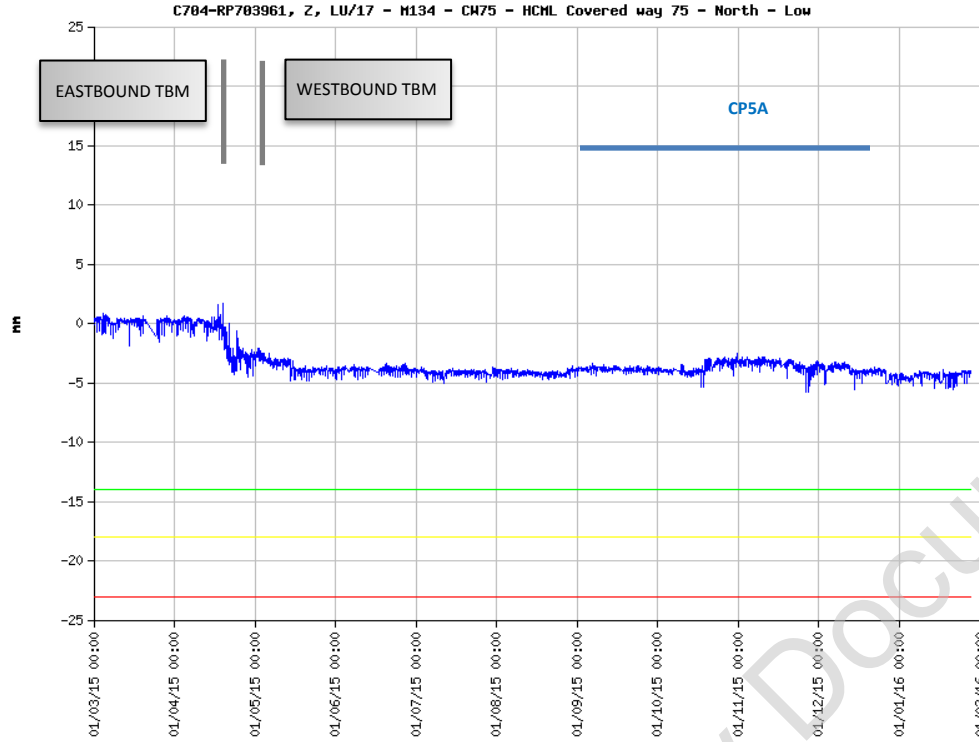
C704-RP703561:



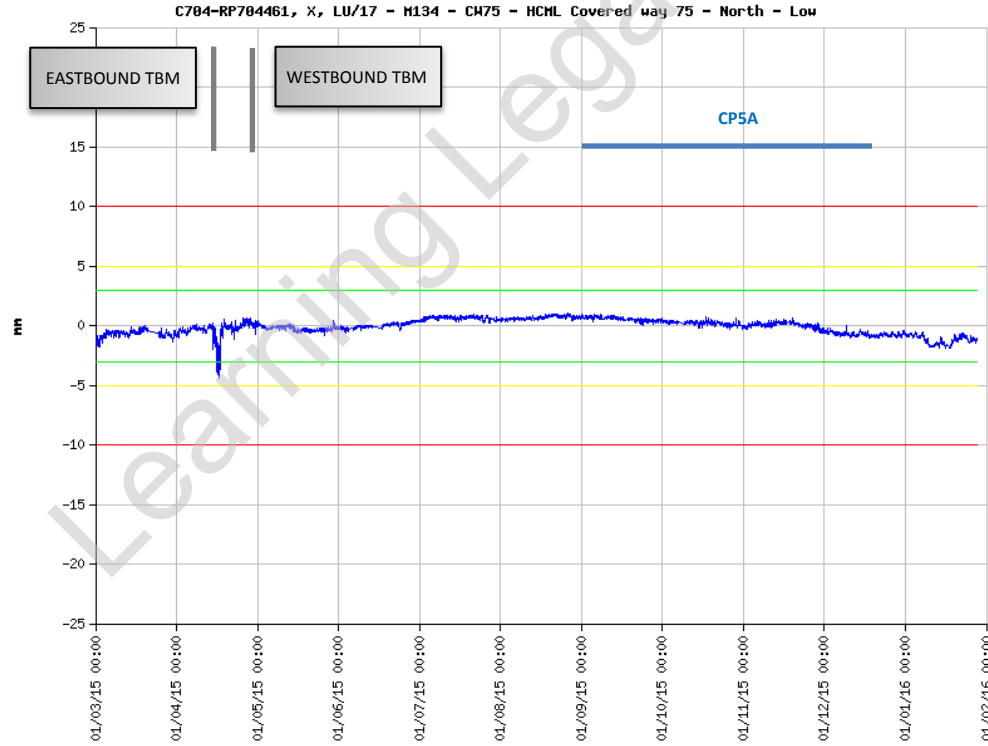


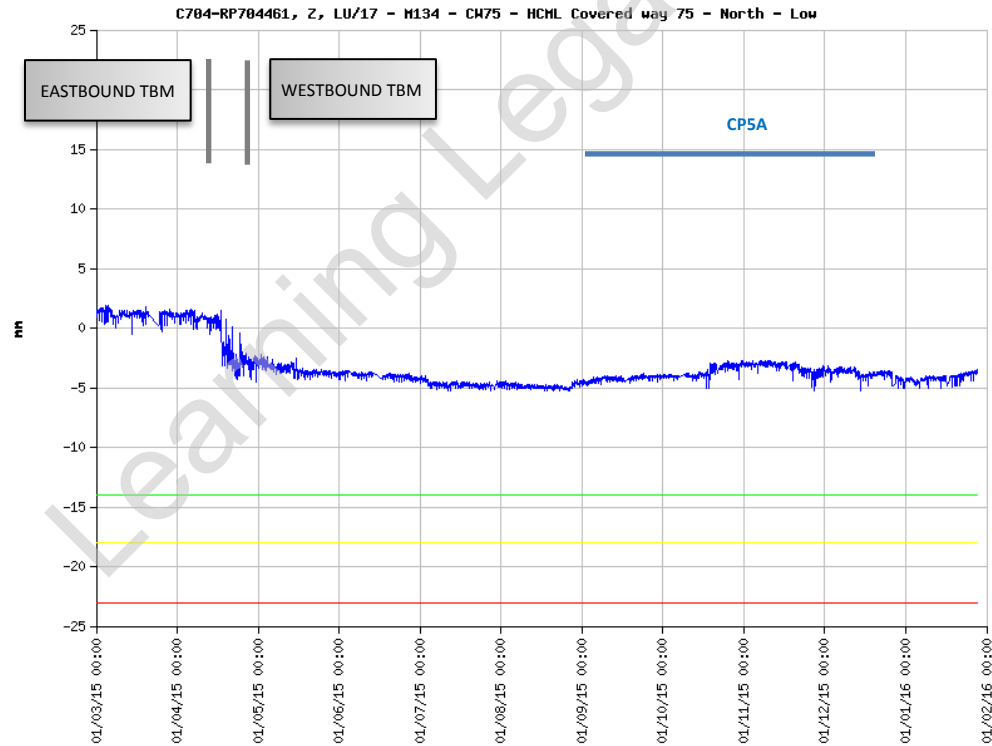
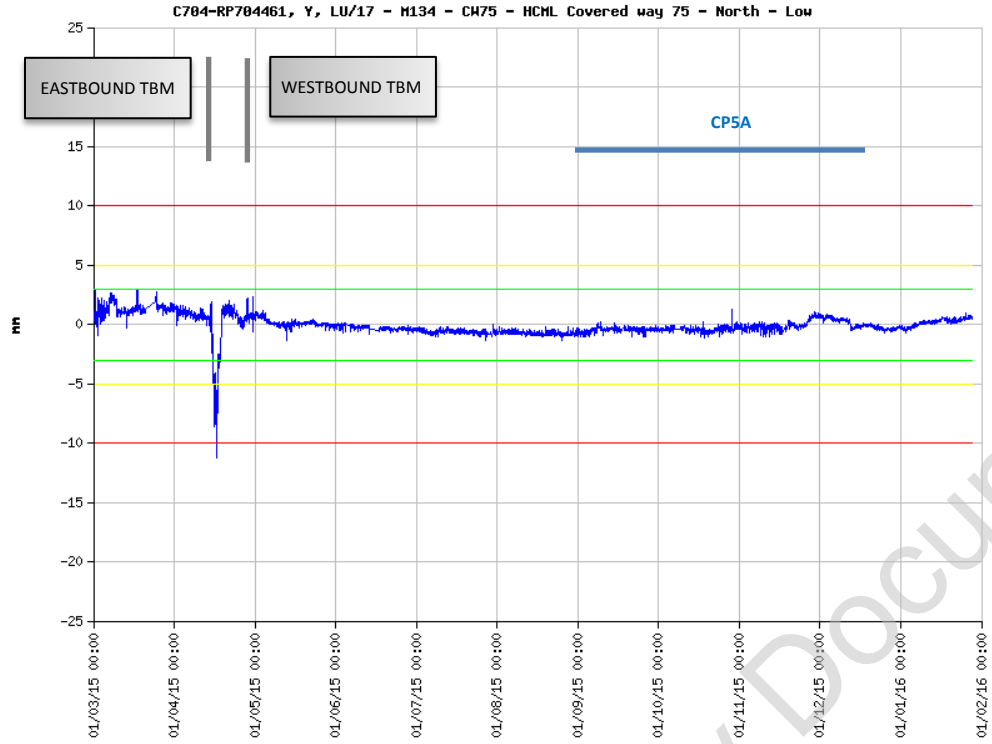
C704-RP703961:



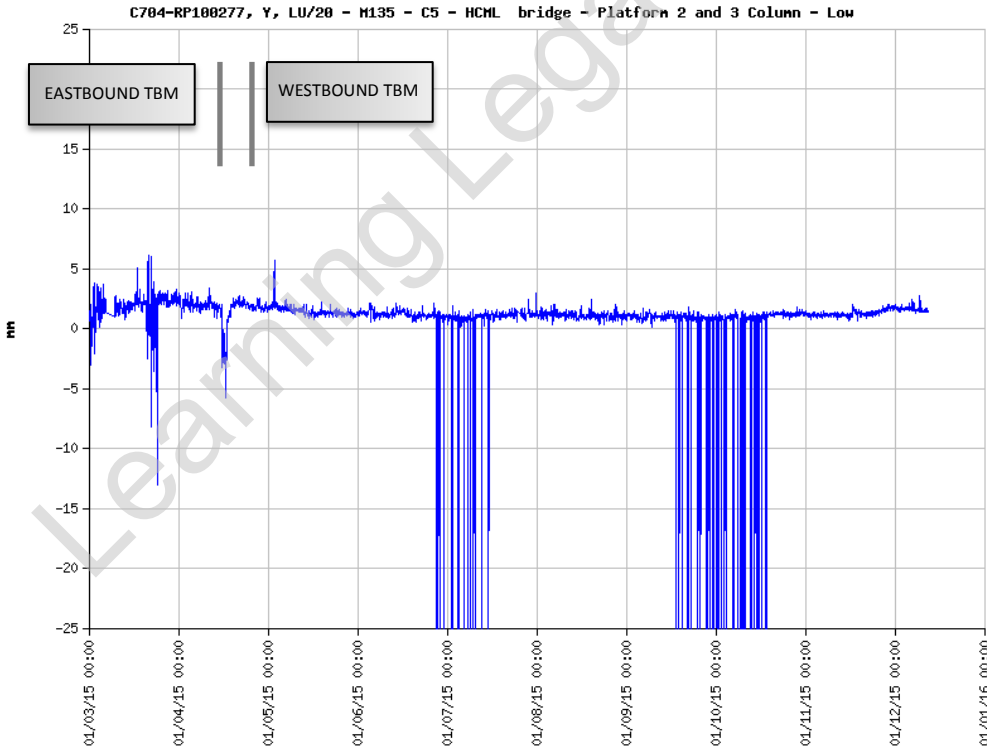
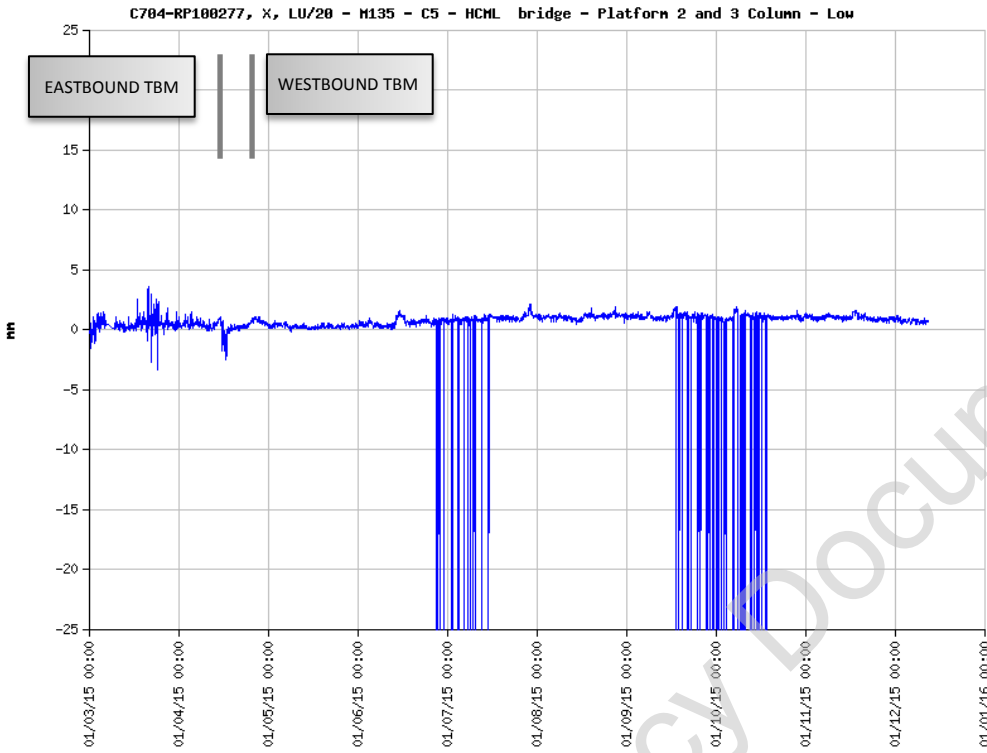


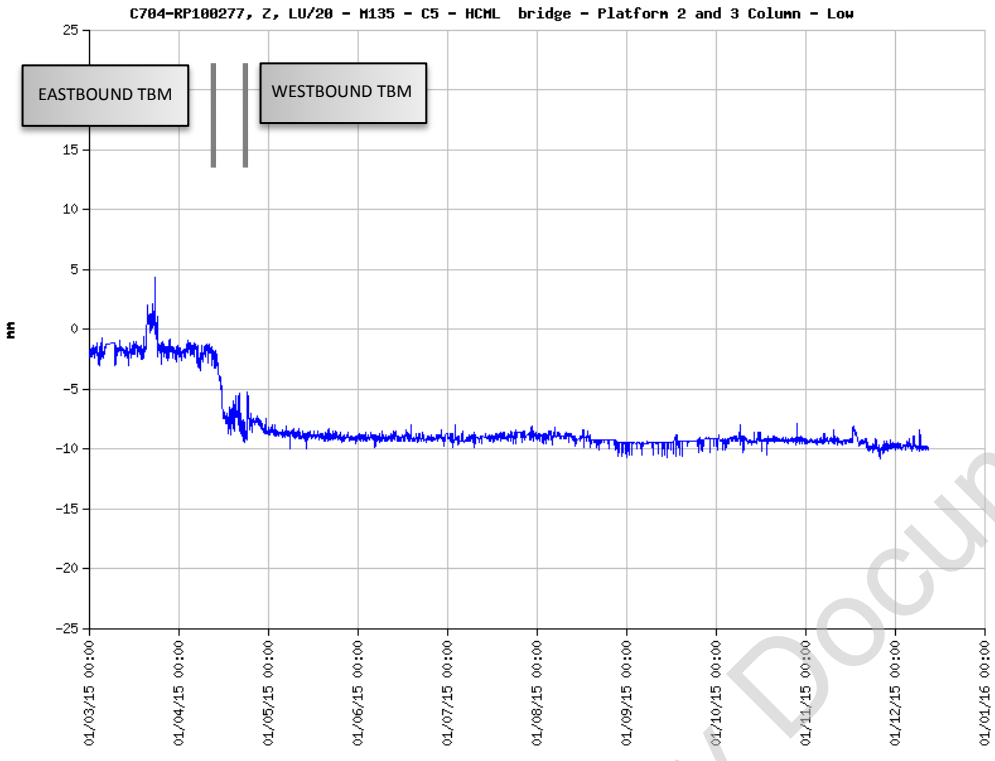
C704-RP704461:





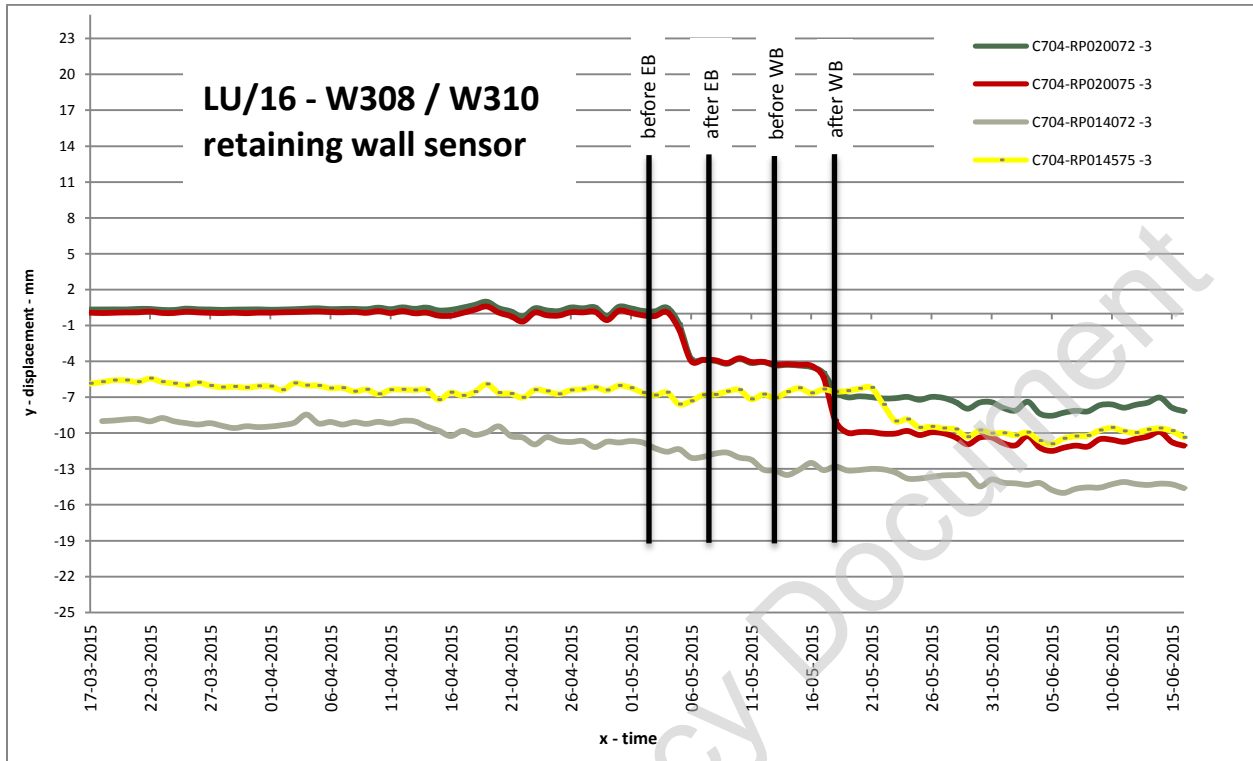
C704-RP100277:



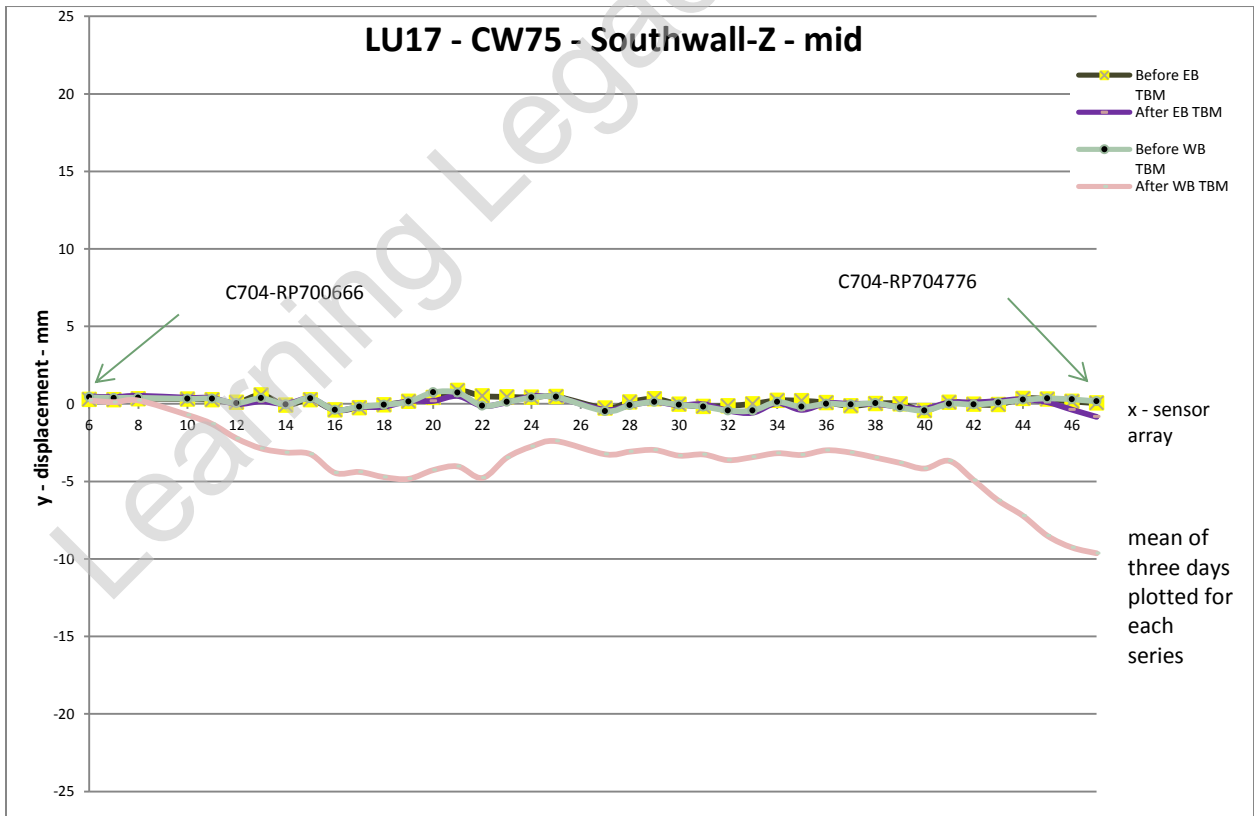
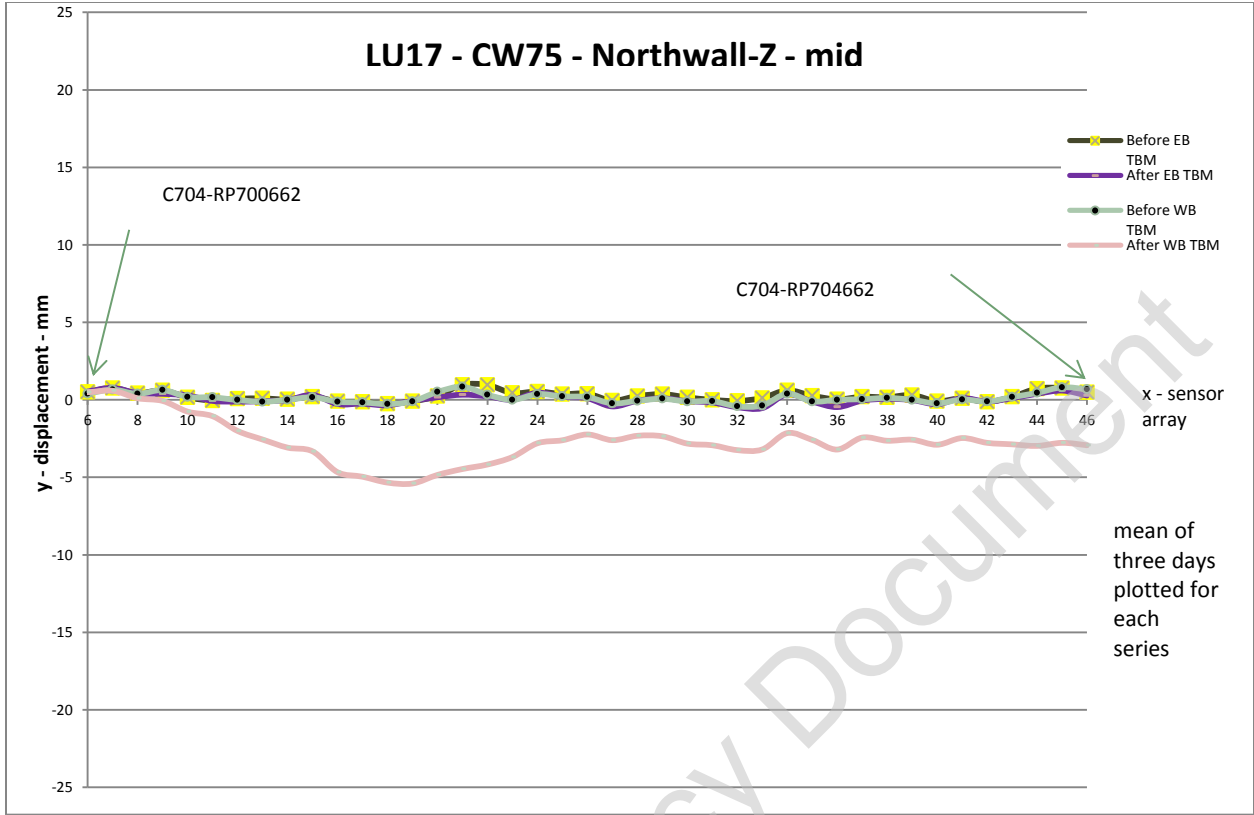


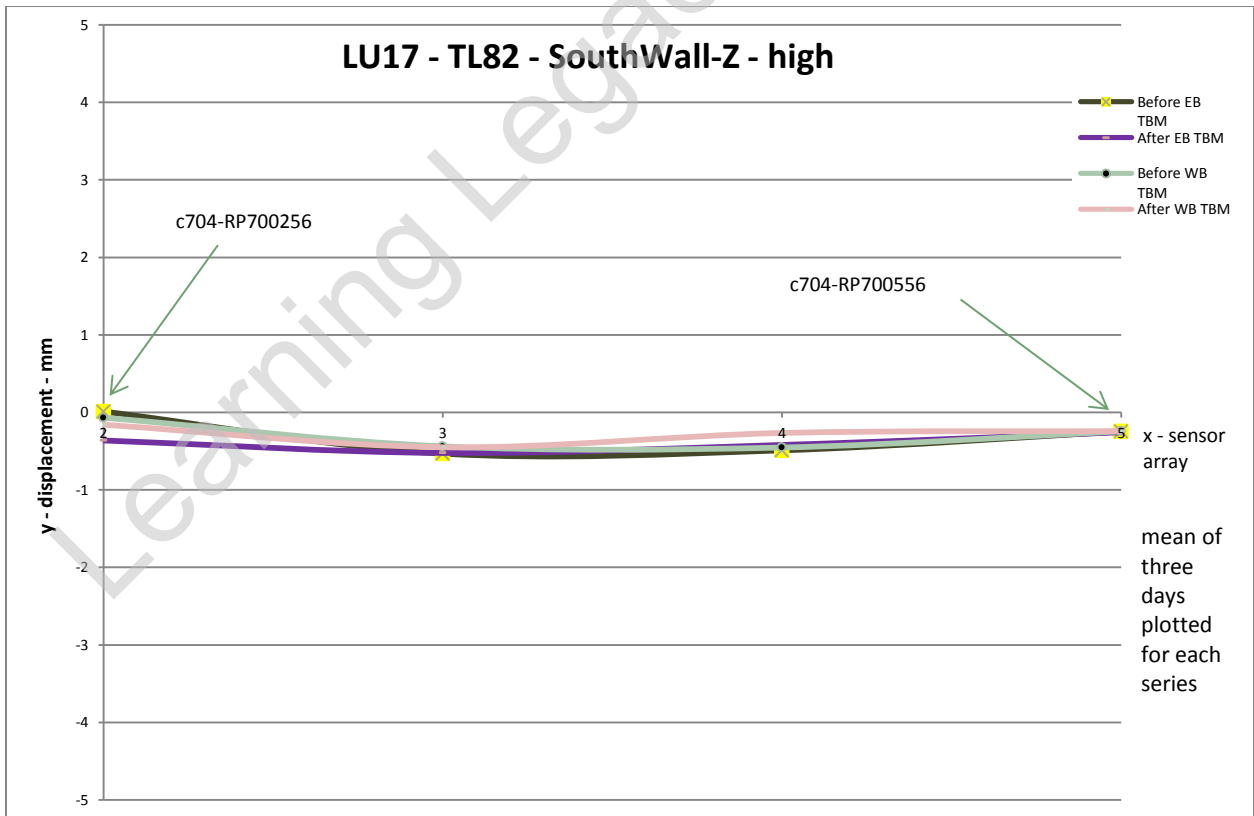
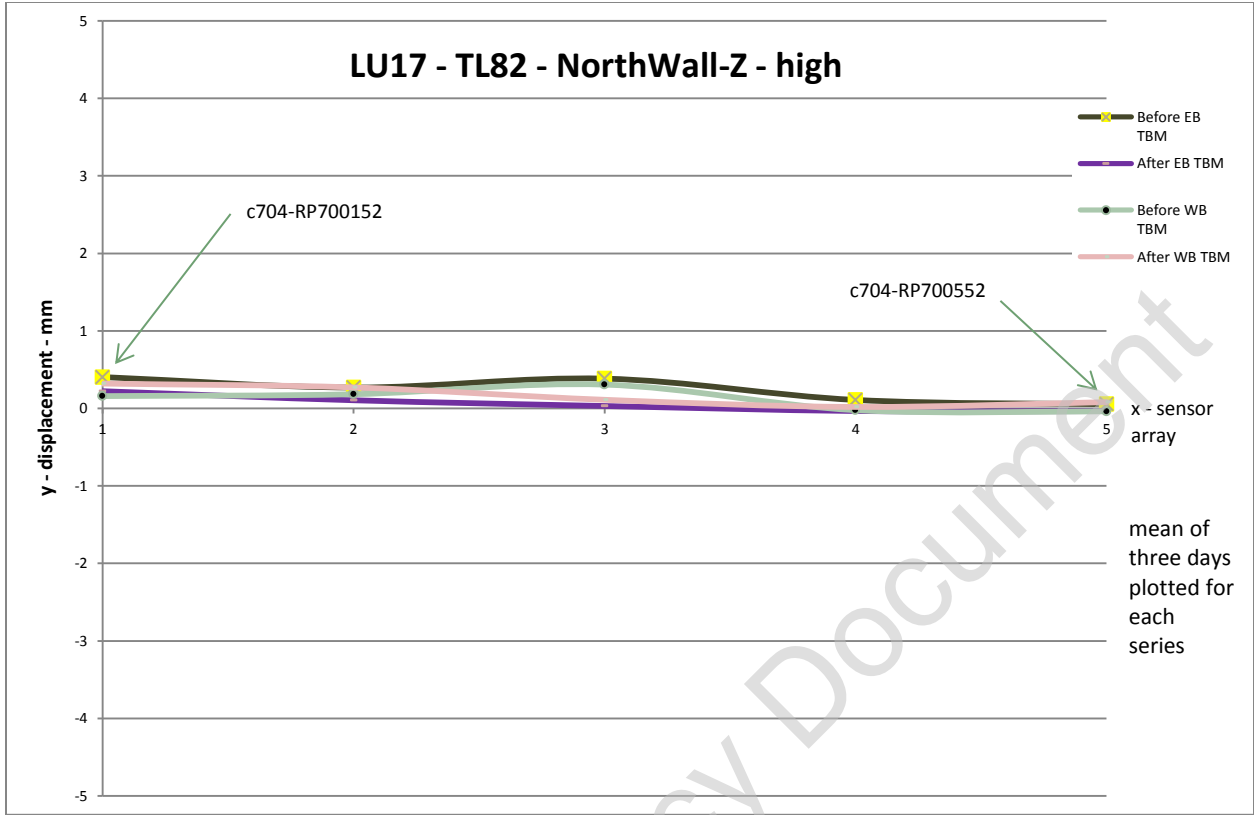
Learning Legacy Document

The graphs below show various settlement profile plots of the structural elements of LU/16.

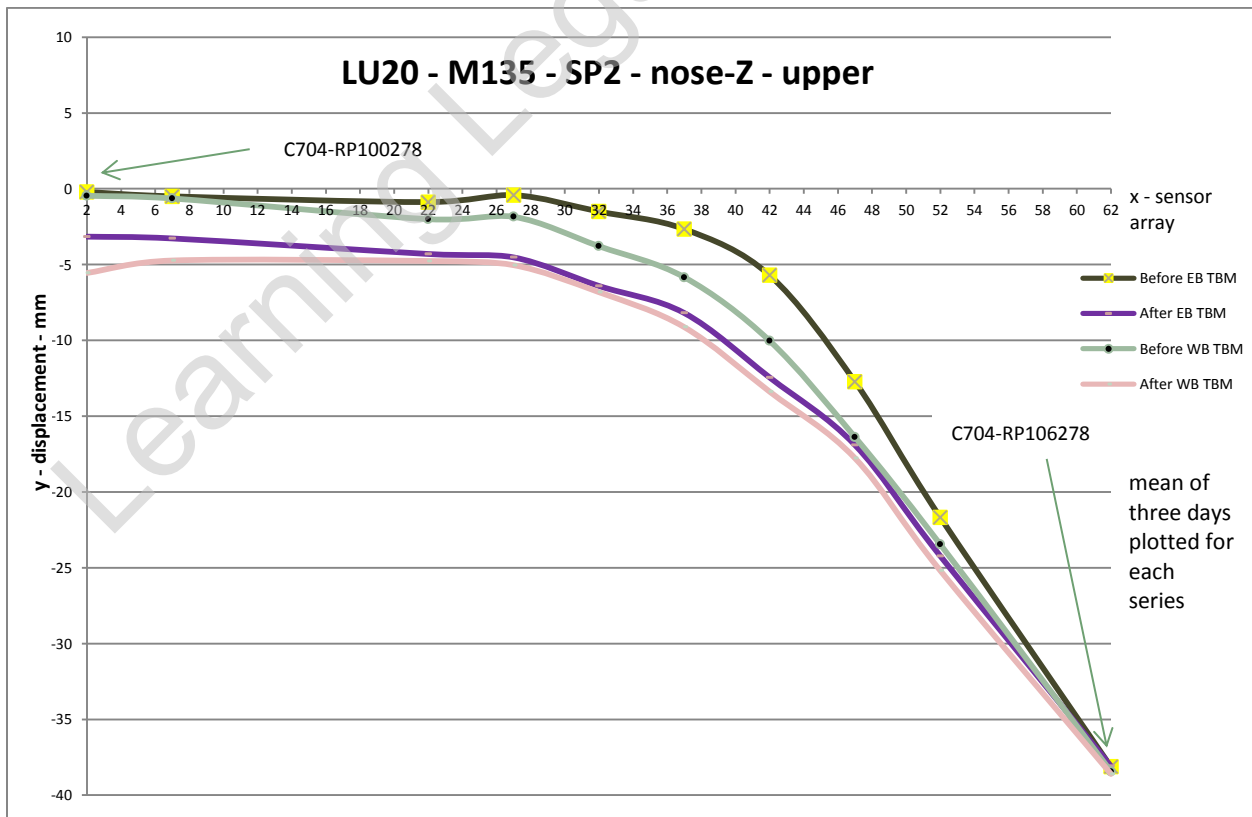
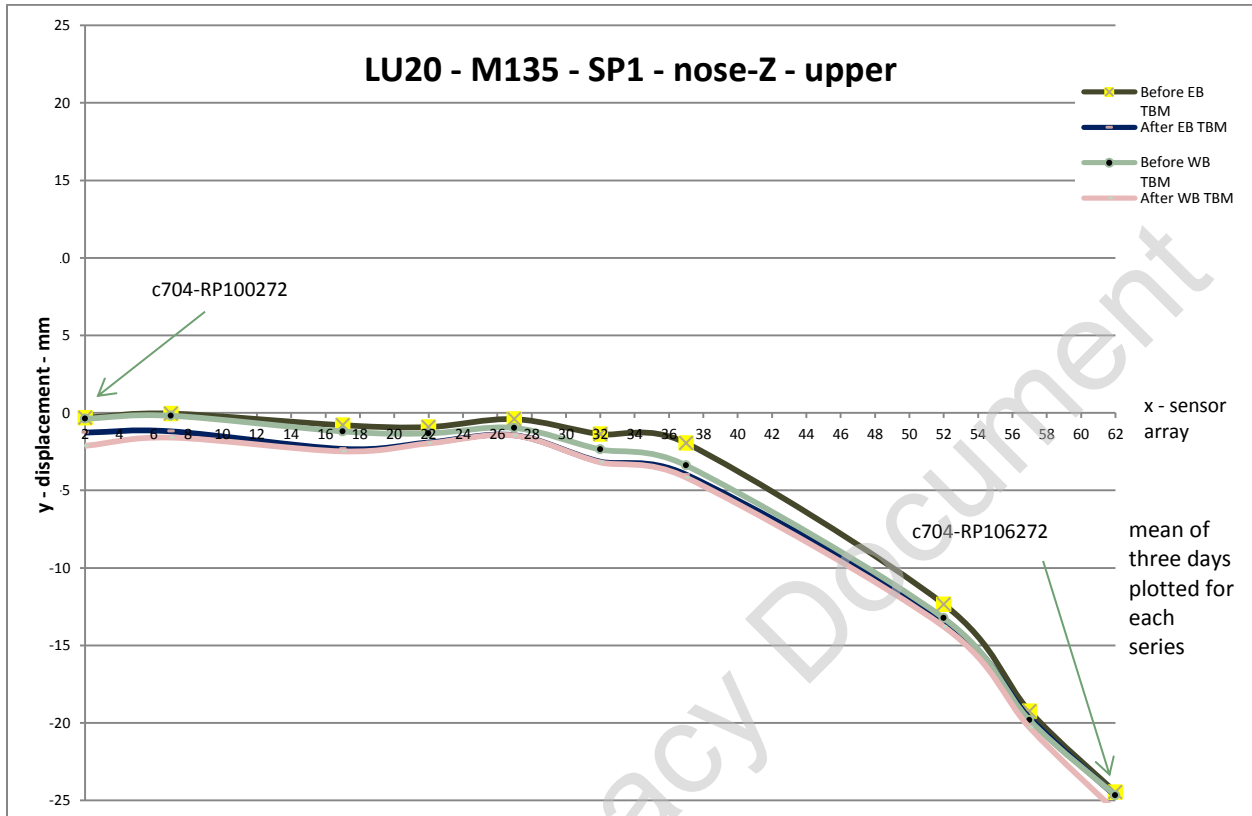


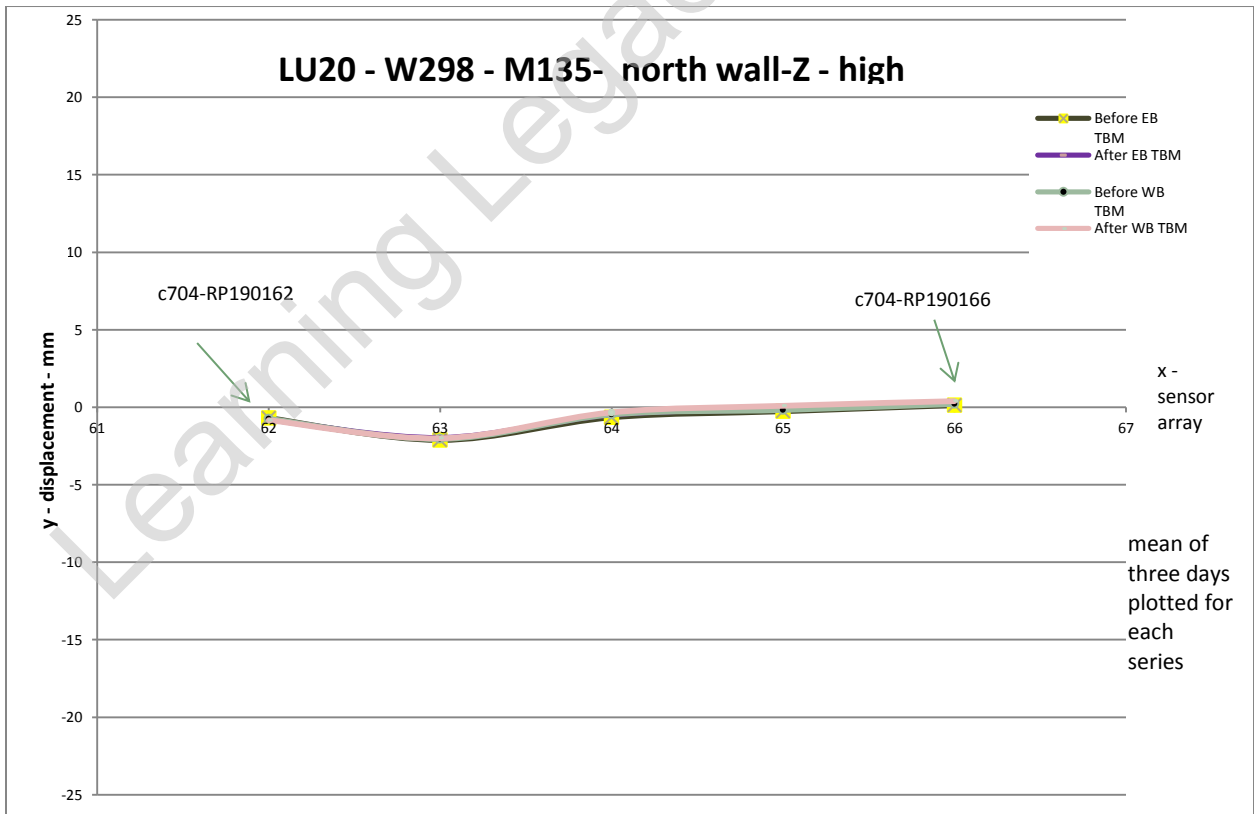
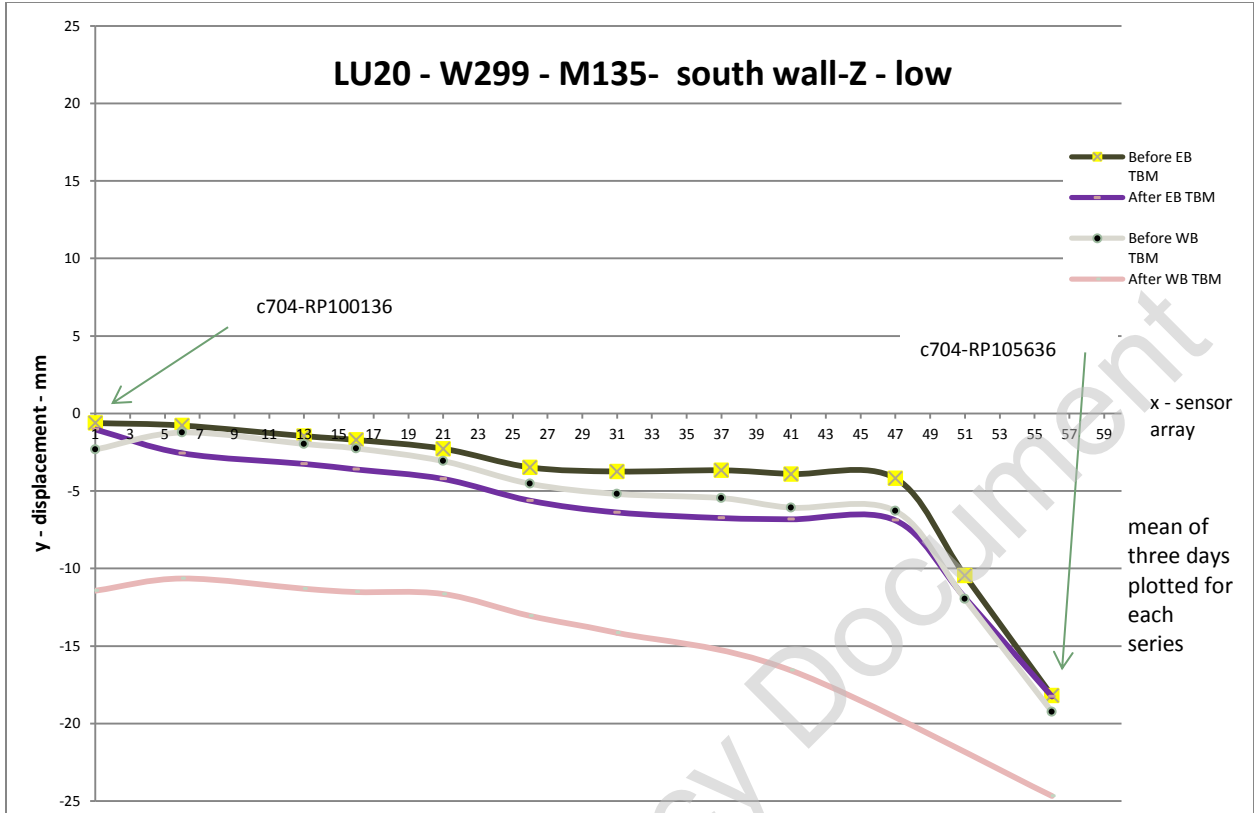
The graphs below show various settlement profile plots of the structural elements of LU/17.





The graphs below show various settlement profile plots of the structural elements of LU/20.

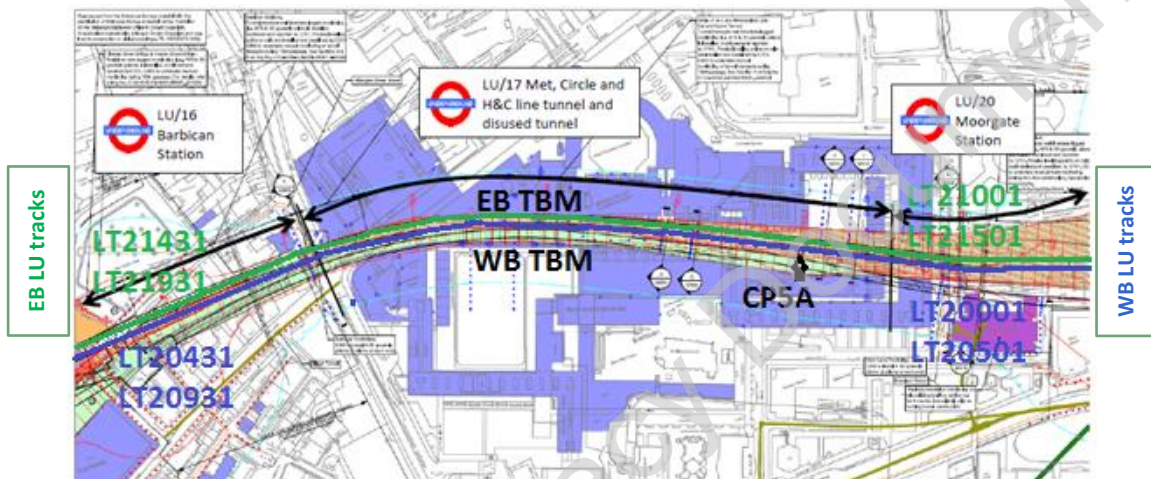




7. C305 MANUAL VERIFICATION READINGS

During the passage of the TBMs and during construction of cross passage 5A, manual readings were taken by C305 to verify the data provided from the C704 system. This manual monitoring was carried out on LU track levelling points (LU16 Barbican Station; LU17 Metropolitan, Circle and Hammersmith & City line tunnel and LU20 Moorgate Station) and on prisms installed by C704 in the disused Thameslink tunnel structure.

Sketch below show the location of track levelling marks on the four rails.

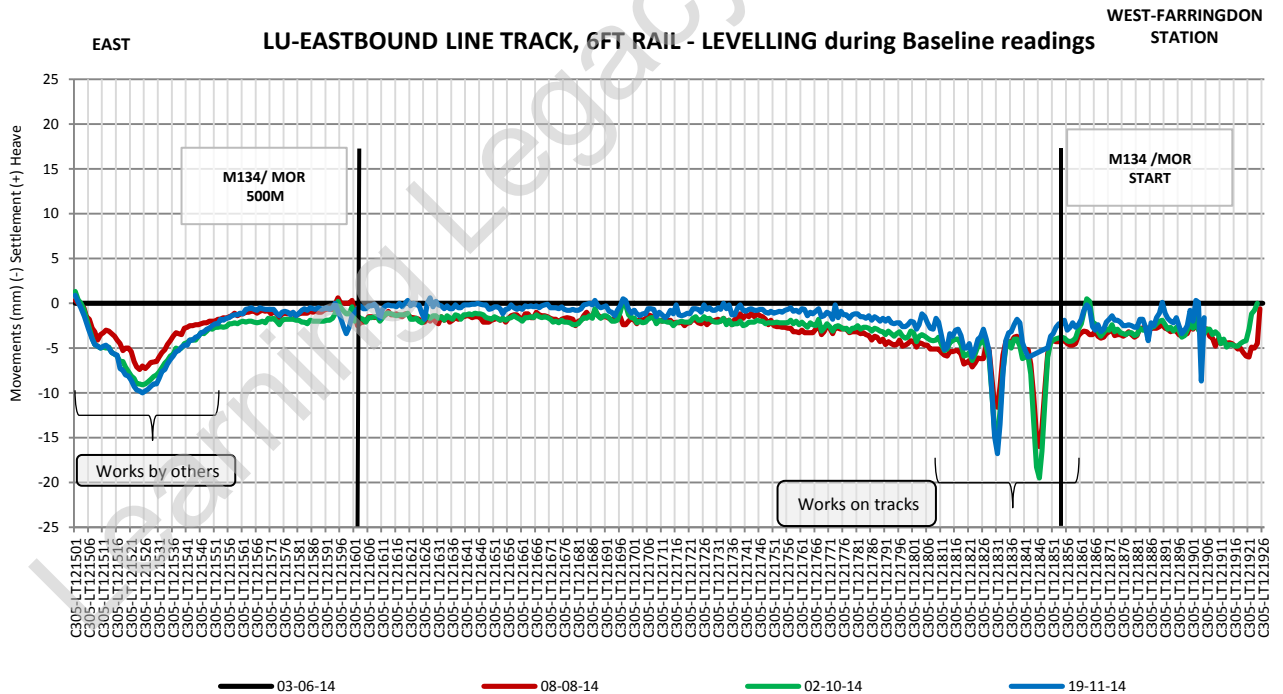
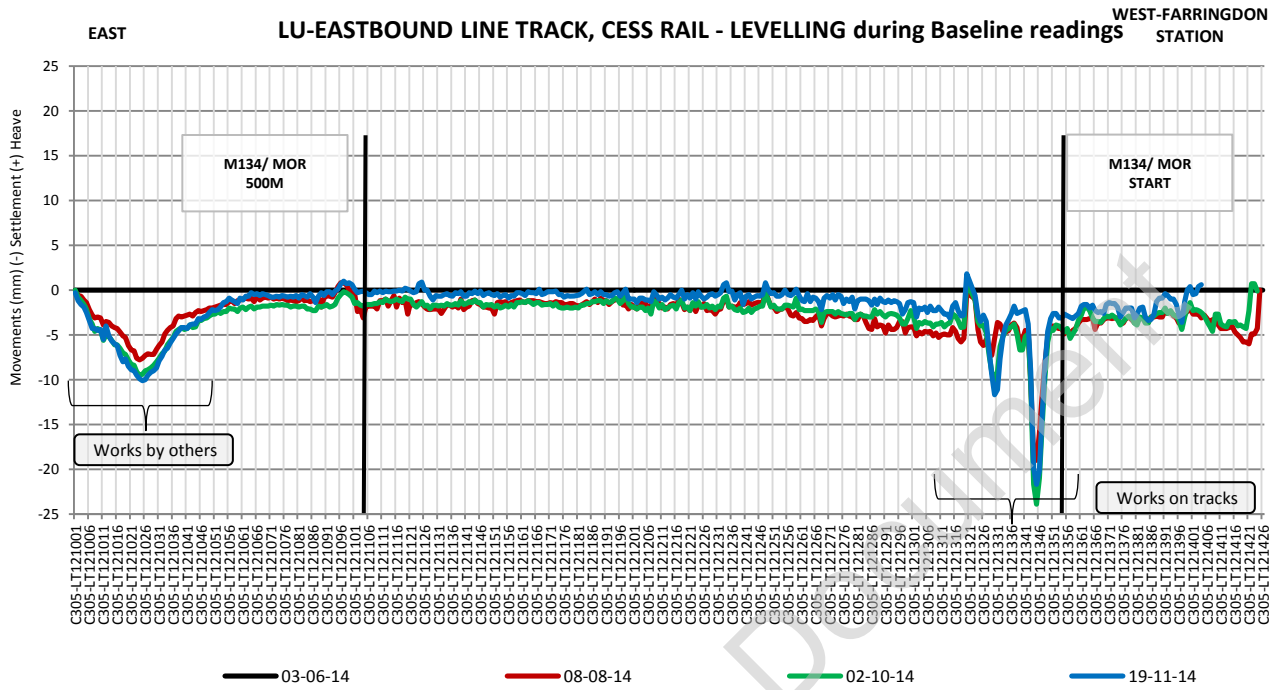


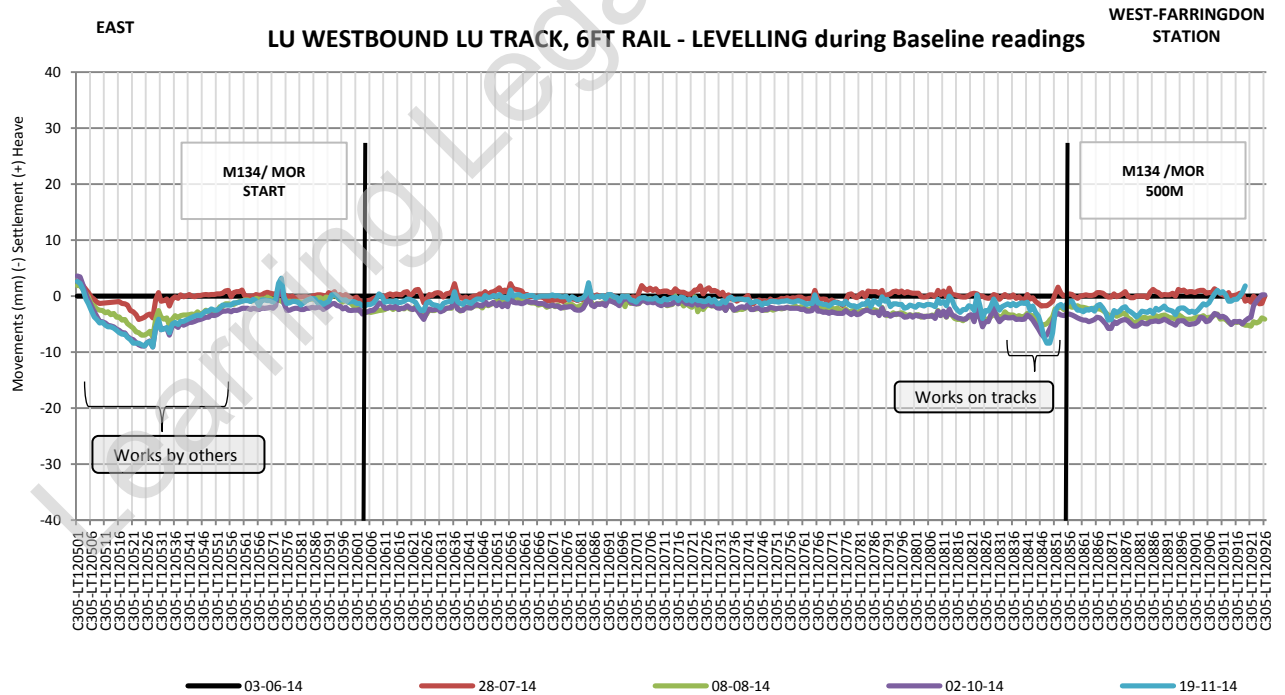
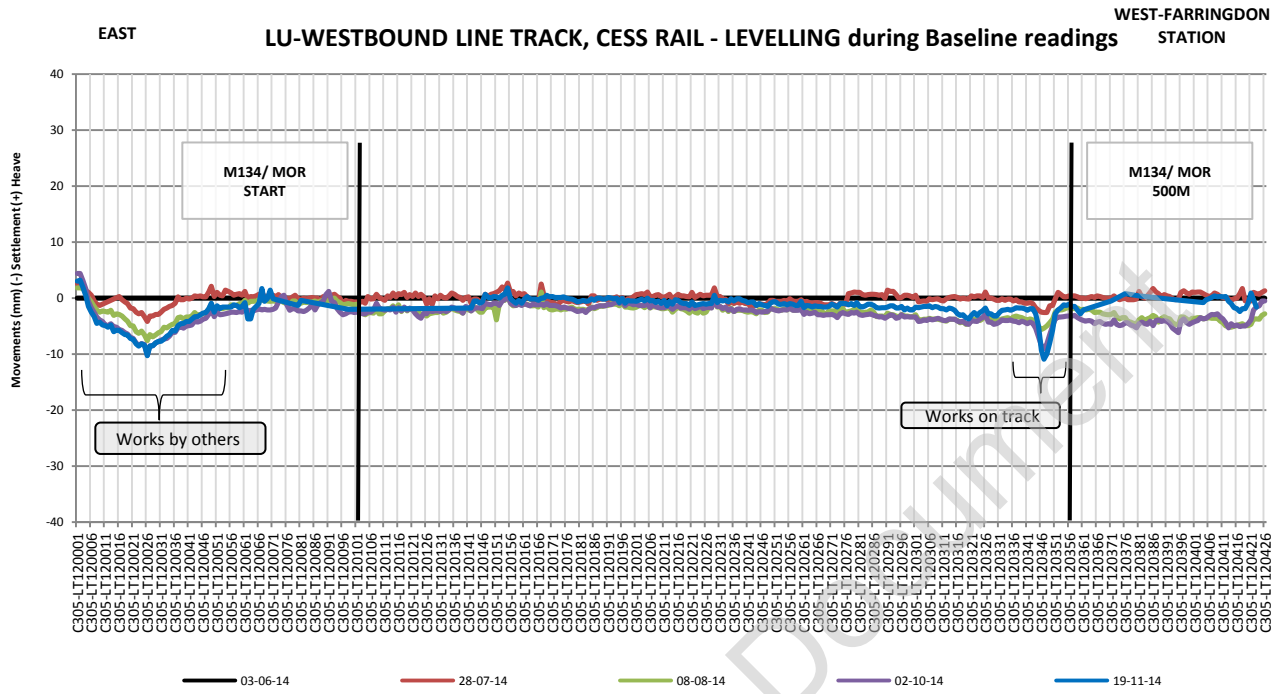
TRACK LEVELLING (LU16 Barbican Station; LU17 Metropolitan, Circle and Hammersmith & City Line tunnel; LU20 Moorgate Station)

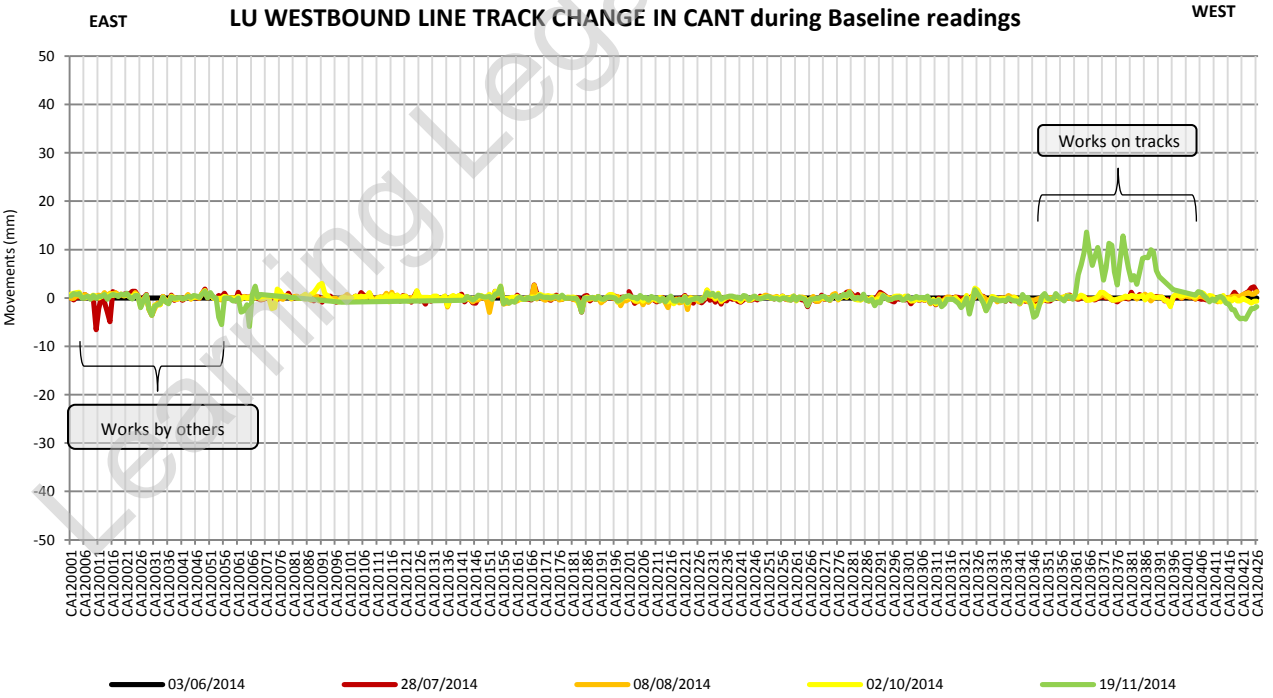
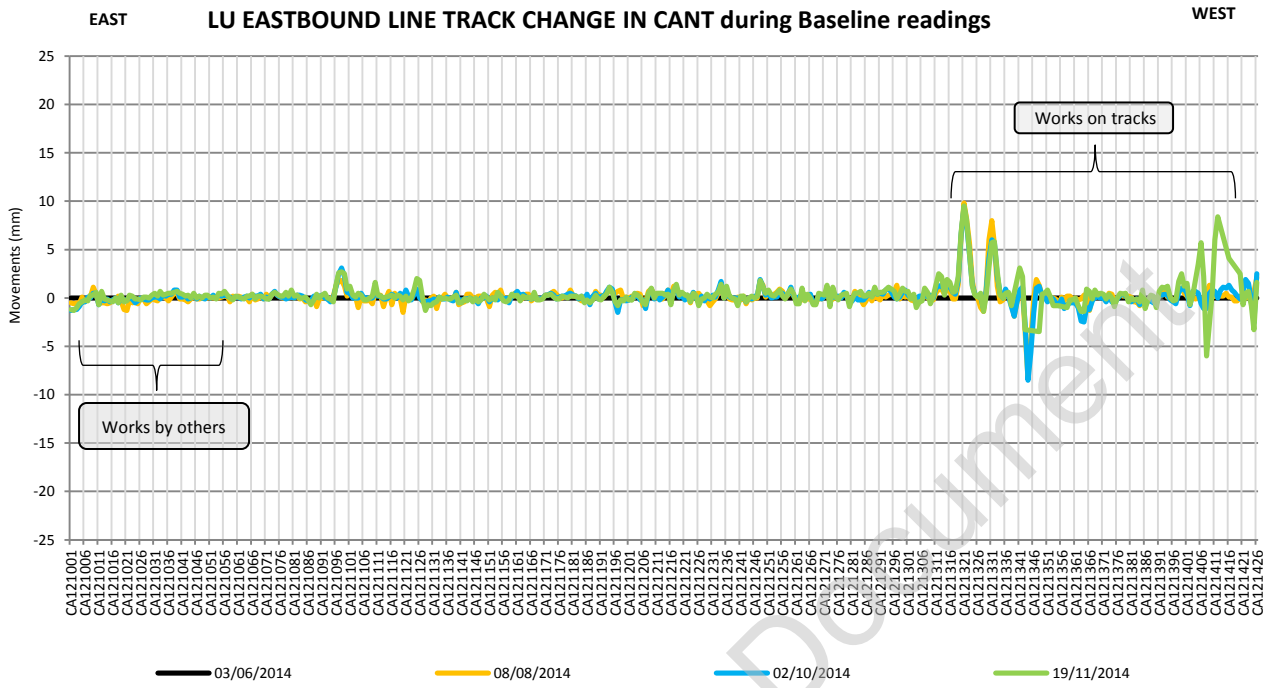
The graphs below show the baseline readings for the track levelling on the four rails. It should be noted that C305 tunnels run parallel to LU assets.

Note: a minimum of three baseline readings were taken before the EB TBM passage.

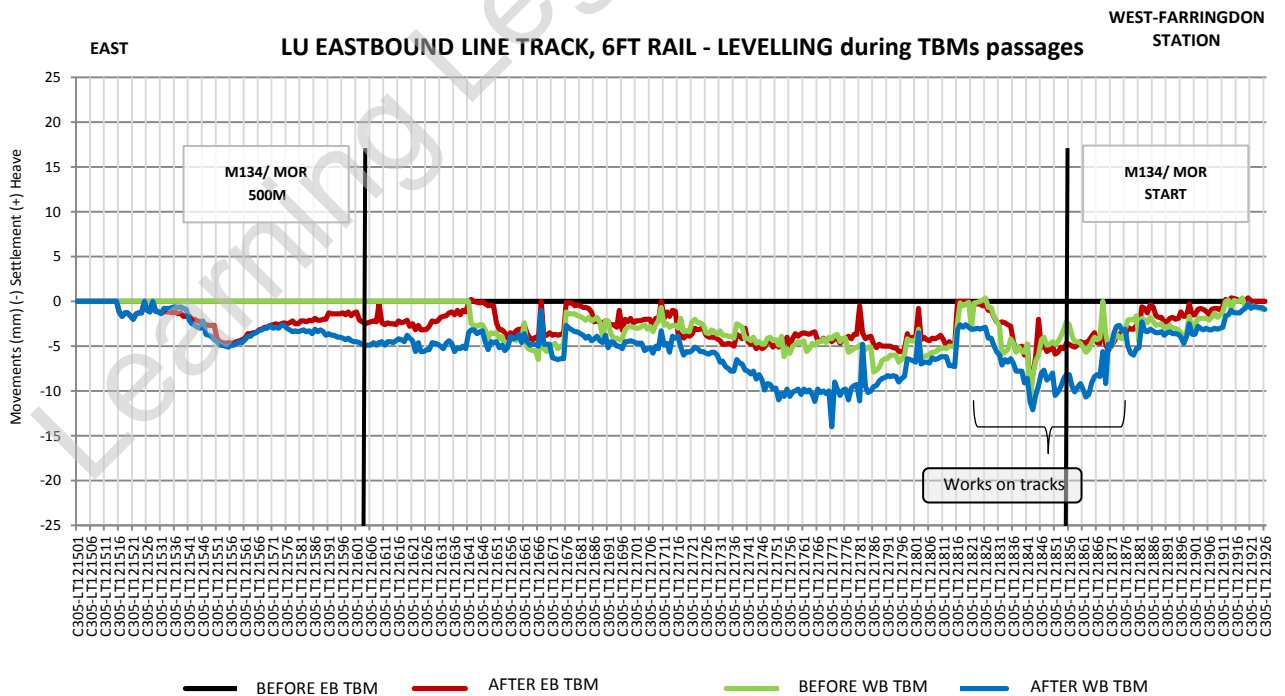
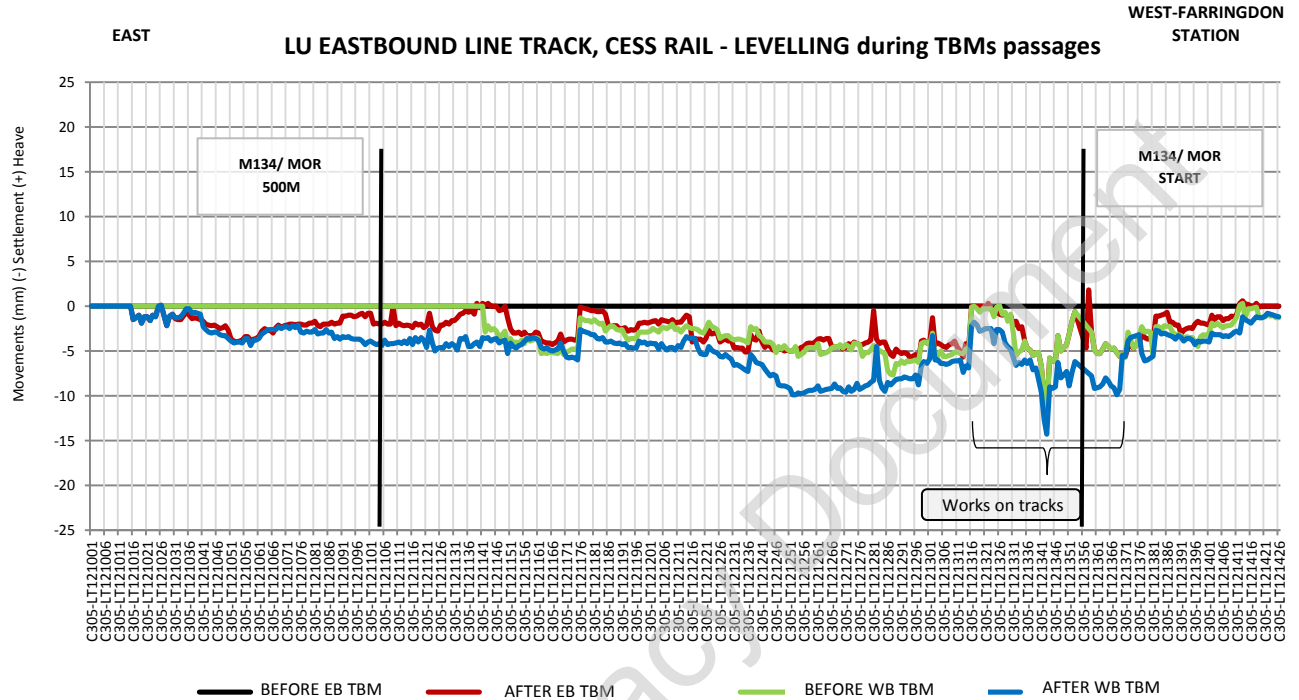
Specific Action Plan Y035: LU 16/17/20 Metropolitan, Circle and Hammersmith and City Lines/ Moorgate and Barbican Stations defines trigger values for track twist but none for settlements and horizontal displacements. It also, defines an Alert Level of 10 mm settlement due to C305 running tunnel construction.

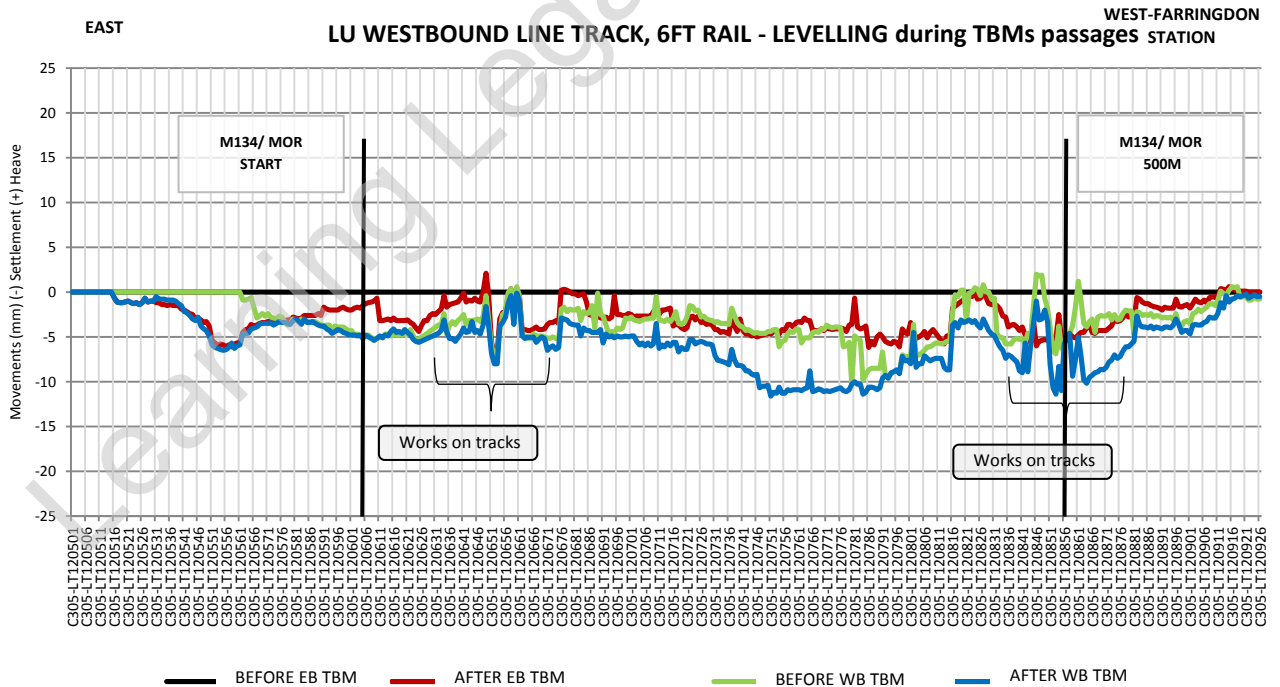
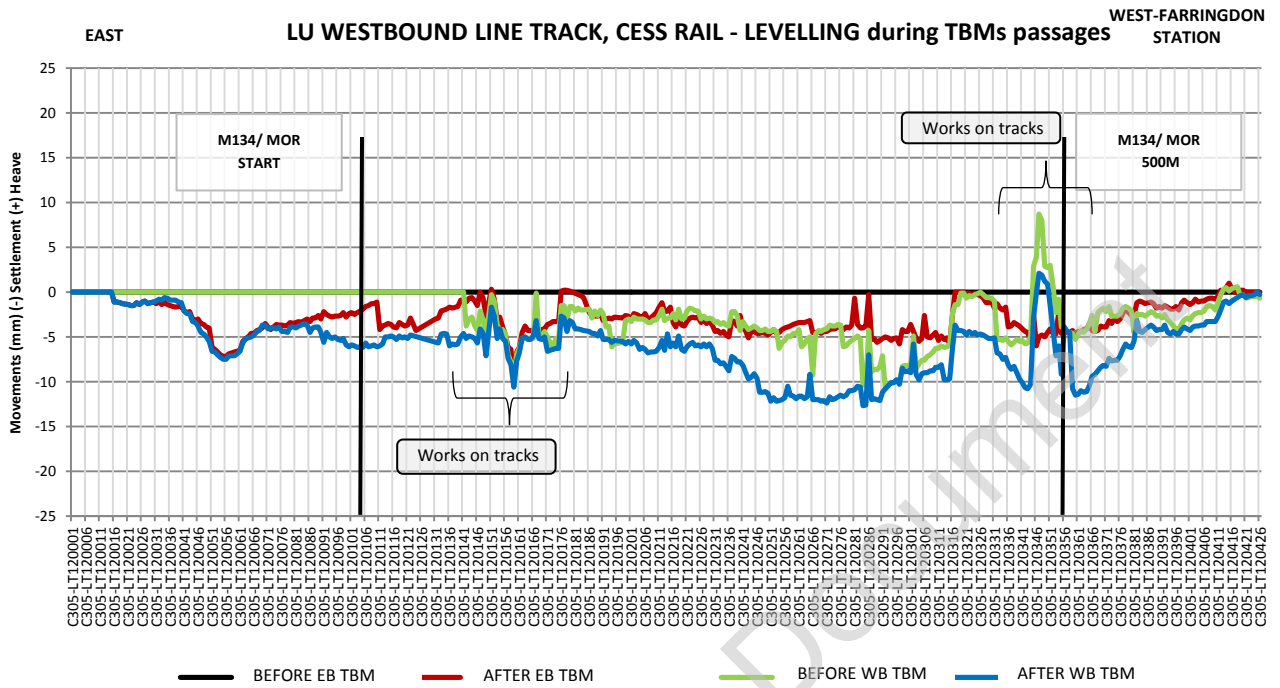


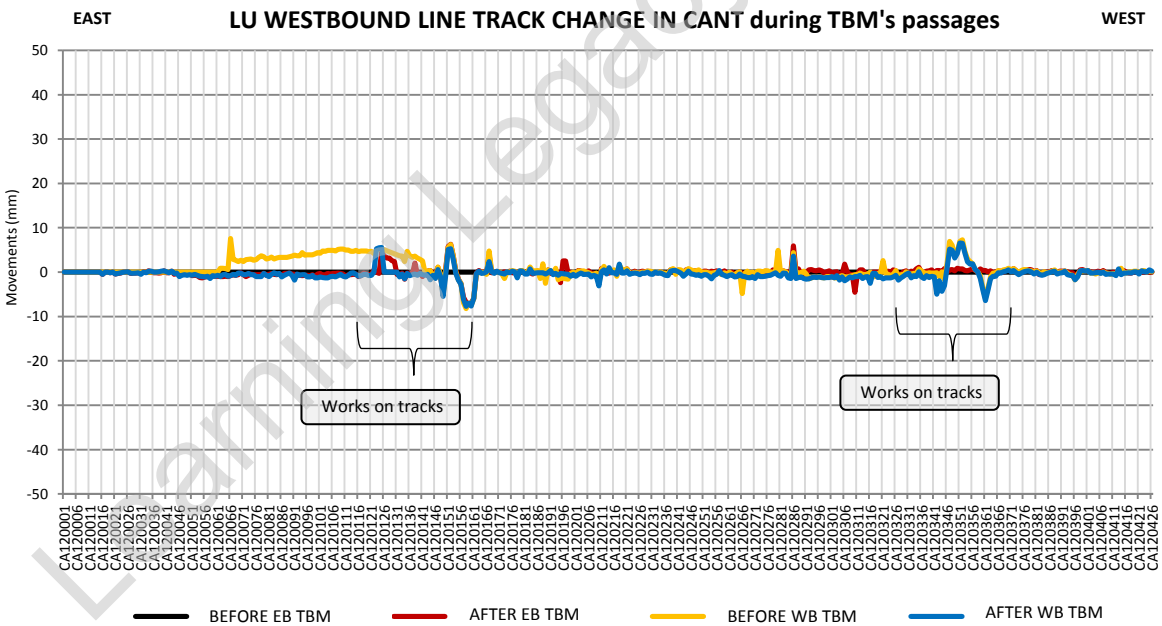
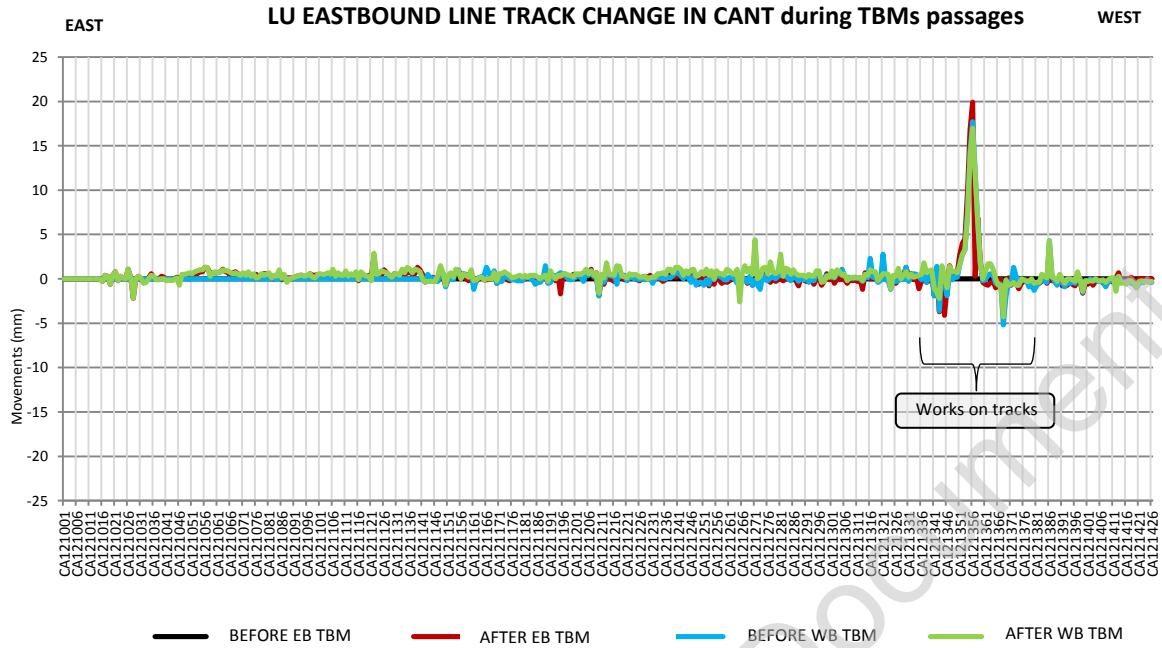




Between the initial Baseline readings and the TBM passage, some tamping and other works on the track were carried out. In order to analyse the displacement on the track due to the TBM excavation, a new reading was taken (01-04-15) prior to this phase to be used as the new baseline in the following graphs:

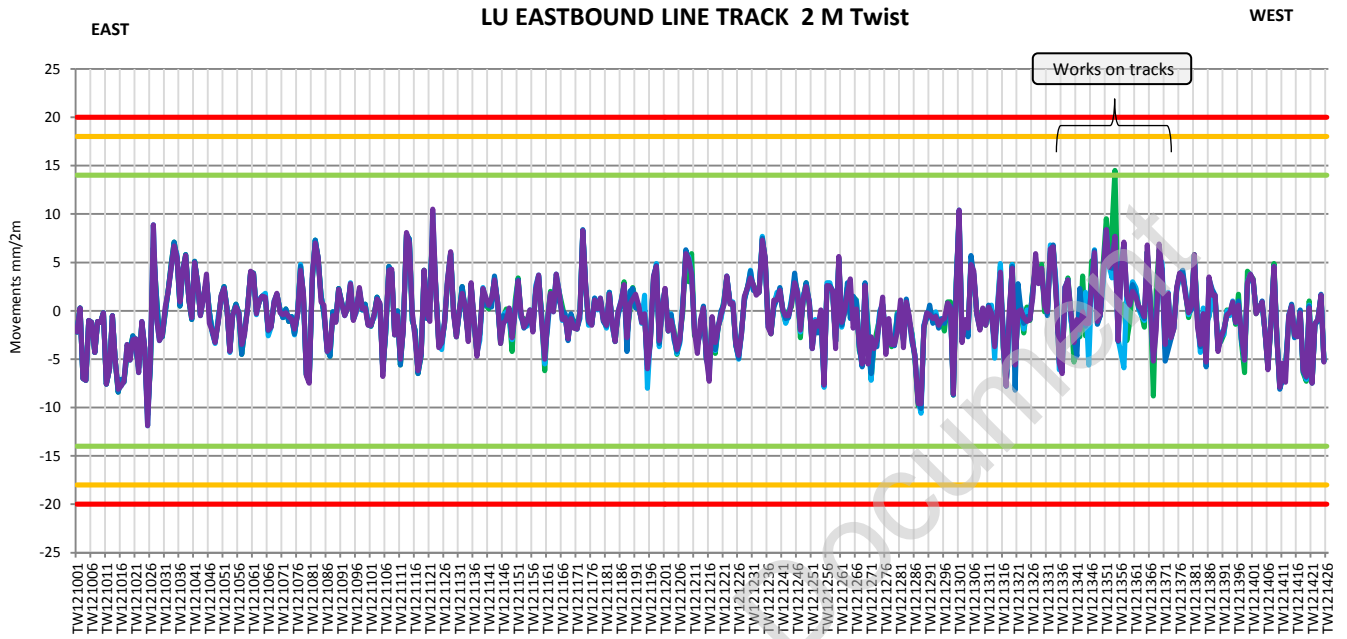




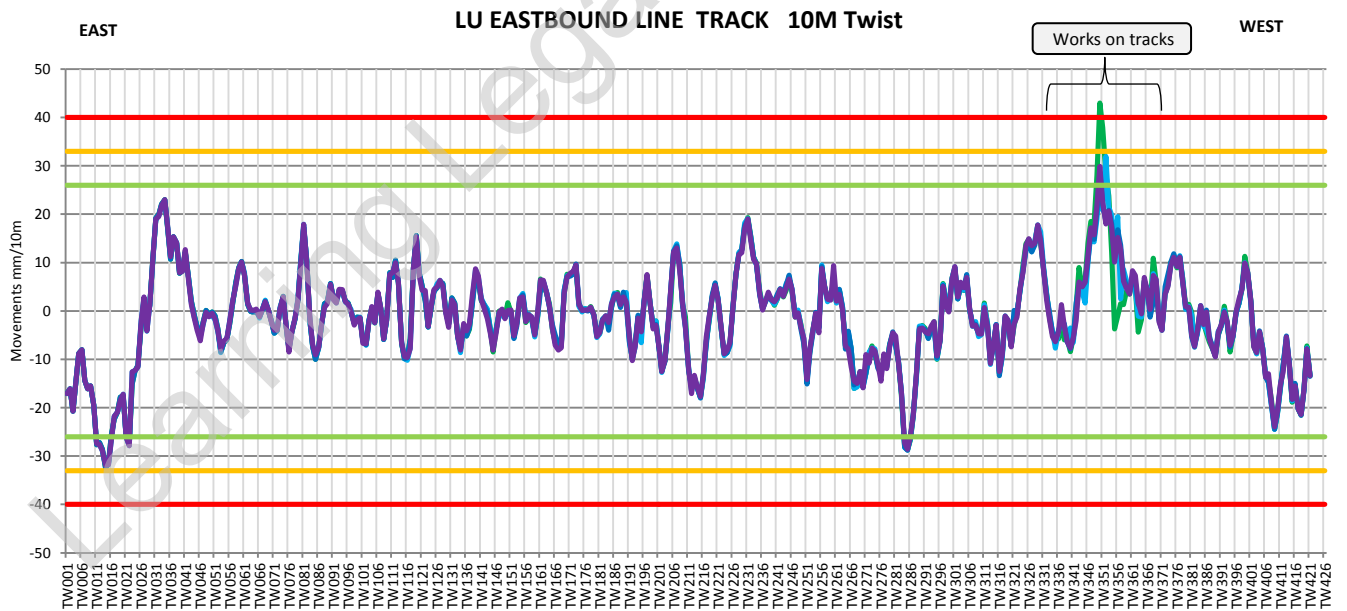


The graphs above show a maximum settlement of approximately 14mm after the TBMs passage.

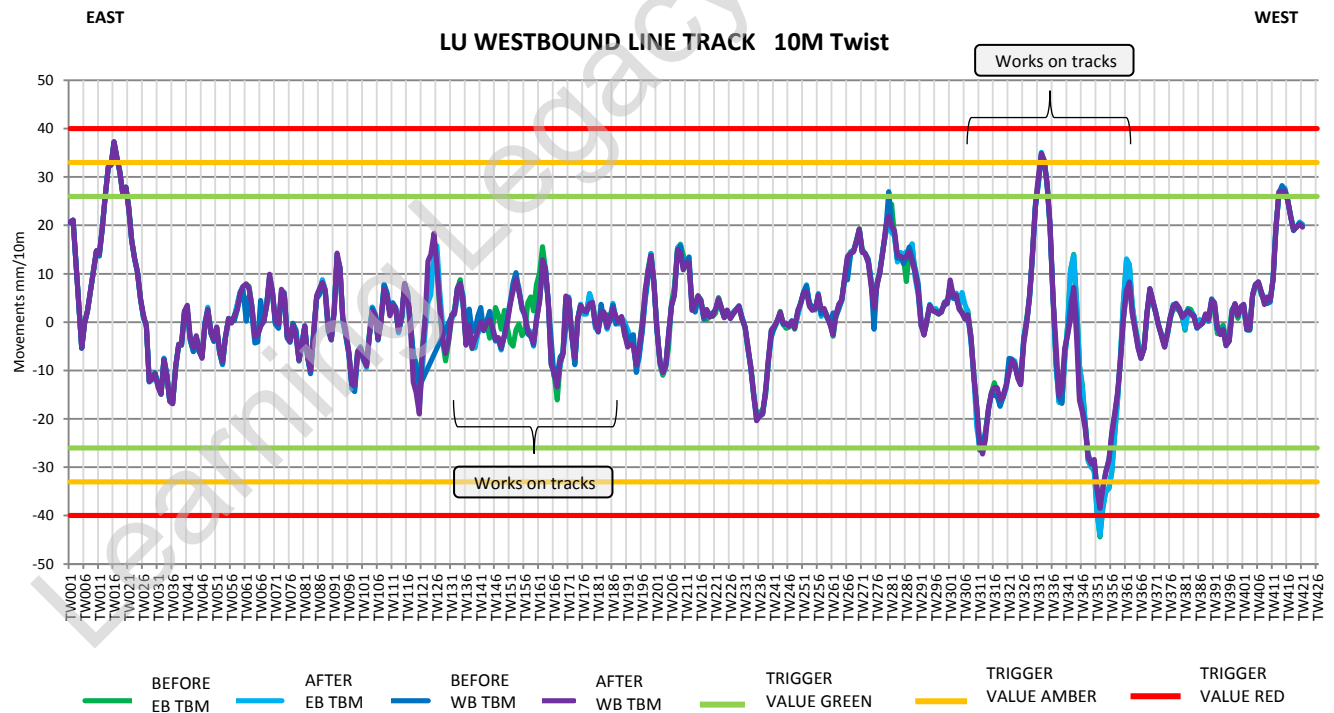
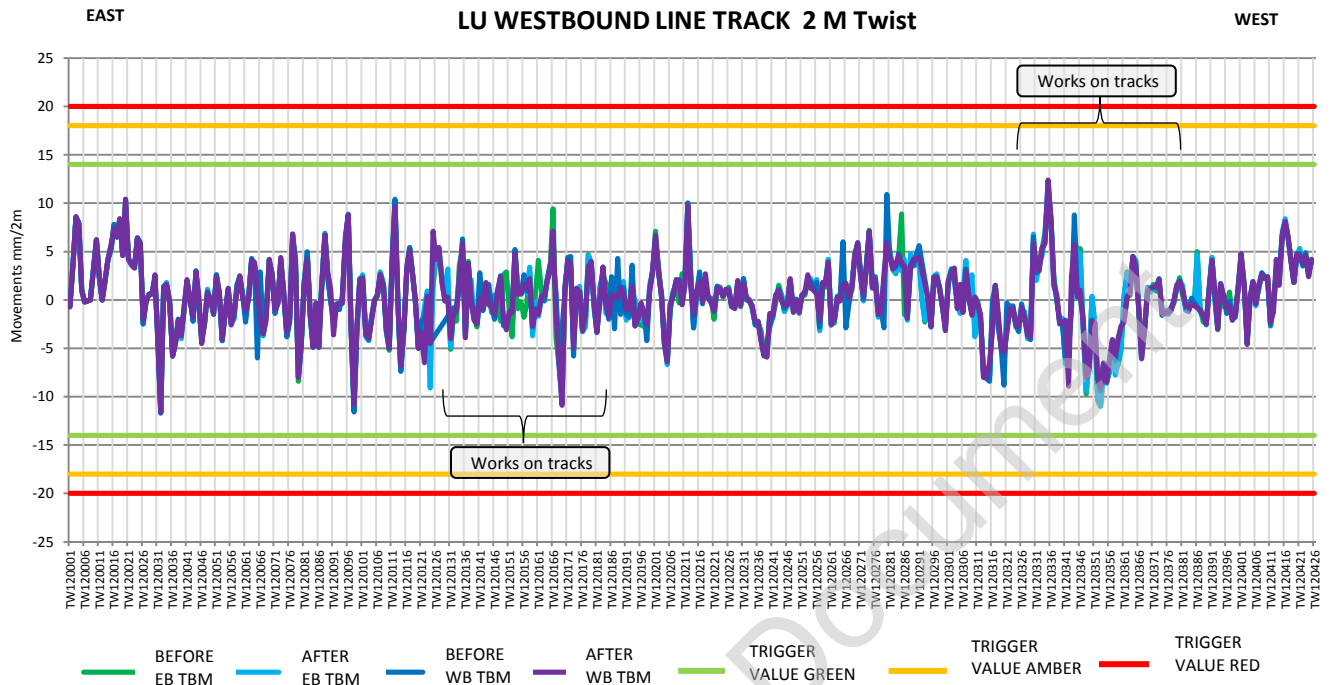
The following graphs illustrate the Twist in Eastbound and Westbound Tunnels.



— BEFORE EB TBM
 — AFTER EB TBM
 — BEFORE WB TBM
 — AFTER WB TBM
 — TRIGGER VALUE GREEN
 — TRIGGER VALUE AMBER
 — TRIGGER VALUE RED

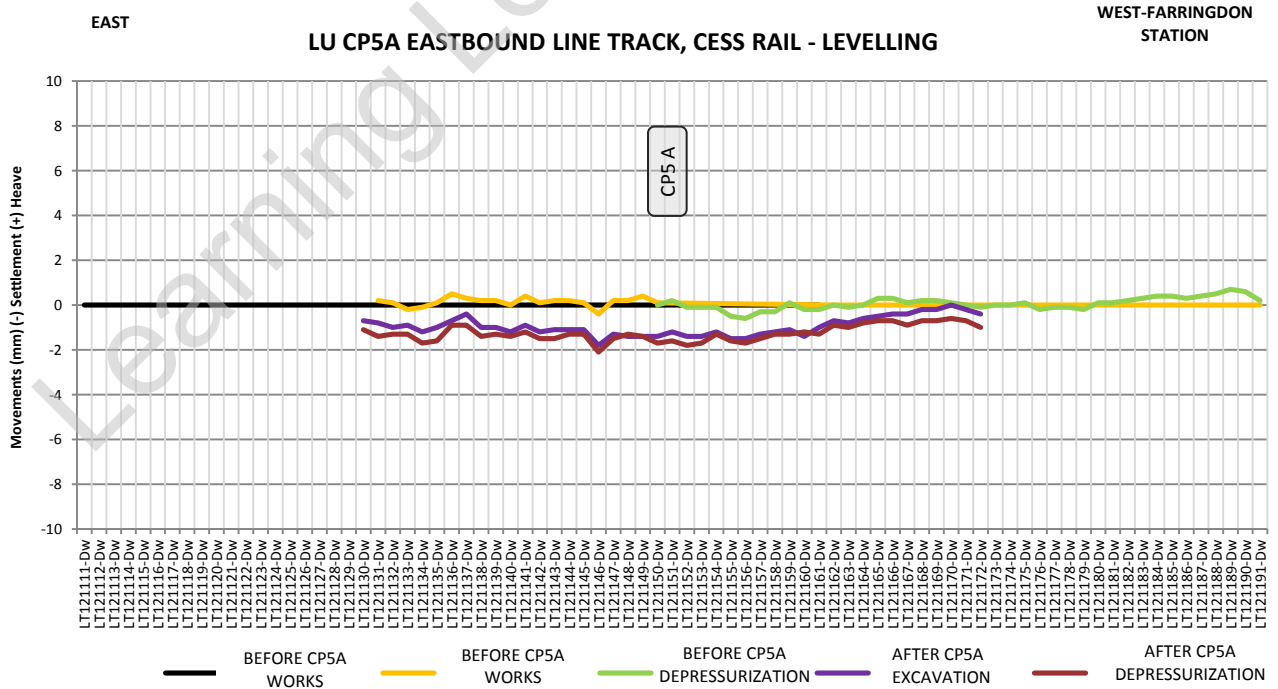
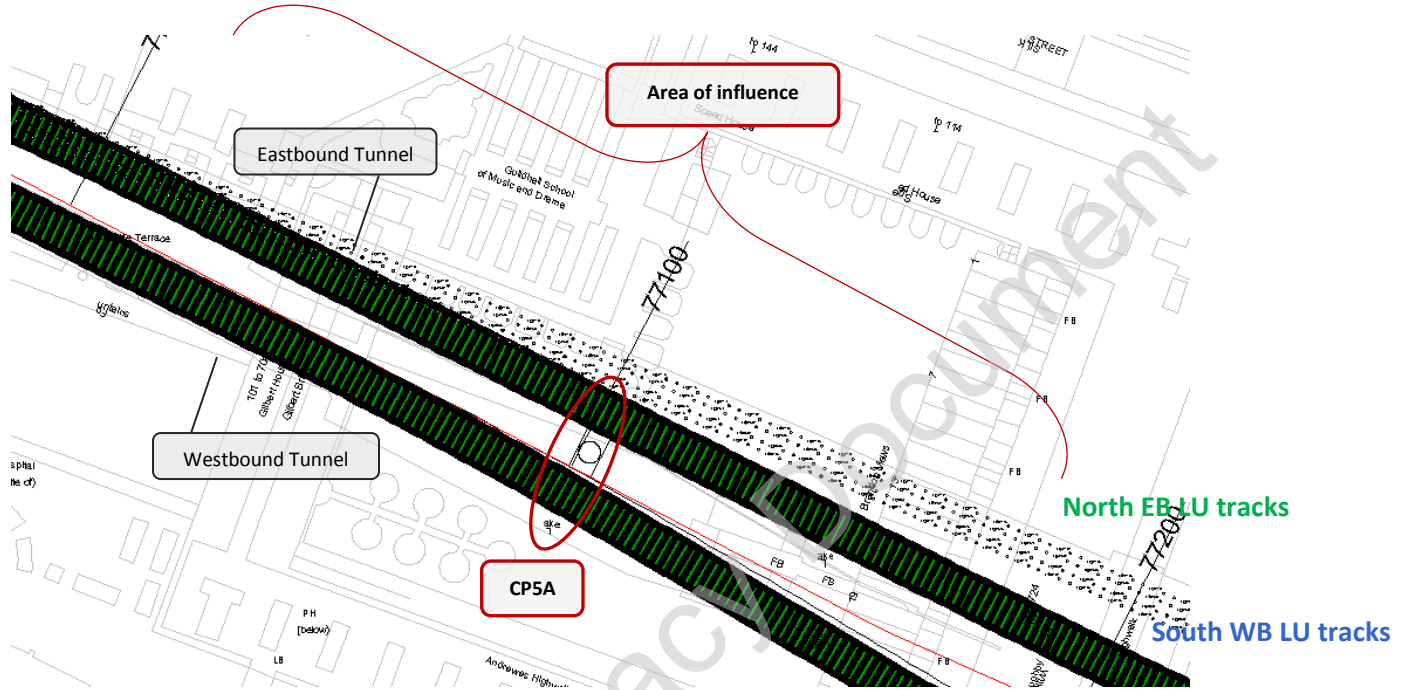


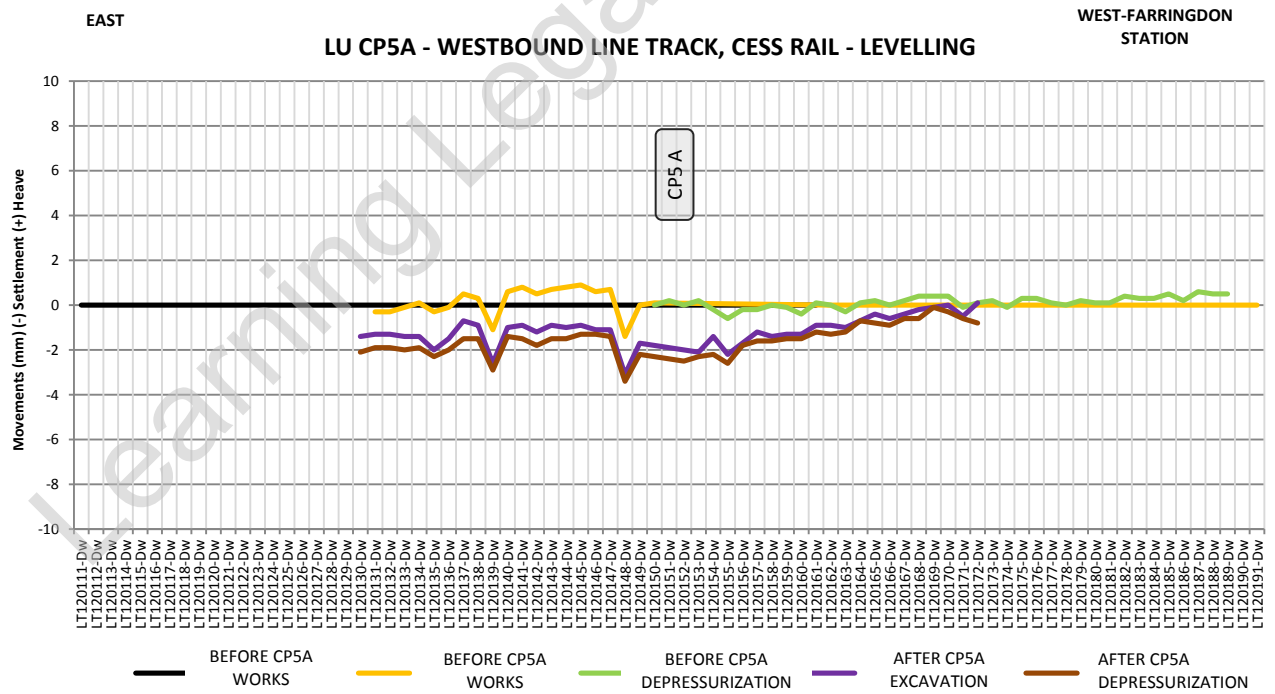
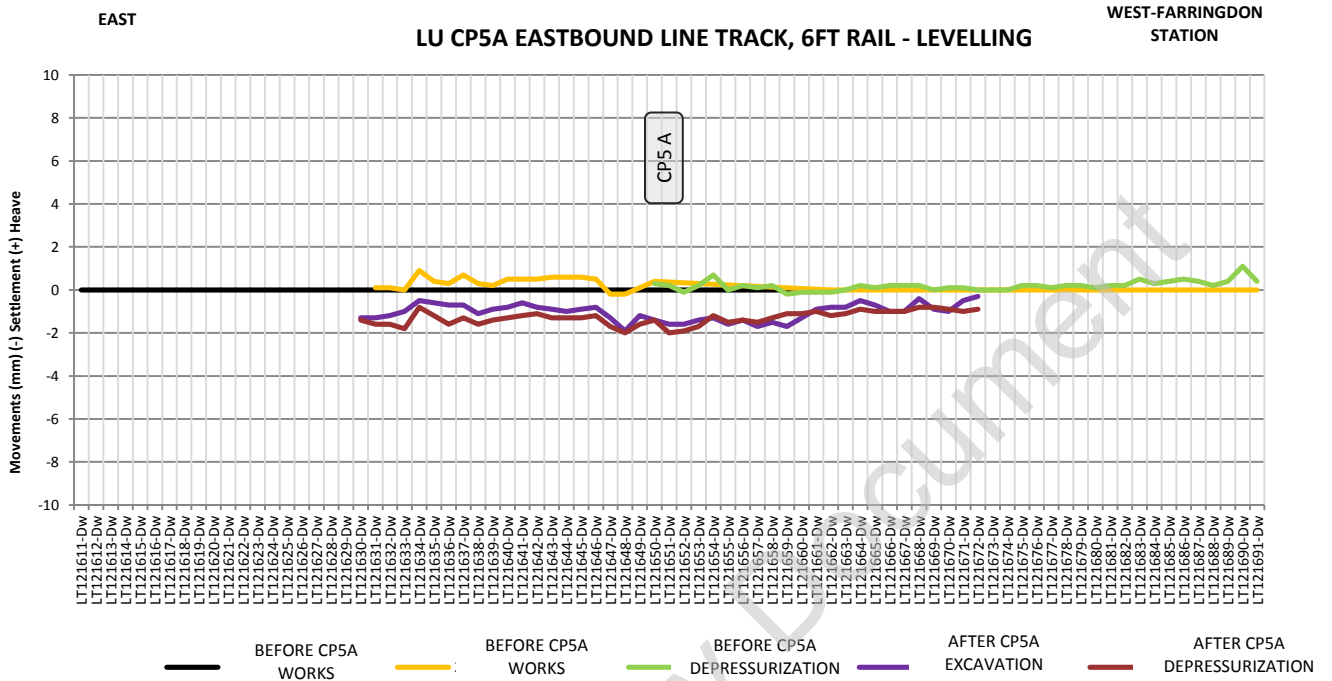
— BEFORE EB TBM
 — AFTER EB TBM
 — BEFORE WB TBM
 — AFTER WB TBM
 — TRIGGER VALUE GREEN
 — TRIGGER VALUE AMBER
 — TRIGGER VALUE RED

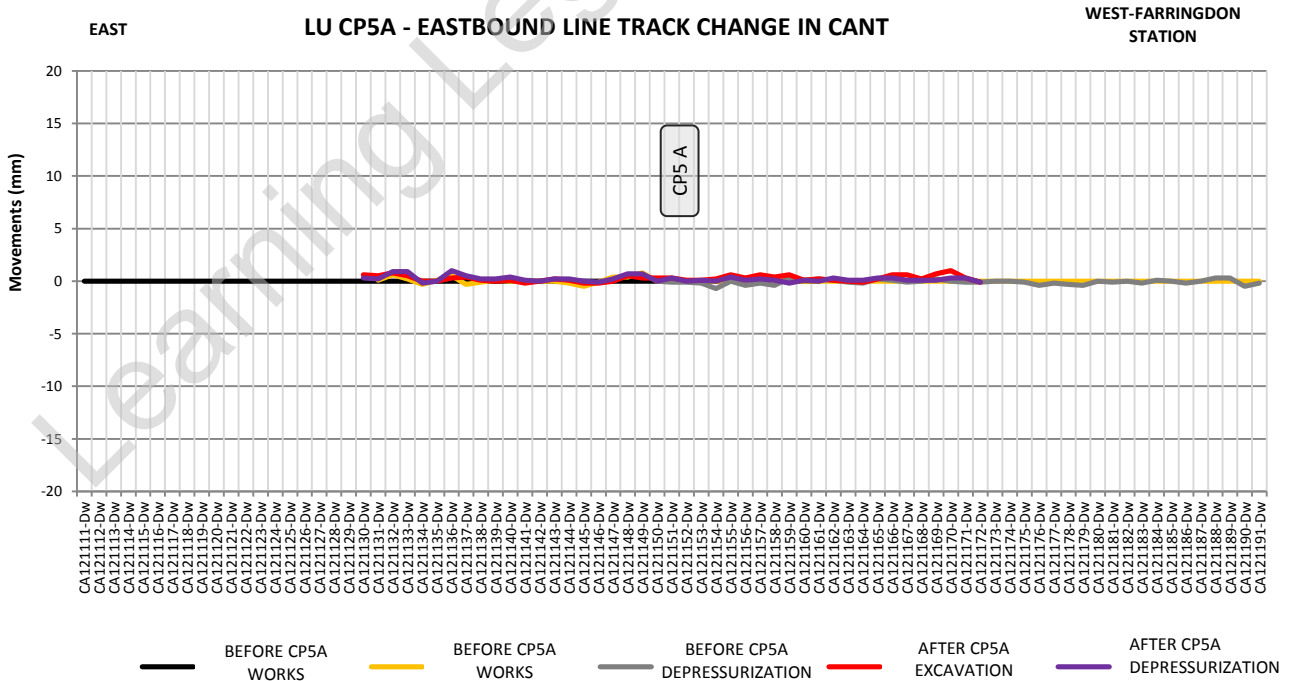
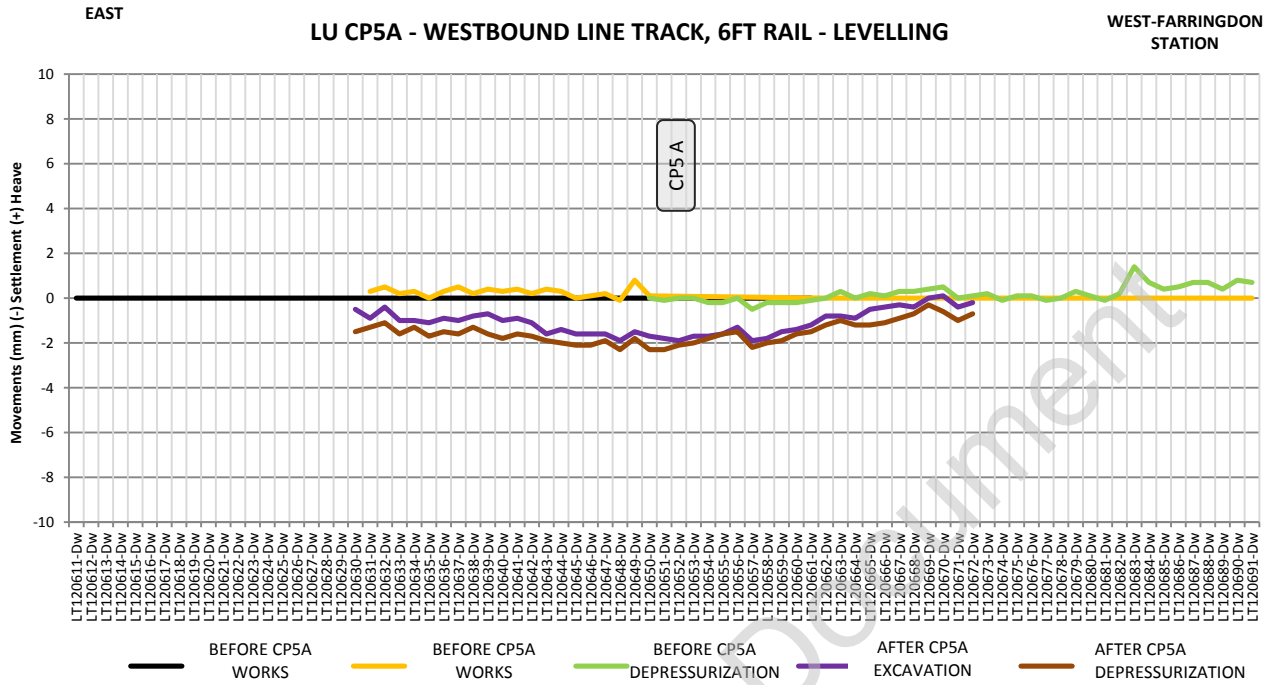


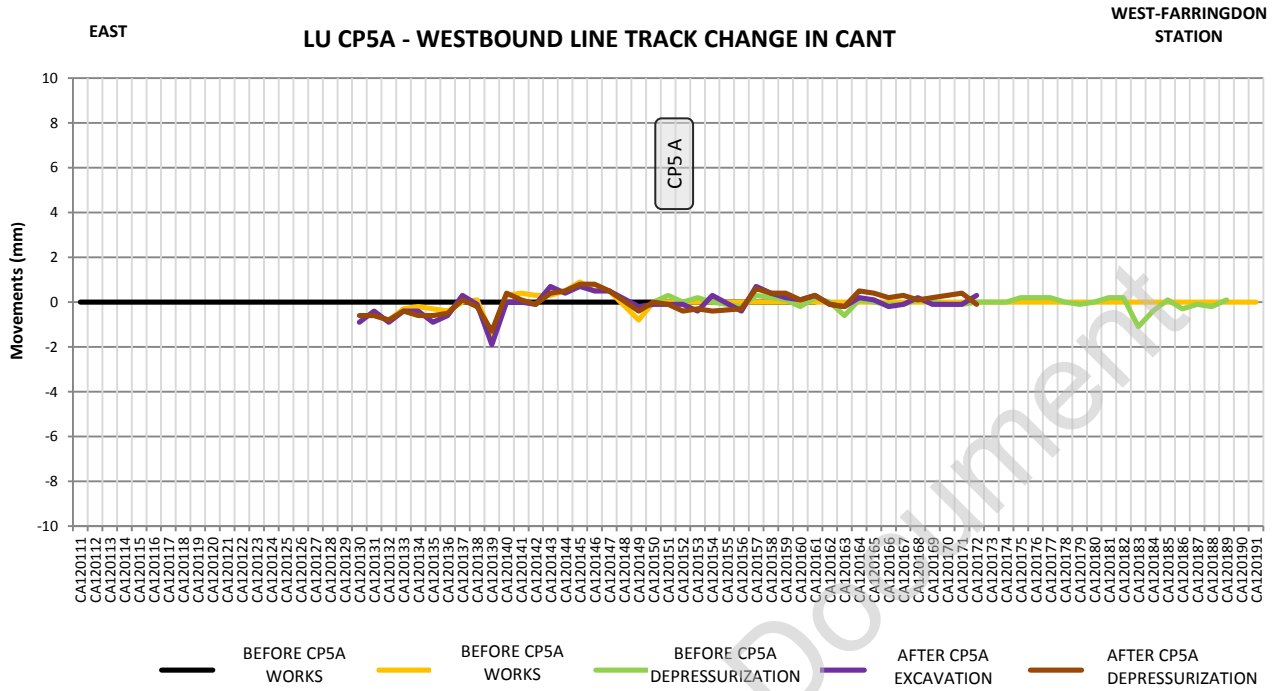
No significant changes of twist or change in cant were detected apart from a pre-existing exceedance in areas where works on the tracks were carried out.

In order to analyse the rail track displacement due to CP5A construction works, new baseline readings were taken on 18August 2015 and on 27August 2015 in the area of influence shown below. These readings are presented with the name 'Before CP5A works' in the following graphs.

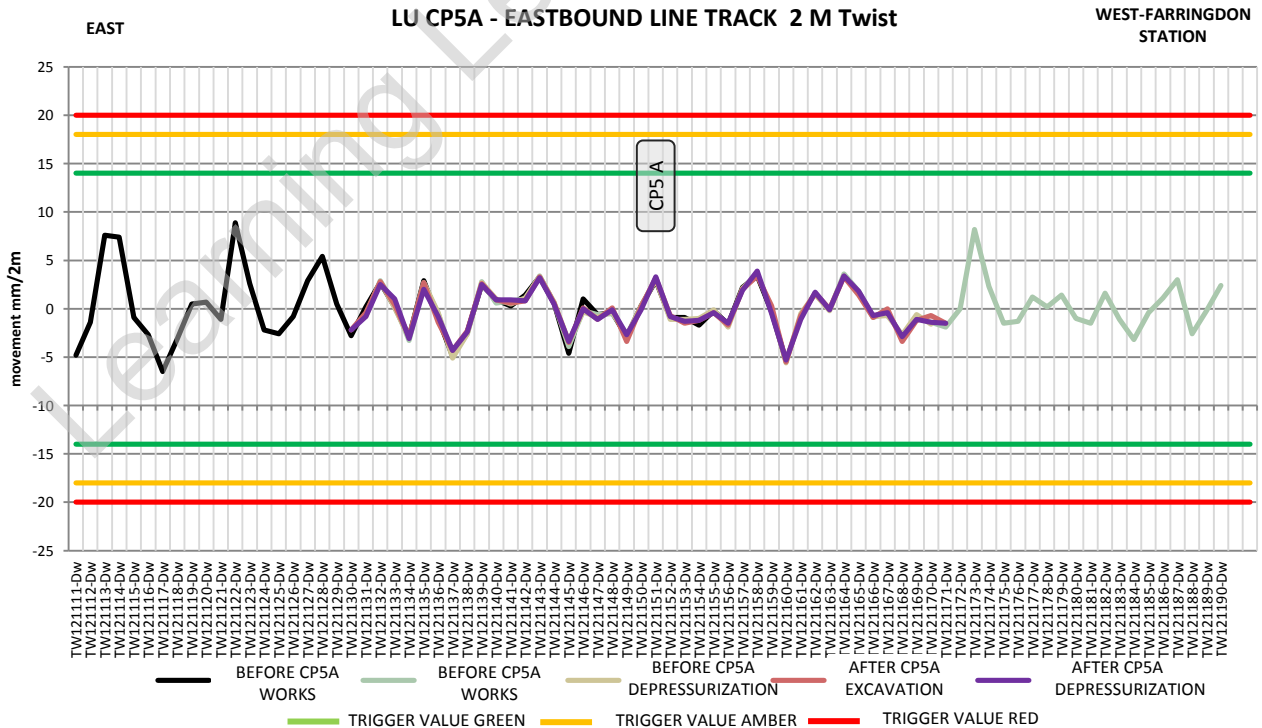


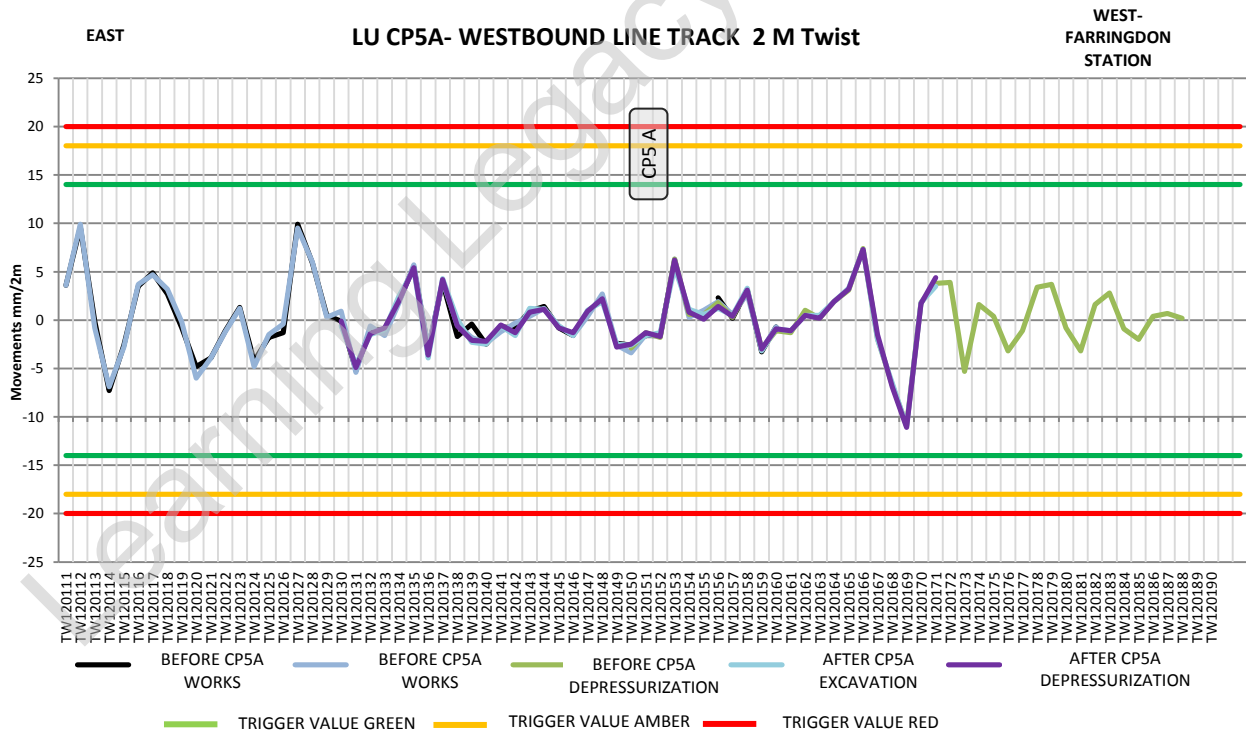
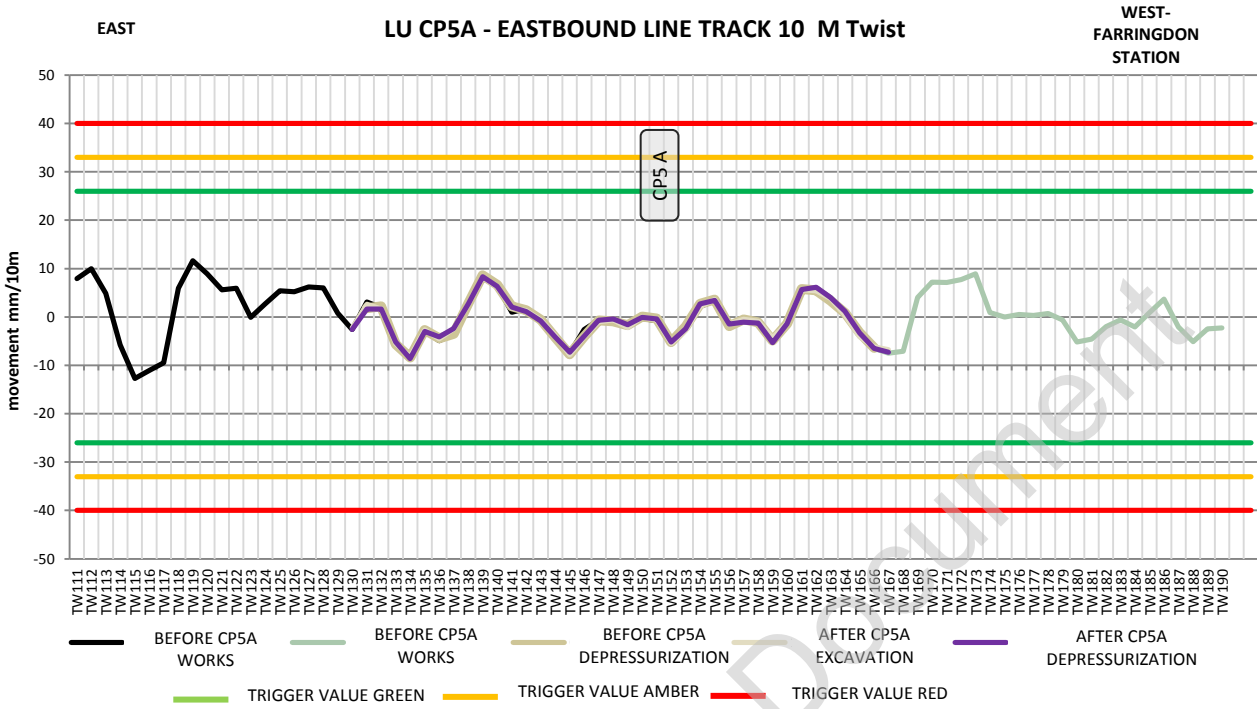


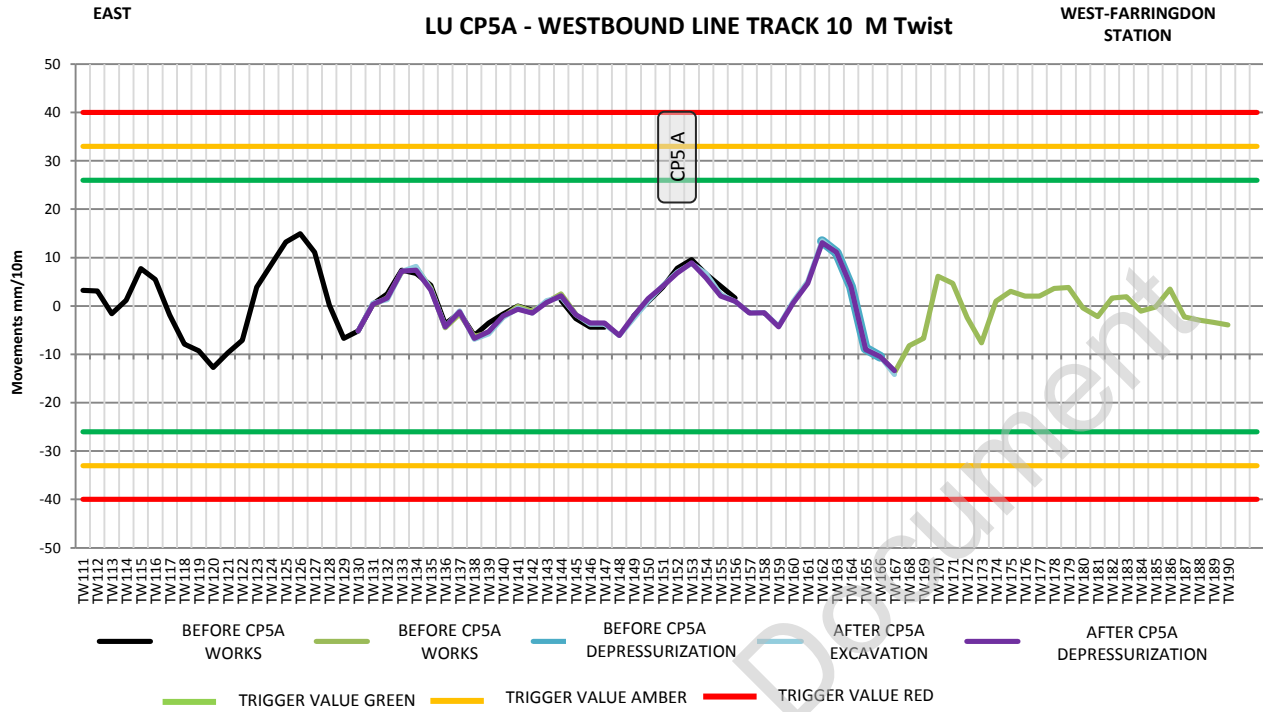




The graphs above show a maximum settlement of approximately 4mm after Cross Passage 5A excavation and depressurisation.







No significant changes of twist or change in cant were detected.

DISUSED TUNNEL

In order to clarify the movement/time charts in relation to the construction of Crossrail tunnels and CP5A, monitoring data will be presented in eleven different areas.

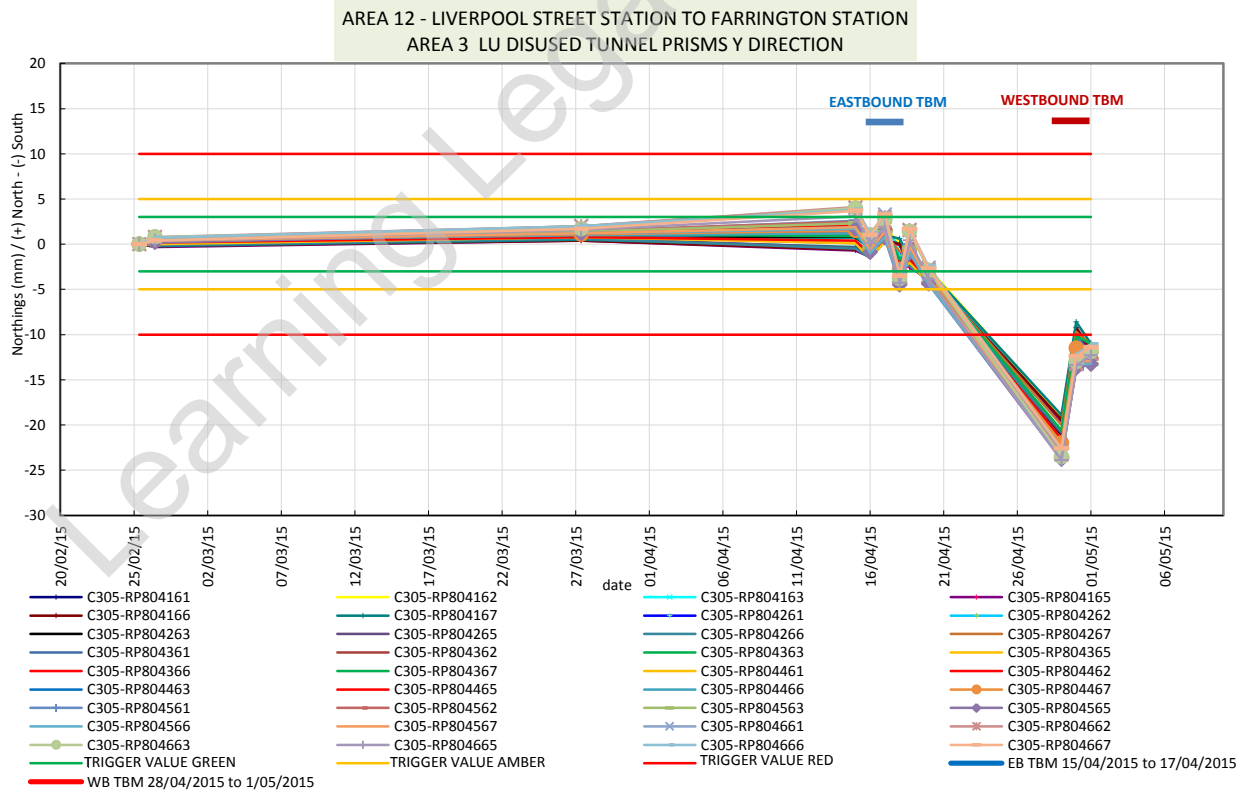
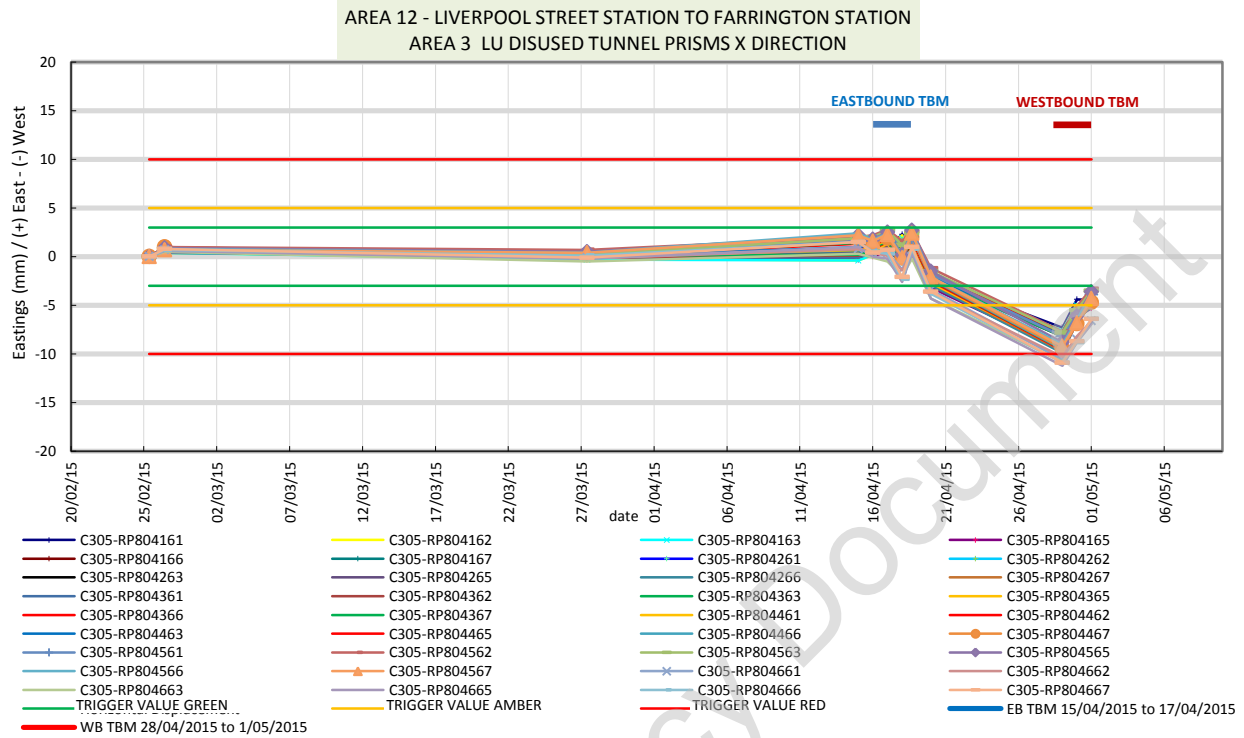
Graph below shows the chosen areas for the control of the prism transects inside the disused tunnel.

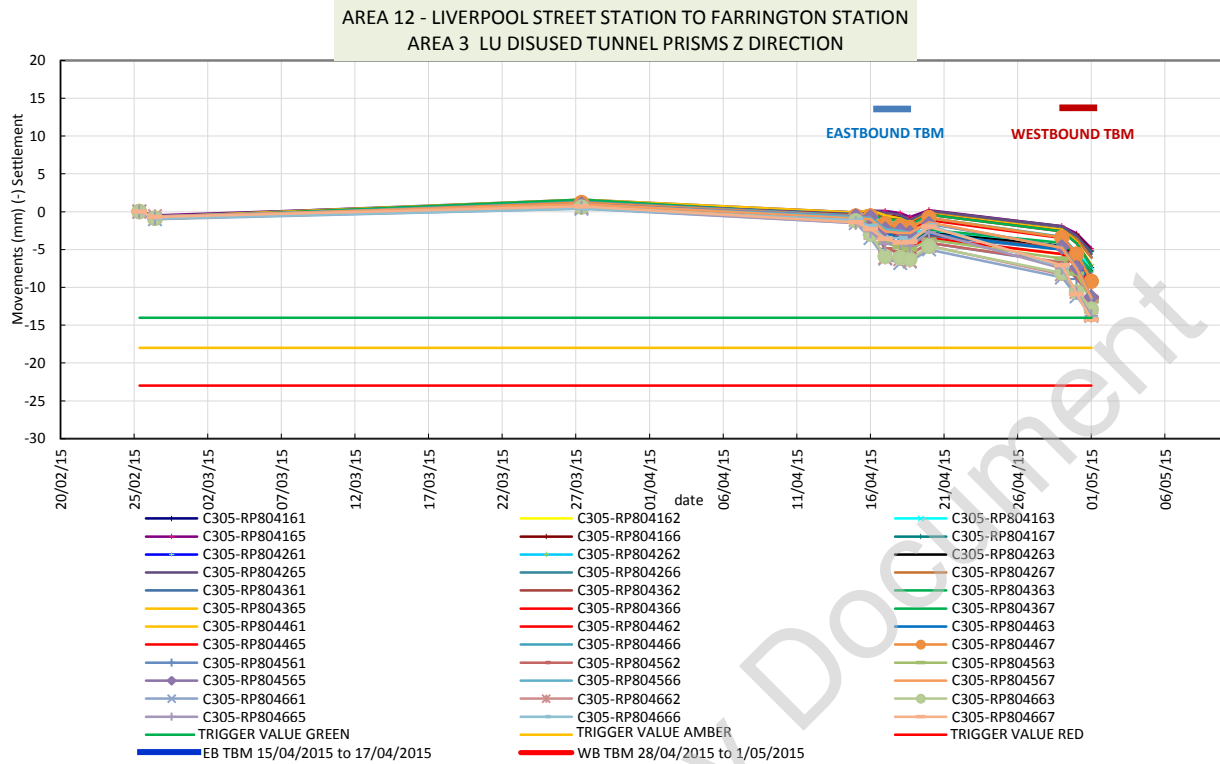
AREA LOCATIONS:



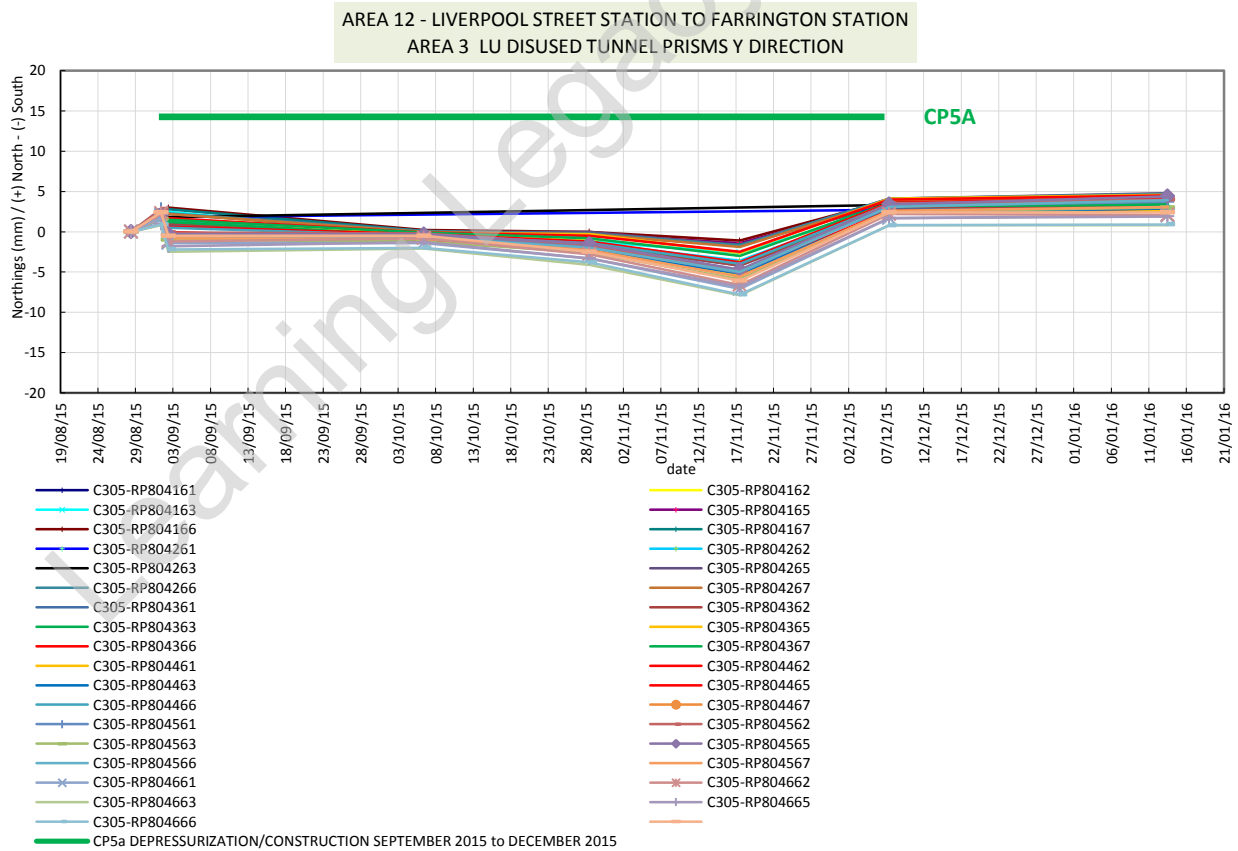
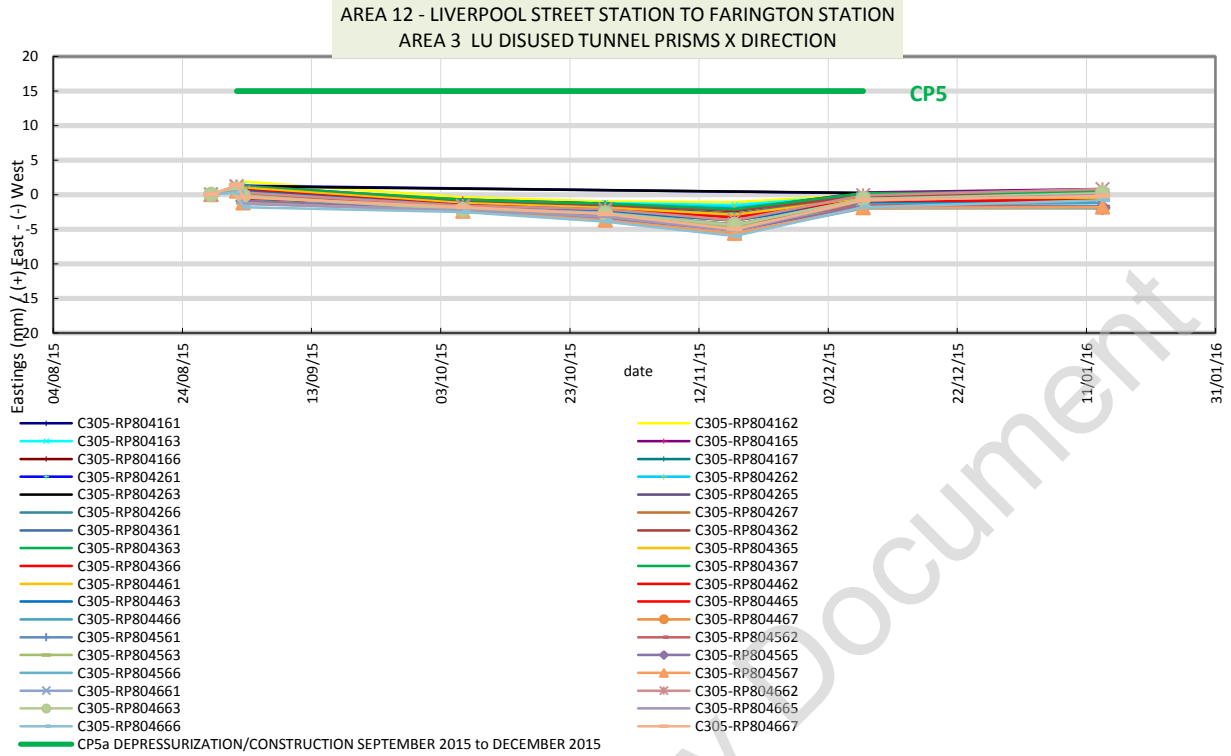
Specific Action Plan Y035: LU 16/17/20 Metropolitan, Circle and Hammersmith and City Lines/ Moorgate and Barbican Stations defines trigger values for settlement and horizontal displacement on the Twin masonry tunnels, Covered way and attached structures. Those triggers are shown in the graphs that follow.

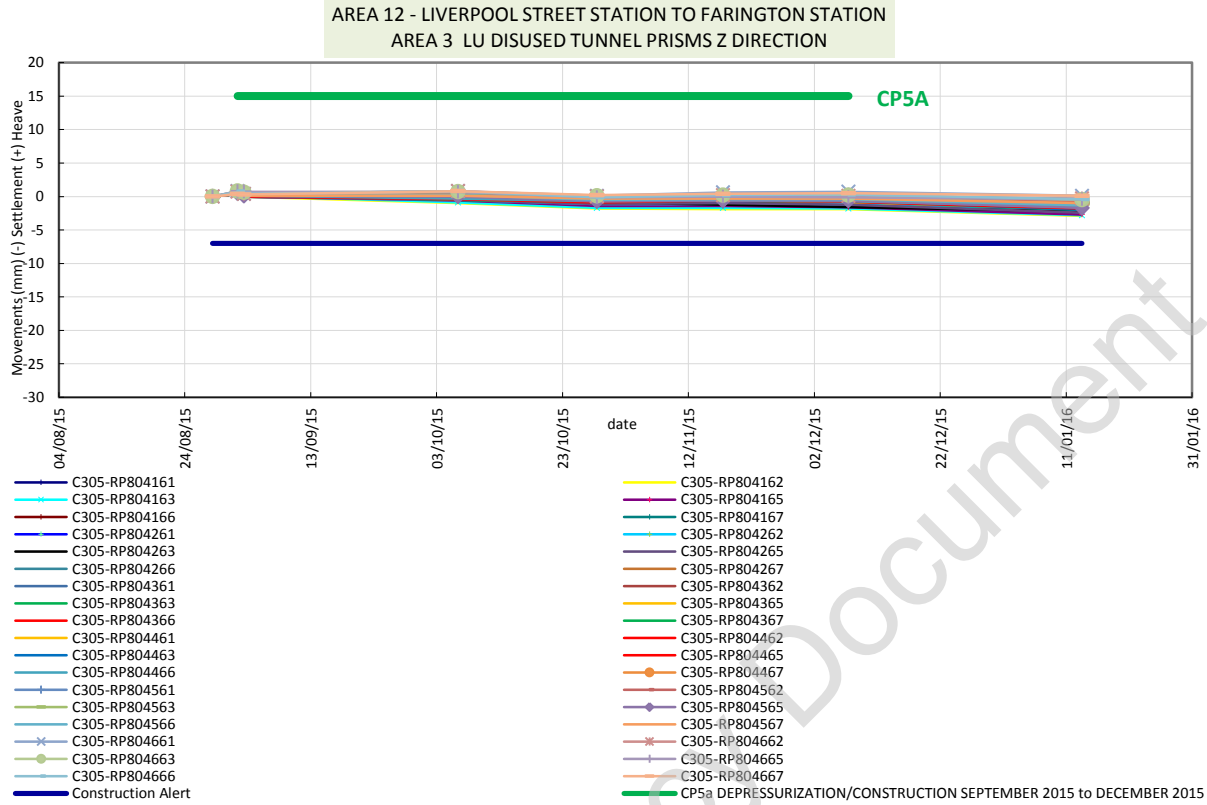
C305-RP804161 to C305-RP804467 (AREA 3)





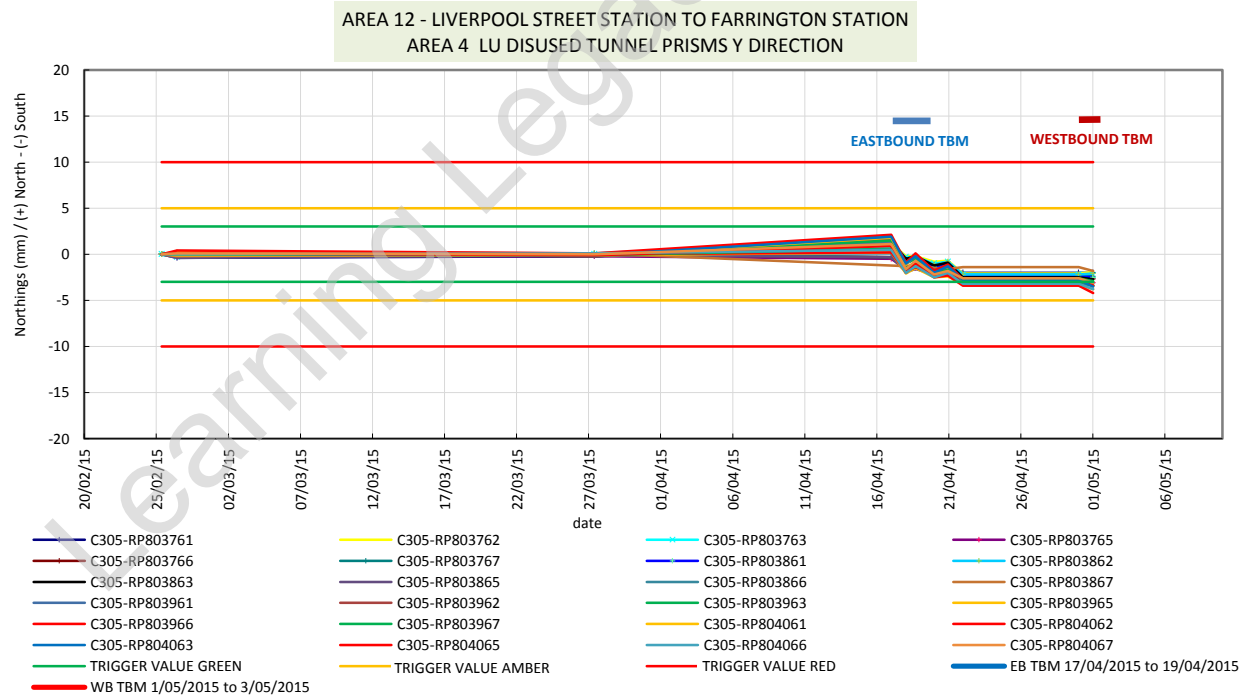
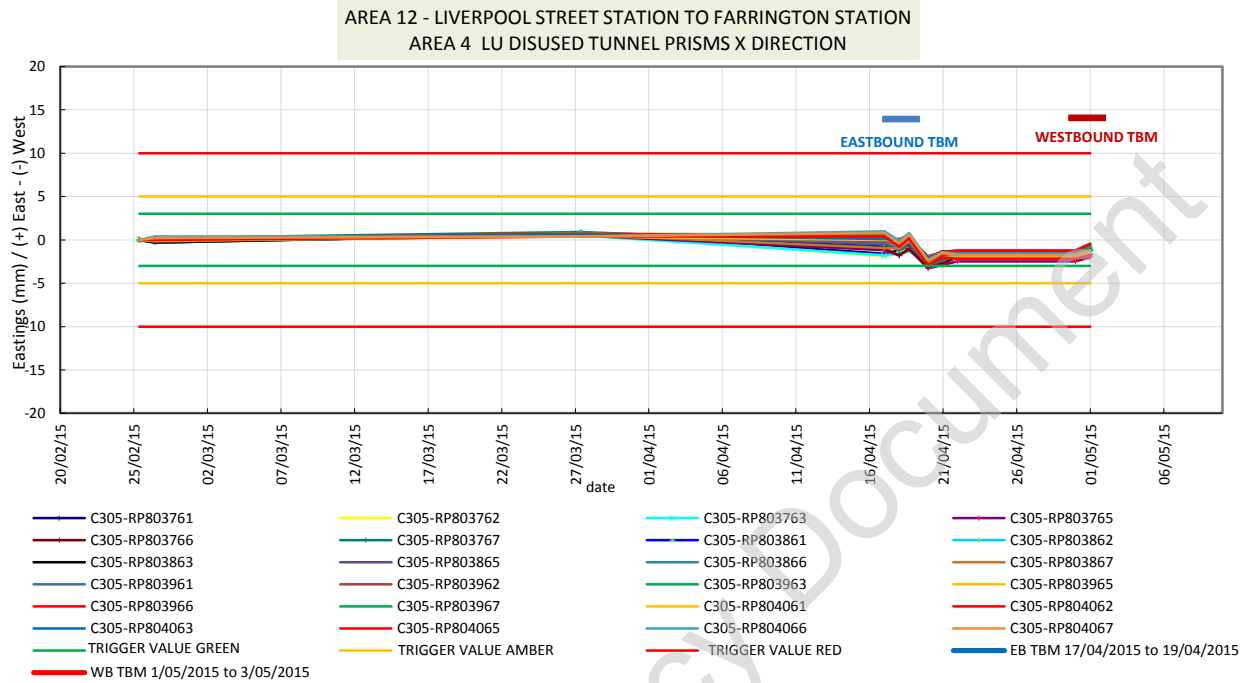
Prisms in this area have recorded a maximum settlement around 14.3mm after Westbound TBM passage. Readings on the X and Y directions present some anomalies during the WB TBM passage probably due to movement of the monitoring reference points.

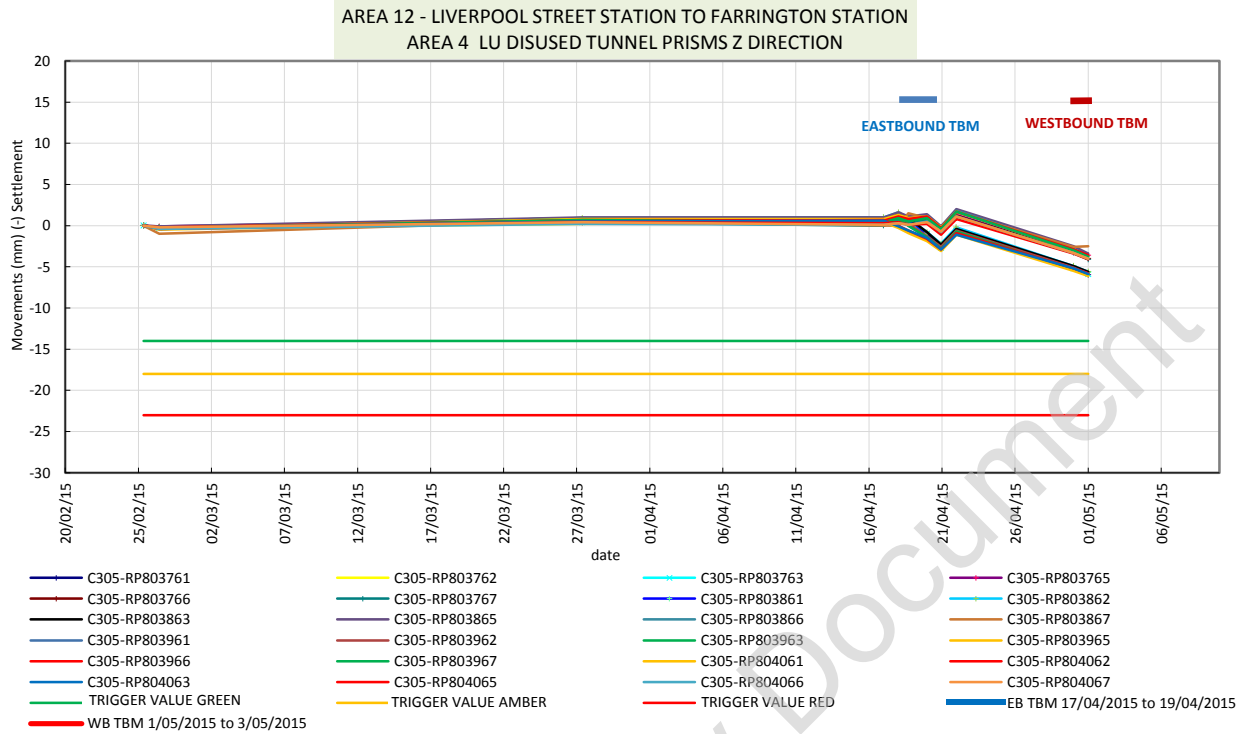




Only displacement due to the CP5A has been taken into account and compared with the 7mm alert for CP excavation and dewatering, no points have breached this value. X and Y axes show displacements lower than 8mm for X and Y and a flat trend.

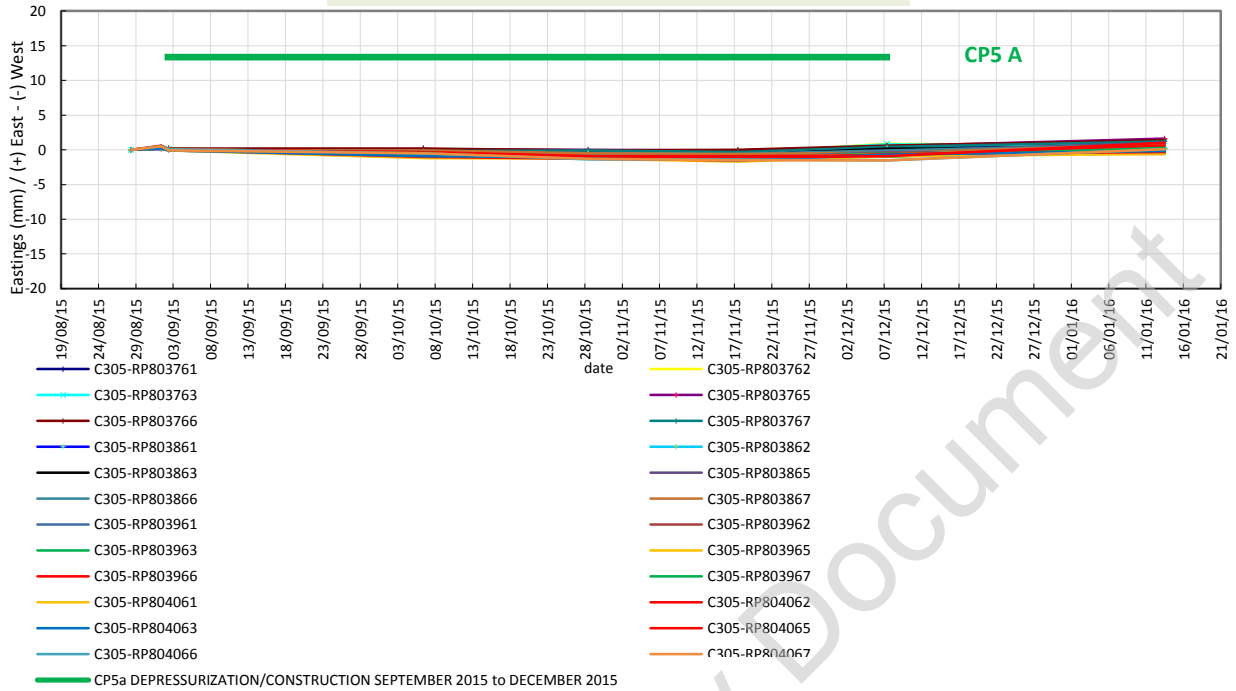
C305-RP803761 to C305-RP804967 & C305-RP804061 to C305-RP804067 (AREA 4)



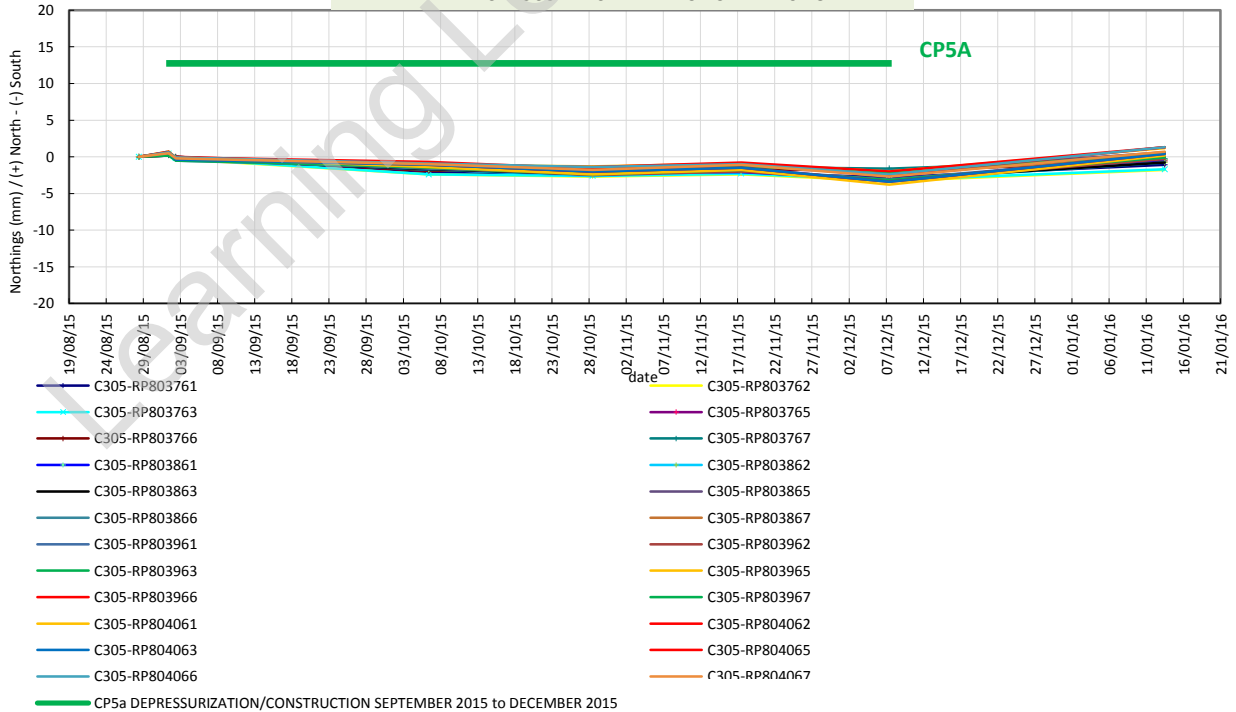


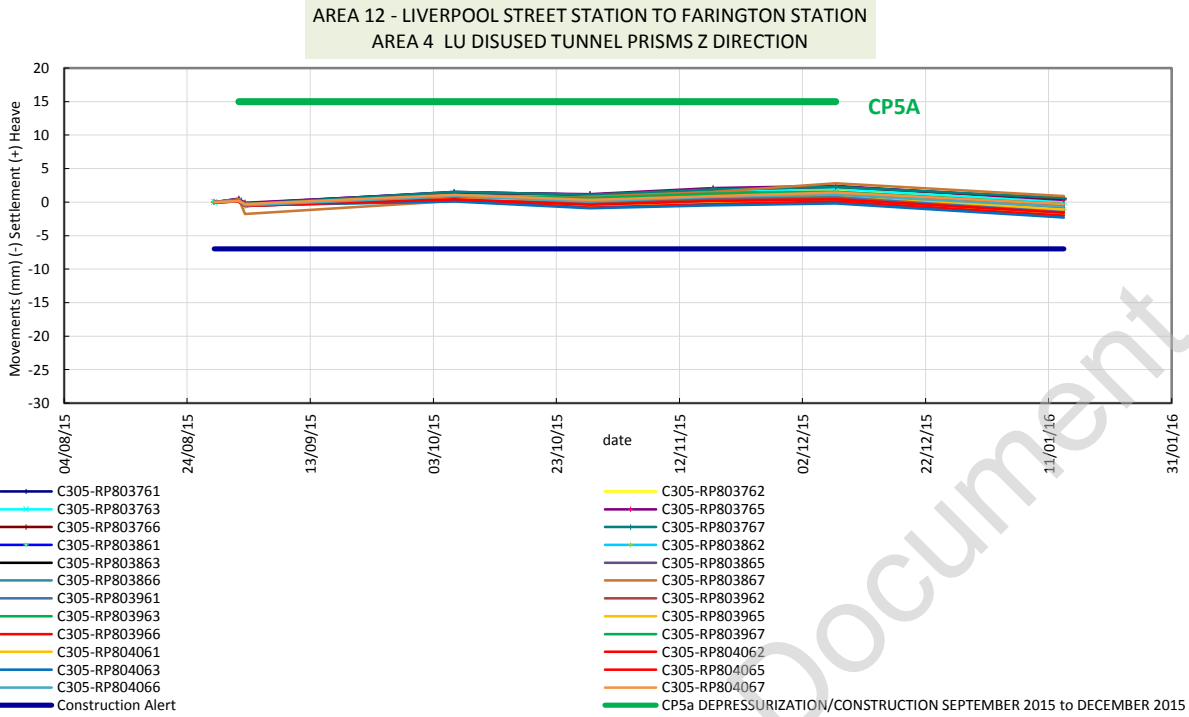
Learning Legacy Document

AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 4 LU DISUSED TUNNEL PRISMS X DIRECTION



AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 4 LU DISUSED TUNNEL PRISMS Y DIRECTION

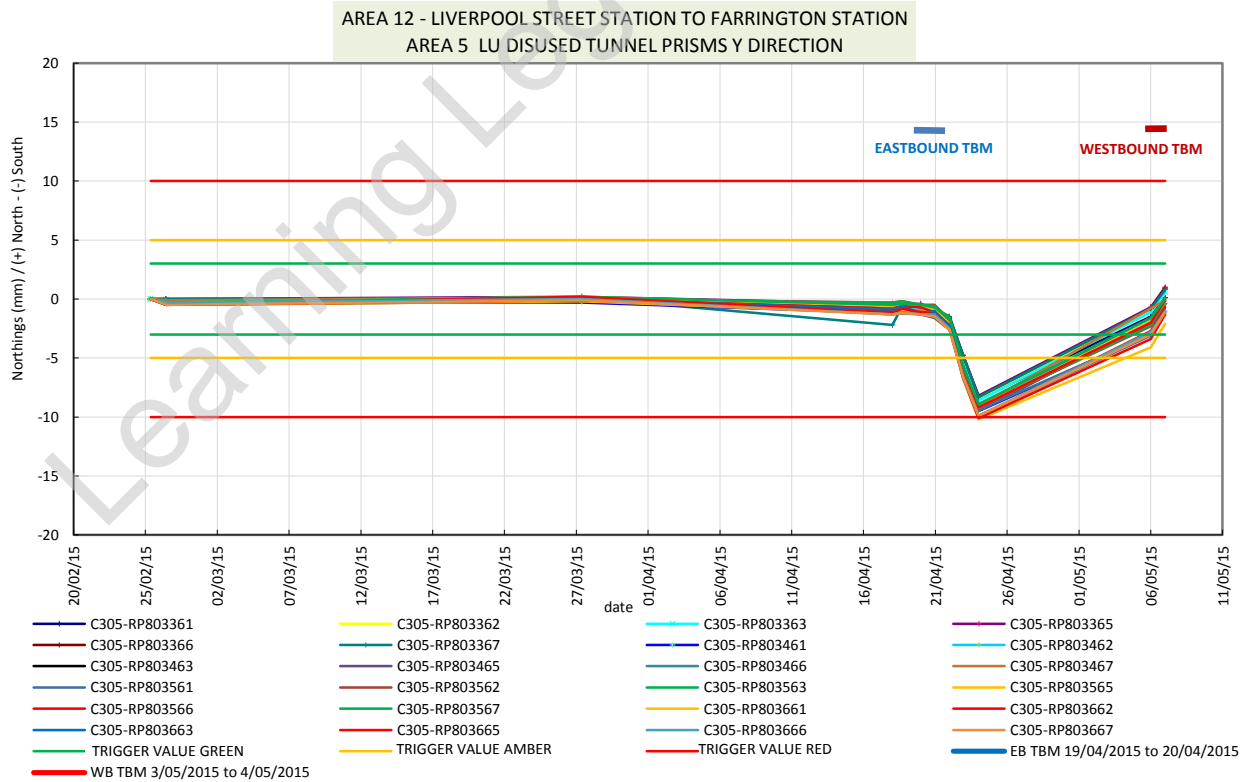
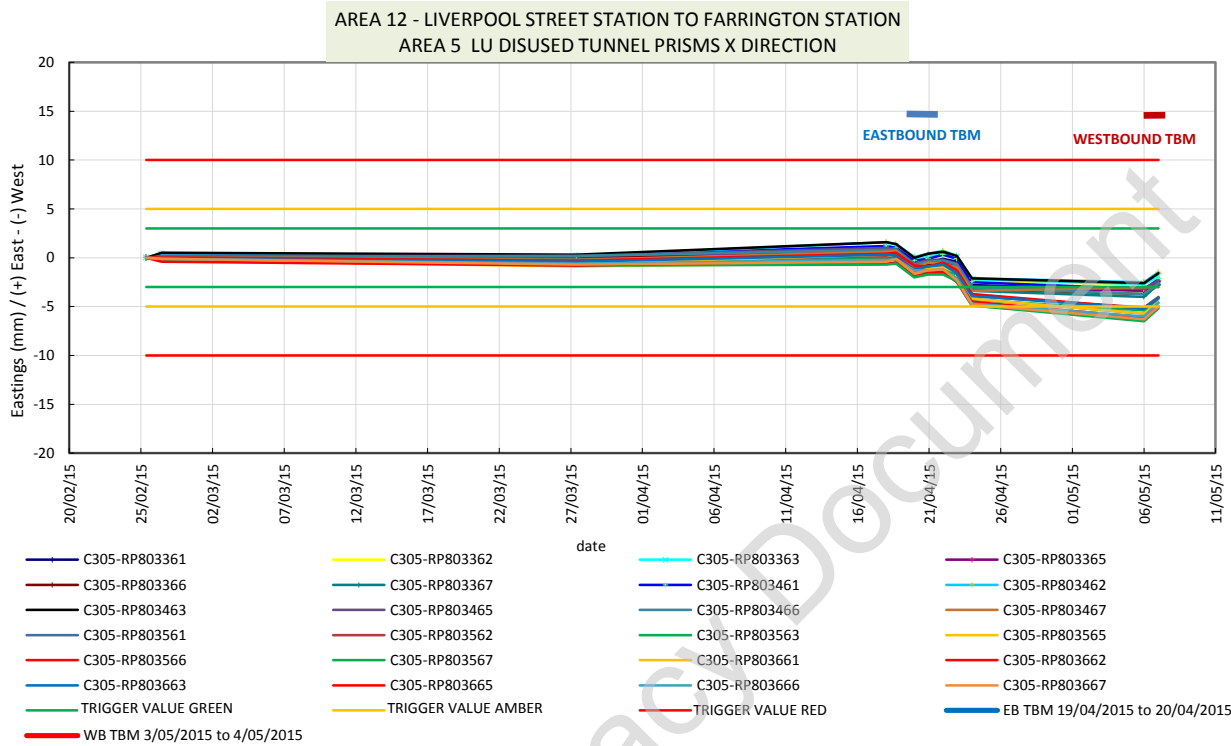


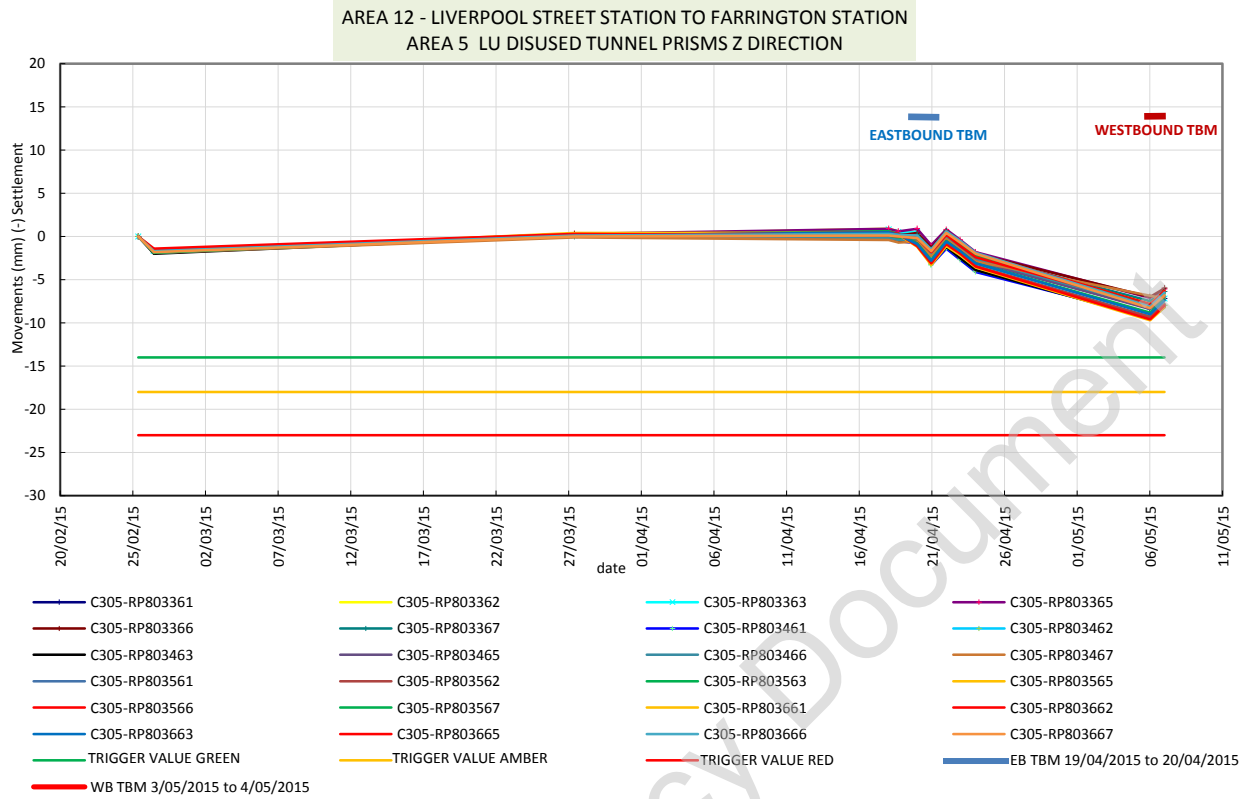


No significant movements due to tunnelling works and CP5A construction were recorded in area 4.

No amber and red triggers were breached.

C305-RP803361 to C305-RP803667 (AREA 5)

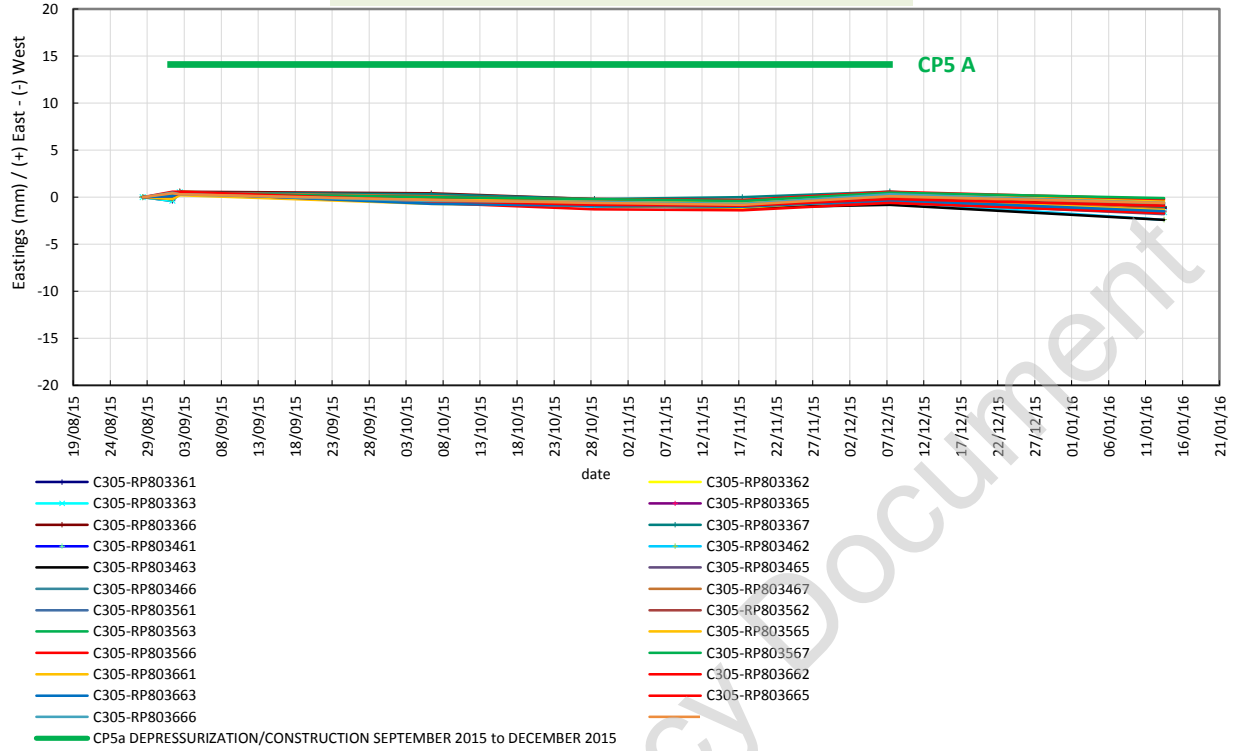




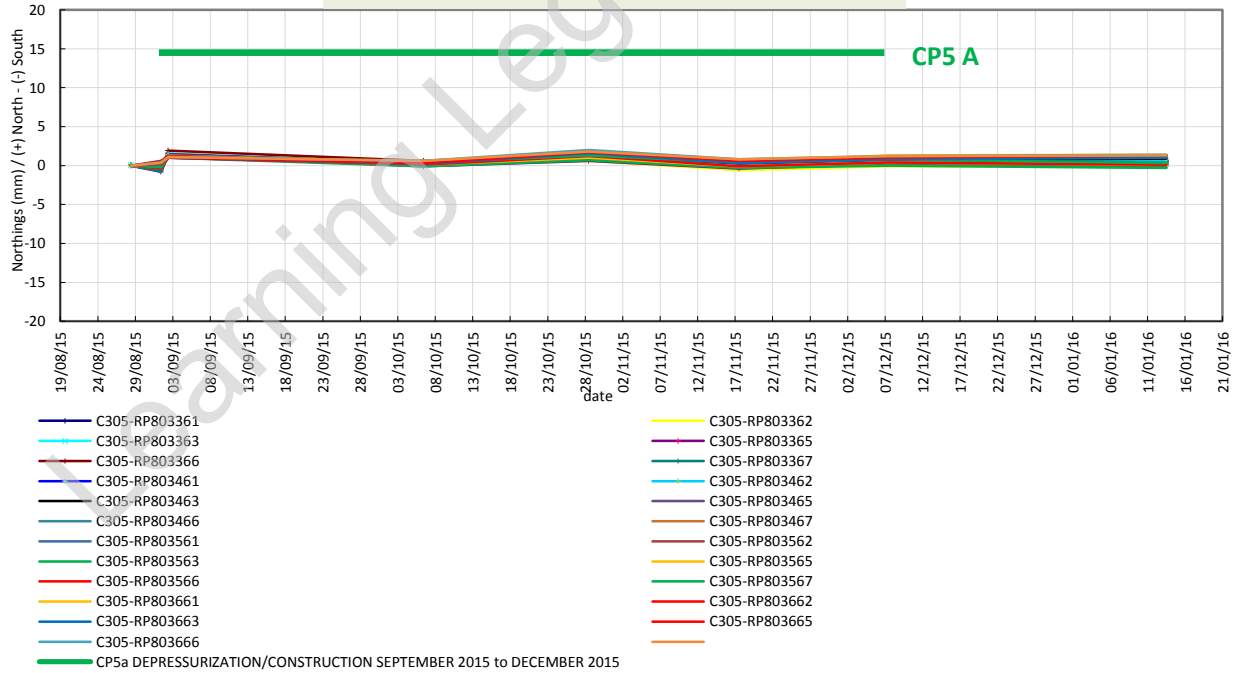
Prisms in this area have recorded a maximum settlement of 9 mm after Westbound TBM passage.

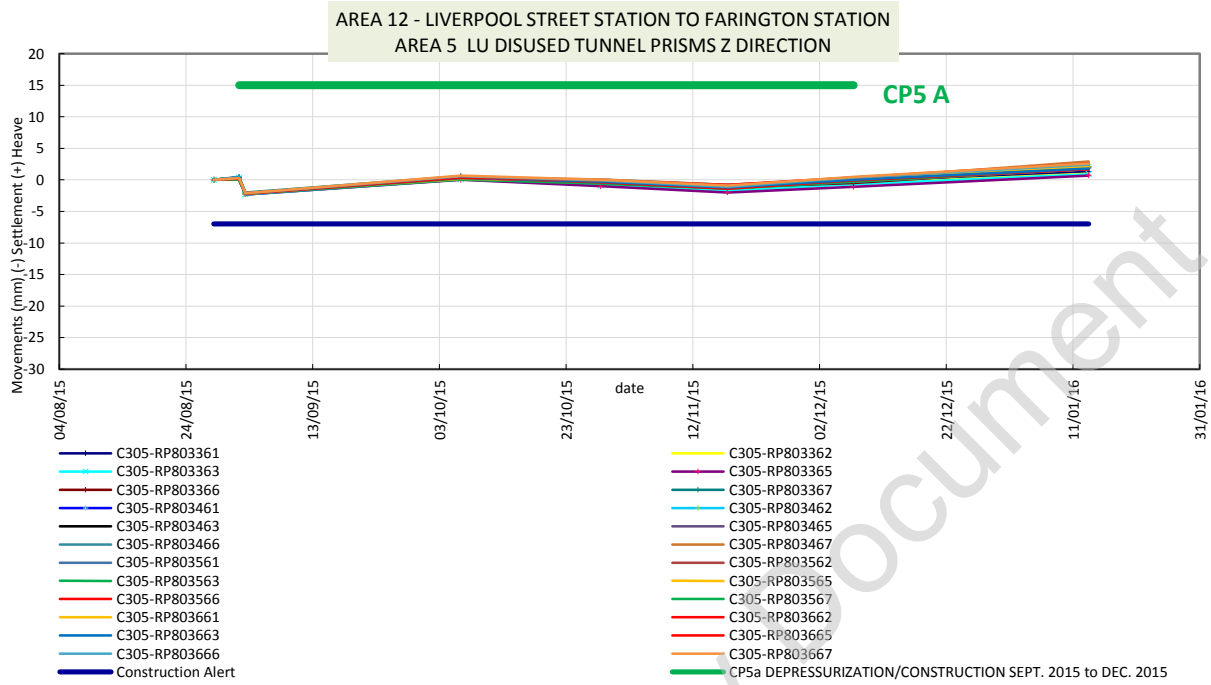
Readings on the X and Y directions present some anomalies after the EB TBM passage probably due to movement of the monitoring reference points.

AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 5 LU DISUSED TUNNEL PRISMS X DIRECTION



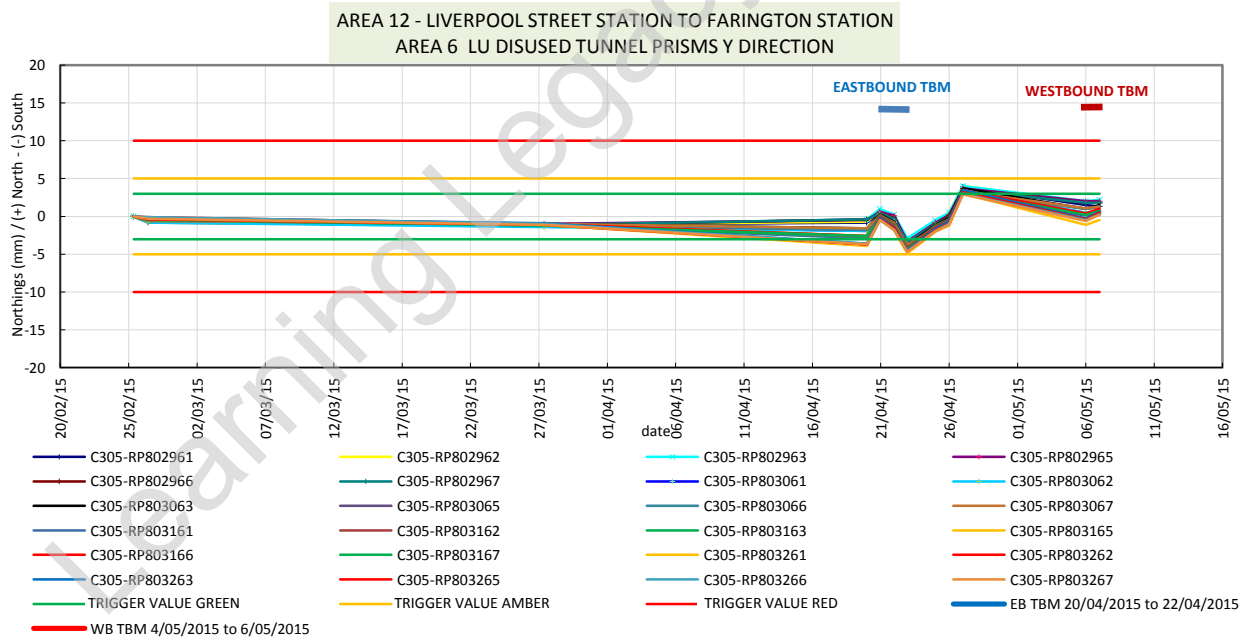
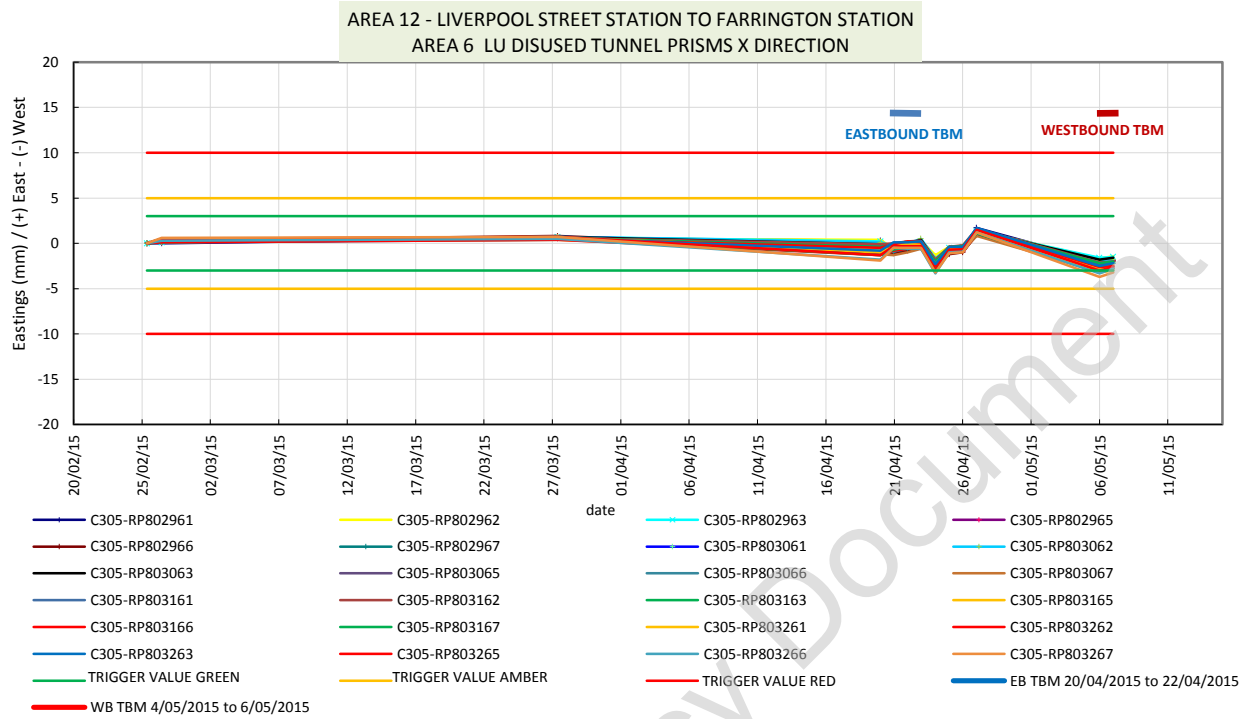
AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 5 LU DISUSED TUNNEL PRISMS Y DIRECTION

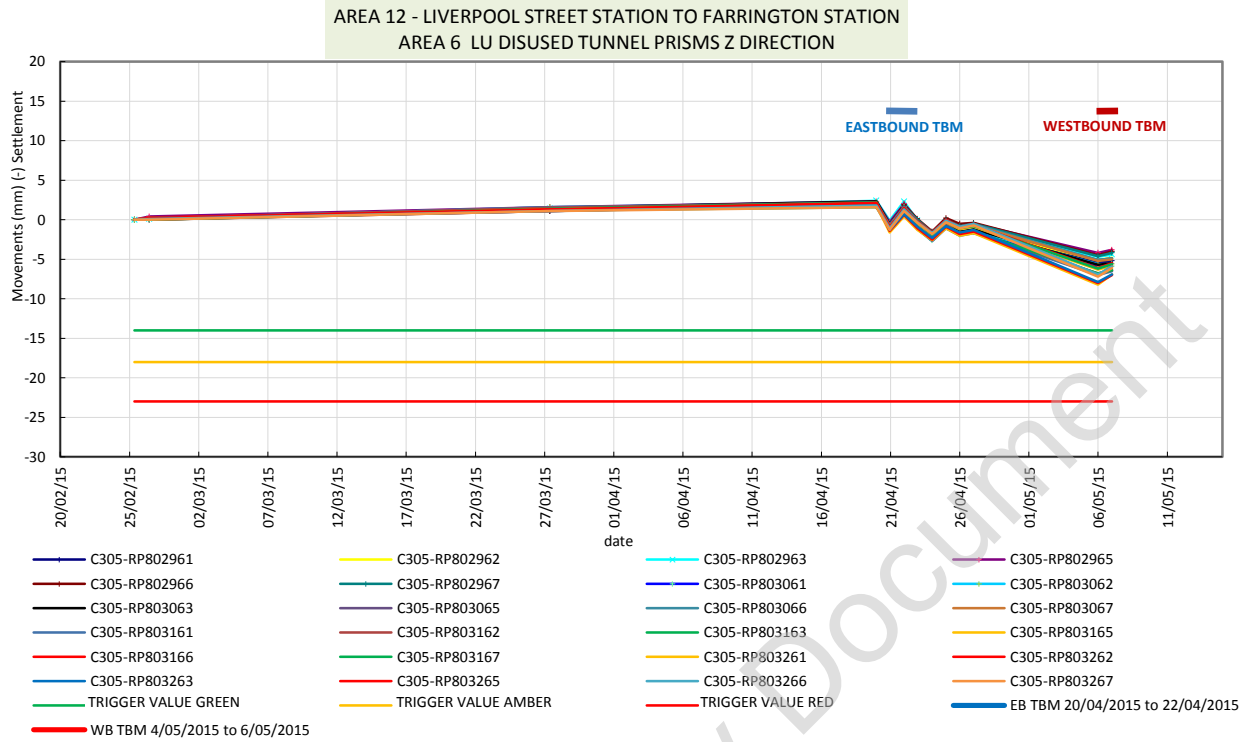




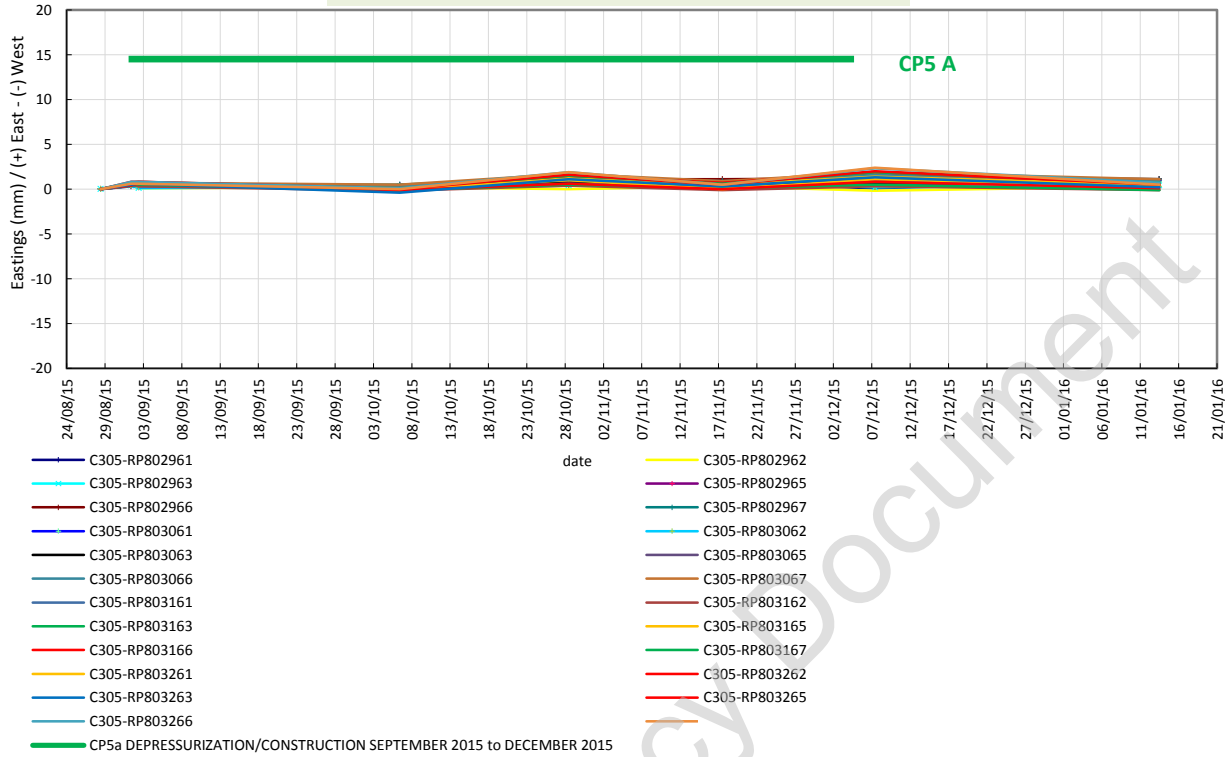
Only displacement due to the CP5A has been taken account and compare with the 7mm alert for CP excavation and dewatering, no points have breached this alert. X and Y axes show displacements lower than 5mm for X and Y and a flat trend.

C305-RP802961 to C305-RP802967 & C305-RP803061 to C305-RP803267 (AREA 6)

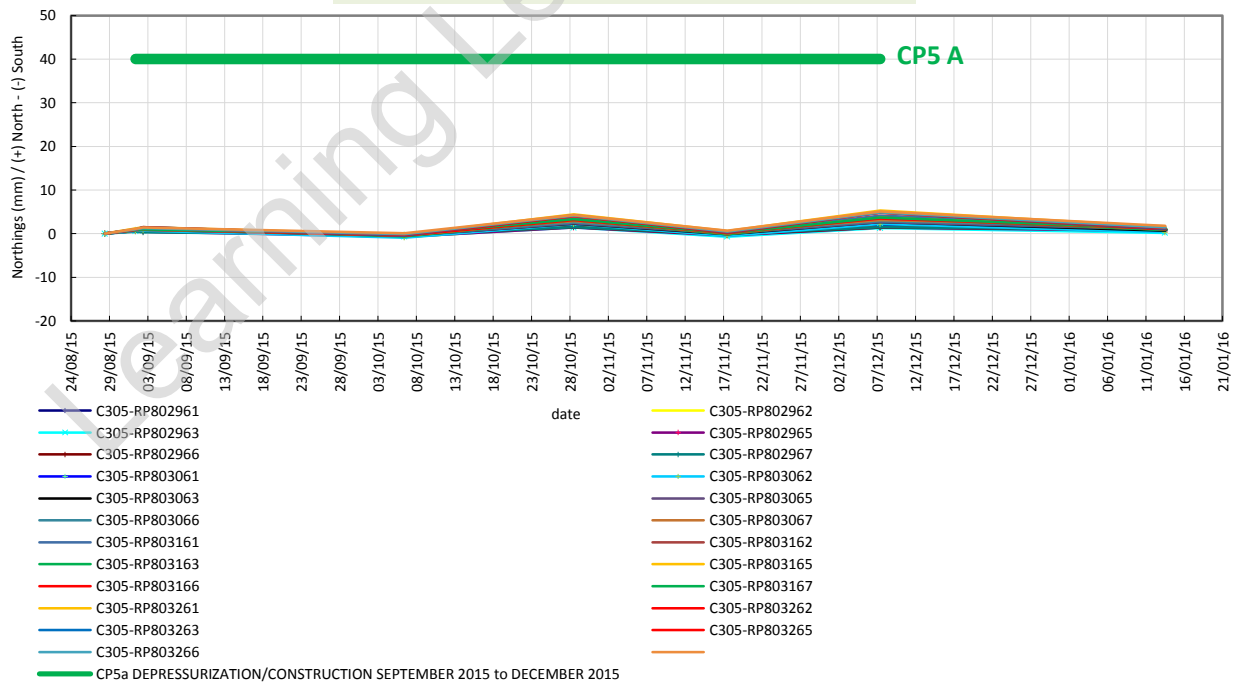


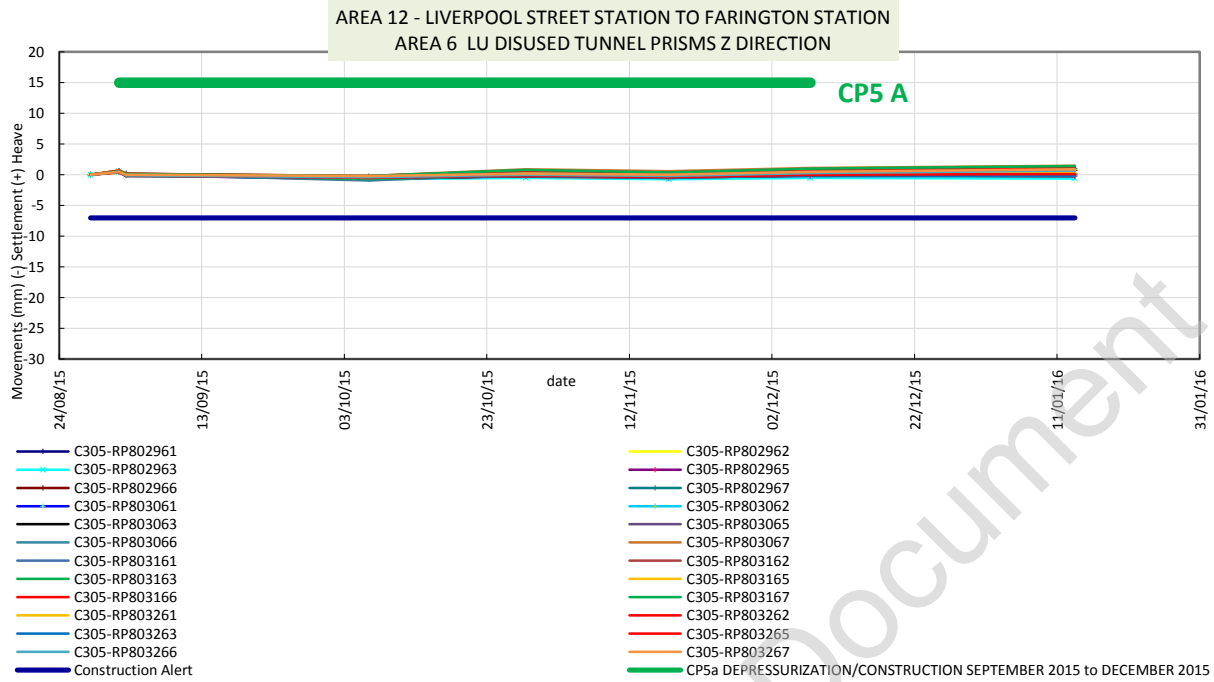


AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 6 LU DISUSED TUNNEL PRISMS X DIRECTION



AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 6 LU DISUSED TUNNEL PRISMS Y DIRECTION



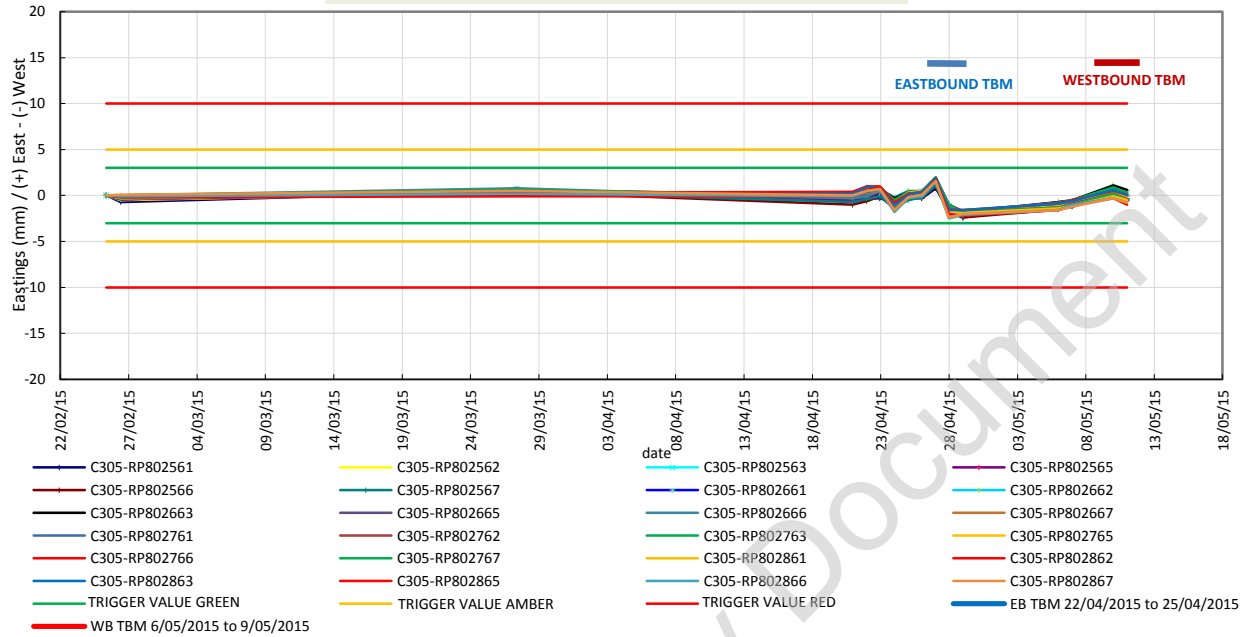


No significant movements due to tunnelling works and CP5A construction were recorded in area 6.

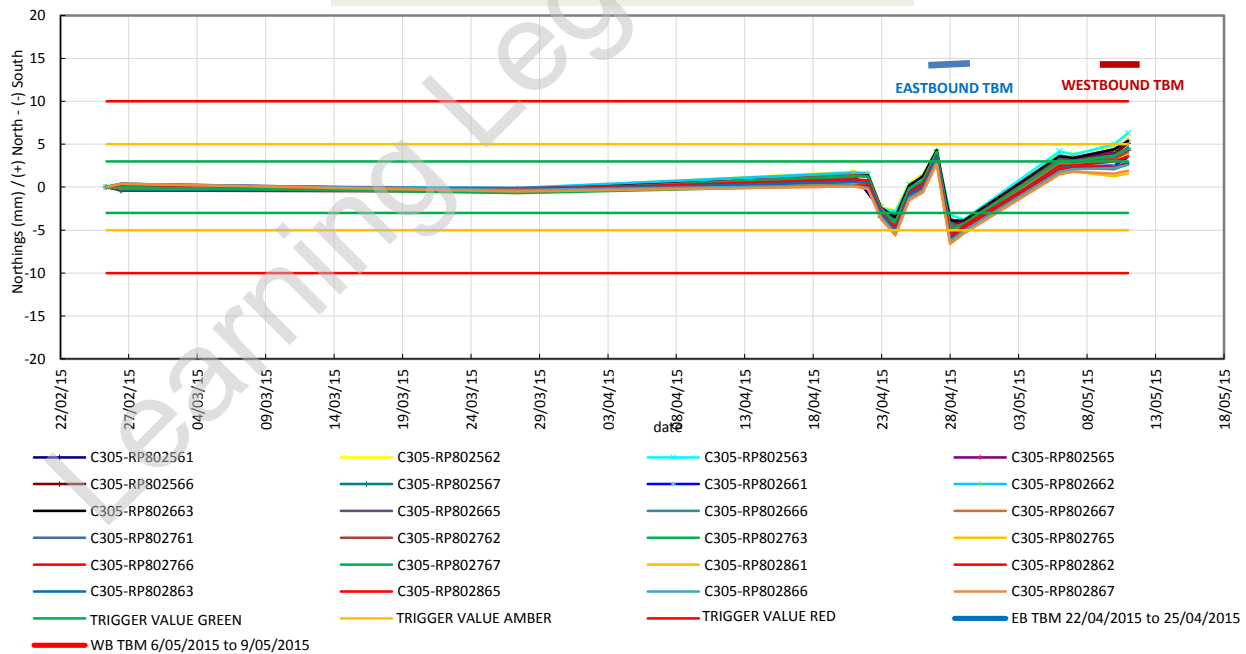
No amber and red triggers were breached.

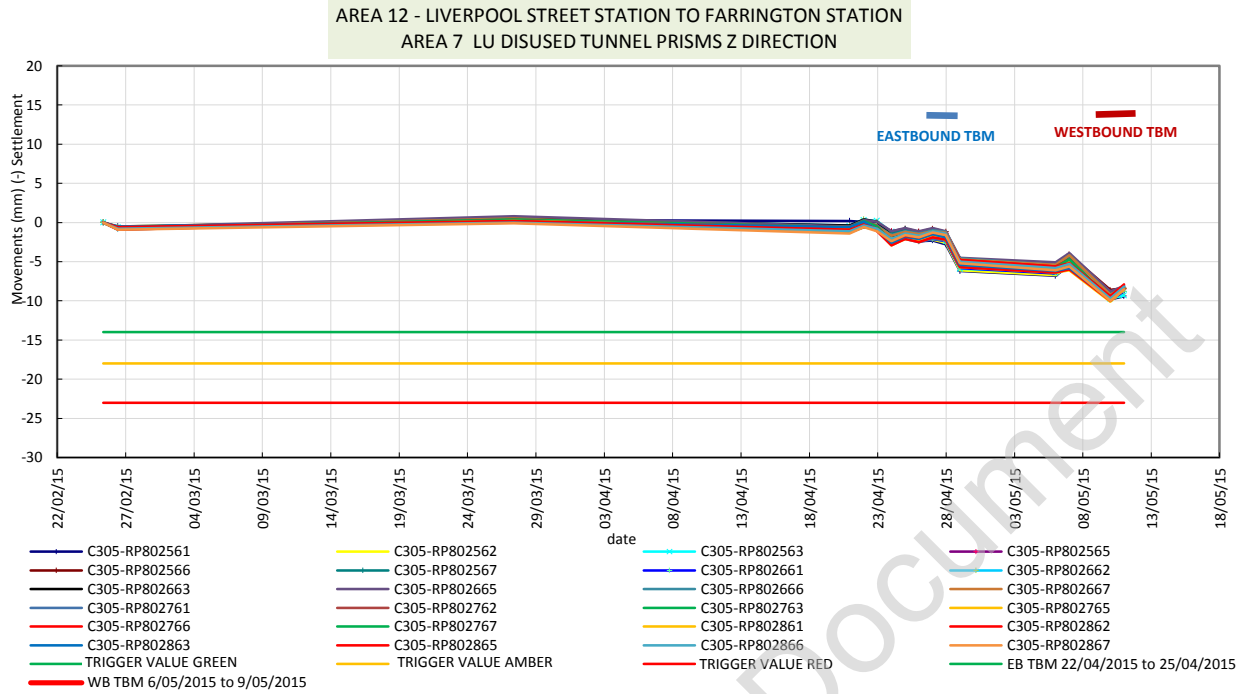
C305-RP802561 to C305-RP802867 (AREA 7)

AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 7 LU DISUSED TUNNEL PRISMS X DIRECTION



AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 7 LU DISUSED TUNNEL PRISMS Y DIRECTION

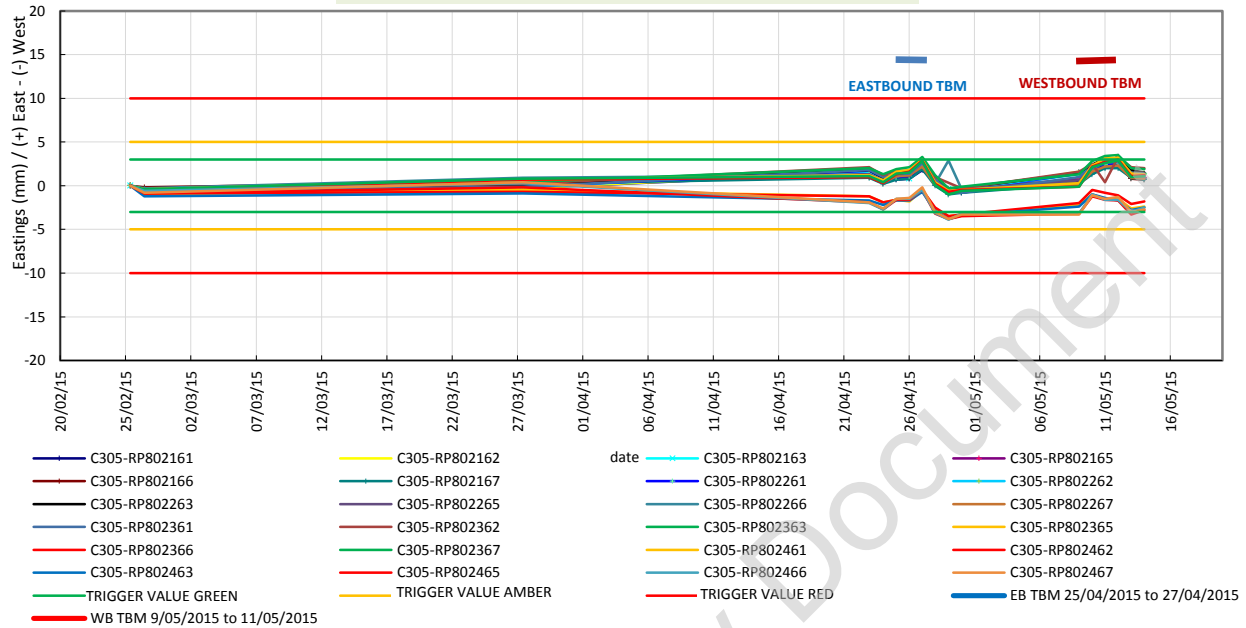




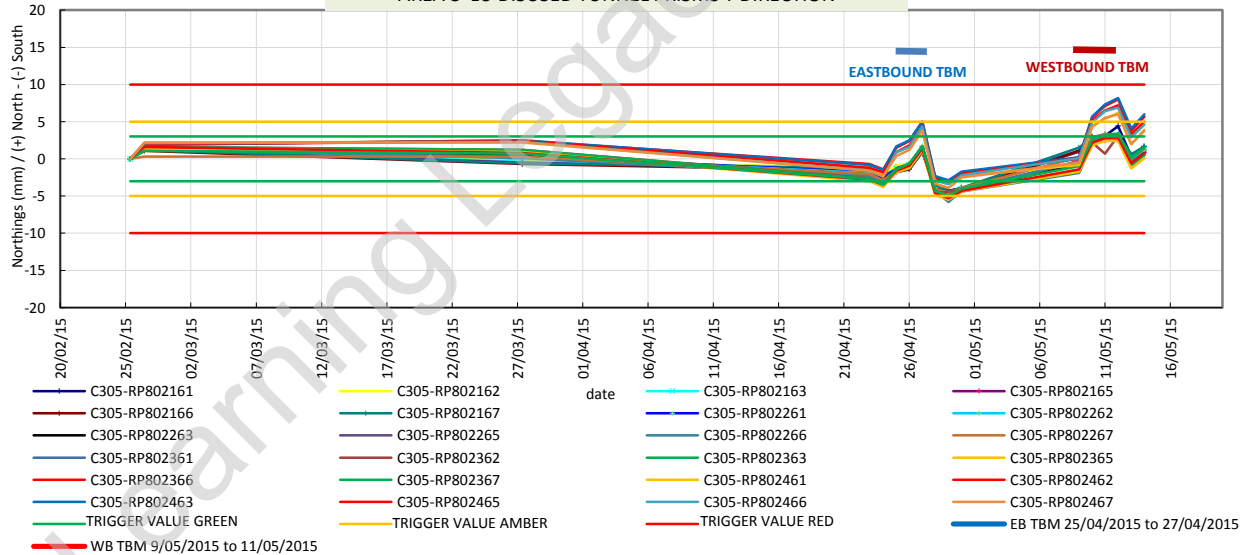
No significant movements during the TBM works were recorded in area 7. No amber and red triggers were breached, just some spiky readings for Y displacement were recorded after Eastbound TBM.

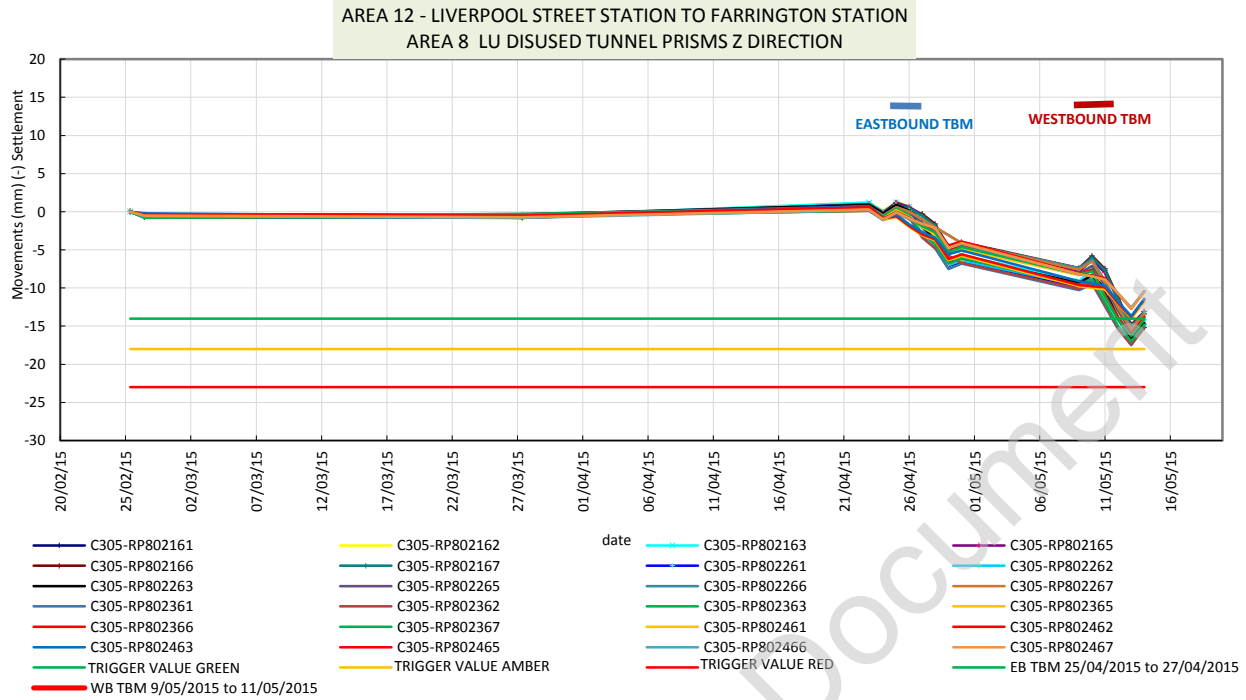
C305-RP802161 to C305-RP802467 (AREA 8)

AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 8 LU DISUSED TUNNEL PRISMS X DIRECTION



AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 8 LU DISUSED TUNNEL PRISMS Y DIRECTION



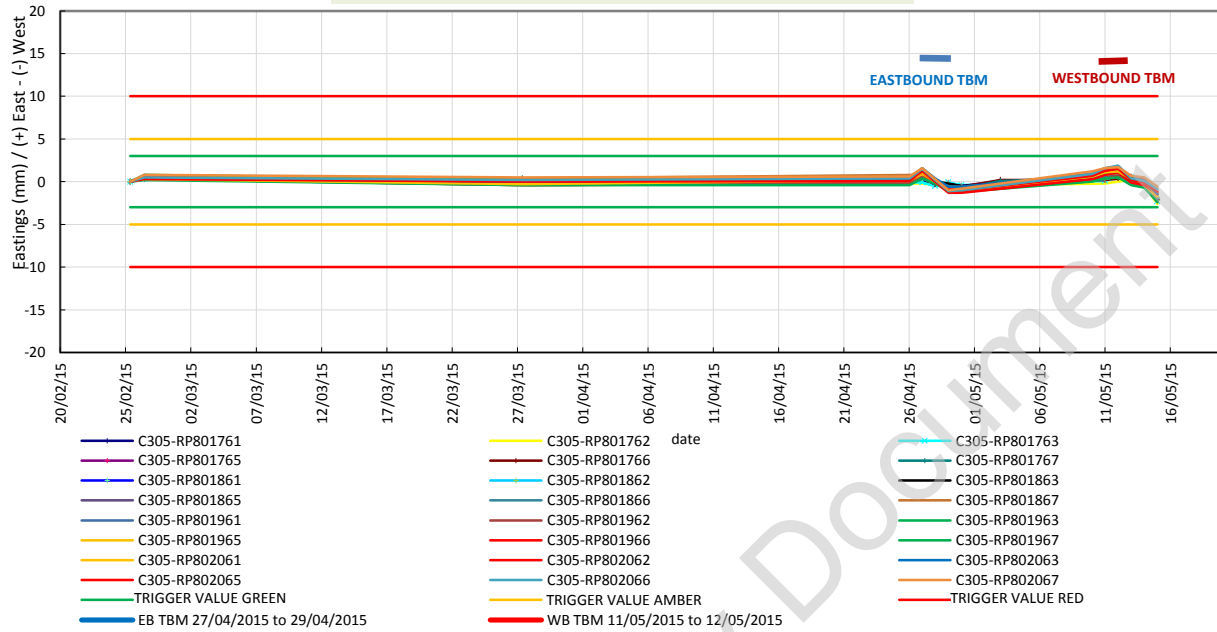


Prisms in this area have recorded a maximum settlement of 17.5mm after Westbound TBM passage.

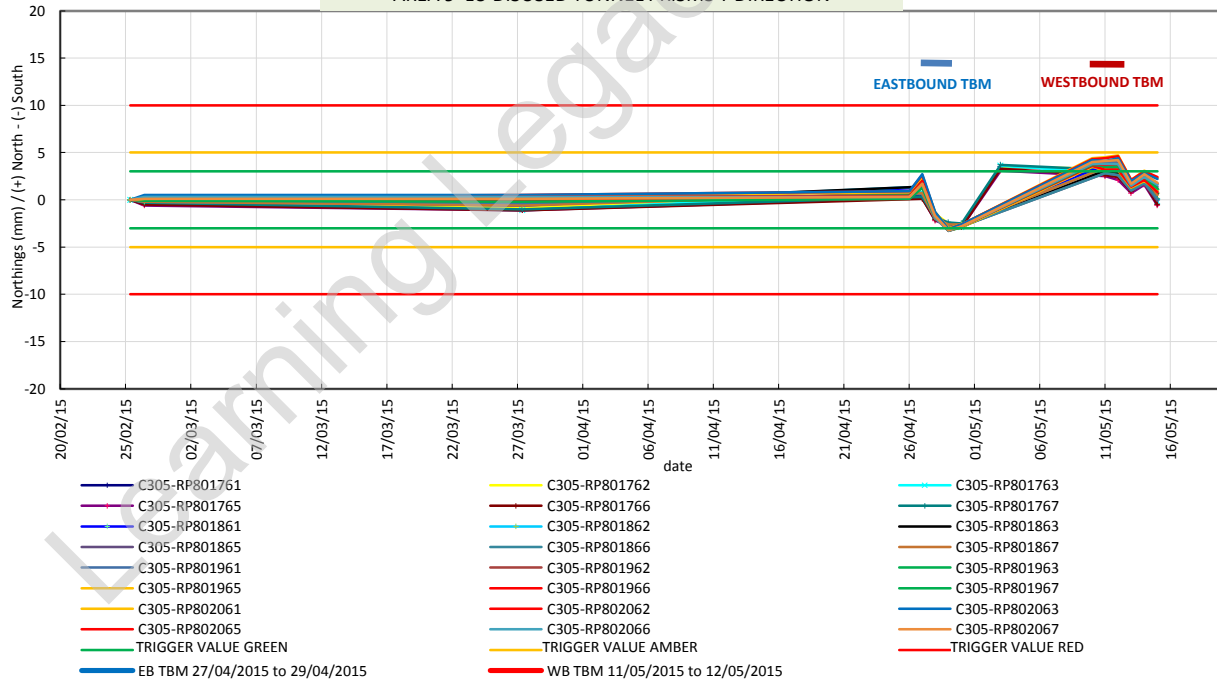
For Y displacements, readings have been spiky during TBMs passage. No amber or red triggers have been breached for Z and X displacements.

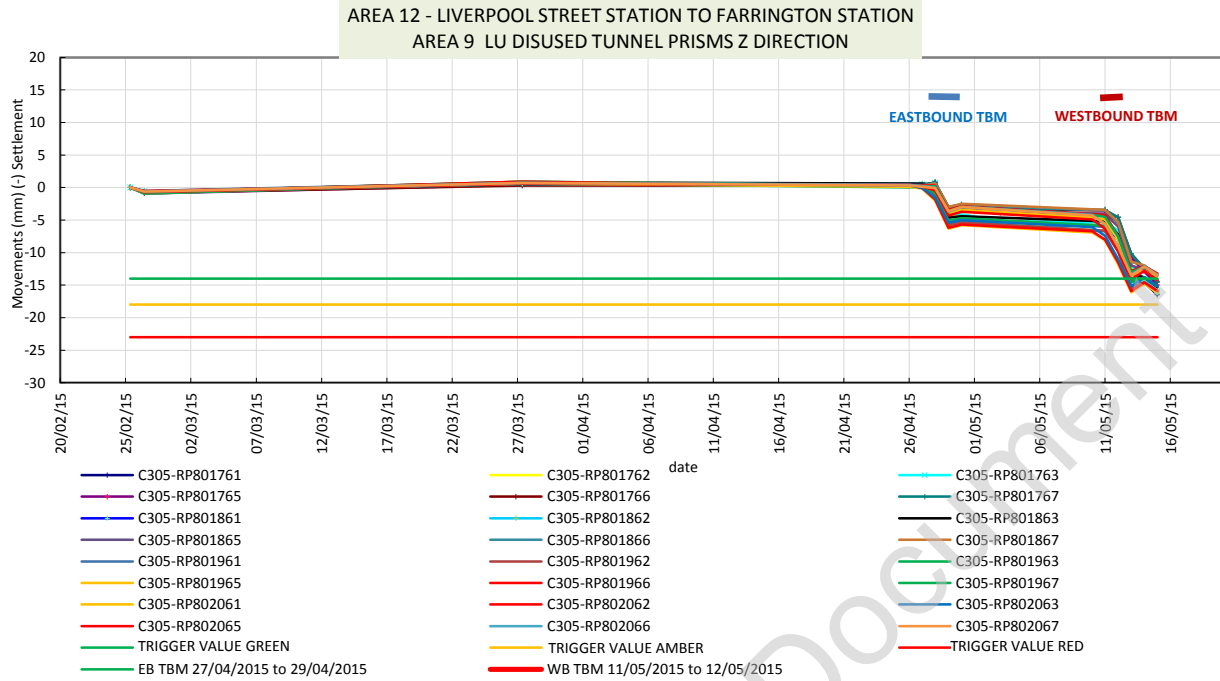
C305-RP801761 to C305-RP802067 (AREA 9)

AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 9 LU DISUSED TUNNEL PRISMS X DIRECTION



AREA 12 - LIVERPOOL STREET STATION TO FARRINGTON STATION
 AREA 9 LU DISUSED TUNNEL PRISMS Y DIRECTION

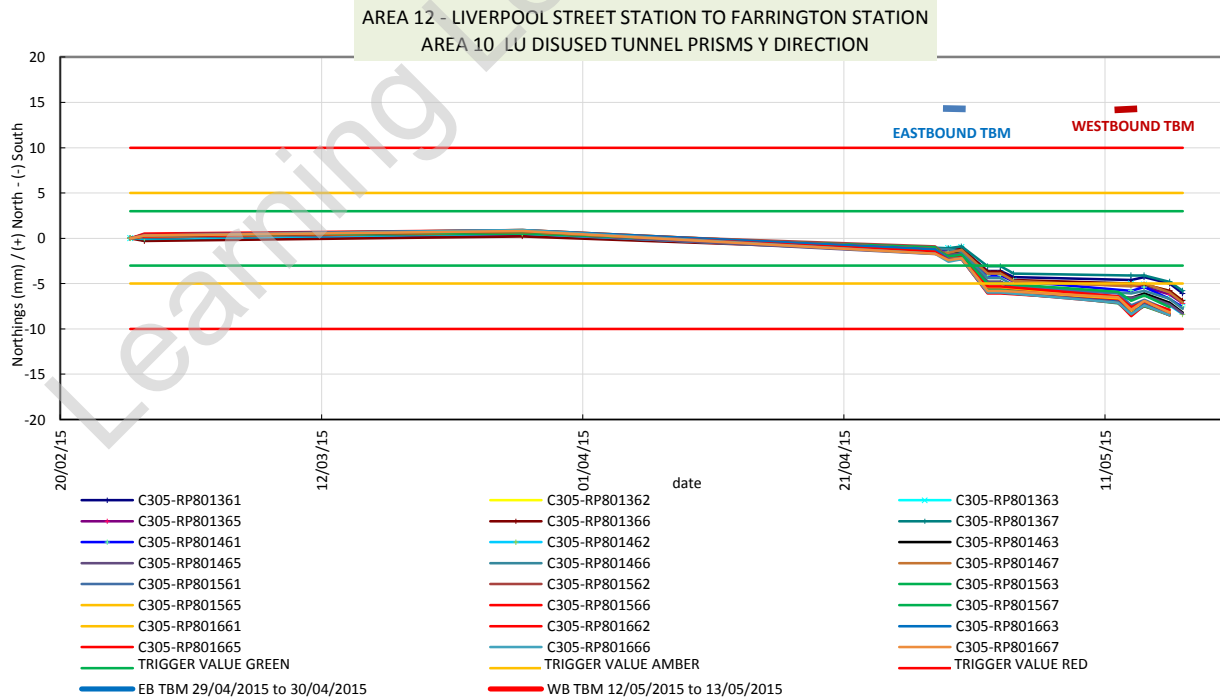
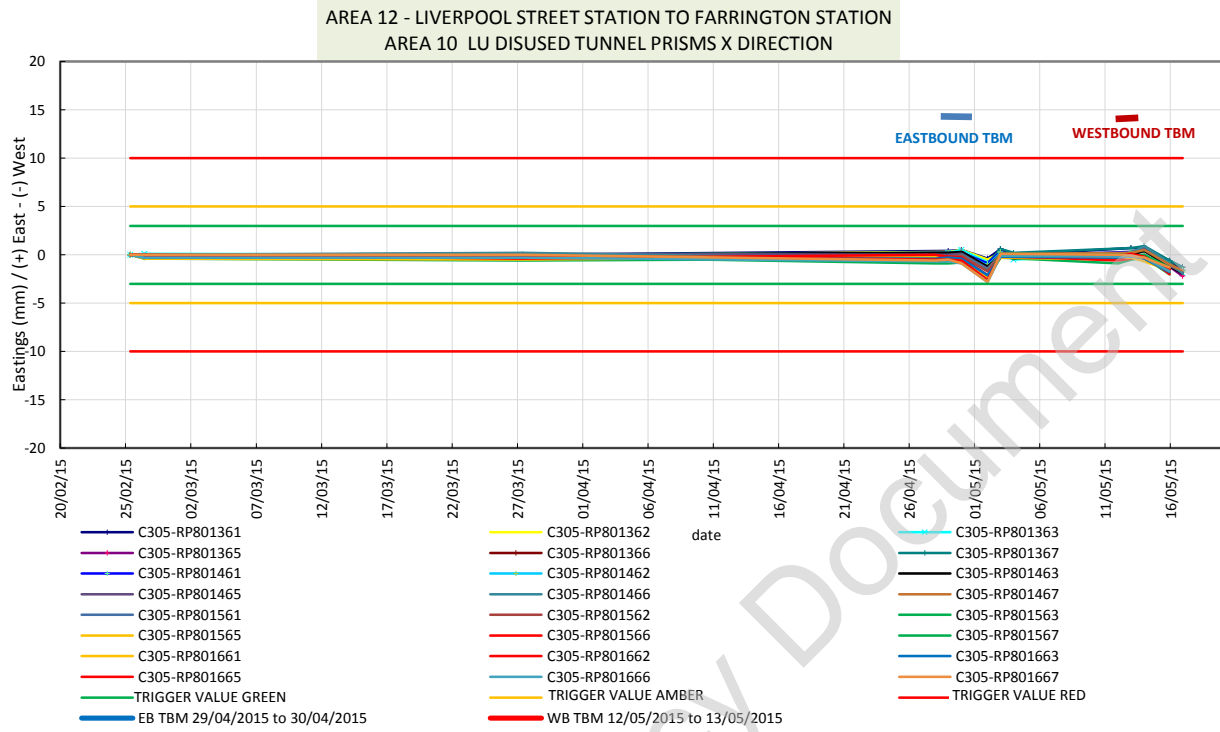


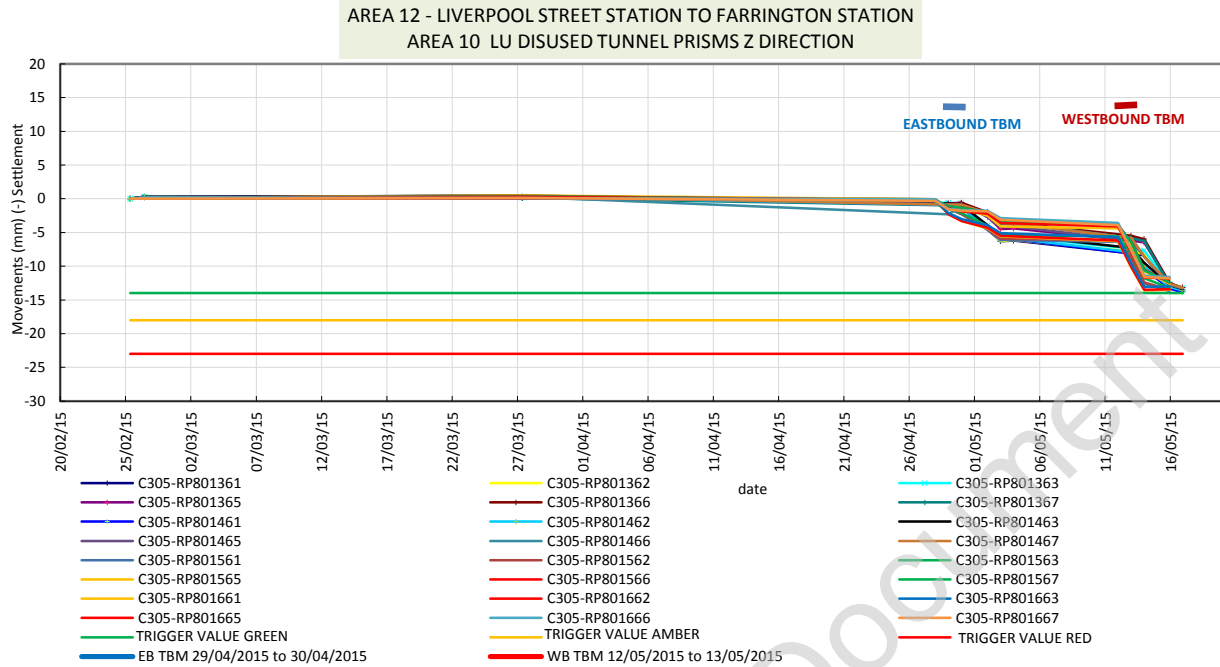


Prisms in this area have recorded a maximum settlement of 16.5mm after Westbound TBM passage.

No amber or red triggers have been breached.

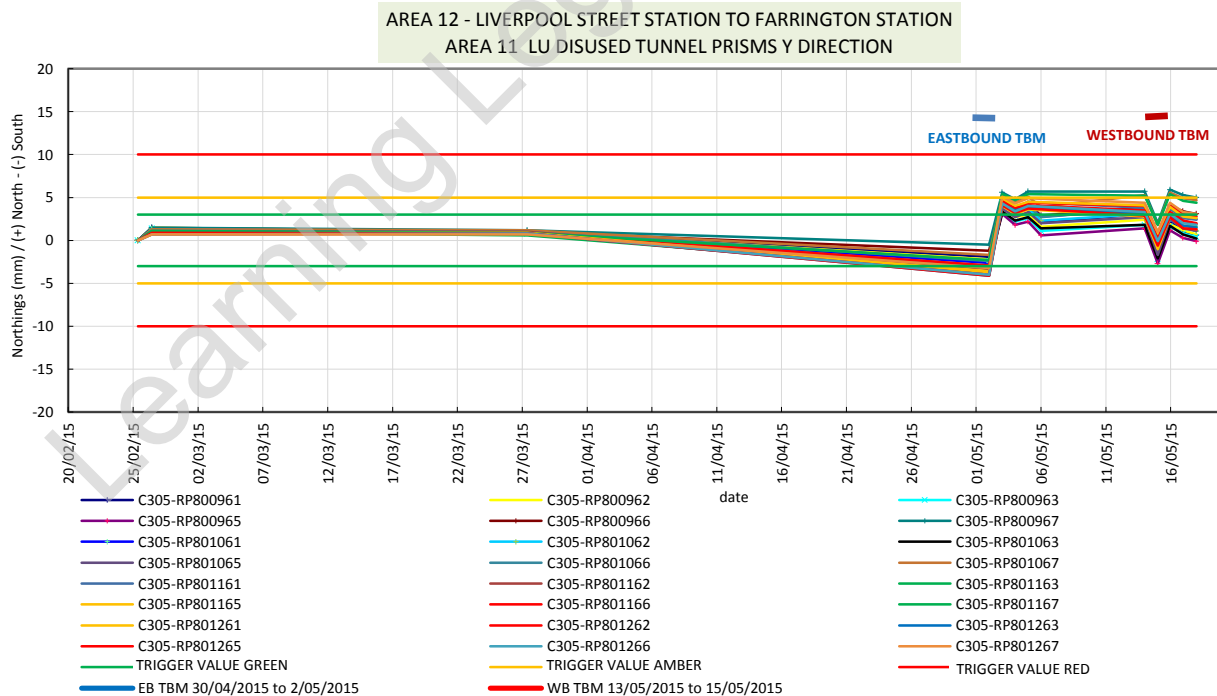
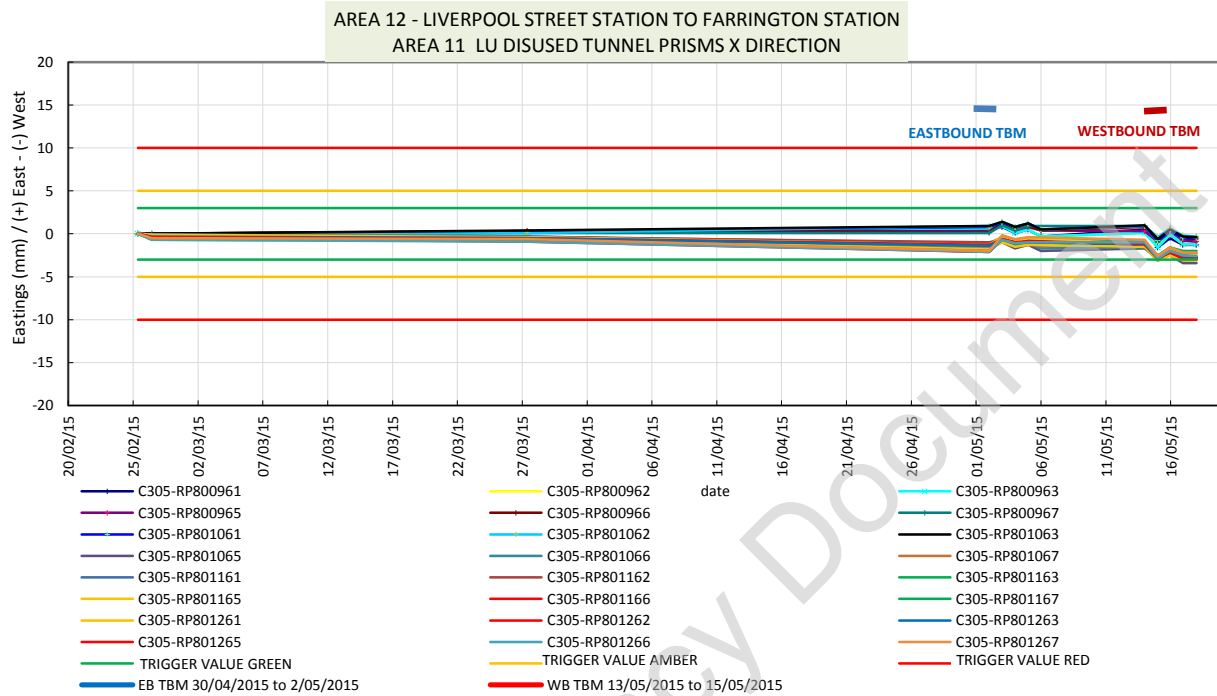
C305-RP801361 to C305-RP801667 (AREA 10)

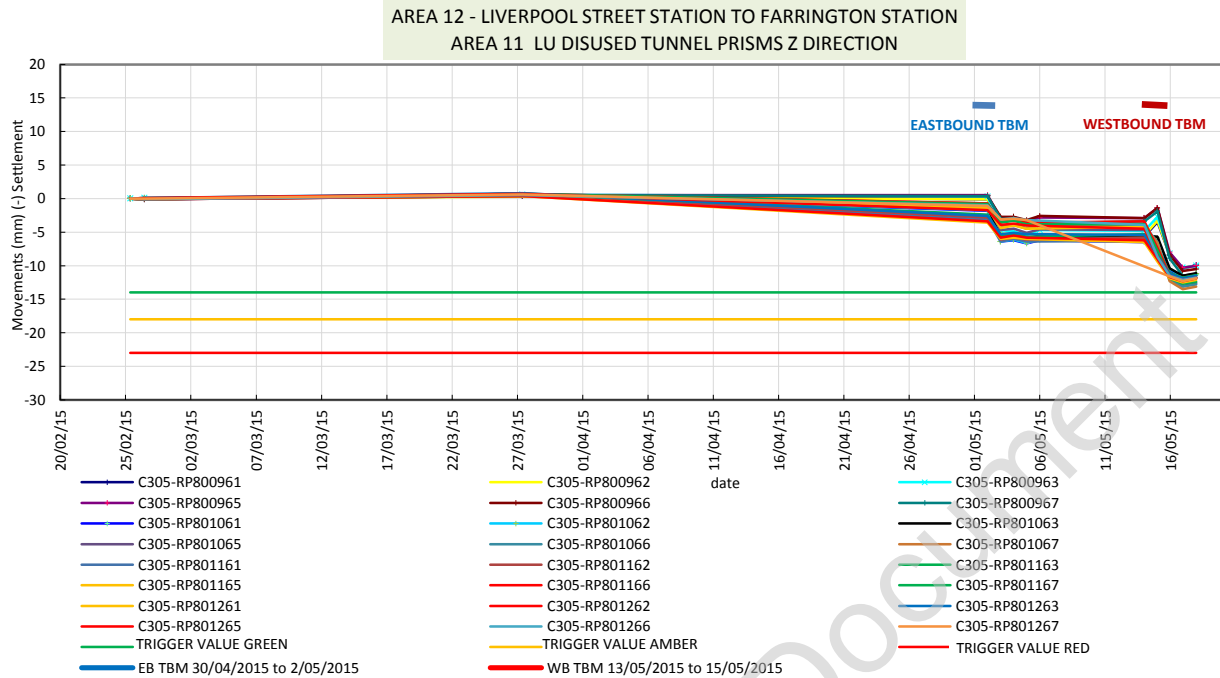




Prisms in this area have recorded a maximum settlement around of 13.6mm after Westbound TBM passage. No amber or red triggers have been breached for X and Z.

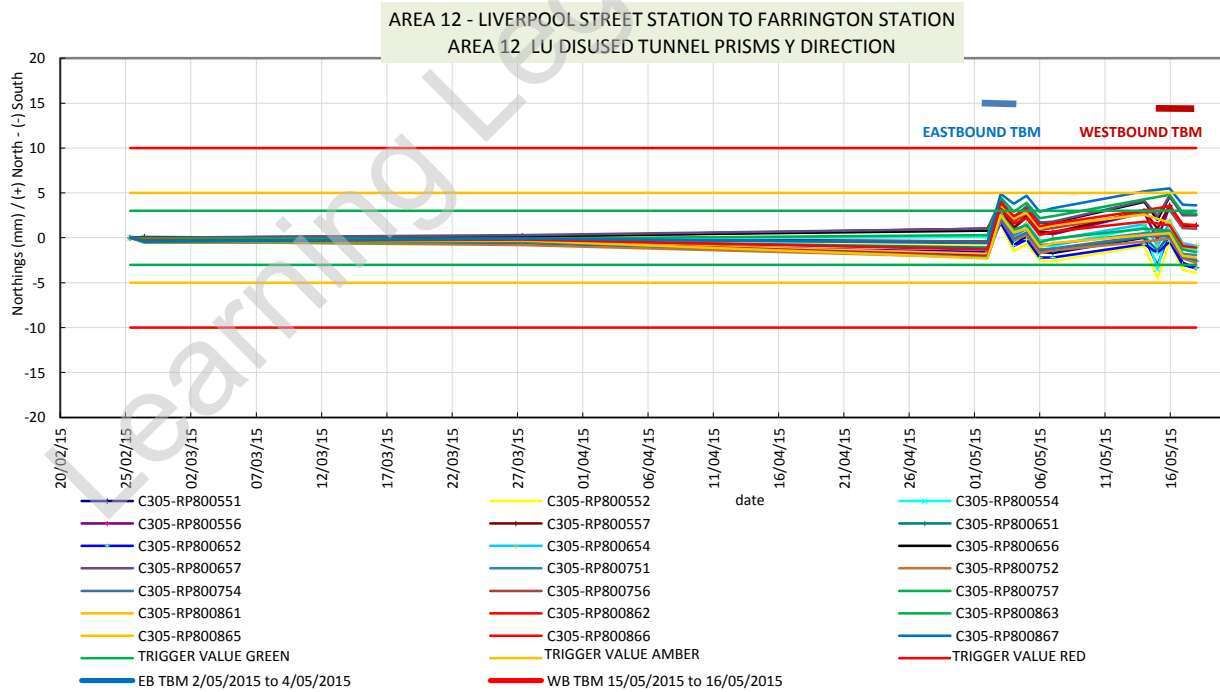
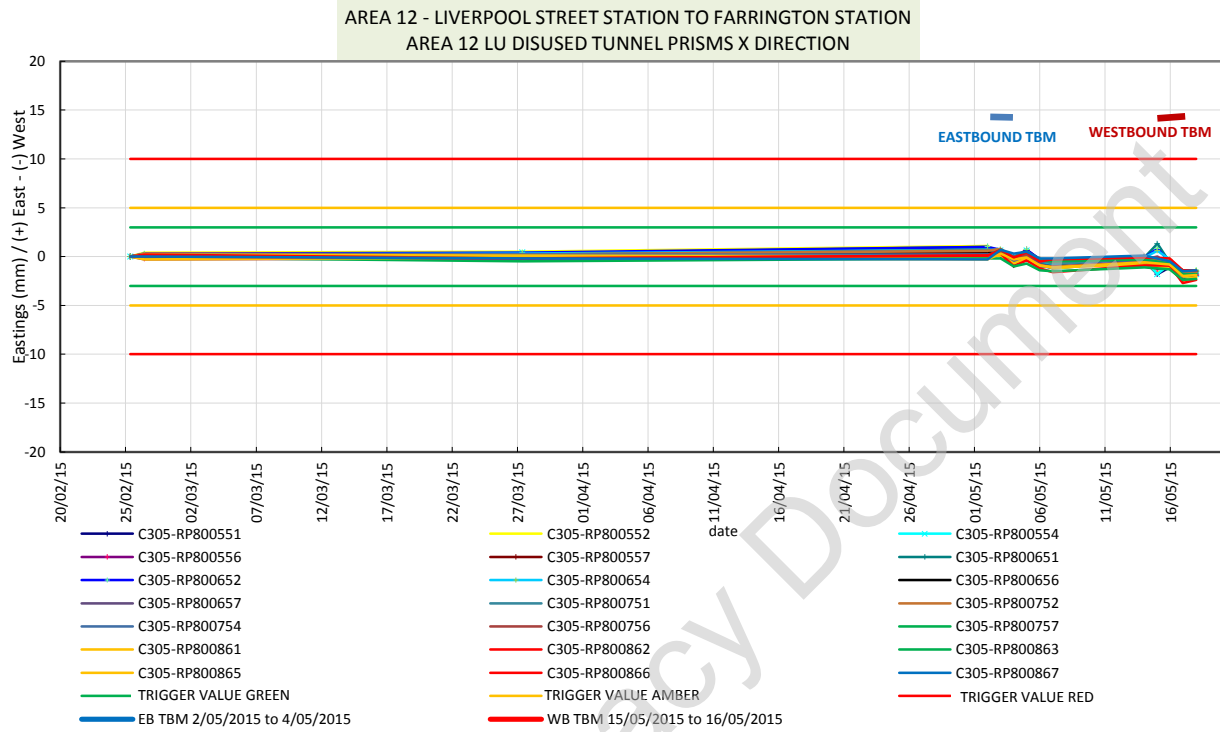
C305-RP800961 to C305-RP801267 (AREA 11)

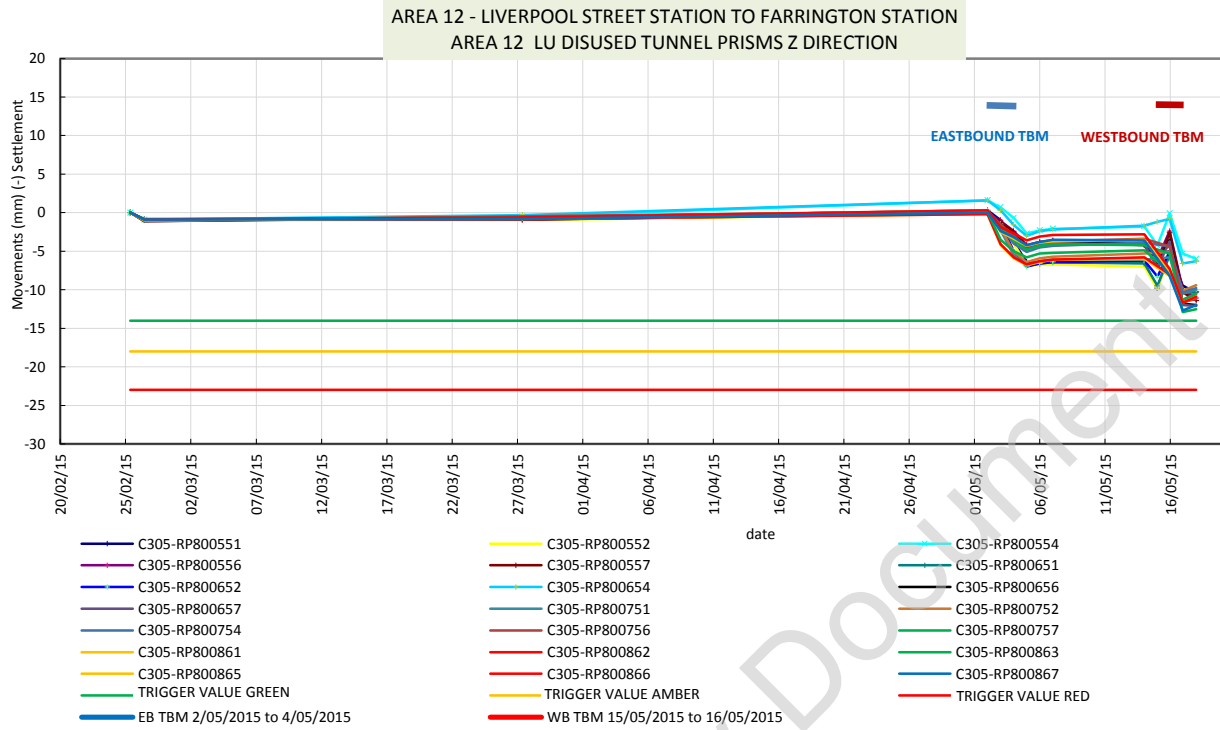




Prisms in this area have recorded a maximum settlement of 13.5mm after Westbound TBM passage. No amber or red triggers have been breached for X and Z.

C305-RP800551 to C305-RP800867 (AREA 12)

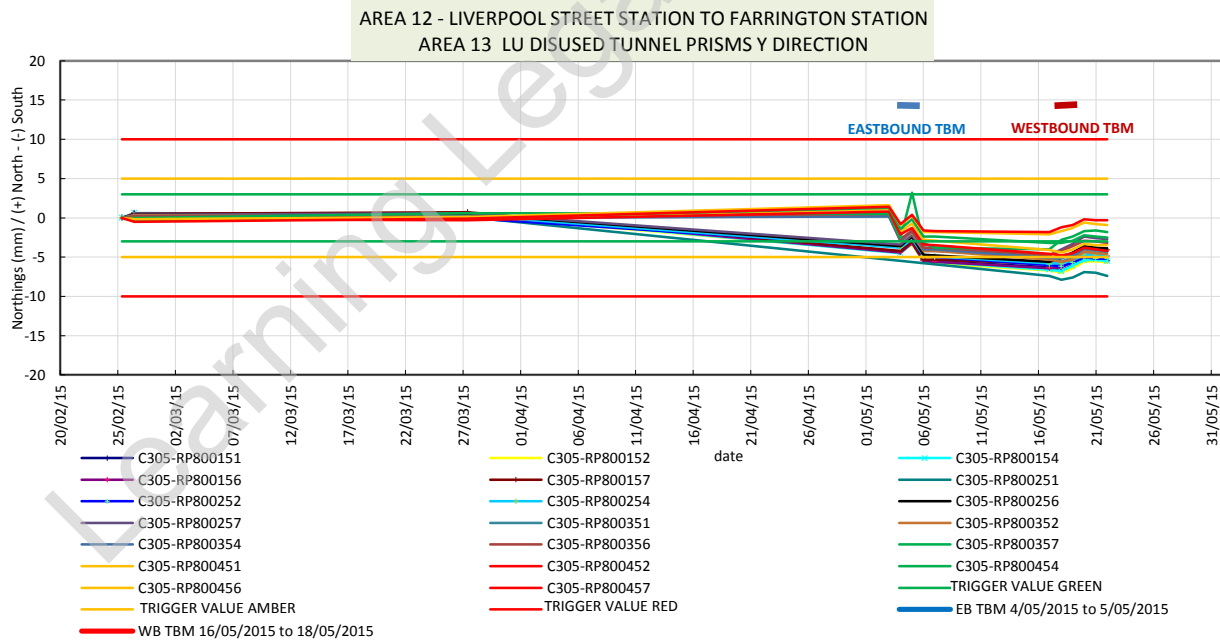
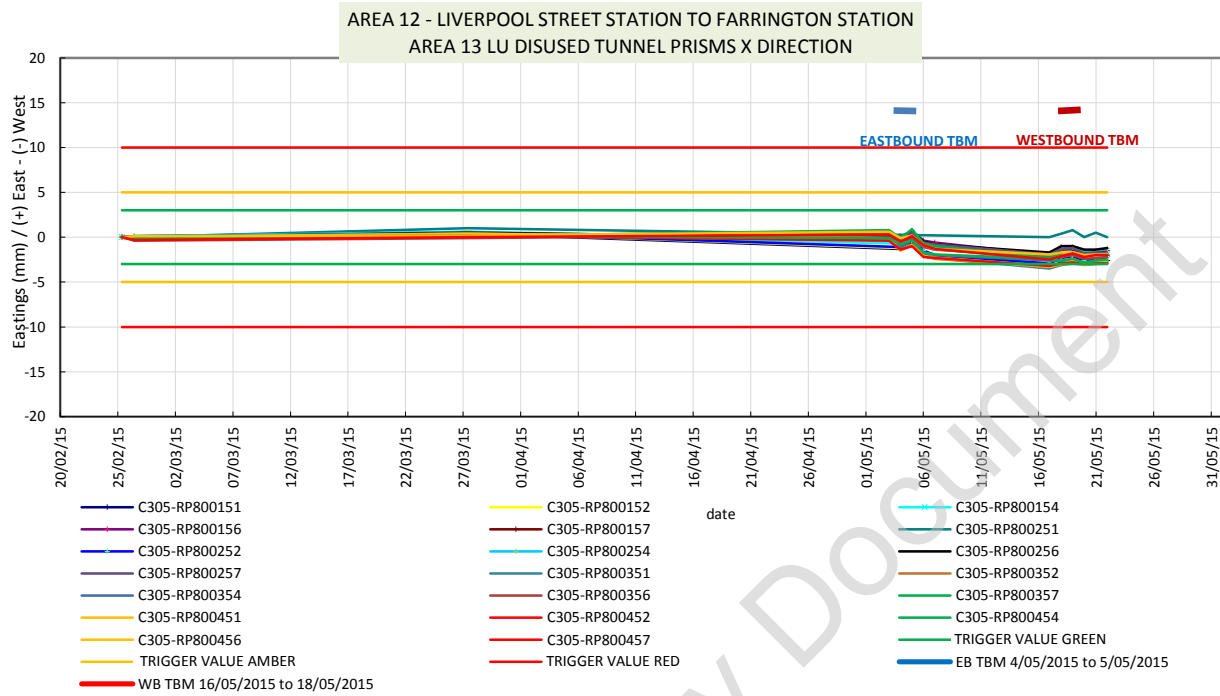


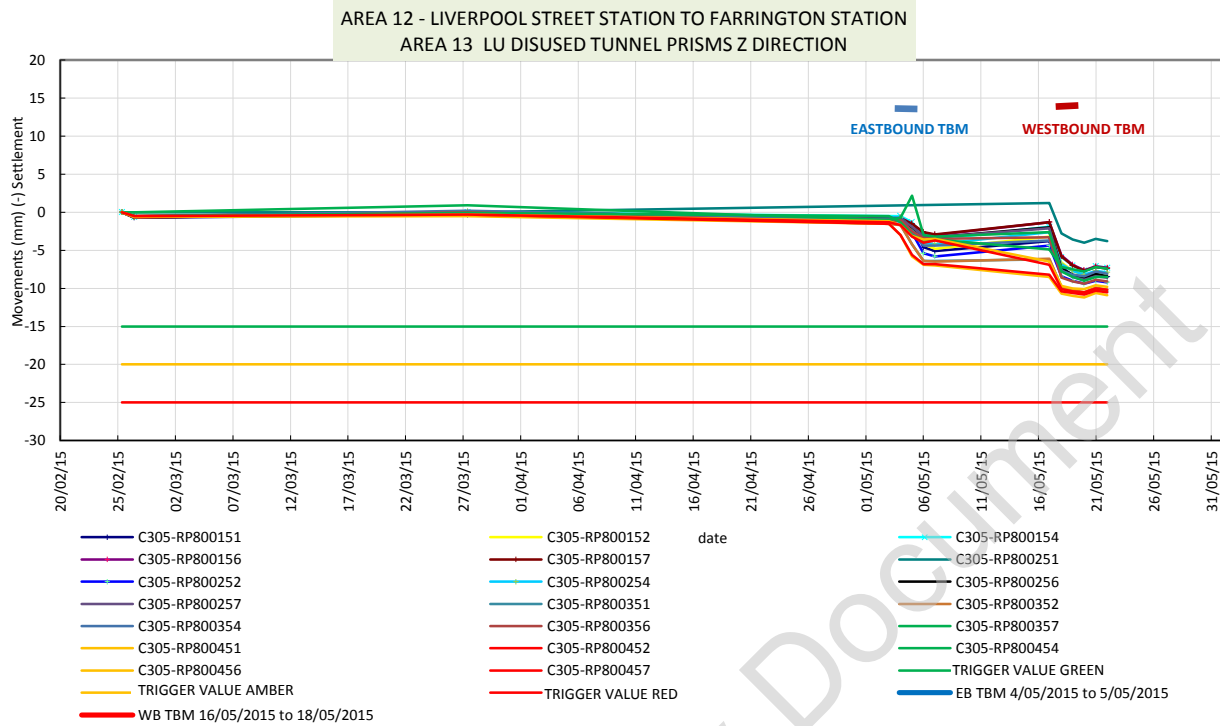


Prisms in this area have recorded a maximum settlement of 12.9mm after Westbound TBM passage.

No amber or red triggers have been breached for X and Z.

C305-RP800151 to C305-RP800457 (AREA 13)





Prisms in this area have recorded a maximum settlement of 11.2mm after Westbound TBM passage.

No amber or red triggers have been breached for X and Z.

8. SUMMARY

Review of both C305 manual verification data and C704 data shows that the impact of the C305 works was within the predictions as per the trigger values specified in the I&M Specific Action Plans listed in the documentation summary of this report (Section 3). Long term movement is at an acceptably small rate, as has been demonstrated in the C704 decommissioning agreements in Appendix A.

Learning Legacy Document

APPENDIX A: DECOMMISSIONING AGREEMENT



Crossrail Delivery – Contract C704


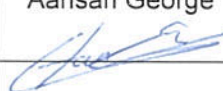
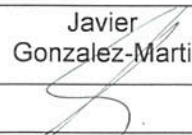

C704 Instrumentation

Decommissioning Agreement

H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

Document Number: C704-XRL-C-AAG-CR088-50001

Document History:

Revision	Date:	Prepared by:	Checked by:	Approved by:	Reason for Issue
1.0	03-11-15	Daniele Cravino	Paul Randall	Mike Groves	CP5a excluded. Issued to LU for approval.
2.0	14-01-16	Daniele Cravino 	Aansan George 	Javier Gonzalez-Marti 	Full scope. Issued to LU for approval.
Formal Acceptance by Chief Engineers Group (CEG)				Accepted by:	
				Mike Black	

This document contains proprietary information. No part of this document may be reproduced without prior written consent from the chief executive of Crossrail Ltd.

C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)
C704-XRL-C-AAG-CR088-50001 Rev2.0

Contents

1 Purpose	3
2 Scope	3
3 Definitions	6
4 The Asset: H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)	6
4.1 Asset Description	7
4.2 Crossrail Works affecting the Asset	9
5 C704 I&M System in LU/17	10
6 Monitoring Results vs. CRL Construction Works	11
7 Assessment of Closeout Trends	12
8 Reference Documents	13
9 Appendices	13

C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)
C704-XRL-C-AAG-CR088-50001 Rev2.0

1 Purpose

Following detailed assessment of the impact of CRL works on the individual assets by C122 and as part of the resulting risk management strategy, a comprehensive Instrumentation & Monitoring (I&M) system has been installed by C704 in a section of the H&C and Metropolitan Line Running Tunnel located between Barbican and Moorgate stations, and in the adjacent Disused Thameslink Tunnel. This LU interface is referred to as LU/17.

The objective of the monitoring regime has been that of automatically and manually monitoring the effects of the excavation-induced movements caused by CRL works on the Asset.

C704 I&M system has been installed in advance of CRL construction activities to record necessary background monitoring data. Currently C704 provide monitoring data from the system.

The latest CRL work that affected the western part of the Asset was the C305 Westbound TBM drive passing between the end of April and the end of May 2015.

This document aims to provide a basis on which all relevant parties can agree on C704 full decommissioning of the automatic I&M system from the Asset. In rev 1.0 of the document (early November 2015), it was proposed to decommission only the western half of the system while the remaining eastern portion was to be left in place to monitor the impact of the construction works associated with Cross Passage CP5a (by C305). These works have been completed in December 2015 so decommissioning of the remaining eastern half of the system is now under consideration.

Given its purpose, the document has been intentionally drafted by C704 as a high level reference summary to be used by decision makers and not as a detailed technical report. Comments have been provided on the quality and the reliability of the data collected, but any engineering considerations with regards to the impact induced by CRL works on the Assets and to the residual risk (associated with long term movements/deformations) to the Assets will be provided by the Main Contractors' close-out/final reports in consultation with CRL.

2 Scope

This document covers the extent of the H&C and Metropolitan Line Running Tunnel, and adjacent Disused Thameslink Tunnel (former NR line), located between Barbican and Moorgate Stations and within the predicted zone of influence of CRL works. This LU interface is referred to as LU/17 as defined in C704 Affected Property List.

The scope of the installation is defined by the *Preliminary Instrumentation & Monitoring Plan for LU Infrastructure* C122-OVE-C2-TPL-CRG03-00003 and by I&M drawings C122-OVE-C2-DDA-CR001_Z-31112 and C122-OVE-C2-DDB-CR001_Z-32018 (see Appendix A).

LU/17 includes the portion of the H&C and Metropolitan Line running tunnel, and adjacent Disused Thameslink tunnel, that extend between Barbican and Moorgate Stations (see Figure 1 below):

- Eastbound: M134/MOR0000 to M134/MOR0510
- Westbound: M134/MIR0000 to M134/MIR0504

C704 Instrumentation – Decommissioning Agreement

H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

The detailed Asset breakdown, listing the single assets (reinforced concrete covered ways, brick arched tunnels, tracks, drainages, line services, girderings and others) with their associated LCS codes, is presented in C122 Assessment of Ground Movement Effects: LU/17 Metropolitan Line: Barbican to Moorgate including former NR Line (C122-OVE-C2-RAN-M135-00003) and shown in Figure 2 below.

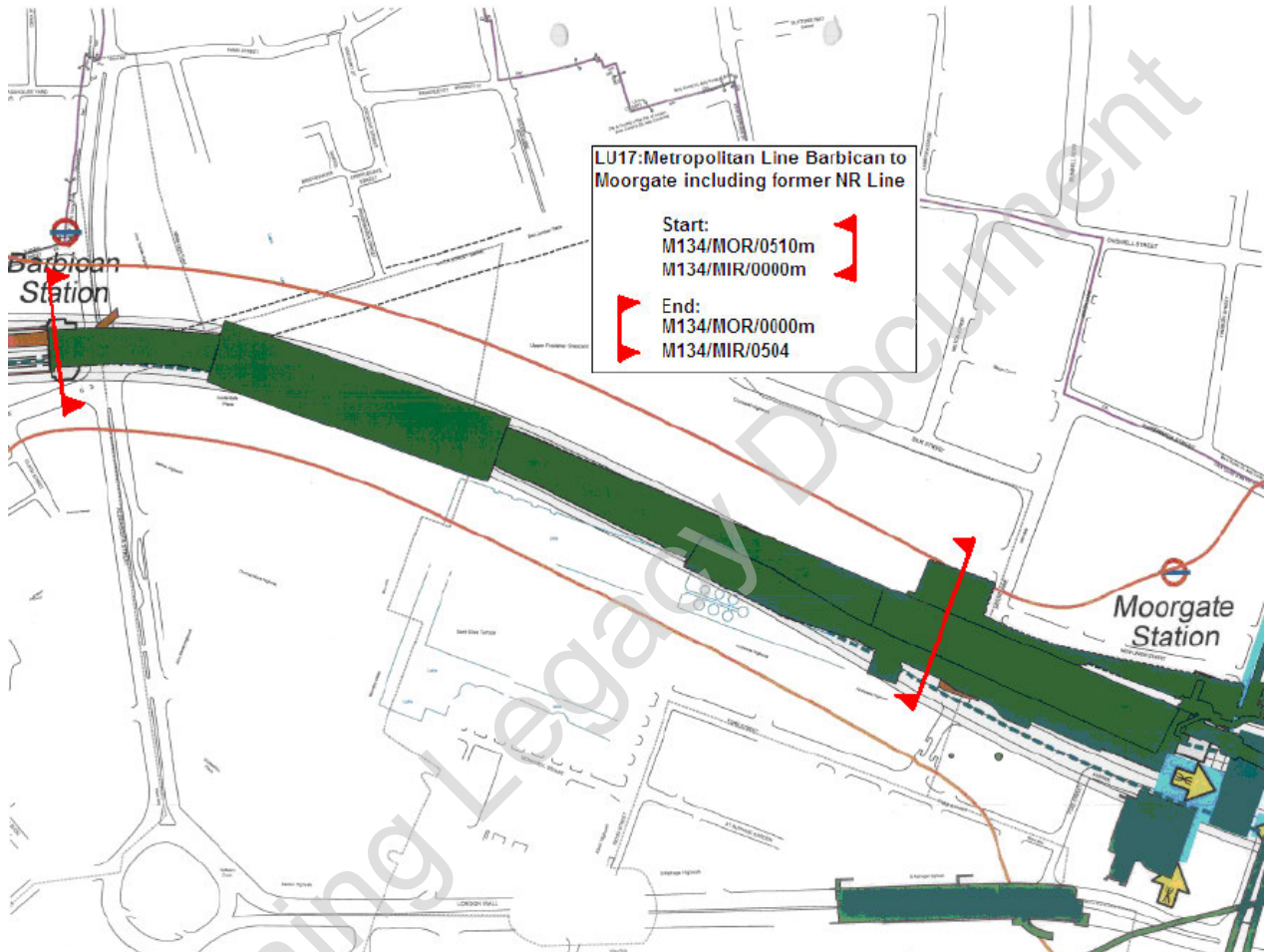


Figure 1: The extent of LU/17 (H&C and Metropolitan Line Barbican to Moorgate, including the former Network Rail Line). CRL Zone of Influence is defined by the predicted 1mm greenfield ground surface settlement contour (red line).

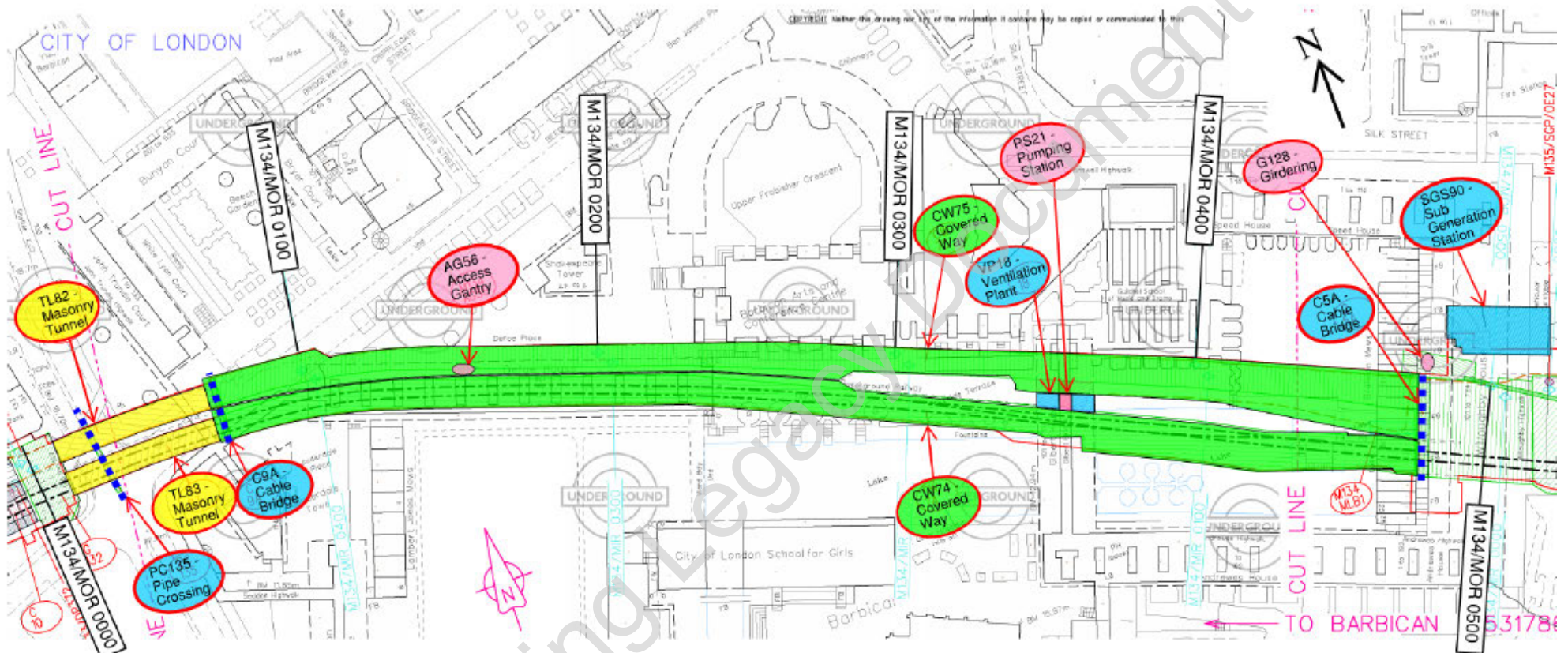


Figure 2: LU assets included in interface LU/17 (taken from C122 Assessment of Ground Movement Effects: LU/17 Metropolitan Line: Barbican to Moorgate including former NR Line (C122-OVE-C2-RAN-M135-00003)).

C704 Instrumentation - Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev 2.0

3 Definitions

Asset	Specific LU interface (LU/17) covered by this document that comprises the section of the H&C and Metropolitan Line Running Tunnel located between Barbican and Moorgate Stations and within the predicted zone of influence of CRL works, and adjacent Disused Thameslink Tunnel (former NR line).
CRL	Crossrail.
C122	CRL Contract that assessed excavation-induced ground movements and acts as Designer of C701/C704 I&M systems. C122 are involved in the assessment of stability of post-construction monitoring data.
C701	CRL Contract responsible for the installation and maintenance of the automatic I&M system installed in the Asset under consideration.
C704	CRL Contract currently responsible for the maintenance and decommissioning of the automatic I&M system installed by C701 in the Asset under consideration. Power isolation between power source and the power and communications enclosure will be carried out by LUL.
I&M	Instrumentation & Monitoring.
LUL	London Underground Limited.
Predicted zone of influence of Crossrail works	Area located within the predicted 1mm greenfield ground surface settlement contour associated with CRL works.
Relevant parties	Parties requested to formally agree decommissioning of the automatic I&M system presented in this document: <ul style="list-style-type: none">- <i>London Underground Limited (LUL);</i>- <i>CRL Chief Engineers Group (CEG).</i>

4 The Asset: H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

The following sections comprise a brief description of of the Asset under consideration, as defined in Section 3. A brief presentation of the CRL works that have affected this asset is also included.

Further details for LU/17 are included in *C122 Assessment of Ground Movement Effects: LU/17 Metropolitan Line: Barbican to Moorgate including former NR Line (C122-OVE-C2-RAN-M135-*

Document uncontrolled once printed. All controlled documents are saved on the CRL Document System

© Crossrail Limited

CRL RESTRICTED

Document Template: CRL1-XRL-Z3-ZFM-CR001_Z-50001

C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

00003) where results of the analytical assessment carried out by C122 in September 2012 are presented.

4.1 Asset Description

As shown in Figure 1 above, the area under consideration is the portion of the H&C and Metropolitan Line running tunnel, and adjacent Disused Thameslink tunnel (former NR line), that extend between Barbican and Moorgate Stations:

- Eastbound: M134/MOR0000 to M134/MOR0510
- Westbound: M134/MIR0000 to M134/MIR0504

The HMC lines tunnel the Eastbound and Westbound tracks running from Barbican station passing underneath the Barbican Redevelopment to Moorgate stations. The HMC lines tunnels were constructed using the cut-and-cover technique, with a minimum cover of 0.6m above the tunnel crown. The shallowest part of the tunnel is located to the east of Barbican where the tunnel passes underneath Aldersgate Street.

A large section of the original masonry tunnels were replaced with a concrete box structure prior to the Barbican Development construction. A 67m section of the original twin masonry tunnels remains immediately to the west of Moorgate Station.

4.1.1 Masonry tunnels

The twin masonry tunnels TL82 and TL83 carry the HMC lines and the former Thameslink respectively. The location of these is shown in Figure 2 and a typical cross section is shown in Figure 3.

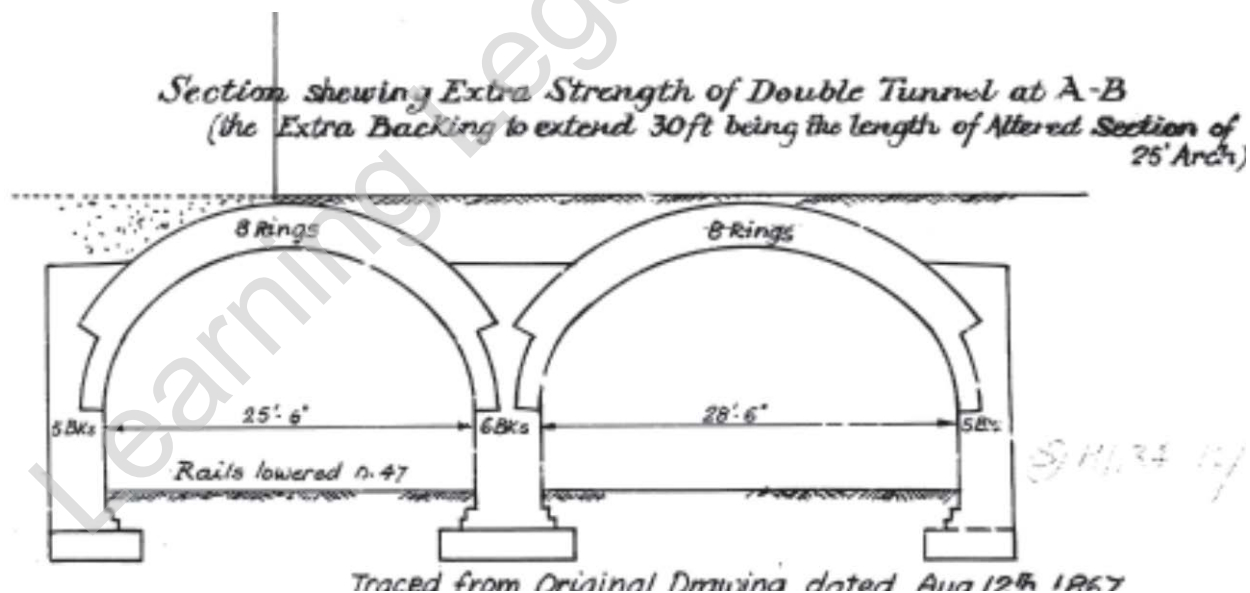


Figure 3: Cross-section of the LU masonry brick arch tunnels between Barbican and Moorgate stations (taken from C122 Assessment of Ground Movement Effects: LU/17 Metropolitan Line: Barbican to Moorgate including former NR Line (C122-OVE-C2-RAN-M135-00003)).

C704 Instrumentation – Decommissioning Agreement

H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

The crown arch of the masonry tunnels is of semi-circular shape; comprising a 0.69m thick (six-ring) stock brick arch barrel springing from vertical brick side walls. Over an approximately 10m length, the thickness increases to an eight-ring barrel to accommodate the intrusion of a distillery building above. The tunnels have a uniform cross-section between LU Barbican station and the adjacent covered way section. It is shown on archived construction drawings that the vertical brick side walls were founded on brick/mass concrete abutments. Historical drawings indicate that the masonry tunnel is non-inverted.

The internal spans of the HMC lines and the former Thameslink tunnels are 7.77m and 8.69m respectively. The vertical clearance between the track level and the tunnel crown for both tunnels is approximately 5.05m. The distance between the track level and the underside of the tunnel wall abutments is approximately 1.5m. At the deepest location, the distance between the track level and the existing ground surface is approximately 8.1m.

4.1.2 Covered way

The concrete box structure was built during the Barbican Development construction in 1965 to 1966. It is 430m in length, extending the tunnel section east away from Barbican Station to the Moorgate station platforms. The in-situ concrete walls are founded on rows of under-reamed piles and the covered way shares this piled foundation with the building structures above the railway which form the Barbican Development.

The majority of the rail track in the vicinity of the Barbican Centre is carried on an antivibration bridging slab. The structure supporting the rail track over this section is carried on rubber bearings to reduce vibrations transferring into the surrounding structure.

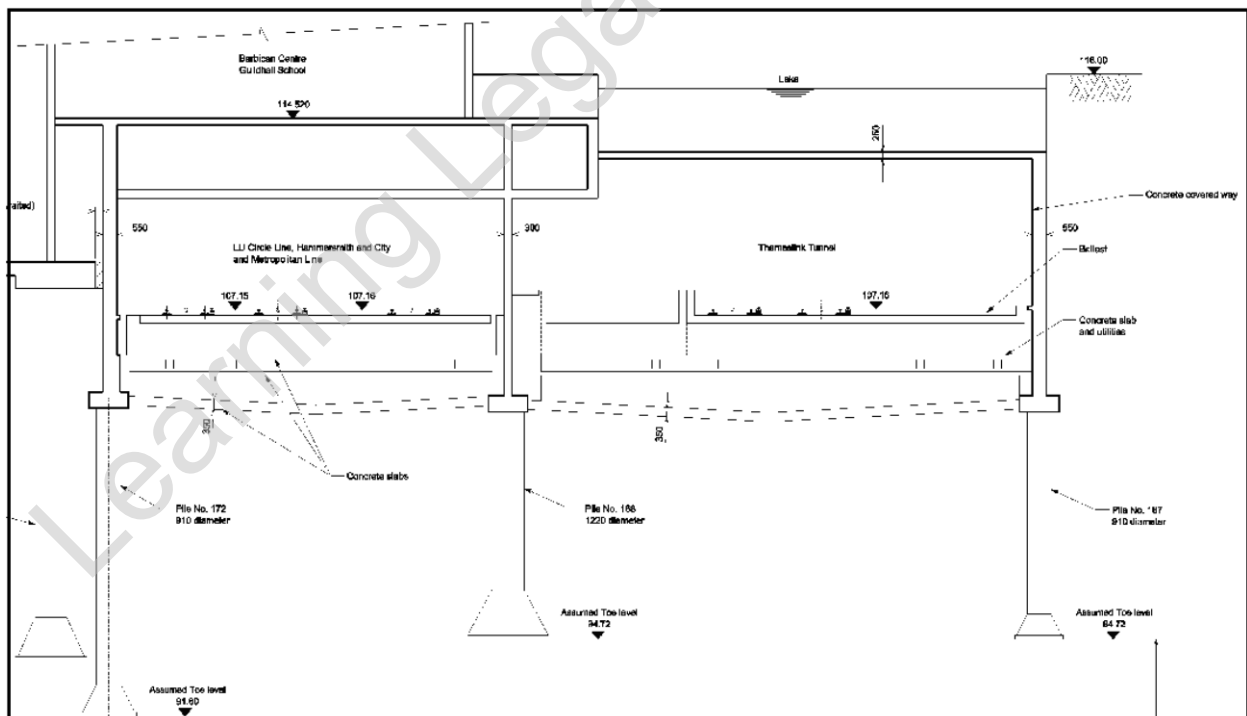


Figure 4: Cross-section of the LU HMC lines covered way CW75 and CW74 (taken from C122 Assessment of Ground Movement Effects: LU/17 Metropolitan Line: Barbican to Moorgate including former NR Line (C122-OVE-C2-RAN-M135-00003)).

C704 Instrumentation – Decommissioning Agreement

H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

The soffit to the covered way comprises of a combination pre-cast concrete slabs and insitu concrete slab. The soffit in this area steps regularly to compensate for the fall of the track level. See typical cross section in Figure 4 above. At the eastern end the CW75 structure widens to make room for two additional tracks (tracks 3 and 4) and a central support wall is introduced.

4.2 Crossrail Works affecting the Asset

As shown in Figure 5 below, the CRL works that have affected LU/17 comprise the construction of 6.8m outer diameter segmental concrete lining tunnels east of Liverpool Street station (Westbound and Eastbound) by C305.

The CRL EB running tunnel passed beneath the HMC lines tunnel with a minimum offset of 14m approximately (to the north), whereas the WB running tunnel crossed the HMC lines tunnel.

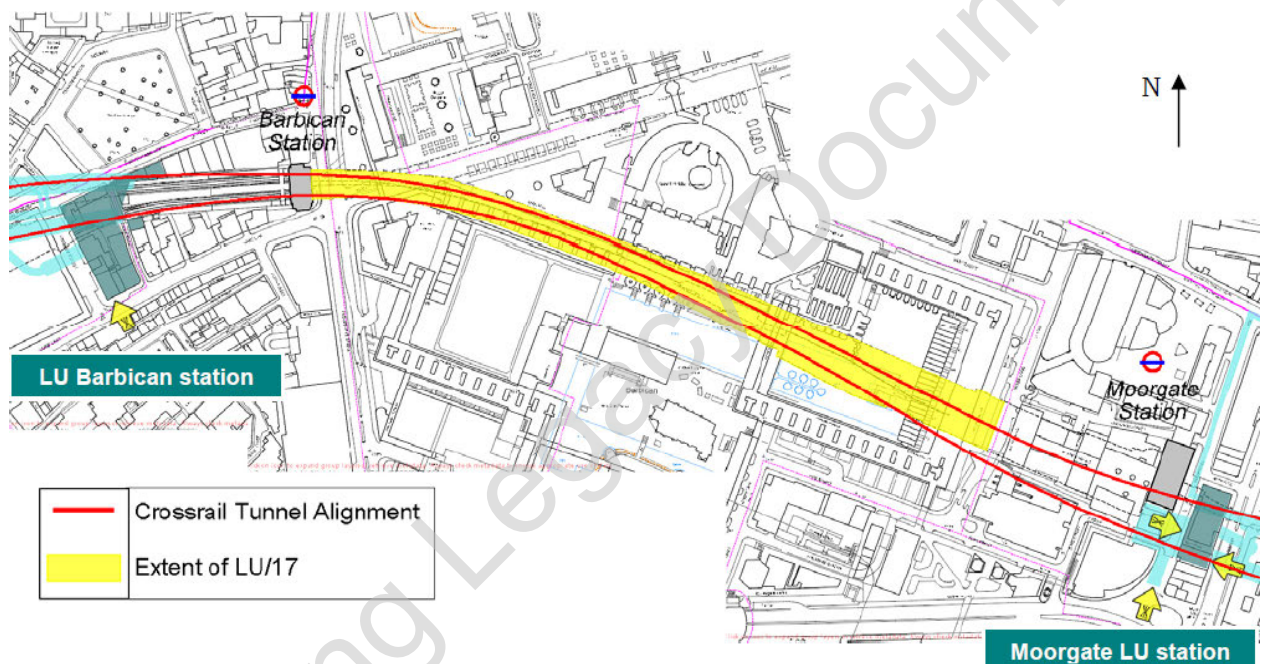


Figure 5: Location Plan for LU/17 in relation to CRL TBM tunnels alignment. Cross Passage CP5a is not shown on this plan (see Appendix C).

Additionally to the twin TBM tunnels, the eastern part of LU/17 was affected also by the construction works for Cross Passage CP5a (October to December 2015).

In rev 1.0 of this document (early November 2015), it was proposed to decommission only the western half of the system while the remaining eastern portion was to be left in place to monitor the impact of these late works by C305. The plan in Appendix C presents the predicted Zol associated with CP5a works (approx. 100m wide either side of the cross passage) and the part of C704 RTS automatic network that has remained live to monitor these activities. Additionally, all of the prisms installed within the predicted Zol associated with CP5a works in the Disused Thameslink tunnel (surveyed manually by C305, SETUP01 to SETUP06 on the as-built drawing in Appendix B) were left in place to monitor these works.

CP5a works have been completed so decommissioning of the remaining eastern half of the system is now proposed.

C704 Instrumentation – Decommissioning Agreement

H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

The methodology used to assess the predicted impact of CRL works on LU/17 and a summary of the results of these assessments are presented in *C122 Assessment of Ground Movement Effects: LU/17 Metropolitan Line: Barbican to Moorgate including former NR Line* (C122-OVE-C2-RAN-M135-00003).

5 C704 I&M System in LU/17

The automatic and manual I&M system to be installed in the assets under consideration was specified on drawings C122-OVE-C2-DDA-CR001_Z-31112 and C122-OVE-C2-DDB-CR001_Z-32018.

Monitoring frequencies and trigger values were specified in *Design Consultant Framework Contract C122 – Bored Tunnels: Instrumentation and Monitoring Plan: LU/17 Metropolitan Line: Barbican to Moorgate including former NR line* (C122-OVE-C2-RGN-M135-50002).

The installation of this system in LU/17 has been carried out by C704 in August to November 2014.

As described in detail in C704-SOL-C2-RGN-CR088-50062, C704-SOL-C2-RGN-CR088-50053 and C704-SOL-C2-RGN-CR088-50083 (C704 Installation Reports for LU/17), the I&M system installed in the portion of the H&C and Metropolitan Line running tunnel, and adjacent Disused Thameslink tunnel (former NR line), that extend between Barbican and Moorgate Stations comprises of the following:

- 8 No. Robotic Total Stations (BTM01 to BTM08) in the H&C and Metropolitan Line running tunnel.
- 574 No. Structural Prisms (287 No. per tunnel).
- 63 No. 360° Prisms (15 No. in the H&C and Metropolitan Line running tunnel, 48 No. in the Disused Thameslink tunnel).
- 2 No. Control Boxes (1 no. on Moorgate station platform 1 and 1 no. on Barbican station platform 1).
- 4 no. Power Enclosures (2 no. on each station platform).
- Converters/junction boxes and power/data cabling at various locations within the running tunnels.

It should be noted that the prisms highlighted in the snapshot in Appendix B were installed under C701 as part of the installation at Barbican station (LU/16) but they were not commissioned at that stage as they were not used to monitor station works. Later on, ahead of C305 TBM tunnelling, C704 have completed the installation between Barbican to Moorgate but these prisms were not included in C704 Installation Report as at that time they were already in place. These prisms are visible on UCIMS and will be also decommissioned. They will be listed in the Decommissioning Report to be produced by C704 following completion of decommissioning works on LU/17.

Further details are included in C701-ITM-C-TPL-C101-00001 (C701 Method Statement for LU/17).

Given the late works for CP5a, in rev 1.0 of this document (early November 2015) it was proposed to decommission only the western half of the system while the remaining eastern portion was to be left in place to monitor the impact of these late works by C305 (see Section 5).

C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

CP5a works have been completed in December 2015 so decommissioning of the remaining eastern half of the system is now proposed.

6 Monitoring Results vs. CRL Construction Works

Design Consultant Framework Contract C122 – Bored Tunnels: Instrumentation and Monitoring Plan: LU/17 Metropolitan Line: Barbican to Moorgate including former NR line (C122-OVE-C2-RGN-M135-50002) presents trigger values for the following purposes:

- Asset protection;
- Construction control;
- Track Geometry and Tunnel Clearance.

The present document has been intentionally drafted by C704 as a high level reference summary to be used by decision makers and not as a detailed technical report. It is not the purpose of this document to analyse in detail the construction monitoring results for all monitored parameters, compare these results with associated trigger values and provide engineering considerations on the impact of CRL works on the Asset. A summary of current trends for LU/17 is presented in Appendix C.

Given the late works for CP5a, in rev 1.0 of this document (early November 2015) it was proposed to decommission only the western half of the system while the remaining eastern portion was to be left in place to monitor the impact of these late works by C305 (see Section 5).

CP5a works have been completed in December 2015 so decommissioning of the remaining eastern half of the system is now proposed.

The last CRL works that have affected the Asset were dated:

- Western half of LU/17:
 - Middle to End of April 2015 (Eastbound TBM drive Y);
 - End of April to End of May 2015 (Westbound TBM drive Y).
- Eastern half of LU/17:
 - October to December 2015 (CP5a).

The construction monitoring data recorded by the automatic systems indicate a clear correlation with these excavation phases. No other CRL activity has had any detectable impact on LU/17.

The data recorded during both construction and closeout monitoring regimes are considered reliable and non construction-related variations are within the expected repeatability for this kind of systems.

The data collected for LU/17 reflect the effect of the movements induced by the TBM drives and by CP5a works on the Asset (see settlement contours and graphs in Appendix D) and they are consistent with the manual monitoring results obtained by C305 (not presented in this document).

The settlement curves associated with the TBM drives are easily identifiable in the data recorded by the automatic optical system, as well as the very limited impact of CP5a works on the eastern half of LU/17.

C704 Instrumentation – Decommissioning Agreement

H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

The maximum cumulative settlement recorded by this automatic system following the the TBM drives was approx. 15mm, while the vertical movement induced by CP5a works was minimum and very close to the achievable accuracy of this optical system.

The post-construction data collected over the last months for the Western half of LU/17 highlight a general stabilisation, with recorded vertical movements that are below the 2mm/year limit (see settlement contour plots in Appendix D).

The construction data collected for the Eastern half shows a very limited impact of CP5a works, very close to the achievable accuracy of this optical system, and the post-construction data do not highlight any significant ongoing trend of movement.

7 Assessment of Closeout Trends

Following the Westbound TBM drive (end of April to end of May 2015) and the completion of CP5a works (December 2015), the closeout monitoring regime has been implemented and it is currently on-going.

The requirements in terms of duration/frequency for the closeout automatic monitoring regime (minimum 3 months continuous monitoring) have been exceeded for the Western half of LU/17. For the Eastern half, CP5a works have been completed in December 2015.

As highlighted in Section 7 and presented in Appendix D, the signature of the TBM excavation phases is clearly identifiable in the construction monitoring data of the automatic optical system installed in the running tunnel. The impact of CP5a works on the Eastern half is however very limited with settlement that is very close to the achievable accuracy of this optical system.

Current closeout trends for the Western half of LU/17 highlight a general stabilization with residual (post-construction) variations that are within the accuracy of the monitoring system and lower than the 2mm/year criterion defined by C122 as the trigger for decommissioning (see graphs in Appendix D). The construction data for the Eastern half show a very limited impact of CP5a works, and the post-construction data do not highlight any significant ongoing trend of movement.

Moreover, the movements recorded during and after the TBM drives and CP5a works are well below the predicted values and the trigger values established before construction.

Given the late works for CP5a, in rev 1.0 of this document (early November 2015) it was proposed to decommission only the western half of the system while the remaining eastern portion was to be left in place to monitor the impact of these late works by C305 (see Section 5). CP5a works have been completed in December 2015 so, based on the trends described above, it is now proposed to decommission the remaining eastern portion of the system.

It should be noted that the automatic optical system installed in LU/17 is part of the wider network that extends from the eastern end of Liverpool Street Station up to Farringdon Station. The decommissioning of the network installed in LU/17 will not compromise the performance of the remaining section that will be decommissioned at later stages depending on the specific requirements.

C704 Instrumentation - Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev 2.0

8 Reference Documents

- C122-OVE-C2-TPL-CRG03-00003 (Preliminary Instrumentation & Monitoring Plan for LU Infrastructure)
- C704-SOL-O1-GMS-CR088-50001 (C701 Method Statement for LU/17)
- C704-SOL-C2-RGN-CR088-50062, C704-SOL-C2-RGN-CR088-50053 and C704-SOL-C2-RGN-CR088-50083 (C704 Installation Reports for LU/17)
- C122-OVE-C2-RGN-M135-50001 (C122 Inspection for Analytical Assessment for LU/17)
- C122-OVE-C2-RAN-M135-00003 (C122 Ground Movement Assessment for LU/17)
- C122-OVE-C2-RGN-M135-50002 (C122 I&M Plan for LU/17)
- C122-OVE-C2-DDA-CR001_Z-31112 and C122-OVE-C2-DDB-CR001_Z-32018 (C122 I&M Drawings)

9 Appendices

Appendix A – I&M Drawing

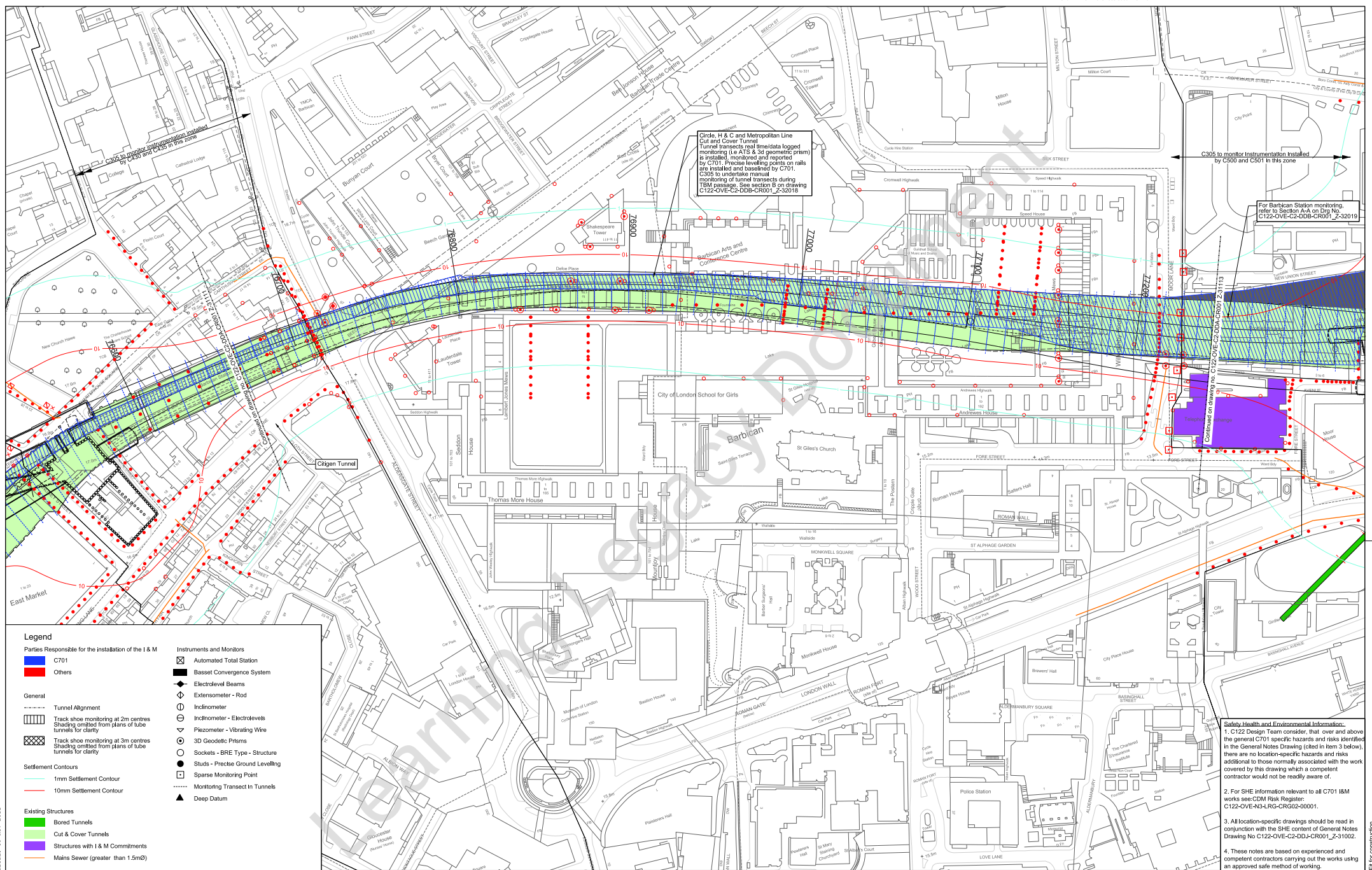
Appendix B – I&M As-Built Drawing – Scope for Full Decommissioning (December 2015)

Appendix C – Scope for Partial Decommissioning (November 2015)

Appendix D – Summary of monitoring results for LU/17

APPENDIX A

Learning Legacy Document



Circle, H & C and Metropolitan Line Cut and Cover Tunnel
Tunnel transects real time data logged monitoring i.e. ATS & 3d geometric prism is installed, monitored and reported by C701. Precise levelling points on rails are installed and baselined by C701. C305 to undertake manual monitoring of tunnel transects during TEM passage. See section B on drawing C122-OVE-C2-DBB-CR001_Z-32018

C305 to monitor instrumentation installed by C500 and C501 in this zone
For Barbican Station monitoring refer to Section A-A on Dwg No. C122-OVE-C2-DBB-CR001_Z-32019

Legend

Parties Responsible for the installation of the I & M

- C701
- Others

General

- Tunnel Alignment
- Track shoe monitoring at 2m centres Shading omitted from plans of tube tunnels for clarity
- Track shoe monitoring at 3m centres Shading omitted from plans of tube tunnels for clarity

Settlement Contours

- 1mm Settlement Contour
- 10mm Settlement Contour

Existing Structures

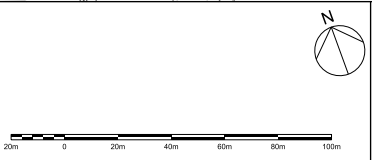
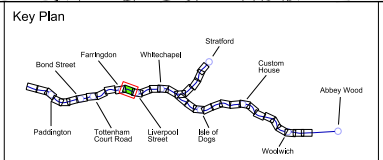
- Bored Tunnels
- Cut & Cover Tunnels
- Structures with I & M Commitments
- Mains Sewer (greater than 1.5m²)

Instruments and Monitors

- Automated Total Station
- Basset Convergence System
- Electrolevel Beams
- Extensometer - Rod
- Inclinometer
- Inclinometer - Electrolevels
- Piezometer - Vibrating Wire
- 3D Geodetic Prisms
- Sockets - BRE Type - Structure
- Studs - Precise Ground Levelling
- Sparse Monitoring Point
- Monitoring Transect in Tunnels
- Deep Datum

Notes

1. For Instrumentation & Monitoring general notes, schedule and monitoring frequency, refer to Drg Nos. C122-OVE-DDJ-CR001_Z-31002 and C122-OVE-DDJ-CR001_Z-31007.



Notes:

1. C122 Design Team consider, that over and above the general C701 specific hazards and risks identified in the General Notes Drawing (cited in item 3 below), there are no location-specific hazards and risks additional to those normally associated with the work covered by this drawing which a competent contractor would not be readily aware of.
2. For SHE information relevant to all C701 I&M works see: CDM Risk Register: C122-OVE-N3-LRG-CR02-00001.
3. All location-specific drawings should be read in conjunction with the SHE content of General Notes Drawing No C122-OVE-C2-DDJ-CR001_Z-31002.
4. These notes are based on experienced and competent contractors carrying out the works using an approved safe method of working.

Contractor: Bored Tunnels (Alignment and Track)
Original: One Arup & Partners Limited
Location: Crossrail General
Title: Instrumentation & Monitoring Combined I & M
Route/Plan Sheet: 12 of 38
C701

Scale: 1:1000 @ A1
Drawing and CAD File No.: C122-OVE-C2-DDA-CR001_Z-31112
Rev: C01
Auth: A

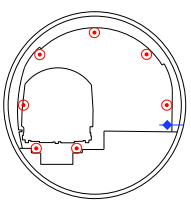
Rev. Date Description

001	08/11/2010	Final Issue	JG	RB	RM	—
002	14/10/2011	Minimum requirement for Instrumentation and Monitoring	AR	JA	SR	—
003	09/11/2011	Issued as fit for construction	AR	JA	SR	IT
Rev.	Date	Description	By	Chkd	App	Auth

Copy Approved for Design - Created: 09/10/2011

Fit for construction
RESTRICTED

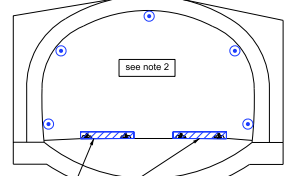
Transects at 10m centres. Track monitoring at 2m centres for LU and 3m centres for NR tracks



Track monitoring at 2m centres installed and baselined by C701. Subsequent monitoring by others. 3D Geodetic prisms at 2m centres installed by C701 and attached to each end of sleeper to be monitored by ATS.

Section A - A

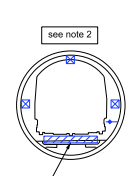
Indicative Cross-Section of LU / TCR Transects



Track monitoring at 2m centres installed and baselined by C701. Subsequent monitoring by others

Section B - B

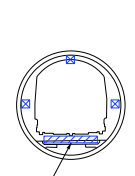
Indicative Cross-Section of cut & cover tunnel



Track monitoring at 2m centres installed and baselined by C701. Subsequent monitoring by others

Section C - C

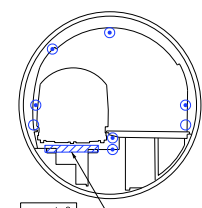
Indicative Cross-Section of LU running tunnel Central, Victoria, Bakerloo, Northern, Jubilee & Piccadilly lines. Electrolevels to be continuous and extend between extents of transects (except in station tunnels)



Track monitoring at 2m centres installed and baselined by C701. Subsequent monitoring by others

Section C1 - C1

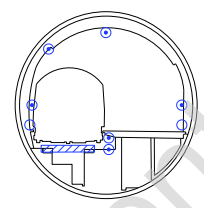
Indicative Cross-Section of LU running tunnel Central Line at Pudding Mill Lane



Track monitoring at 2m centres installed and baselined by C701. Subsequent monitoring by others. 3D Geodetic prisms at 2m centres installed by C701 and attached to each end of sleeper to be monitored by ATS. Platform nosing manually monitored and baselined by C701 using prism.

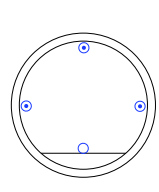
Section D - D

Indicative Cross-Section of LU platform tunnel Central, Northern and Piccadilly lines



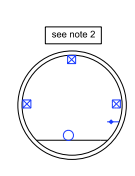
Section D1

Indicative Cross-Section of Northern Line platforms for Moorgate Station



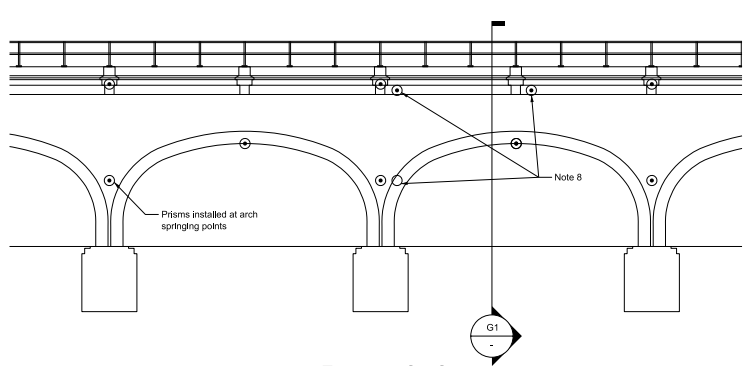
Section E - E

Indicative Cross-Section of BT Statutory Authority Service tunnel, Post Office tunnel and general cable tunnels



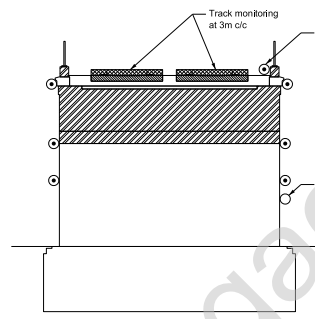
Section F - F

Indicative Cross-Section of Cross passages



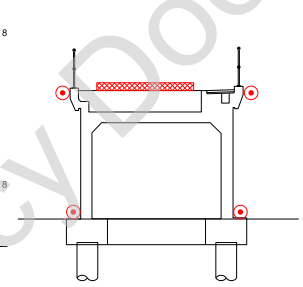
Elevation G - G

Indicative Elevation, masonry arch Viaducts -DLR Limehouse Viaduct, (by others) -NR Tilbury & southern Viaduct (by C701) -LU District Line Viaduct-Bow Road to Bromley by Bow (by C701)



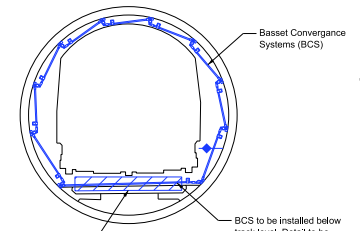
Section G1

Indicative Elevation, masonry arch Viaducts -DLR Limehouse Viaduct, (by others) -NR Tilbury & southern Viaduct (by C701) -LU District Line Viaduct-Bow Road to Bromley by Bow (by C701)



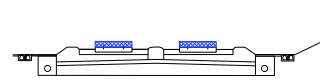
Section J - J

Indicative Cross - Section of DLR Piled Abutments



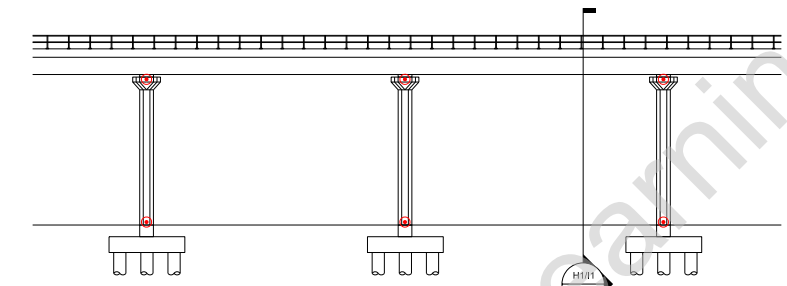
Section K - K

Indicative Cross-Section of LU running tunnel Central, Victoria, Bakerloo, Northern, Jubilee & Piccadilly lines at Basset convergence system location.



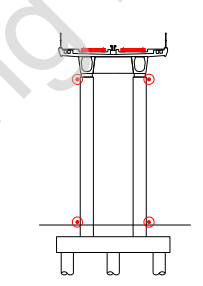
Section L - L

Indicative Cross Section of DLR at grade



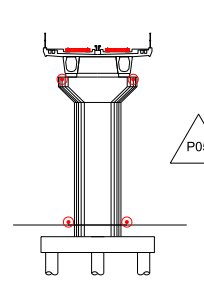
Elevation H - H / I - I

Indicative Elevation, DLR RC Piled Viaduct H-Double RC Columns I-Single RC Column



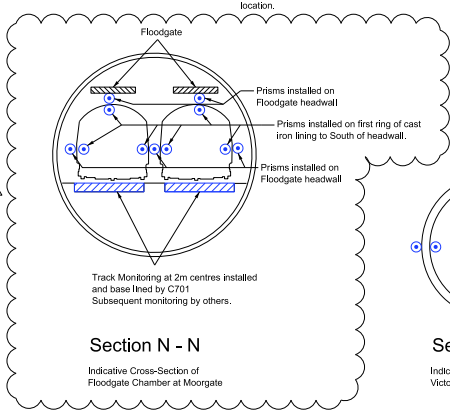
Section H1

Indicative Section, DLR RC Piled Viaduct Double RC Columns



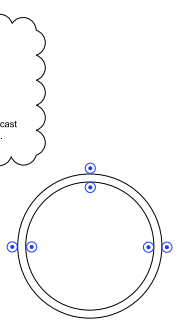
Section I1

Indicative Section, DLR RC Piled Viaduct Single RC Pier



Section N - N

Indicative Cross-Section of Floodgate Chamber at Moorgate



Section M - M

Indicative Cross-Section of Victoria Line headwall transect

Legend	
	Installed and monitored by C701
	By Others
	3D Geodetic Prism (Transects @ 10m c/c)
	Sockets - BRE Type - Structure (Transects @ 10m c/c)
	Track shoe monitoring at 2m centres
	Track shoe monitoring at 3m centres
	Electrolevel Beam
	Retro reflective target

Copy Approved For Design - Created: 15-09-2013

Rev.	Date	Description	By	Chkd	App	Auth
P01	03/11/2010	Final Issue	JG	RB	RM	
P02	25/11/2010		JG	RB	RM	
P03	21/10/2011	Minimum requirement for Instrumentation and Monitoring	AR	JA	SR	
C01	08/11/2011	Issued as FR for construction	AR	JA	SR	IT
P04	24/05/2012	Revised to reflect access issues	GK	DW	RM	-
C02	04/10/2012	Issued as FR for construction	GK	DW	RM	MA
P05	07/10/2012	Issued as FR for construction	GK	JA	RM	-
C03	14/01/2013	Issued as FR for construction	GK	JA	RM	CT

Notes
 1. This drawing is to be read in conjunction with drawing numbers C122-OVE-C2-DDA-CR001_Z-31101 to 31138 inc.
 2. Prisms, BRE sockets electrolevels and retro reflective targets are installed and baselined by C701. Precise track monitoring installed and baselined by C701. Others to carry out subsequent manual monitoring (precise levelling) of tunnel / station transects and track.
 3. Locations of instrumentation are indicative only and subject to confirmation on site by Contractor following verification of location of utilities, obstructions and access.
 4. Prisms, Retro reflective targets to be installed in positions to satisfaction of LU and NR and to avoid risk of reflectance and potential to affect Tube drivers.
 5. Positions of ATS to be selected by C701 and proposed for acceptance of Project Manager.

6. Generic principles of monitoring identified in sections B-B and C-C. Cross sections vary along alignment from Farringdon to Liverpool St and exact configuration should be agreed between C701 and Project Manager. In some instances section B-B of C122-OVE-C2-DDB-CR001_Z-32018 may be more appropriate.
 7. Platform nosing to be marked at 2.0m c/c (LU) or 3.0m c/c (NR) over specified length (in line with the precise levelling points) to show positions for platform train interface surveys.
 8. The instruments shown are to be installed as an alternative to the original scheme. The alternative scheme consists of a prism on the inside face of the parapet, to be monitored with track ATS, and a BRE socket on the external face at each arch support if access is available.



Contract: Bored Tunnels (Alignment and Track)
 Contractor: Ove Arup & Partners Limited
 Location: Crossrail General
 Drawn by: G.KAVANAGH
 Checked: J.APTED
 Approved: R.MCCRAE
 Auth: C.THOMAS
 Scale: NTS @ A1
 Drawing and CAD file No: C122-OVE-C2-DDB-CR001_Z-32018
 Rev: C03
 Substn: A

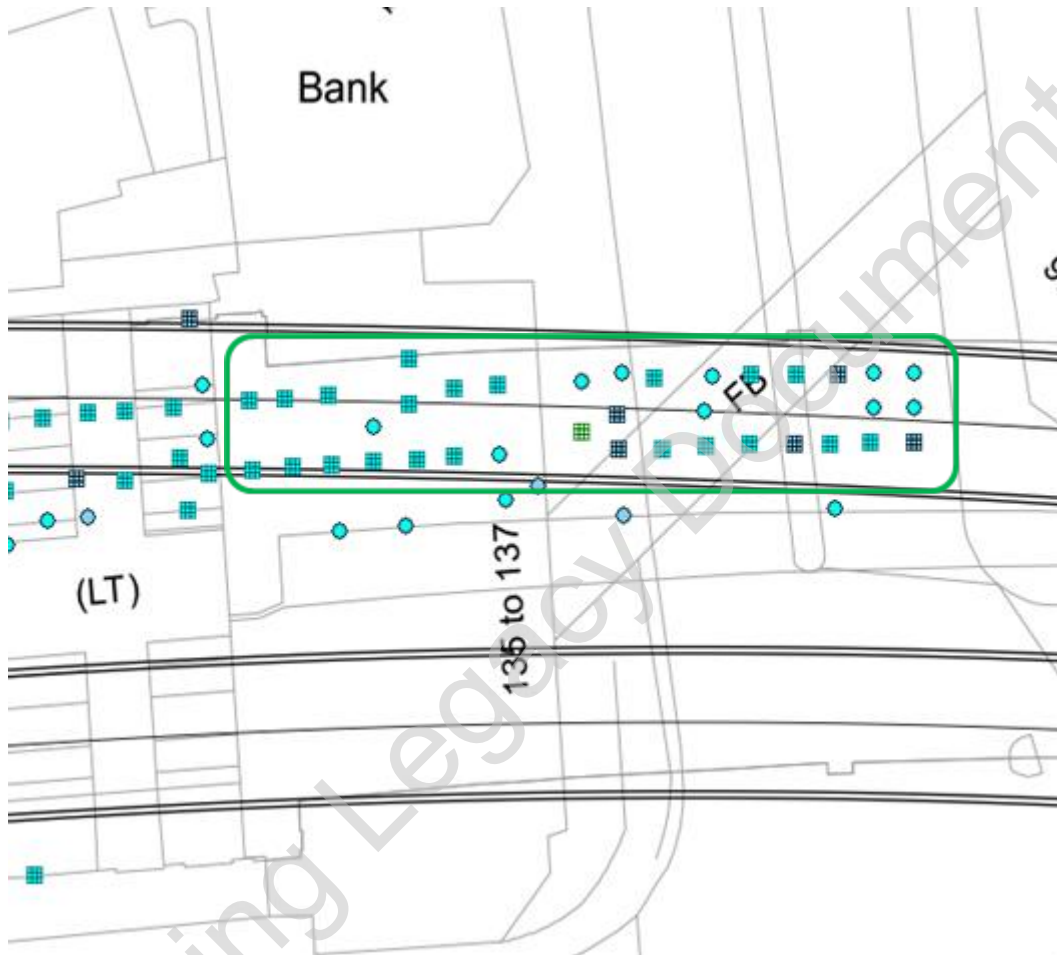
Fit for construction

RESERVED

APPENDIX B

Learning Legacy Document

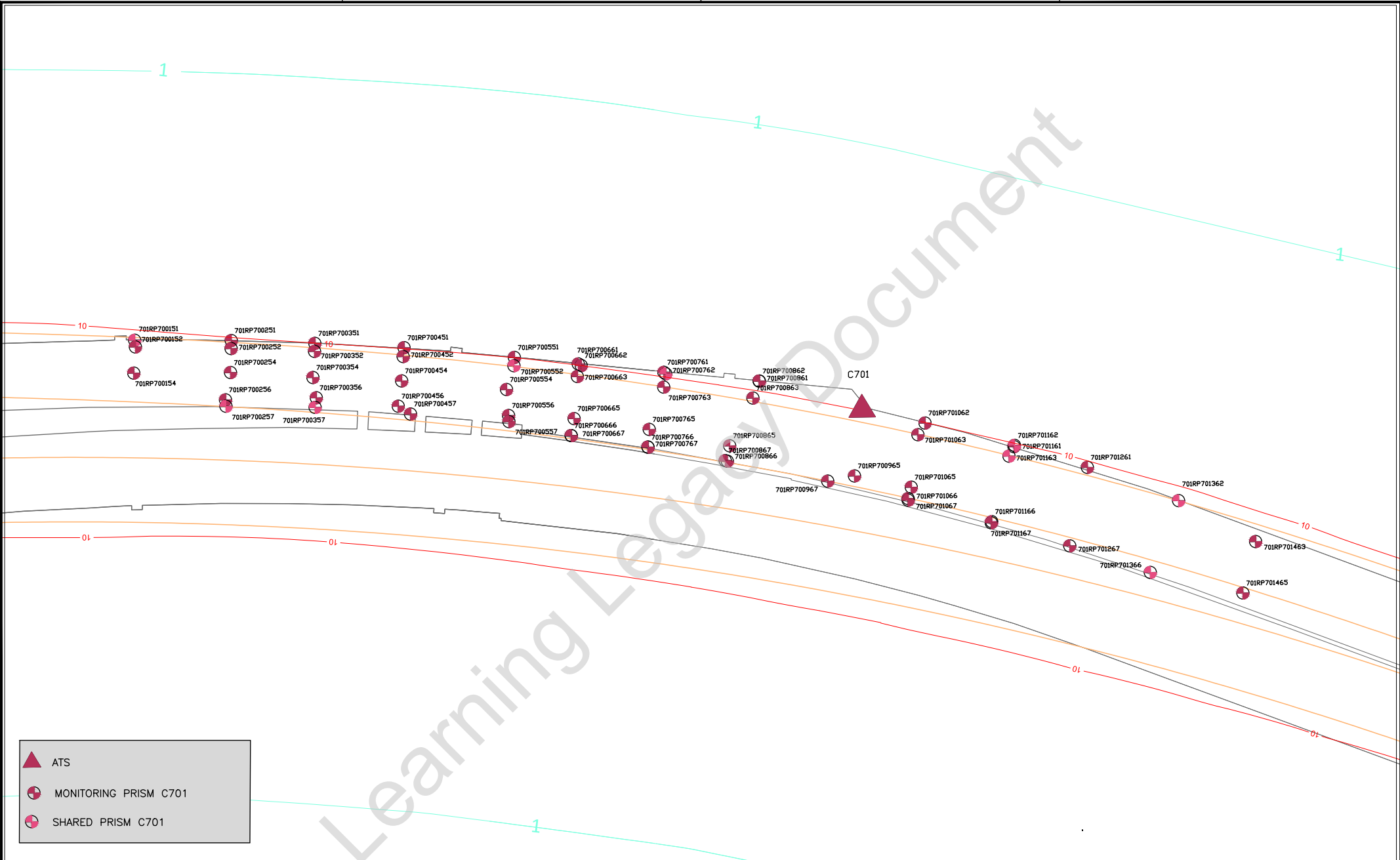
C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)
C704-XRL-C-AAG-CR088-50001 Rev2.0



Additionally to the prisms highlighted in the as-built drawings included in this Appendix (see following pages), those located within the area highlighted in **GREEN** in the picture above (located at the western end of LU/17) are also to be decommissioned.

1 2 3 4

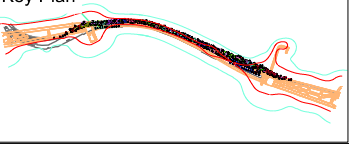
A
B
C
D



ATS
 MONITORING PRISM C701
 SHARED PRISM C701

Notes

Key Plan



Rev	Date	Description	By	Chkd	App
X.X	XX.XX.XX		XX	XX	XX

		Contract C704 Originator SOLDATA Ltd Location BARBICAN TO MOORGATE - RUNNING TUNNEL Title AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATSs (1/13) Scale N.T.S @ A3 Contract C704 - SOL - C2 - DWG - Originator CR088 - Discipline 50005 - Doc Class CR088 - Location 50005 - Dwg Number 2.0	
		By: R.F. Ck: D.M. App: Q.A.	Revision: 2.0



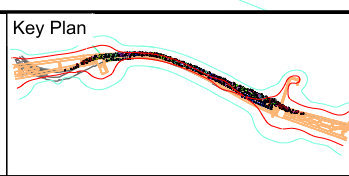
▲ ATS

● MONITORING PRISM C702

● SHARED PRISM C702

Rev	Date	Description	By	Check	App
X.X	XX.XX.XX		XX	XX	XX

Notes



Contract: C704

Originator: SOLDATA Ltd

Location: BARBICAN TO MOORGATE - RUNNING TUNNEL

Title: AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATs (2/13)

Scale: N.T.S @ A3

Contract: C704 - SOL - C2 - DWG - CR088 - 50006

Originator: SOLDATA

Discipline: SOL

Doc Class: CR088

Location: BARBICAN TO MOORGATE - RUNNING TUNNEL

Dwg Number: 50006

Revision: 2.0

Contract: C704

Originator: SOLDATA Ltd

Location: BARBICAN TO MOORGATE - RUNNING TUNNEL

Title: AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATs (2/13)

Scale: N.T.S @ A3

Contract: C704 - SOL - C2 - DWG - CR088 - 50006

Originator: SOLDATA

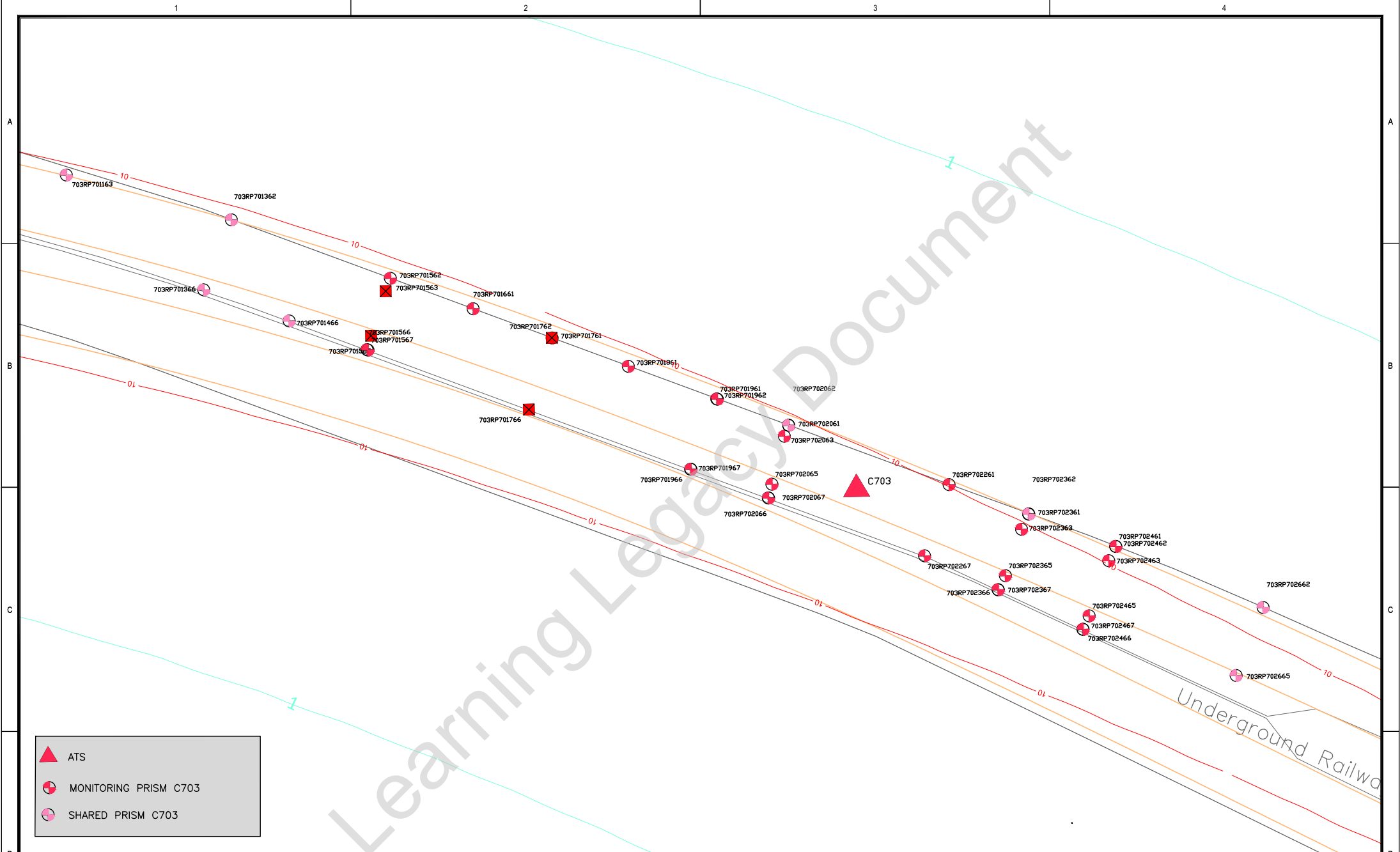
Discipline: SOL

Doc Class: CR088

Location: BARBICAN TO MOORGATE - RUNNING TUNNEL

Dwg Number: 50006

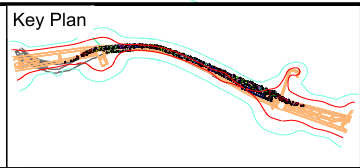
Revision: 2.0



	ATS
	MONITORING PRISM C703
	SHARED PRISM C703

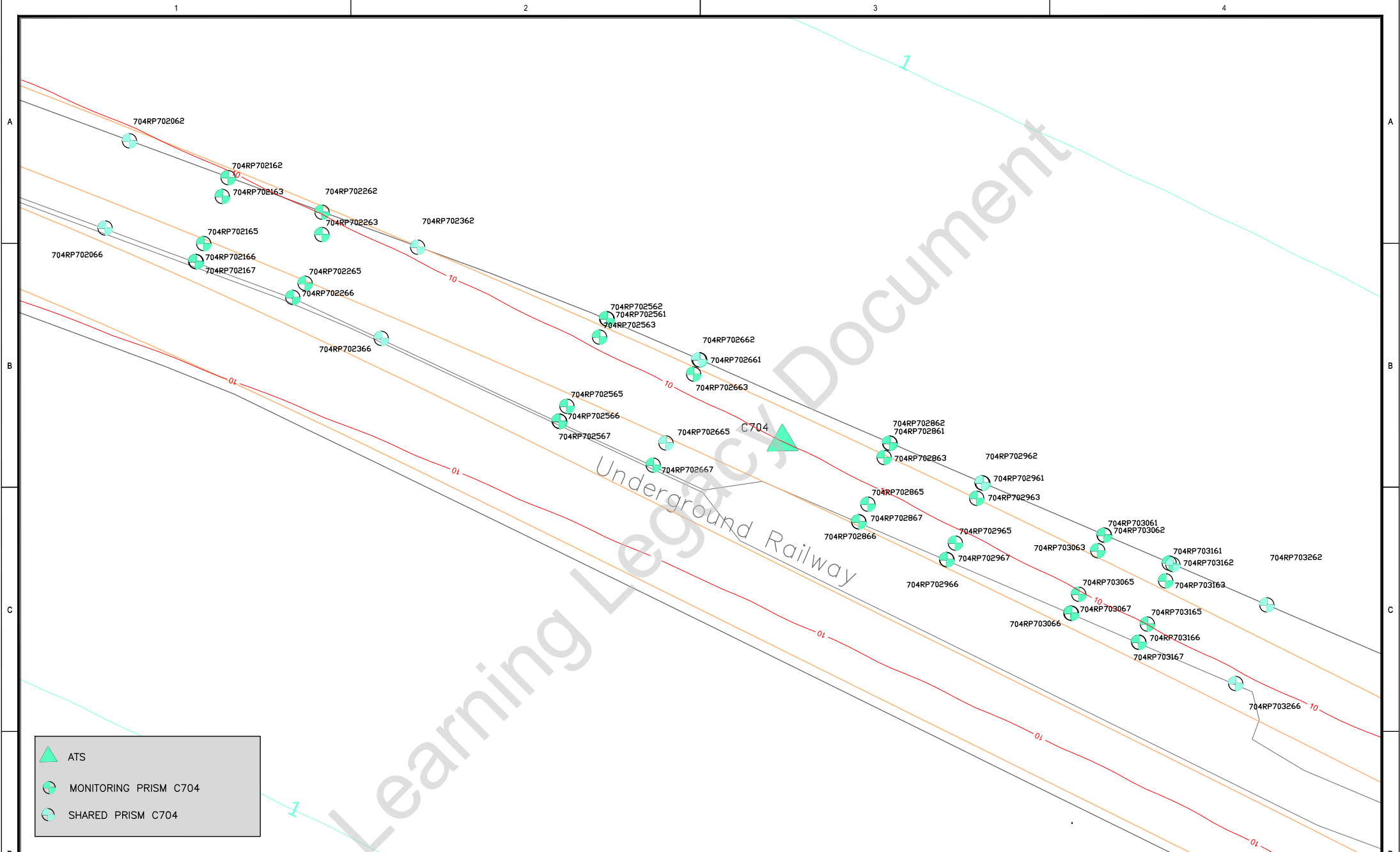
Rev	Date	Description	By	Chkd	App
X.X	XX.XX.XX		XX	XX	XX

Notes



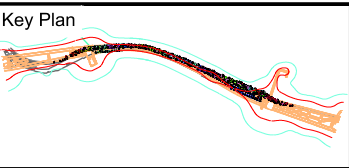
--	--

Contract: C704	
Originator: SOLDATA Ltd	
Location: BARBICAN TO MOORGATE - RUNNING TUNNEL	
Title: AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATSS (3/13)	By: R.F.
Scale: N.T.S @ A3	Dwn: D.M.
Contract: C704 - SOL - C2 - DWG -	App: Q.A.
Originator: CR088	Revision: 2.0
Discipline: 50007	Dwg Number: 100035971/204
Doc Class: CR088	Location: C704 - SOL - C2 - DWG -



	ATS
	MONITORING PRISM C704
	SHARED PRISM C704

Rev	Date	Description	By	Chkd	App



Contract: C704	
Originator: SOLDATA Ltd	
Location: BARBICAN TO MOORGATE - RUNNING TUNNEL	
Title: AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATSS (4/13)	
Scale: N.T.S @ A3	Revision: 2.0
Contract: C704	Discipline: SOL - C2 - DWG - CR088 - 50008
Originator: SOLDATA	Doc Class: CR088 - 50008
Location: BARBICAN TO MOORGATE - RUNNING TUNNEL	Dwg Number: 100035971/204

By: R.F.	App: Q.A.
DN: D.M.	

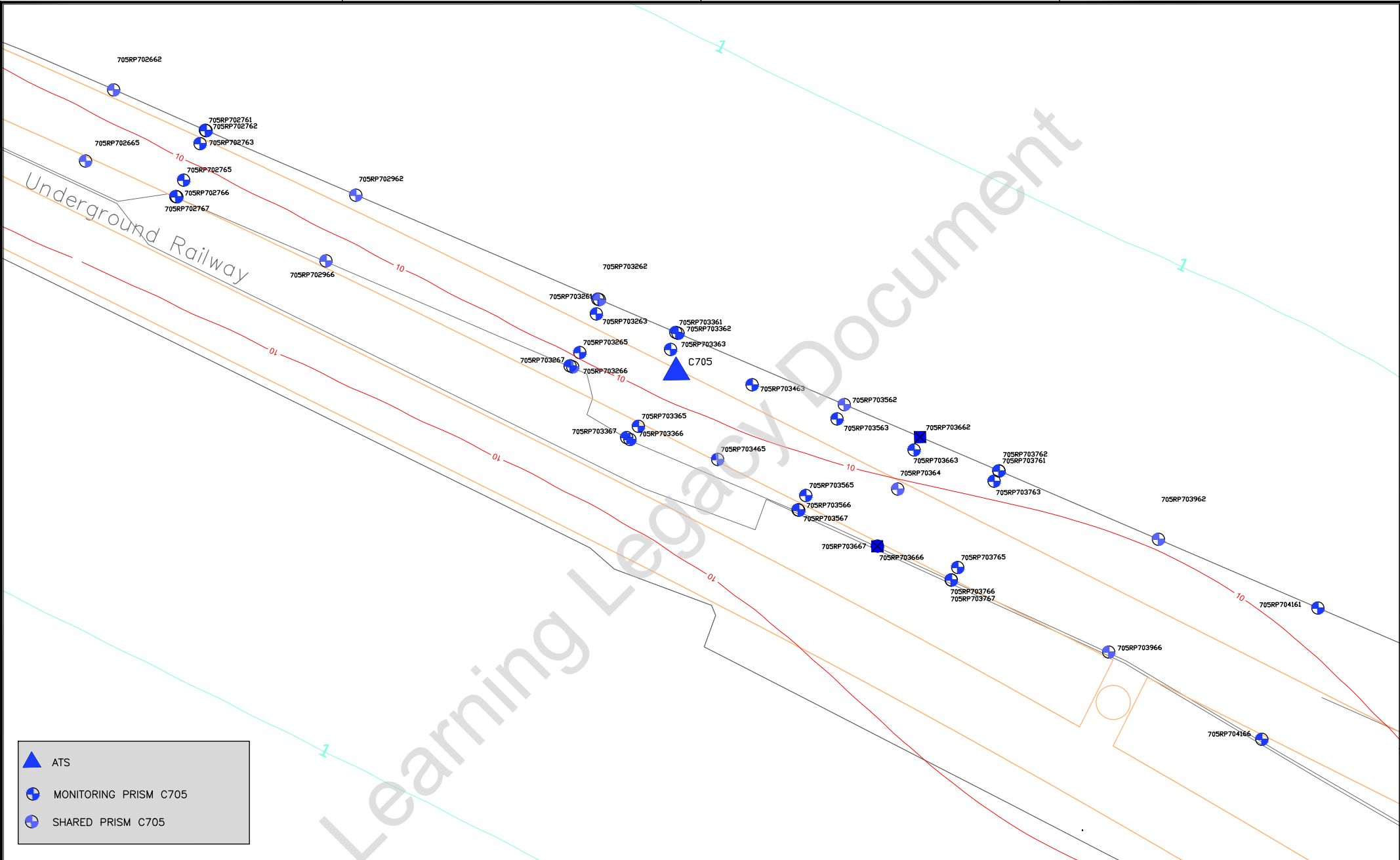
1 2 3 4

A

B

C

D

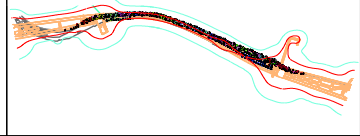


	ATS
	MONITORING PRISM C705
	SHARED PRISM C705

Rev	Date	Description	By	Chkd	App
X.X	XX.XX.XX		XX	XX	XX

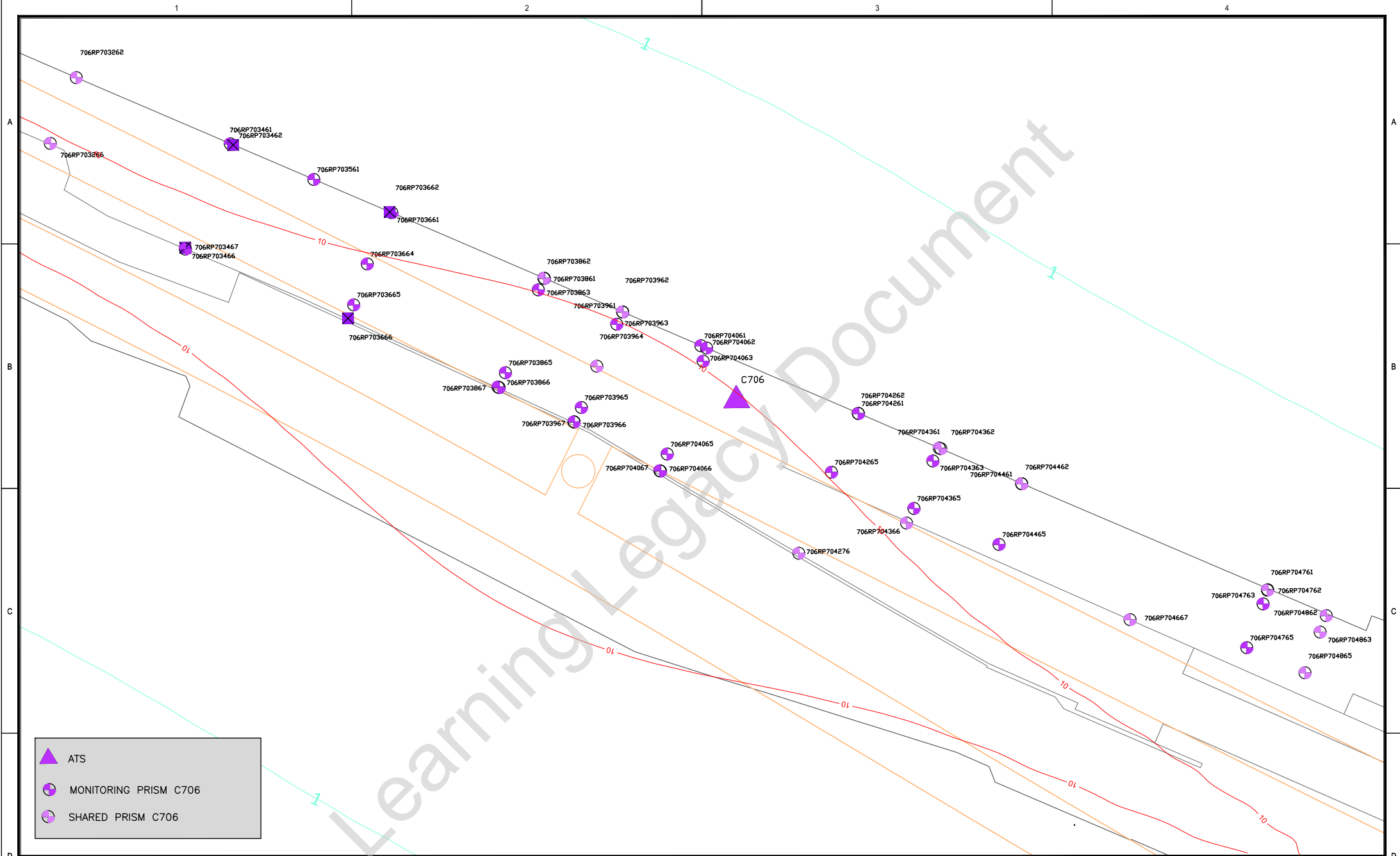
Notes




Key Plan



Contract		C704	
Originator		SOLDATA Ltd	
Location		BARBICAN TO MOORGATE - RUNNING TUNNEL	
Title		AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATSS (5/13)	
Scale		N.T.S @ A3	
Contract		C704 - SOL - C2 - DWG - CR088 - 50009	
Originator		Discipline	
Doc Class		Location	
Dwg Number		Revision	
		2.0	

By: R.F.	App: Q.A.
Rev: D.M.	

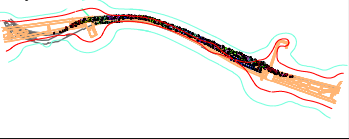


	ATS
	MONITORING PRISM C706
	SHARED PRISM C706

Notes

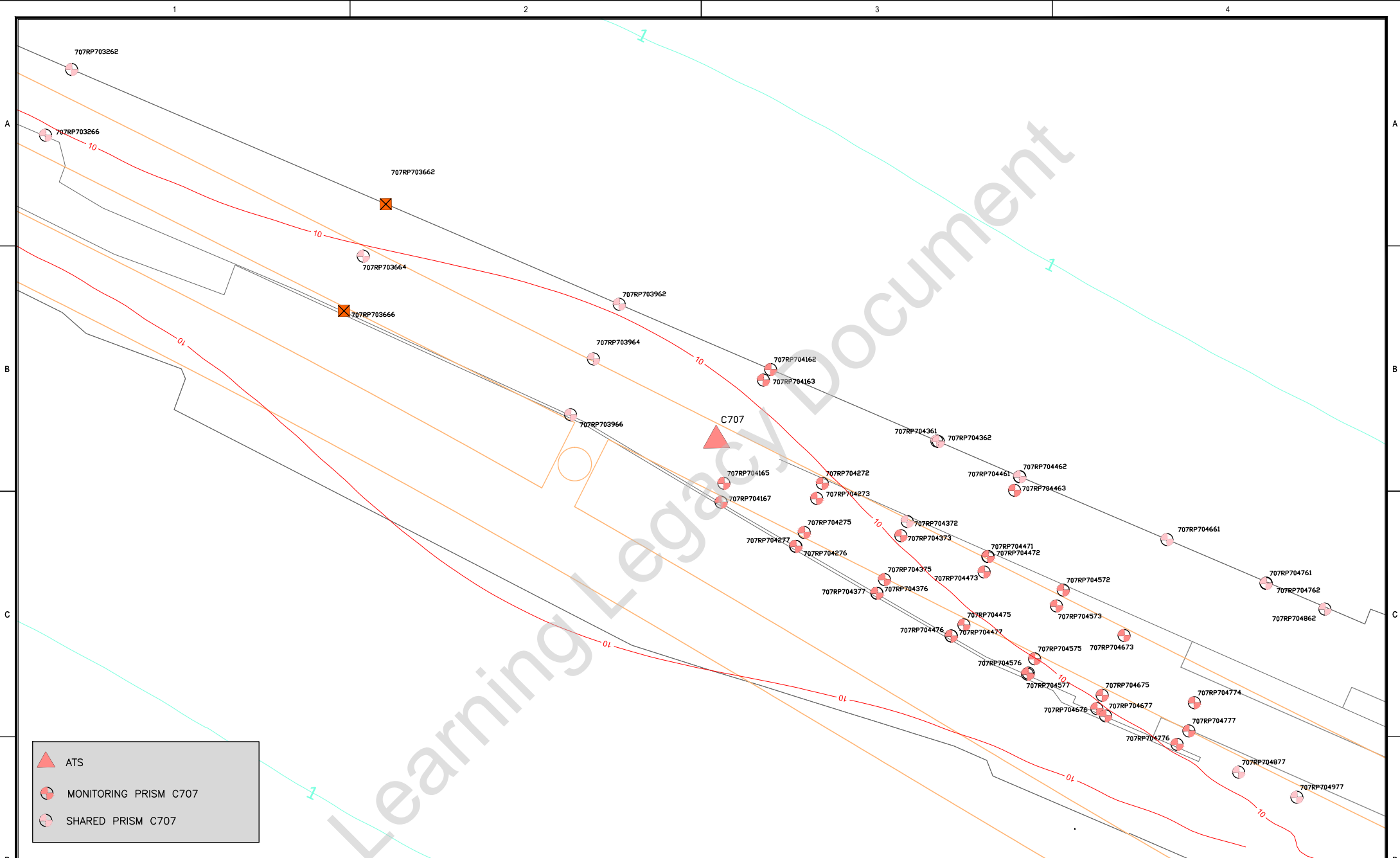
Rev	Date	Description	By	Chkd	App
X.X	XX.XX.XX				

Key Plan



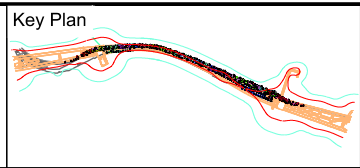
Contract C704 Originator SOLDATA Ltd Location BARBICAN TO MOORGATE - RUNNING TUNNEL Title AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATSs (6/13) Scale N.T.S Contract C704 - SOL - C2 - DWG - Originator CR088 Discipline - Doc Class - 50010 Location - Dwg Number 2.0 Revision 2.0		By R.F. Chk D.M. App Q.A.
---	--	--



	ATS
	MONITORING PRISM C707
	SHARED PRISM C707

Rev	Date	Description	By	Chkd	App
X.X	XX.XX.XX		XX	XX	XX

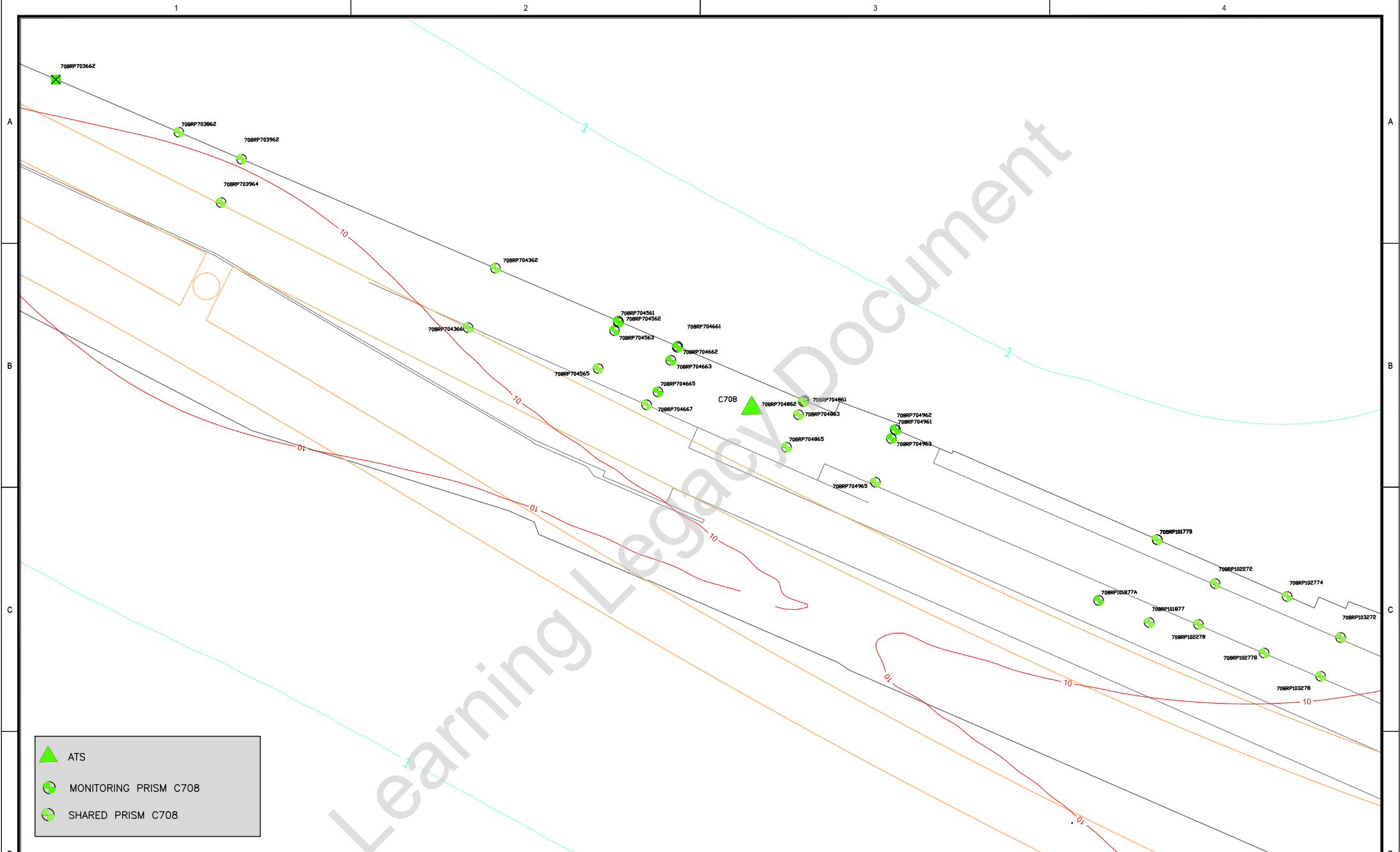
Notes



Contract: C704
 Originator: SOLDATA Ltd
 Location: BARBICAN TO MOORGATE - RUNNING TUNNEL
 Title: AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATSS (7/13)
 Scale: N.T.S @ A3
 Drawing No.: C704 - SOL - C2 - DWG - CR088 - 50011
 Contract Originator Discipline Doc Class Location Dwg Number



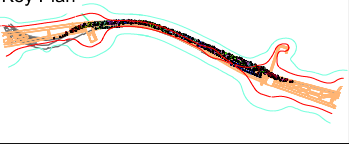
By: R.F.	Revision: 2.0
Chk: D.M.	
App: Q.A.	



	ATS
	MONITORING PRISM C708
	SHARED PRISM C708

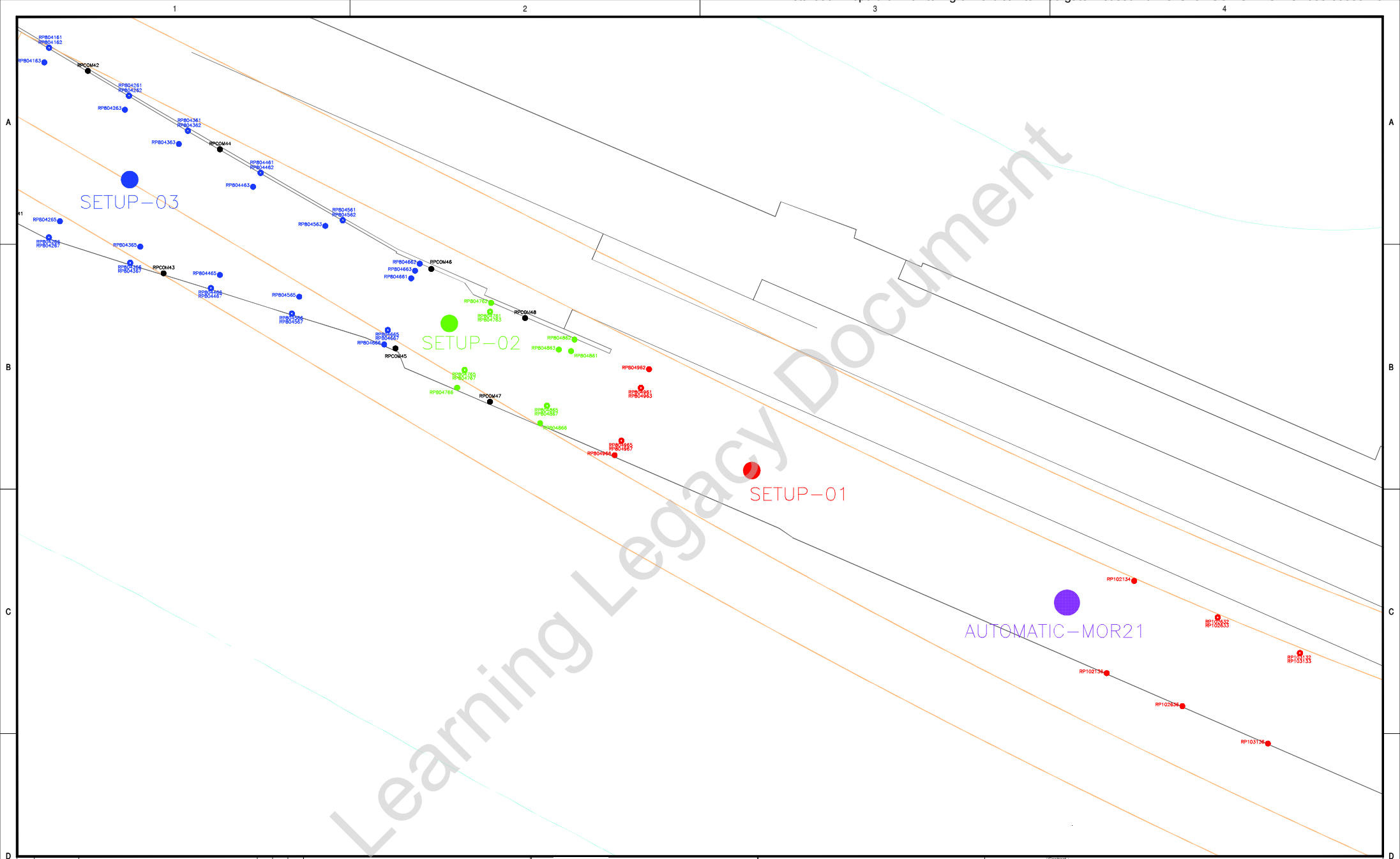
Notes

Key Plan



Rev	Date	Description	By	Chkd	App
X.X	XX.XX.XX		XX	XX	XX

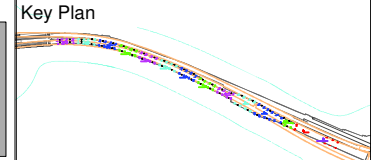
		Contract C704	
		Originator SOLDATA Ltd	
Location: BARBICAN TO MOORGATE - RUNNING TUNNEL		By: R.F.	
Title: AUTOMATIC MONITORING LOCATION OF 3D GEOMATIC PRISM AND ATSS (8/13)		Dwn: D.M.	
Scale: N.T.S @ A3		App: Q.A.	
Contract: C704 - SOL - C2 - DWG - CR088 - 50012		Revision: 2.0	



Rev	Date	Description	By	Chkd	App
XX	XX	XX	XX	XX	XX

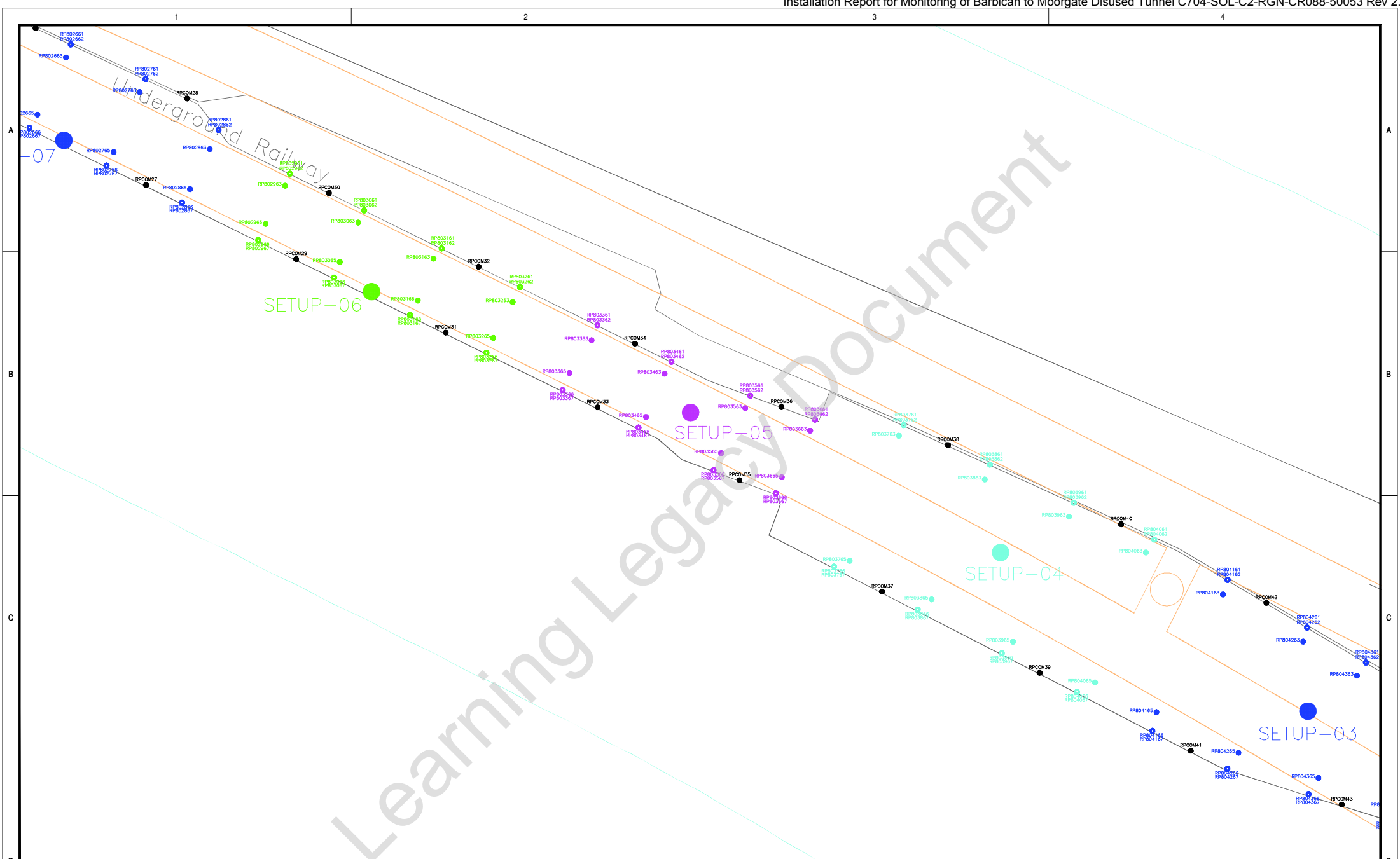
Notes

- SETUP Location
- RP304961 RP304963 2 Prisms on different levels
- RP304962 Single prism
- RPCOM48 360 prism



		Contract: C704 Originator: SOLDATA Ltd Location: BARBICAN TO MOORGATE - DISUSED TUNNEL Title: MANUAL MONITORING LOCATION OF 3D GEOMATIC PRISM (1/4)		By: R.F. Cdw: D.M. App: E.A.
Scale: N.T.S @ A3	Contract: C704 - SOL - C2 - DWG -	Discipline: CR088	Doc Class: - 50001	Location: - 1.0 Dwg Number:

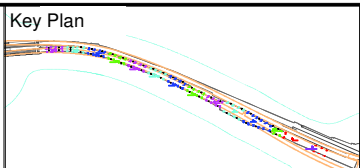
© Crown copyright and database rights 2013 Ordnance Survey 100035971/204



Rev	Date	Description	By	Chkd	App
XX	XX.XX.XX		XX	XX	XX

Notes

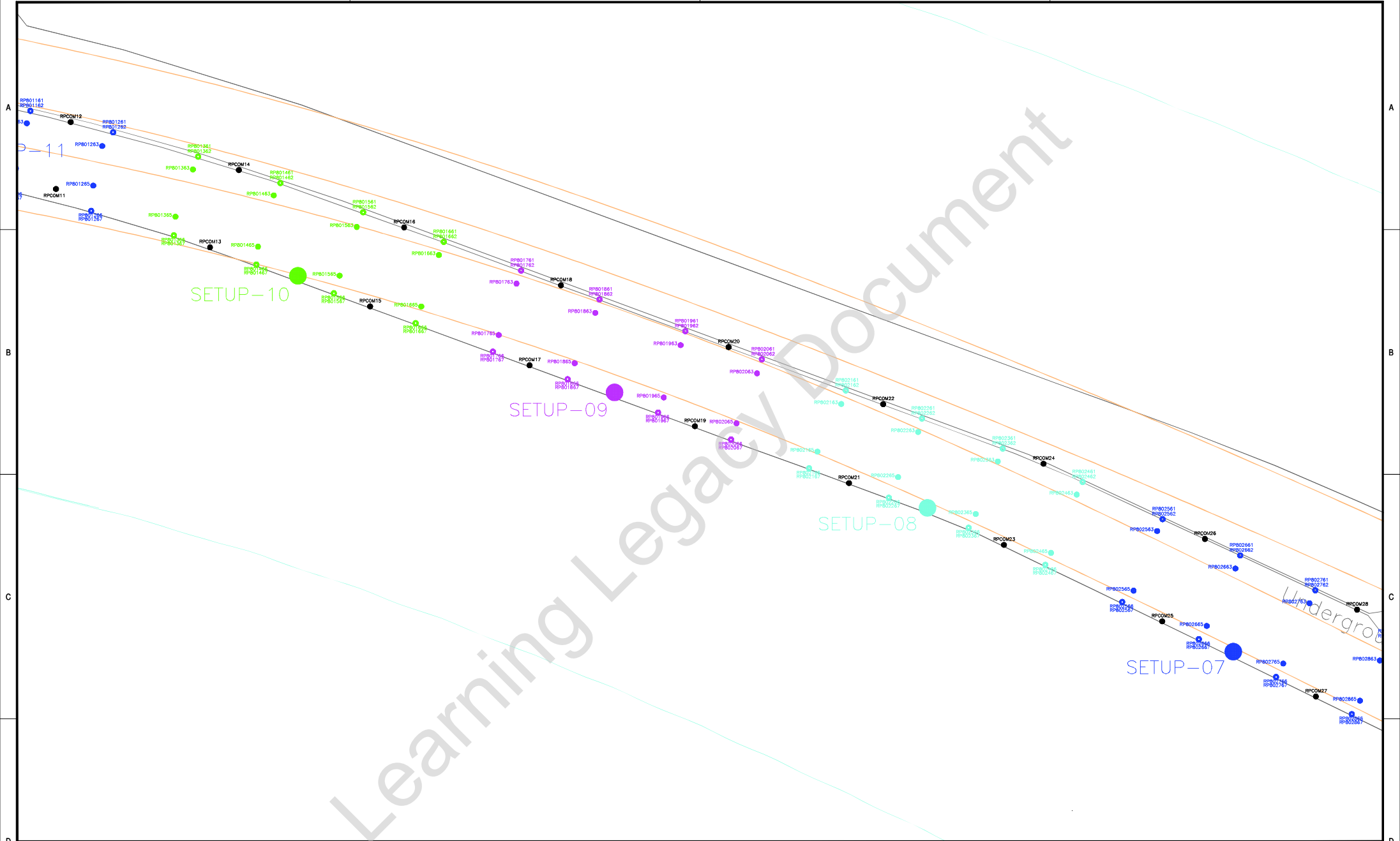
- SETUP Location
- RP304961 2 Prisms on different levels
- RP304962 Single prism
- RPCM48 360 prism



Contract: C704		Originator: SOLDATA Ltd		By: R.F.	
Location: BARBICAN TO MOORGATE - DISUSED TUNNEL		Title: MANUAL MONITORING LOCATION OF 3D GEOMATIC PRISM (2/4)		Dwn: D.M.	
Scale: N.T.S @ A3		Drawing No: C704 - SOL - C2 - DWG - CR088 - 50002		App: E.A.	
Contract: C704		Originator: SOLDATA		Revision: 1.0	
Discipline: SOL	Doc Class: C2	Location: CR088	Dwg Number: 50002	Revision: 1.0	

© Crown copyright and database rights 2013 Ordnance Survey 100035971/204

1 2 3 4

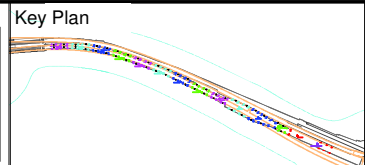


Learning Legacy Document

Rev	Date	Description	By	Chkd	App
XX	XX	XX	XX	XX	XX

Notes

- SETUP Location
- RP304961 2 Prisms on different levels
- RP304962 Single prism
- RPCM48 360 prism



Crossrail

SOLDATA

Contract: C704		Revision: 1.0	
Originator: SOLDATA Ltd		By: R.F.	
Location: BARBICAN TO MOORGATE - DISUSED TUNNEL		Dwn: D.M.	
Title: MANUAL MONITORING LOCATION OF 3D GEOMATIC PRISM (3/4)		App: E.A.	
Scale: N.T.S @ A3	Drawing No: C704 - SOL - C2 - DWG - CR088 - 50003	Contract Originator Discipline Doc Class Location Dwg Number	

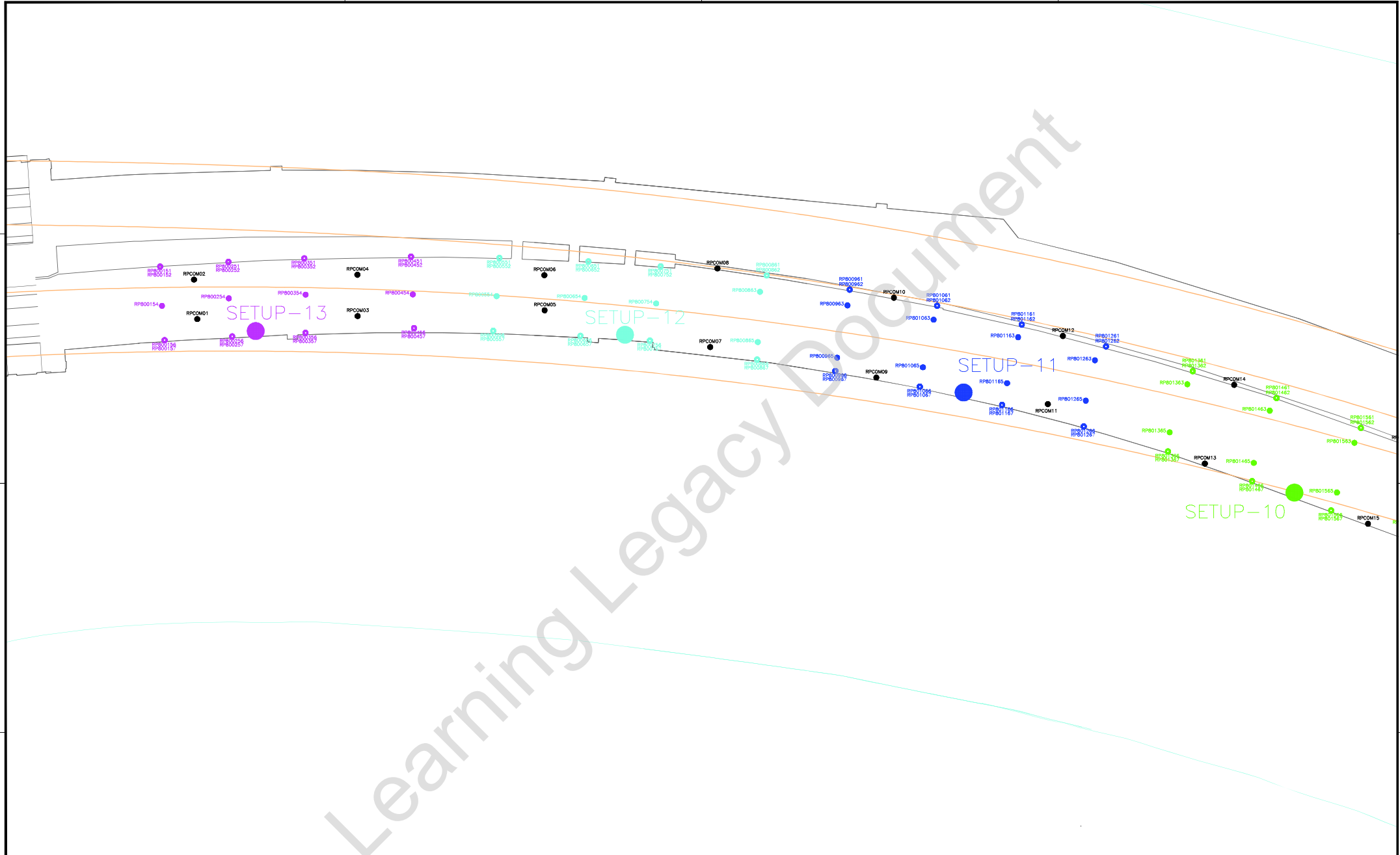
1 2 3 4

A

B

C

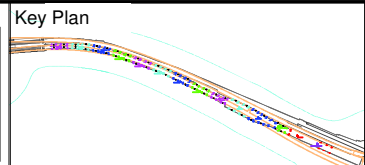
D



Rev	Date	Description	By	Chkd	App
X.X	XX.XX.XX		XX	XX	XX

Notes

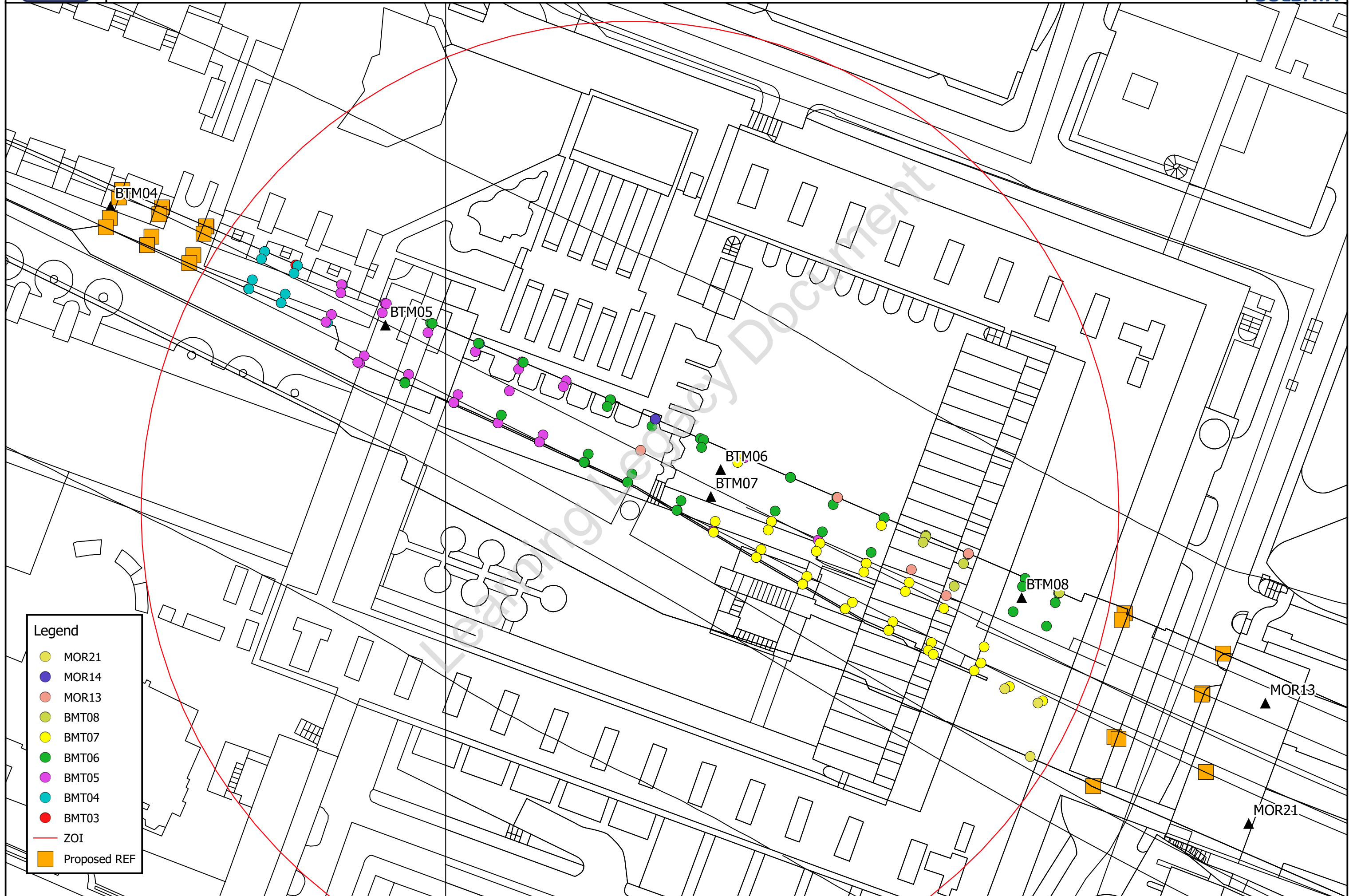
- SETUP Location
- RP304961 2 Prisms on different levels
- RP304962 Single prism
- RPCOM48 360 prism



Contract: C704		Originator: SOLDATA Ltd	
Location: BARBICAN TO MOORGATE - DISUSED TUNNEL			
Title: MANUAL MONITORING LOCATION OF 3D GEOMATIC PRISM (4/4)			By: R.F.
			Dwn: D.M.
			App: E.A.
Scale: N.T.S @ A3	Drawing No: C704 - SOL - C2 - DWG - CR088 - 50004	Revision: 1.0	
Contract	Originator	Discipline	Doc Class
Location	Dwg Number		

APPENDIX C

Learning Legacy Document



Legend

- MOR21
- MOR14
- MOR13
- BMT08
- BMT07
- BMT06
- BMT05
- BMT04
- BMT03
- ZOI
- Proposed REF

C704 Instrumentation – Decommissioning Agreement

H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

List of prisms to be left in place to monitor CP5a works	
H&C and Metropolitan line tunnel (136 No.) (see drawing in Appendix C)	Disused Thameslink tunnel (174 No.) (see as-built drawing in Appendix B)
C704-RP198631	C704-RP802961
C704-RP199332	C704-RP802962
C704-RP199635	C704-RP802963
C704-RP703061	C704-RP802964
C704-RP703062	C704-RP802965
C704-RP703063	C704-RP802966
C704-RP703065	C704-RP802967
C704-RP703066	RPCOM29
C704-RP703067	RPCOM30
C704-RP703161	C704-RP803061
C704-RP703162	C704-RP803062
C704-RP703163	C704-RP803063
C704-RP703165	C704-RP803064
C704-RP703166	C704-RP803065
C704-RP703167	C704-RP803066
C704-RP703261	C704-RP803067
C704-RP703262	C704-RP803161
C704-RP703263	C704-RP803162
C704-RP703265	C704-RP803163
C704-RP703266	C704-RP803164
C704-RP703267	C704-RP803165
C704-RP703361	C704-RP803166
C704-RP703362	C704-RP803167
C704-RP703363	RPCOM31
C704-RP703365	RPCOM32
C704-RP703366	C704-RP803261
C704-RP703367	C704-RP803262
C704-RP703461	C704-RP803263
C704-RP703462	C704-RP803264
C704-RP703463	C704-RP803265
C704-RP703465	C704-RP803266
C704-RP703466	C704-RP803267
C704-RP703467	C704-RP803361
C704-RP703561	C704-RP803362
C704-RP703562	C704-RP803363
C704-RP703563	C704-RP803364
C704-RP703565	C704-RP803365
C704-RP703566	C704-RP803366

C704 Instrumentation – Decommissioning Agreement

H&C and Met Line and Disused Thameslink between Barbican and Moorgate Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

C704-RP703567	C704-RP803367
C704-RP703661	RPCOM33
C704-RP703662	RPCOM34
C704-RP703663	C704-RP803461
C704-RP703664	C704-RP803462
C704-RP703665	C704-RP803463
C704-RP703666	C704-RP803464
C704-RP703667	C704-RP803465
C704-RP703761	C704-RP803466
C704-RP703762	C704-RP803467
C704-RP703763	C704-RP803461
C704-RP703765	C704-RP803462
C704-RP703766	C704-RP803463
C704-RP703767	C704-RP803464
C704-RP703861	C704-RP803465
C704-RP703862	C704-RP803466
C704-RP703863	C704-RP803467
C704-RP703865	C704-RP803561
C704-RP703866	C704-RP803562
C704-RP703867	C704-RP803563
C704-RP703961	C704-RP803564
C704-RP703962	C704-RP803565
C704-RP703963	C704-RP803566
C704-RP703964	C704-RP803567
C704-RP703965	RPCOM35
C704-RP703966	RPCOM36
C704-RP703967	C704-RP803661
C704-RP704061	C704-RP803662
C704-RP704062	C704-RP803663
C704-RP704063	C704-RP803664
C704-RP704065	C704-RP803665
C704-RP704066	C704-RP803666
C704-RP704067	C704-RP803667
C704-RP704161	C704-RP803761
C704-RP704162	C704-RP803762
C704-RP704163	C704-RP803763
C704-RP704165	C704-RP803764
C704-RP704166	C704-RP803765
C704-RP704167	C704-RP803766
C704-RP704261	C704-RP803767
C704-RP704262	RPCOM37
C704-RP704265	RPCOM38

C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

C704-RP704272	C704-RP803861
C704-RP704273	C704-RP803862
C704-RP704275	C704-RP803863
C704-RP704276	C704-RP803864
C704-RP704277	C704-RP803865
C704-RP704361	C704-RP803866
C704-RP704362	C704-RP803867
C704-RP704363	C704-RP803961
C704-RP704365	C704-RP803962
C704-RP704366	C704-RP803963
C704-RP704372	C704-RP803964
C704-RP704373	C704-RP803965
C704-RP704375	C704-RP803966
C704-RP704376	C704-RP803967
C704-RP704377	RPCOM39
C704-RP704461	RPCOM40
C704-RP704462	C704-RP804061
C704-RP704463	C704-RP804062
C704-RP704465	C704-RP804063
C704-RP704471	C704-RP804064
C704-RP704472	C704-RP804065
C704-RP704473	C704-RP804066
C704-RP704475	C704-RP804067
C704-RP704476	C704-RP804161
C704-RP704477	C704-RP804162
C704-RP704561	C704-RP804163
C704-RP704562	C704-RP804164
C704-RP704563	C704-RP804165
C704-RP704565	C704-RP804166
C704-RP704572	C704-RP804167
C704-RP704573	RPCOM41
C704-RP704575	RPCOM42
C704-RP704576	C704-RP804261
C704-RP704577	C704-RP804262
C704-RP704661	C704-RP804263
C704-RP704662	C704-RP804264
C704-RP704663	C704-RP804265
C704-RP704665	C704-RP804266
C704-RP704667	C704-RP804267
C704-RP704673	C704-RP804361
C704-RP704675	C704-RP804362
C704-RP704676	C704-RP804363

C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

C704-RP704677	C704-RP804364
C704-RP704761	C704-RP804365
C704-RP704762	C704-RP804366
C704-RP704763	C704-RP804367
C704-RP704765	RPCOM43
C704-RP704774	RPCOM44
C704-RP704776	C704-RP804461
C704-RP704777	C704-RP804462
C704-RP704861	C704-RP804463
C704-RP704862	C704-RP804464
C704-RP704863	C704-RP804465
C704-RP704865	C704-RP804466
C704-RP704877	C704-RP804467
C704-RP704977	C704-RP804561
	C704-RP804562
	C704-RP804563
	C704-RP804564
	C704-RP804565
	C704-RP804566
	C704-RP804567
	C704-RP804661
	C704-RP804662
	C704-RP804663
	C704-RP804664
	C704-RP804665
	C704-RP804666
	C704-RP804667
	RPCOM45
	RPCOM46
	C704-RP804761
	C704-RP804762
	C704-RP804763
	C704-RP804764
	C704-RP804765
	C704-RP804766
	C704-RP804767
	RPCOM47
	RPCOM48
	C704-RP804861
	C704-RP804862
	C704-RP804863
	C704-RP804864

C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)

C704-XRL-C-AAG-CR088-50001 Rev2.0

	C704-RP804865
	C704-RP804866
	C704-RP804867
	C704-RP804961
	C704-RP804962
	C704-RP804963
	C704-RP804964
	C704-RP804965
	C704-RP804966
	C704-RP804967

Note: In rev 1.0 of the document (early Novemembr 2015), it was proposed to decommission only the western half of the system while the remaining eastern portion was to be left in place to monitor the impact of the construction works associated with Cross Passage CP5a (by C305). These works have been completed in December 2015 so decommissioning of the remaining eastern half of the system (including prisms listed above) is now under consideration.

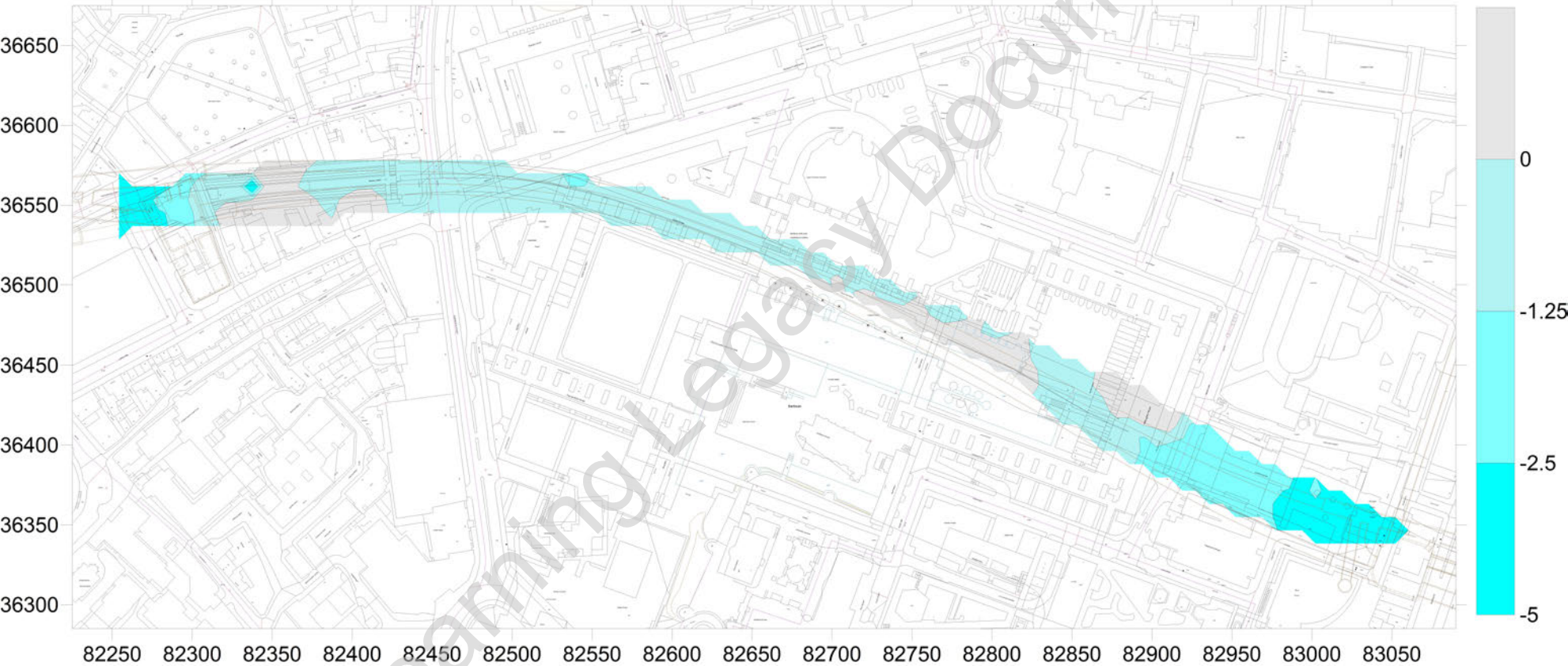
APPENDIX D

Learning Legacy Document

Differential Movement Z (mm) from 26/09/2015 to 26/10/2015 - Structure



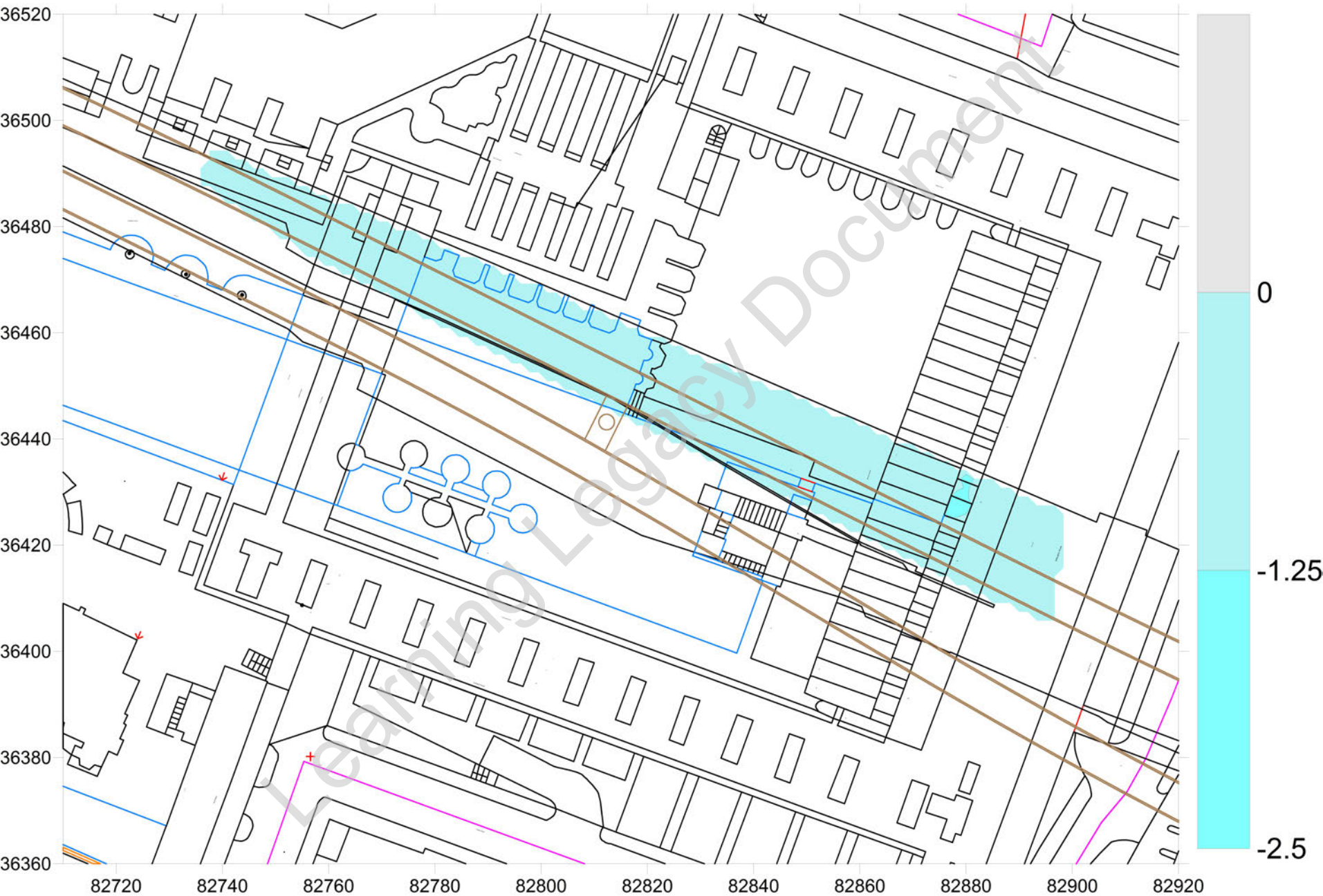
Differential Movement Z (mm) from 26/07/2015 to 26/10/2015 - Structure



Differential Movement Z (mm) from 03/11/2015 to 03/01/2016 - CP5a 100m Radius



Differential Movement Z (mm) from 03/12/2015 to 03/01/2016 - CP5a 100m Radius



C704 Instrumentation – Decommissioning Agreement
H&C and Met Line and Disused Thameslink between Barbican and Moorgate
Stations (LU/17)
C704-XRL-C-AAG-CR088-50001 Rev2.0

PRISMS ARRAYS LOCATION

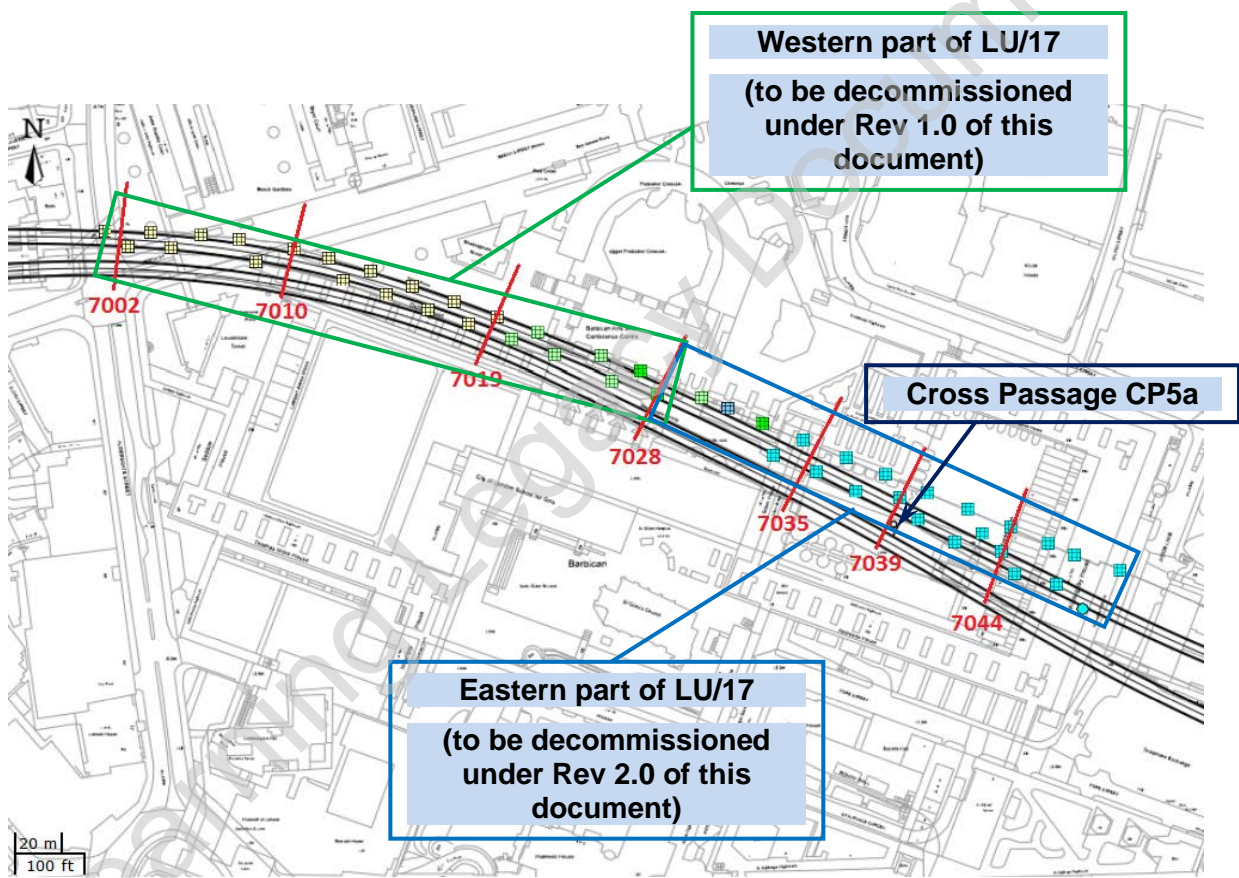


Fig. D1: HMC line Barbican to Moorgate (LU/17) - Vertical Displacement - Prisms array 7002

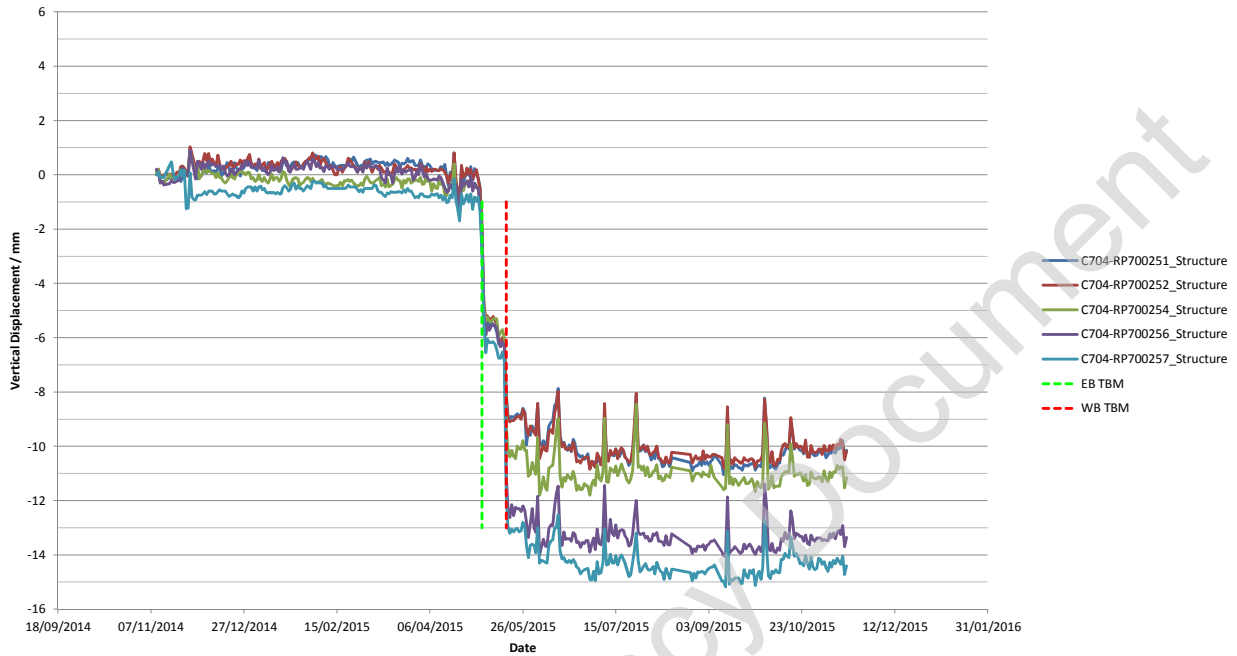


Fig. D2: Prisms array 7002 - Last 3 months

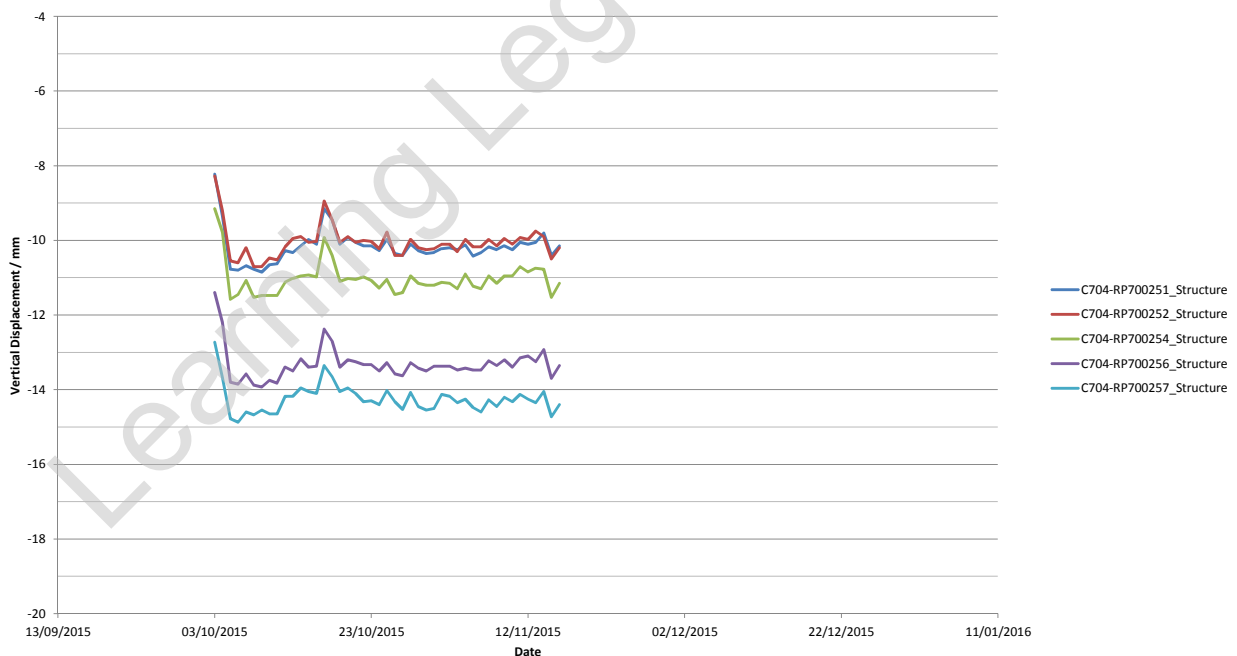


Fig. D3: HMC line Barbican to Moorgate (LU/17) - Vertical Displacement - Prisms array 7010

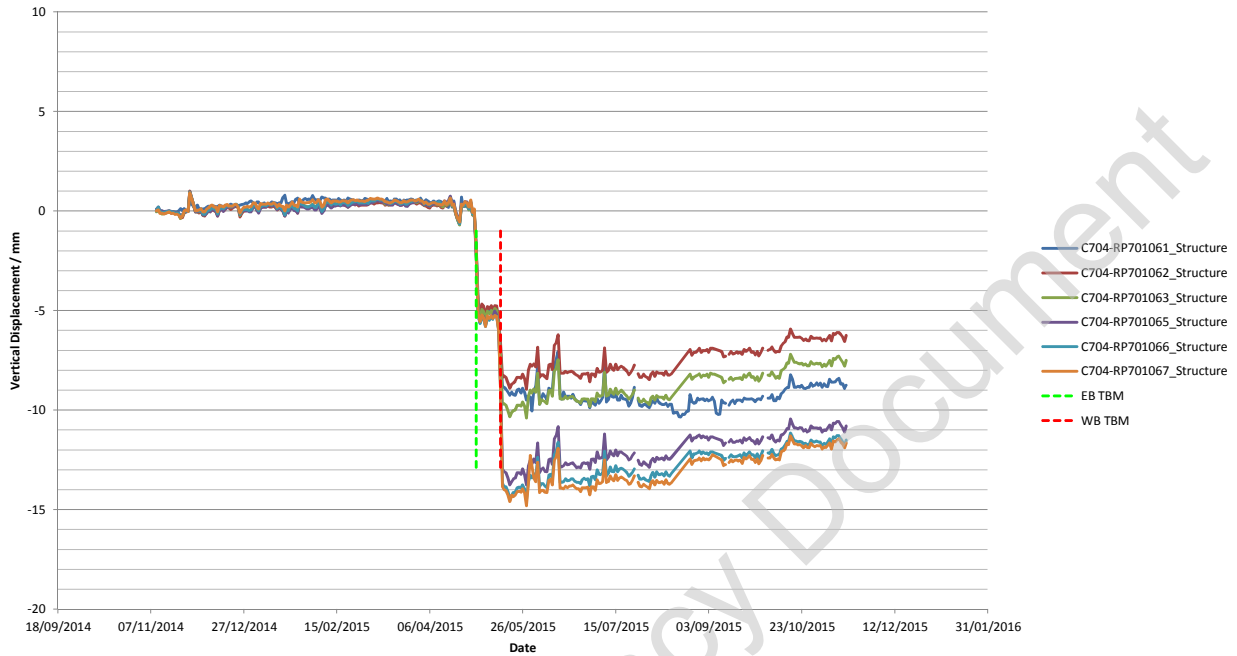


Fig. D4: Prisms array 7010 - Last 3 months

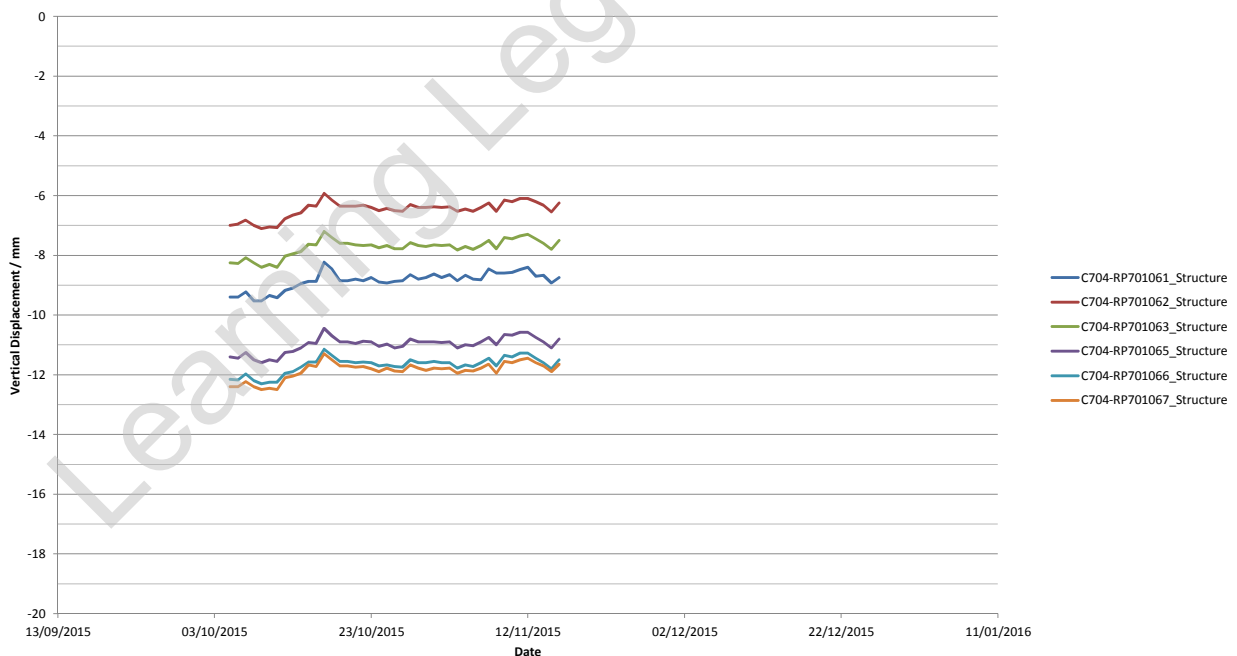


Fig. D5: HMC line Barbican to Moorgate (LU/17) - Vertical Displacement - Prisms array 7019

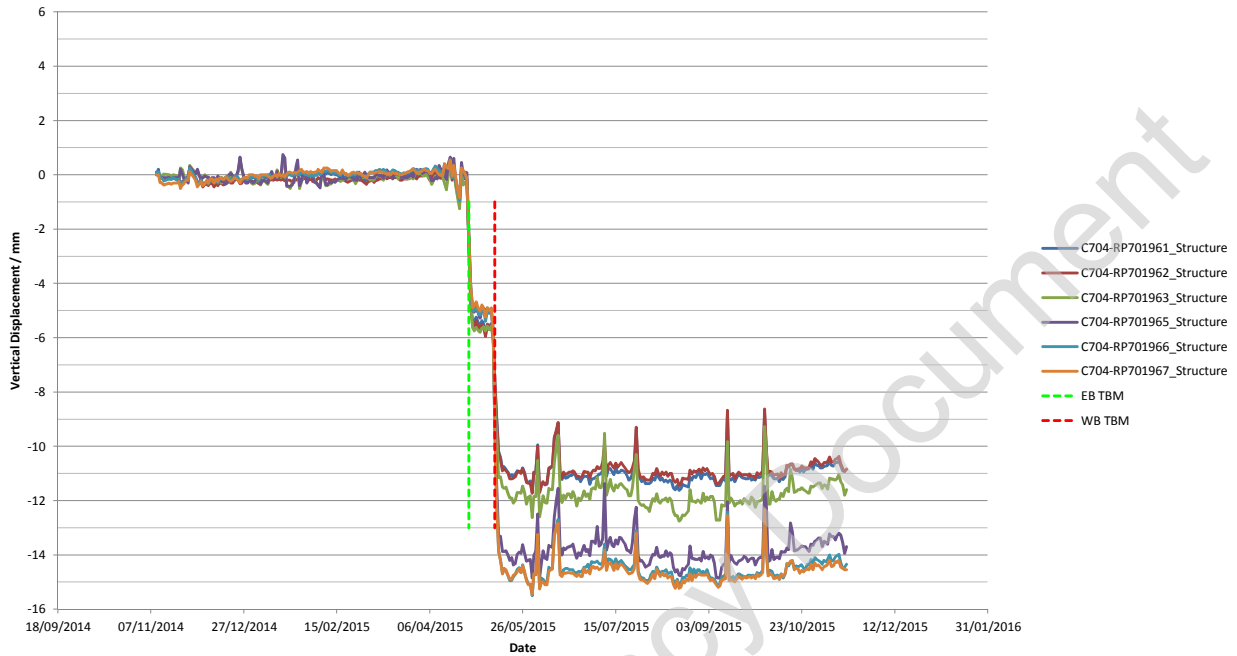


Fig. D6: Prisms array 7019 - Last 3 months

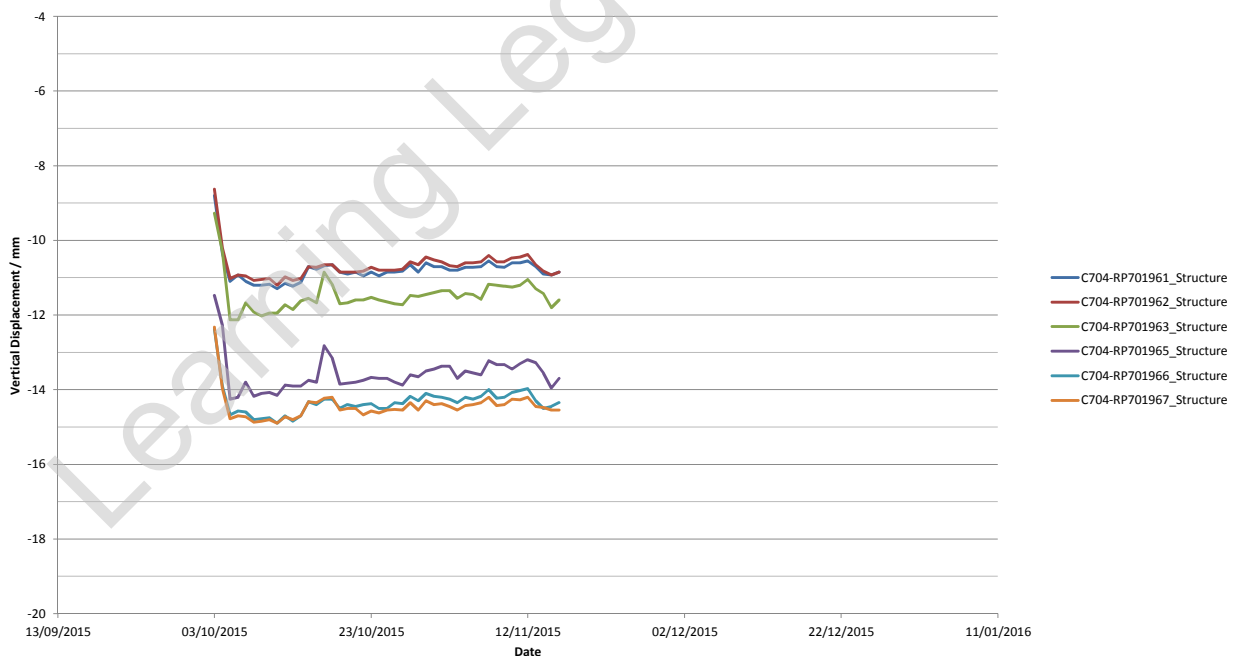


Fig. D7: HMC line Barbican to Moorgate (LU/17) - Vertical Displacement - Prisms array 7028

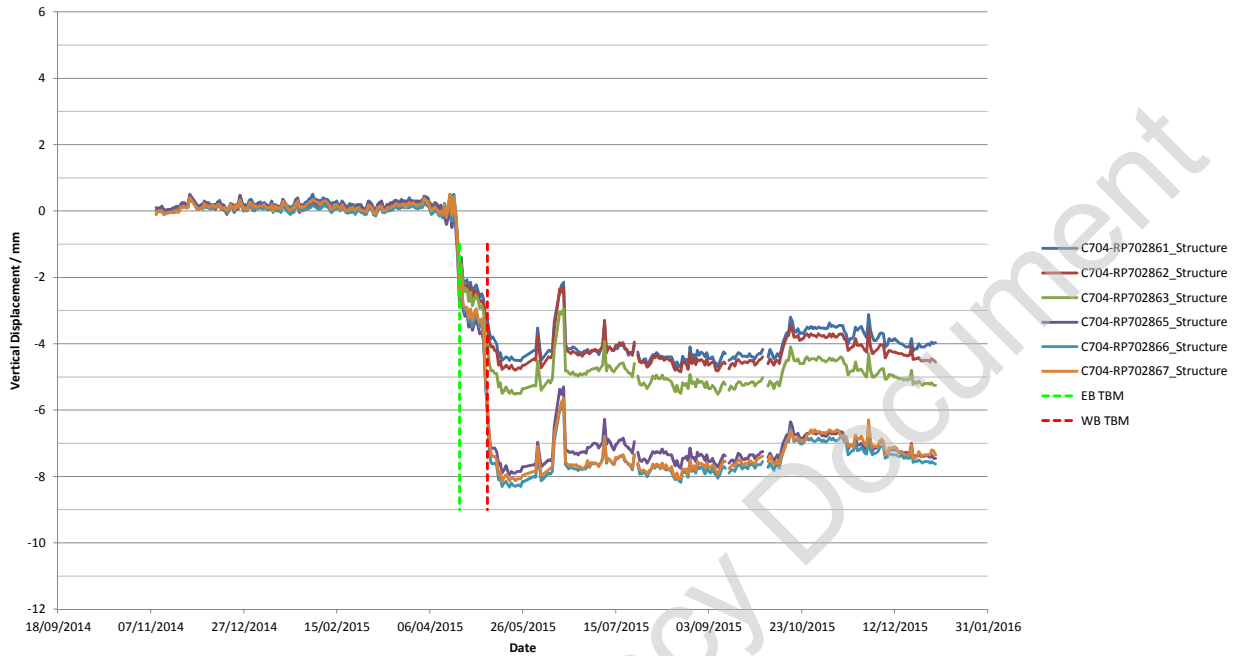


Fig. D8: Prisms array 7028 - Last 3 months

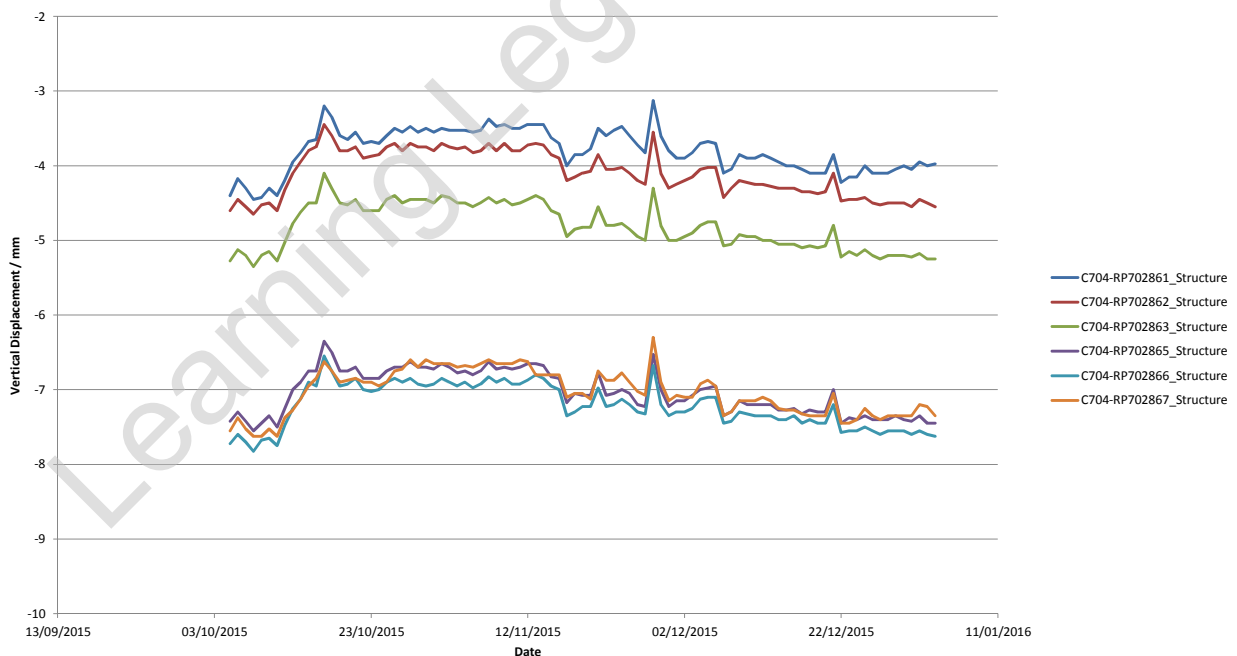


Fig. D9: HMC Line Barbican to Moorgate (LU/17) - Vertical Displacement - Prisms array 7035

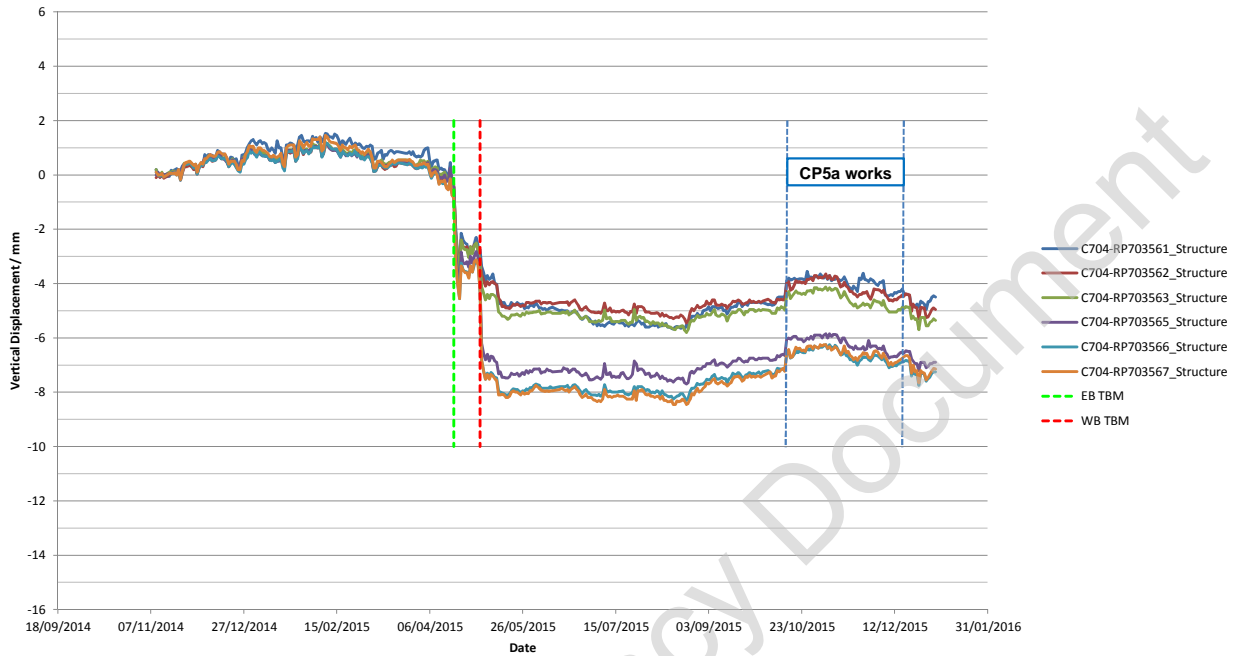


Fig. D10: Prisms array 7035 - Last 3 months

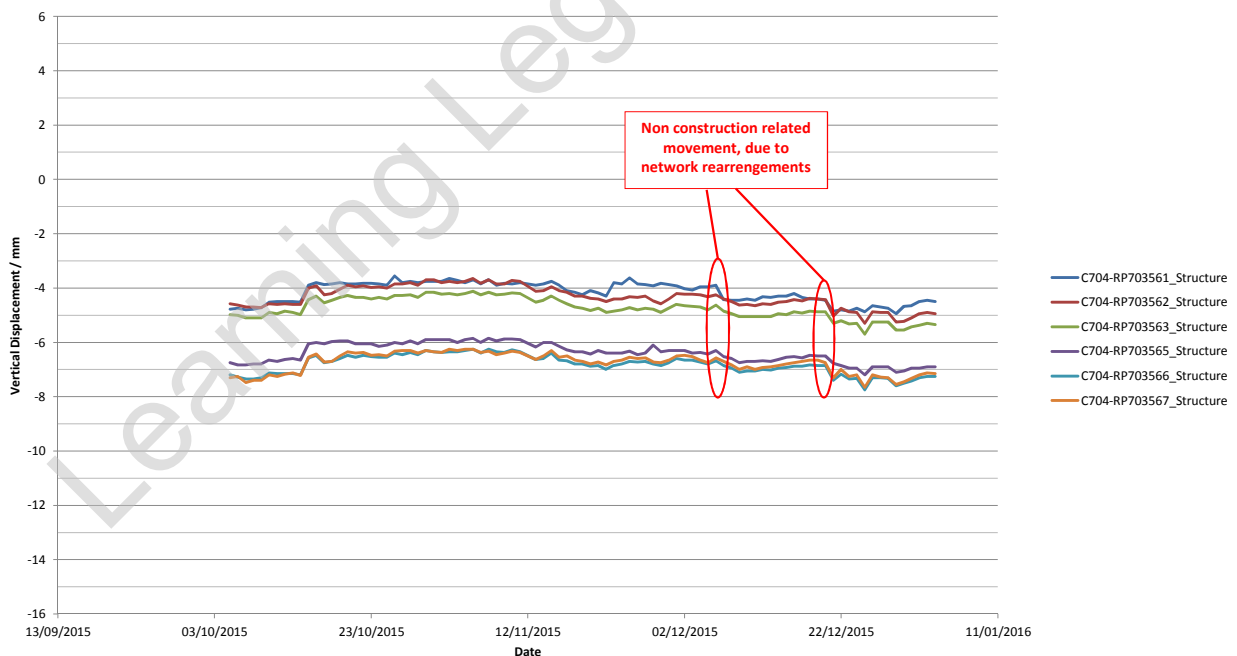


Fig. D11: HMC Line Barbican to Moorgate (LU/17) - Vertical Displacement - Prisms array 7039

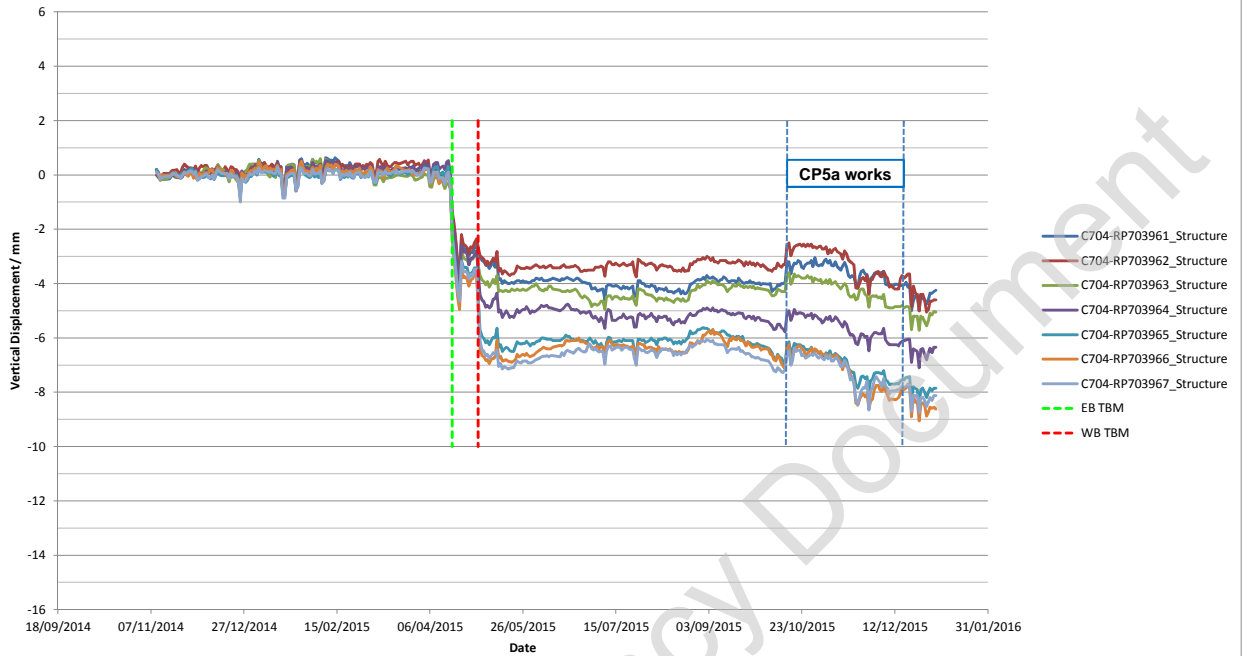


Fig. D12: Prisms array 7039 - Last 3 months

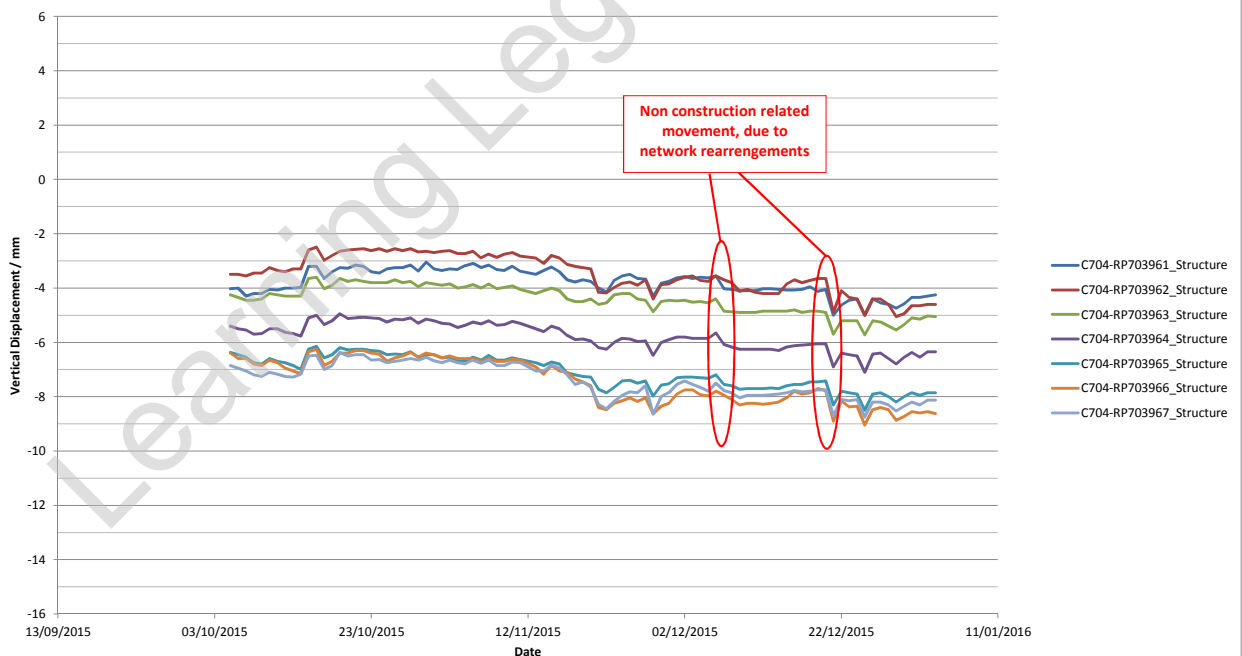


Fig. D13: HMC Line Barbican to Moorgate (LU/17) - Vertical Displacement - Prisms array 7044

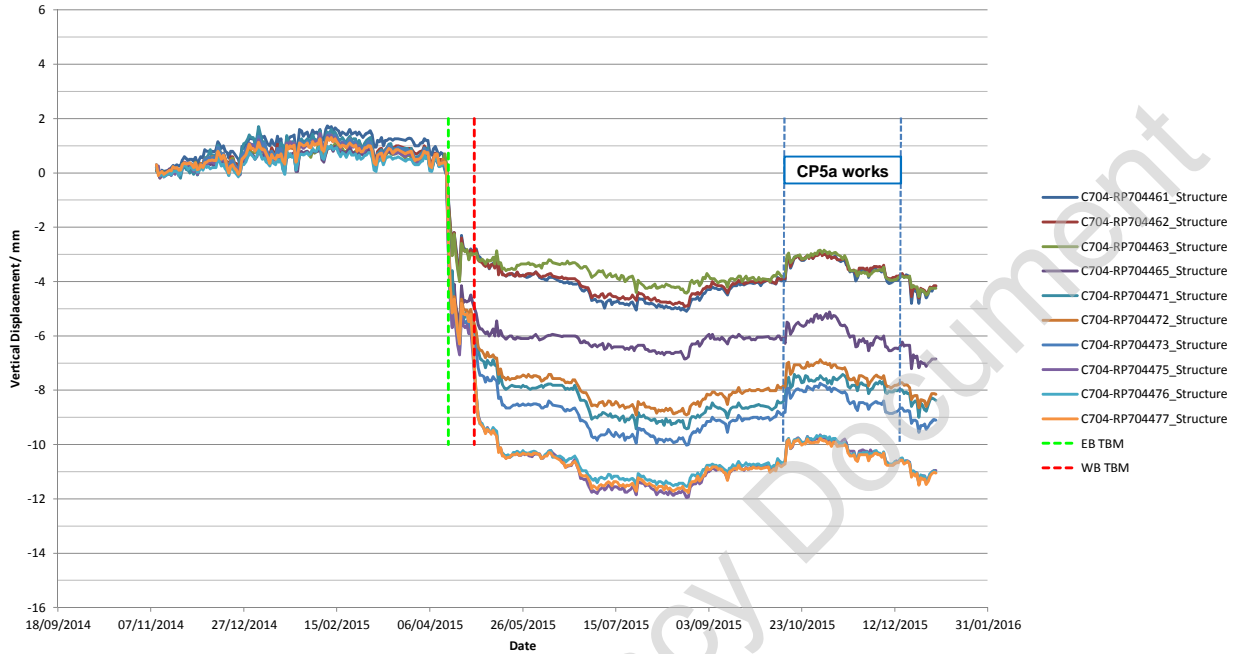
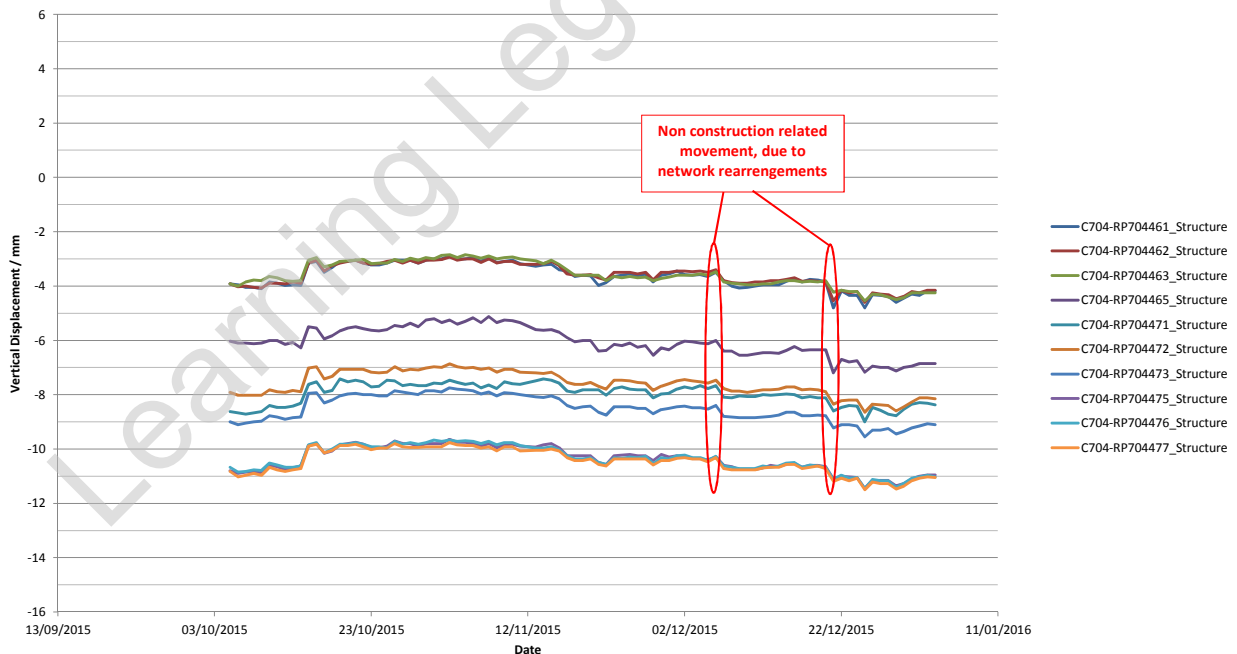


Fig. D14: Prisms array 7044 - Last 3 months



Learning Legacy Document

APPENDIX B: LEVELLING MARKS

CONTENTS

1. LEVELLING MARKS LOCATED ON THE FOUR RAILS	3
1.1. COORDINATES.....	3

Learning Legacy Document

1. LEVELLING MARKS LOCATED ON THE FOUR RAILS

1.1. COORDINATES

SENSOR TYPE	SENSOR ID	SENSOR LOCATION-GPS READING(m)		
		Easting X	Northing Y	Elevation Z (mATD)
Levelling mark	LT120001	83090.6535	36333.9608	108.1447
Levelling mark	LT120002	83088.7627	36334.6645	108.1555
Levelling mark	LT120003	83086.9096	36335.3523	108.1691
Levelling mark	LT120004	83085.0806	36336.0661	108.1747
Levelling mark	LT120005	83083.1598	36336.8059	108.1760
Levelling mark	LT120006	83081.1885	36337.6170	108.1866
Levelling mark	LT120007	83079.3157	36338.4070	108.2050
Levelling mark	LT120008	83077.5347	36339.1846	108.2253
Levelling mark	LT120009	83075.6389	36340.0399	108.2449
Levelling mark	LT120010	83073.7209	36340.9038	108.2543
Levelling mark	LT120011	83071.9345	36341.7614	108.2596
Levelling mark	LT120012	83070.1824	36342.6205	108.2734
Levelling mark	LT120013	83068.3785	36343.5316	108.2911
Levelling mark	LT120014	83066.6038	36344.4371	108.3024
Levelling mark	LT120015	83064.8322	36345.3588	108.3121
Levelling mark	LT120016	83063.0226	36346.3406	108.3206
Levelling mark	LT120017	83061.2554	36347.2989	108.3296
Levelling mark	LT120018	83059.4388	36348.3084	108.3354

Levelling mark	LT120019	83057.7570	36349.2575	108.3365
Levelling mark	LT120020	83055.9893	36350.2659	108.3407
Levelling mark	LT120021	83054.2560	36351.2326	108.3464
Levelling mark	LT120022	83052.6269	36352.1345	108.3522
Levelling mark	LT120023	83050.8304	36353.1190	108.3599
Levelling mark	LT120024	83049.1547	36354.0287	108.3703
Levelling mark	LT120025	83047.4632	36354.9249	108.3756
Levelling mark	LT120026	83045.6504	36355.8722	108.3776
Levelling mark	LT120027	83043.8364	36356.8063	108.3873
Levelling mark	LT120028	83042.0990	36357.6680	108.3936
Levelling mark	LT120029	83040.3816	36358.4961	108.3929
Levelling mark	LT120030	83038.5707	36359.3761	108.3955
Levelling mark	LT120031	83036.9079	36360.1610	108.4009
Levelling mark	LT120032	83035.0846	36360.9819	108.4084
Levelling mark	LT120033	83033.2155	36361.8315	108.4153
Levelling mark	LT120034	83031.3550	36362.6313	108.4119
Levelling mark	LT120035	83029.5518	36363.4098	108.4164
Levelling mark	LT120036	83027.8249	36364.1498	108.4247
Levelling mark	LT120037	83025.9093	36364.9962	108.4311
Levelling mark	LT120038	83024.0537	36365.7950	108.4372
Levelling mark	LT120039	83022.2791	36366.5712	108.4409
Levelling mark	LT120040	83020.3596	36367.4071	108.4437
Levelling mark	LT120041	83018.7311	36368.1241	108.4471
Levelling mark	LT120042	83016.7170	36368.9857	108.4520

Levelling mark	LT120043	83014.9256	36369.7811	108.4578
Levelling mark	LT120044	83013.1217	36370.5491	108.4698
Levelling mark	LT120045	83011.1681	36371.3962	108.4753
Levelling mark	LT120046	83009.5923	36372.0900	108.4792
Levelling mark	LT120047	83007.5784	36372.9620	108.4843
Levelling mark	LT120048	83005.8932	36373.6867	108.4866
Levelling mark	LT120049	83003.8550	36374.5560	108.4900
Levelling mark	LT120050	83002.1010	36375.3210	108.4910
Levelling mark	LT120051	83000.3460	36376.0850	108.4910
Levelling mark	LT120052	82998.4380	36376.8870	108.4940
Levelling mark	LT120053	82996.6536	36377.6537	108.4969
Levelling mark	LT120054	82994.8434	36378.4421	108.4974
Levelling mark	LT120055	82992.9136	36379.2807	108.4909
Levelling mark	LT120056	82991.2686	36379.9995	108.4881
Levelling mark	LT120057	82989.2981	36380.8213	108.4909
Levelling mark	LT120058	82987.4721	36381.6052	108.4927
Levelling mark	LT120059	82985.5120	36382.4592	108.4937
Levelling mark	LT120060	82983.8590	36383.1634	108.4919
Levelling mark	LT120061	82982.0033	36383.9658	108.4898
Levelling mark	LT120062	82980.1083	36384.7699	108.4928
Levelling mark	LT120063	82978.2944	36385.5504	108.4956
Levelling mark	LT120064	82976.4744	36386.3325	108.4968
Levelling mark	LT120065	82974.6260	36387.1384	108.5021
Levelling mark	LT120066	82972.7772	36387.9359	108.5019

Levelling mark	LT120067	82970.9430	36388.7164	108.5005
Levelling mark	LT120068	82969.2422	36389.4424	108.5010
Levelling mark	LT120069	82967.3222	36390.2638	108.5000
Levelling mark	LT120070	82965.3733	36391.0991	108.4980
Levelling mark	LT120071	82963.6645	36391.8423	108.4974
Levelling mark	LT120072	82961.7731	36392.6471	108.4962
Levelling mark	LT120073	82959.8291	36393.4831	108.4896
Levelling mark	LT120074	82958.0780	36394.2261	108.4844
Levelling mark	LT120075	82956.2353	36395.0177	108.4793
Levelling mark	LT120076	82954.4138	36395.8140	108.4744
Levelling mark	LT120077	82952.5399	36396.6073	108.4732
Levelling mark	LT120078	82950.8008	36397.3470	108.4674
Levelling mark	LT120079	82948.9520	36398.1514	108.4628
Levelling mark	LT120080	82947.0987	36398,9435	108,4640
Levelling mark	LT120081	82945,2944	36399,7228	108,4633
Levelling mark	LT120082	82943,4708	36400,4967	108,4620
Levelling mark	LT120083	82941,5788	36401,3186	108,4582
Levelling mark	LT120084	82939,6839	36402,1156	108,4534
Levelling mark	LT120085	82937,8929	36402,8861	108,4490
Levelling mark	LT120086	82935,9828	36403,7029	108,4449
Levelling mark	LT120087	82934,2467	36404,4448	108,4413
Levelling mark	LT120088	82932,3980	36405,2390	108,4345
Levelling mark	LT120089	82930,5149	36406,0534	108,4274
Levelling mark	LT120090	82928,6597	36406,8350	108,4192

Levelling mark	LT120091	82926,6805	36407,6826	108,4100
Levelling mark	LT120092	82924,8692	36408,4531	108,3996
Levelling mark	LT120093	82923,0498	36409,2404	108,3882
Levelling mark	LT120094	82921,3540	36409,9674	108,3702
Levelling mark	LT120095	82919,4575	36410,7779	108,3569
Levelling mark	LT120096	82917,5424	36411,6107	108,3447
Levelling mark	LT120097	82915,8023	36412,3670	108,3350
Levelling mark	LT120098	82914,0395	36413,1257	108,3369
Levelling mark	LT120099	82912,1973	36413,9153	108,3312
Levelling mark	LT120100	82910,3273	36414,7055	108,3240
Levelling mark	LT120101	82908,4552	36415,5165	108,3168
Levelling mark	LT120102	82906,6776	36416,2754	108,3171
Levelling mark	LT120103	82904,8882	36417,0349	108,3115
Levelling mark	LT120104	82902,9318	36417,8842	108,2999
Levelling mark	LT120105	82901,1166	36418,6625	108,2923
Levelling mark	LT120106	82899,4216	36419,3899	108,2817
Levelling mark	LT120107	82897,4933	36420,2133	108,2724
Levelling mark	LT120108	82895,5800	36421,0320	108,2649
Levelling mark	LT120109	82893,8219	36421,7871	108,2613
Levelling mark	LT120110	82891,9693	36422,5924	108,2540
Levelling mark	LT120111	82890,1590	36423,3694	108,2490
Levelling mark	LT120112	82888,3236	36424,1474	108,2400
Levelling mark	LT120113	82886,3757	36424,9830	108,2248
Levelling mark	LT120114	82884,5972	36425,7622	108,2107

Levelling mark	LT120115	82882,7073	36426,5486	108,2005
Levelling mark	LT120116	82880,8694	36427,3591	108,1855
Levelling mark	LT120117	82879,1158	36428,1007	108,1706
Levelling mark	LT120118	82877,3118	36428,8845	108,1534
Levelling mark	LT120119	82875,4762	36429,6677	108,1351
Levelling mark	LT120120	82873,6014	36430,4745	108,1181
Levelling mark	LT120121	82871,8722	36431,2041	108,1024
Levelling mark	LT120122	82869,9807	36432,0331	108,0749
Levelling mark	LT120123	82868,2223	36432,7886	108,0471
Levelling mark	LT120124	82866,2679	36433,6292	108,0136
Levelling mark	LT120125	82864,4640	36434,4152	107,9864
Levelling mark	LT120126	82862,6544	36435,1843	107,9584
Levelling mark	LT120127	82860,8731	36435,9563	107,9304
Levelling mark	LT120128	82859,0032	36436,7613	107,9009
Levelling mark	LT120129	82857.0619	36437.6025	107.8717
Levelling mark	LT120130	82855.2992	36438.3587	107.8484
Levelling mark	LT120131	82853.4252	36439.1703	107.8255
Levelling mark	LT120132	82851.5336	36439.9952	107.8001
Levelling mark	LT120133	82849.6872	36440.7739	107.7786
Levelling mark	LT120134	82847.9044	36441.5526	107.7602
Levelling mark	LT120135	82846.0829	36442.3368	107.7331
Levelling mark	LT120136	82844.1761	36443.1578	107.6996
Levelling mark	LT120137	82842.3579	36443.9243	107.6744
Levelling mark	LT120138	82840.3846	36444.7910	107.6443

Levelling mark	LT120139	82838.6773	36445.5013	107.6201
Levelling mark	LT120140	82836.8726	36446.2830	107.5939
Levelling mark	LT120141	82834.9406	36447.1071	107.5655
Levelling mark	LT120142	82833.2219	36447.8564	107.5374
Levelling mark	LT120143	82831.4045	36448.6448	107.5098
Levelling mark	LT120144	82829.5046	36449.4604	107.4803
Levelling mark	LT120145	82827.6400	36450.2615	107.4519
Levelling mark	LT120146	82825.8866	36451.0268	107.4255
Levelling mark	LT120147	82824.0913	36451.8011	107.3990
Levelling mark	LT120148	82822.0778	36452.6646	107.3627
Levelling mark	LT120149	82820.3424	36453.4059	107.3380
Levelling mark	LT120150	82818.4522	36454.2335	107.3139
Levelling mark	LT120151	82816.6586	36454.9960	107.2870
Levelling mark	LT120152	82814.7454	36455.8219	107.2578
Levelling mark	LT120153	82813.0618	36456.5637	107.2303
Levelling mark	LT120154	82811.1222	36457.3893	107.1938
Levelling mark	LT120155	82809.2135	36458.2004	107.1670
Levelling mark	LT120156	82807.3921	36458.9961	107.1392
Levelling mark	LT120157	82805.4925	36459.8133	107.1077
Levelling mark	LT120158	82803.7188	36460.5861	107.0771
Levelling mark	LT120159	82801.9334	36461.3468	107.0491
Levelling mark	LT120160	82800.0434	36462.1574	107.0258
Levelling mark	LT120161	82798.2335	36462.9458	107.0040
Levelling mark	LT120162	82796.3361	36463.7662	106.9775

Levelling mark	LT120163	82794.5379	36464.5252	106.9540
Levelling mark	LT120164	82792.6845	36465.3245	106.9373
Levelling mark	LT120165	82790.9105	36466.0900	106.9158
Levelling mark	LT120166	82789.1149	36466.8499	106.8962
Levelling mark	LT120167	82787.2330	36467.6185	106.8734
Levelling mark	LT120168	82785.4544	36468.4138	106.8613
Levelling mark	LT120169	82783.6437	36469.1981	106.8511
Levelling mark	LT120170	82781.7963	36469.9956	106.8386
Levelling mark	LT120171	82779.8502	36470.8318	106.8277
Levelling mark	LT120172	82778.1661	36471.5510	106.8201
Levelling mark	LT120173	82776.1814	36472.3955	106.8065
Levelling mark	LT120174	82774.3703	36473.1688	106.8024
Levelling mark	LT120175	82772.5818	36473.9378	106.8011
Levelling mark	LT120176	82770.9921	36474.6225	106.8045
Levelling mark	LT120177	82768.7890	36475.5684	106.8093
Levelling mark	LT120178	82766.9759	36476.3387	106.8131
Levelling mark	LT120179	82765.0631	36477.1573	106.8095
Levelling mark	LT120180	82763.2496	36477.9257	106.8118
Levelling mark	LT120181	82761.4908	36478.6796	106.8144
Levelling mark	LT120182	82759.6816	36479.4674	106.8232
Levelling mark	LT120183	82757.8136	36480.2788	106.8375
Levelling mark	LT120184	82755.8927	36481.0942	106.8543
Levelling mark	LT120185	82754.0020	36481.9225	106.8703
Levelling mark	LT120186	82752.4055	36482.6086	106.8849

Levelling mark	LT120187	82750.6318	36483.3808	106.8959
Levelling mark	LT120188	82748.7282	36484.2095	106.9141
Levelling mark	LT120189	82746.8767	36485.0073	106.9318
Levelling mark	LT120190	82744.9858	36485.8292	106.9497
Levelling mark	LT120191	82743.1271	36486.6378	106.9707
Levelling mark	LT120192	82741.1754	36487.4864	106.9959
Levelling mark	LT120193	82739.4348	36488.2259	107.0206
Levelling mark	LT120194	82737.7191	36488.9727	107.0364
Levelling mark	LT120195	82735.7250	36489.8114	107.0599
Levelling mark	LT120196	82733.9626	36490.5793	107.0825
Levelling mark	LT120197	82732.0963	36491.3778	107.1039
Levelling mark	LT120198	82730.2891	36492.1461	107.1307
Levelling mark	LT120199	82728.4518	36492.9525	107.1617
Levelling mark	LT120200	82726.6618	36493.7159	107.1879
Levelling mark	LT120201	82724.8640	36494.4750	107.2116
Levelling mark	LT120202	82723.0391	36495.2592	107.2329
Levelling mark	LT120203	82721.1931	36496.0488	107.2579
Levelling mark	LT120204	82719.4218	36496.8224	107.2856
Levelling mark	LT120205	82717.5171	36497.6326	107.3194
Levelling mark	LT120206	82715.5942	36498.4575	107.3530
Levelling mark	LT120207	82713.7558	36499.2447	107.3791
Levelling mark	LT120208	82711.9811	36500.0185	107.4037
Levelling mark	LT120209	82710.1185	36500.8087	107.4278
Levelling mark	LT120210	82708.2789	36501.6101	107.4493

Levelling mark	LT120211	82706.4044	36502.4133	107.4754
Levelling mark	LT120212	82704.3959	36503.2735	107.4997
Levelling mark	LT120213	82702.7397	36503.9924	107.5211
Levelling mark	LT120214	82700.7826	36504.8440	107.5504
Levelling mark	LT120215	82699.0119	36505.5938	107.5813
Levelling mark	LT120216	82697.2203	36506.3710	107.6044
Levelling mark	LT120217	82695.2923	36507.1891	107.6316
Levelling mark	LT120218	82693.4455	36507.9765	107.6578
Levelling mark	LT120219	82691.6879	36508.7029	107.6863
Levelling mark	LT120220	82689.7930	36509.5091	107.7142
Levelling mark	LT120221	82688.1234	36510.2062	107.7407
Levelling mark	LT120222	82686.1830	36511.0150	107.7758
Levelling mark	LT120223	82684.3518	36511.7694	107.8065
Levelling mark	LT120224	82682.4359	36512.5465	107.8339
Levelling mark	LT120225	82680.6148	36513.2880	107.8597
Levelling mark	LT120226	82678.7928	36514.0149	107.8855
Levelling mark	LT120227	82676.9919	36514.7282	107.9114
Levelling mark	LT120228	82675.1657	36515.4483	107.9385
Levelling mark	LT120229	82673.2608	36516.2000	107.9674
Levelling mark	LT120230	82671.4398	36516.9082	107.9957
Levelling mark	LT120231	82669.5532	36517.6315	108.0181
Levelling mark	LT120232	82667.7155	36518.3369	108.0442
Levelling mark	LT120233	82665.8701	36519.0353	108.0704
Levelling mark	LT120234	82663.9109	36519.7869	108.0978

Levelling mark	LT120235	82662.0072	36520.5051	108.1226
Levelling mark	LT120236	82660.2334	36521.1485	108.1477
Levelling mark	LT120237	82658.3884	36521.8447	108.1731
Levelling mark	LT120238	82656.5069	36522.5496	108.1976
Levelling mark	LT120239	82654.6099	36523.2496	108.2247
Levelling mark	LT120240	82652.7421	36523.9518	108.2536
Levelling mark	LT120241	82650.9309	36524.6141	108.2782
Levelling mark	LT120242	82648.9868	36525.3391	108.2995
Levelling mark	LT120243	82647.1201	36526.0400	108.3205
Levelling mark	LT120244	82645.3008	36526.7033	108.3444
Levelling mark	LT120245	82643.3298	36527.4301	108.3690
Levelling mark	LT120246	82641.5163	36528.0995	108.3924
Levelling mark	LT120247	82639.6124	36528.7954	108.4157
Levelling mark	LT120248	82637.7988	36529.4547	108.4393
Levelling mark	LT120249	82635.8249	36530.1831	108.4671
Levelling mark	LT120250	82633.8804	36530.9018	108.4941
Levelling mark	LT120251	82632.0677	36531.5711	108.5218
Levelling mark	LT120252	82630.1006	36532.2869	108.5516
Levelling mark	LT120253	82628.3299	36532.9407	108.5777
Levelling mark	LT120254	82626.4661	36533.6158	108.6056
Levelling mark	LT120255	82624.6127	36534.3037	108.6365
Levelling mark	LT120256	82622.7254	36534.9954	108.6687
Levelling mark	LT120257	82620.7678	36535.7148	108.6963
Levelling mark	LT120258	82618.8520	36536.4117	108.7276

Levelling mark	LT120259	82616.9821	36537.1049	108.7585
Levelling mark	LT120260	82615.1521	36537.7681	108.7863
Levelling mark	LT120261	82613.3421	36538.4254	108.8113
Levelling mark	LT120262	82611.3838	36539.1429	108.8409
Levelling mark	LT120263	82609.4954	36539.8260	108.8695
Levelling mark	LT120264	82607.6674	36540.4999	108.8945
Levelling mark	LT120265	82605.7436	36541.1871	108.9186
Levelling mark	LT120266	82604.0033	36541.8429	108.9375
Levelling mark	LT120267	82602.0458	36542.5422	108.9618
Levelling mark	LT120268	82600.1416	36543.2379	108.9873
Levelling mark	LT120269	82598.1294	36543.9660	109.0120
Levelling mark	LT120270	82596.3653	36544.5970	109.0309
Levelling mark	LT120271	82594.5084	36545.2724	109.0499
Levelling mark	LT120272	82592.6307	36545.9417	109.0741
Levelling mark	LT120273	82590.6954	36546.6501	109.0993
Levelling mark	LT120274	82588.8909	36547.2898	109.1218
Levelling mark	LT120275	82587.0984	36547.9461	109.1433
Levelling mark	LT120276	82585.1803	36548.6252	109.1716
Levelling mark	LT120277	82583.2717	36549.3143	109.1995
Levelling mark	LT120278	82581.4266	36549.9664	109.2285
Levelling mark	LT120279	82579.4831	36550.6470	109.2576
Levelling mark	LT120280	82577.6356	36551.2869	109.2832
Levelling mark	LT120281	82575.8864	36551.8845	109.3094
Levelling mark	LT120282	82573.8102	36552.5916	109.3418

Levelling mark	LT120283	82571.9551	36553.1910	109.3640
Levelling mark	LT120284	82570.1364	36553.7825	109.3855
Levelling mark	LT120285	82568.2429	36554.3945	109.4132
Levelling mark	LT120286	82566.3761	36554.9791	109.4431
Levelling mark	LT120287	82564.5013	36555.5670	109.4735
Levelling mark	LT120288	82562.5217	36556.1638	109.5051
Levelling mark	LT120289	82560.7454	36556.6960	109.5248
Levelling mark	LT120290	82558.8039	36557.2574	109.5493
Levelling mark	LT120291	82556.8214	36557.8307	109.5843
Levelling mark	LT120292	82554.8399	36558.3864	109.6258
Levelling mark	LT120293	82552.9850	36558.9012	109.6593
Levelling mark	LT120294	82551.0590	36559.4203	109.6930
Levelling mark	LT120295	82549.2773	36559.8925	109.7272
Levelling mark	LT120296	82547.2927	36560.4089	109.7672
Levelling mark	LT120297	82545.3900	36560.8850	109.8043
Levelling mark	LT120298	82543.4619	36561.3669	109.8323
Levelling mark	LT120299	82541.5732	36561.8256	109.8567
Levelling mark	LT120300	82539.7378	36562.2667	109.8830
Levelling mark	LT120301	82537.8394	36562.7056	109.9134
Levelling mark	LT120302	82535.9867	36563.1266	109.9398
Levelling mark	LT120303	82533.9491	36563.5657	109.9642
Levelling mark	LT120304	82531.9746	36563.9923	109.9836
Levelling mark	LT120305	82530.2028	36564.3524	110.0002
Levelling mark	LT120306	82528.2278	36564.7401	110.0122

Levelling mark	LT120307	82526.0825	36565.1641	110.0123
Levelling mark	LT120308	82524.1807	36565.5257	110.0223
Levelling mark	LT120309	82522.2451	36565.8757	110.0367
Levelling mark	LT120310	82520.3120	36566.2005	110.0553
Levelling mark	LT120311	82518.2970	36566.5508	110.0718
Levelling mark	LT120312	82516.3689	36566.8664	110.0835
Levelling mark	LT120313	82514.4318	36567.1725	110.0875
Levelling mark	LT120314	82512.5634	36567.4578	110.0909
Levelling mark	LT120315	82510.5101	36567.7723	110.0991
Levelling mark	LT120316	82508.5628	36568.0441	110.1014
Levelling mark	LT120317	82506.5876	36568.3081	110.0976
Levelling mark	LT120318	82504.6955	36568.5574	110.0866
Levelling mark	LT120319	82502.6572	36568.7934	110.0783
Levelling mark	LT120320	82500.7247	36569.0042	110.0739
Levelling mark	LT120321	82498.6896	36569.2101	110.0664
Levelling mark	LT120322	82496.8406	36569.3895	110.0557
Levelling mark	LT120323	82494.7996	36569.5744	110.0426
Levelling mark	LT120324	82492.9499	36569.7246	110.0267
Levelling mark	LT120325	82490.9212	36569.8732	110.0048
Levelling mark	LT120326	82488.8832	36570.0172	109.9775
Levelling mark	LT120327	82486.8902	36570.1664	109.9515
Levelling mark	LT120328	82484.9534	36570.2838	109.9334
Levelling mark	LT120329	82482.9497	36570.4284	109.9202
Levelling mark	LT120330	82480.9366	36570.5245	109.9091

Levelling mark	LT120331	82478.9861	36570.6309	109.8934
Levelling mark	LT120332	82477.1191	36570.7148	109.8725
Levelling mark	LT120333	82475.1149	36570.7981	109.8504
Levelling mark	LT120334	82473.0858	36570.8553	109.8354
Levelling mark	LT120335	82471.1438	36570.9068	109.8214
Levelling mark	LT120336	82469.1713	36570.9528	109.8023
Levelling mark	LT120337	82467.0837	36571.0034	109.7822
Levelling mark	LT120338	82465.2356	36571.0130	109.7663
Levelling mark	LT120339	82463.1432	36571.0284	109.7540
Levelling mark	LT120340	82461.1881	36571.0466	109.7467
Levelling mark	LT120341	82459.2736	36571.0317	109.7435
Levelling mark	LT120342	82457.3590	36571.0168	109.7402
Levelling mark	LT120343	82455.3888	36571.0074	109.7343
Levelling mark	LT120344	82453.3153	36570.9625	109.7149
Levelling mark	LT120345	82451.3051	36570.9070	109.6827
Levelling mark	LT120346	82449.3450	36570.8657	109.6553
Levelling mark	LT120347	82447.3211	36570.7925	109.6387
Levelling mark	LT120348	82445.3809	36570.7123	109.6337
Levelling mark	LT120349	82443.3842	36570.6326	109.6397
Levelling mark	LT120350	82441.2623	36570.5402	109.6515
Levelling mark	LT120351	82439.3247	36570.4538	109.6569
Levelling mark	LT120352	82437.4179	36570.3543	109.6568
Levelling mark	LT120353	82435.2859	36570.2224	109.6524
Levelling mark	LT120354	82433.3381	36570.1179	109.6498

Levelling mark	LT120355	82431.4729	36569.9890	109.6483
Levelling mark	LT120356	82429.3299	36569.8323	109.6423
Levelling mark	LT120357	82427.3936	36569.6686	109.6298
Levelling mark	LT120358	82425.3619	36569.4966	109.6266
Levelling mark	LT120359	82423.2117	36569.3256	109.6148
Levelling mark	LT120360	82421.2817	36569.1839	109.6050
Levelling mark	LT120361	82419.3346	36569.0367	109.5969
Levelling mark	LT120362	82417.2298	36568.8778	109.5923
Levelling mark	LT120363	82415.3938	36568.7395	109.5865
Levelling mark	LT120364	82413.3384	36568.5883	109.5781
Levelling mark	LT120365	82411.4028	36568.4471	109.5653
Levelling mark	LT120366	82409.3459	36568.2984	109.5556
Levelling mark	LT120367	82407.4363	36568.1489	109.5496
Levelling mark	LT120368	82405.3971	36567.9975	109.5419
Levelling mark	LT120369	82403.4575	36567.8503	109.5343
Levelling mark	LT120370	82401.4789	36567.6964	109.5331
Levelling mark	LT120371	82399.5163	36567.5502	109.5309
Levelling mark	LT120372	82397.3666	36567.3738	109.5213
Levelling mark	LT120373	82395.3259	36567.2249	109.5089
Levelling mark	LT120374	82393.4180	36567.0786	109.4971
Levelling mark	LT120375	82391.4396	36566.9365	109.4889
Levelling mark	LT120376	82389.4411	36566.7802	109.4845
Levelling mark	LT120377	82387.5264	36566.6247	109.4768
Levelling mark	LT120378	82385.3867	36566.4560	109.4638

Levelling mark	LT120379	82383.4667	36566.3025	109.4543
Levelling mark	LT120380	82381.4118	36566.1541	109.4479
Levelling mark	LT120381	82379.4749	36565.9890	109.4562
Levelling mark	LT120382	82377.3461	36565.8214	109.4523
Levelling mark	LT120383	82375.4513	36565.6653	109.4492
Levelling mark	LT120384	82373.2929	36565.5027	109.4444
Levelling mark	LT120385	82371.4332	36565.3670	109.4347
Levelling mark	LT120386	82369.5243	36565.2156	109.4279
Levelling mark	LT120387	82367.4292	36565.0828	109.4065
Levelling mark	LT120388	82365.5613	36564.9379	109.3931
Levelling mark	LT120389	82363.4246	36564.7882	109.3812
Levelling mark	LT120390	82361.4362	36564.6387	109.3768
Levelling mark	LT120391	82359.5478	36564.4605	109.3904
Levelling mark	LT120392	82357.4261	36564.3004	109.3781
Levelling mark	LT120393	82355.3991	36564.1406	109.3636
Levelling mark	LT120394	82353.4082	36563.9962	109.3553
Levelling mark	LT120395	82351.5238	36563.8466	109.3441
Levelling mark	LT120396	82349.5045	36563.7008	109.3415
Levelling mark	LT120397	82347.5377	36563.5561	109.3331
Levelling mark	LT120398	82345.4371	36563.3900	109.3181
Levelling mark	LT120399	82343.5132	36563.2339	109.3073
Levelling mark	LT120400	82341.5672	36563.0894	109.3009
Levelling mark	LT120401	82339.4219	36562.9352	109.2932
Levelling mark	LT120402	82337.4871	36562.7766	109.2875

Levelling mark	LT120403	82335.5186	36562.6222	109.2828
Levelling mark	LT120404	82333.4640	36562.4703	109.2746
Levelling mark	LT120405	82331.5388	36562.3174	109.2622
Levelling mark	LT120406	82329.4986	36562.1745	109.2469
Levelling mark	LT120407	82327.4930	36562.0108	109.2398
Levelling mark	LT120408	82325.5185	36561.8638	109.2334
Levelling mark	LT120409	82323.5107	36561.7170	109.2171
Levelling mark	LT120410	82321.4818	36561.5709	109.1995
Levelling mark	LT120411	82319.5649	36561.4252	109.1917
Levelling mark	LT120412	82317.5601	36561.2762	109.1832
Levelling mark	LT120413	82315.5693	36561.1254	109.1625
Levelling mark	LT120414	82313.4784	36560.9592	109.1436
Levelling mark	LT120415	82311.6257	36560.8017	109.1382
Levelling mark	LT120416	82309.5588	36560.6417	109.1294
Levelling mark	LT120417	82307.6115	36560.4895	109.1211
Levelling mark	LT120418	82305.6350	36560.3026	109.1148
Levelling mark	LT120419	82303.7701	36560.1406	109.1091
Levelling mark	LT120420	82301.7575	36559.9265	109.1056
Levelling mark	LT120421	82299.7916	36559.7136	109.0984
Levelling mark	LT120422	82297.8598	36559.4756	109.0971
Levelling mark	LT120423	82295.8672	36559.2023	109.1036
Levelling mark	LT120424	82293.8451	36558.9143	109.1053
Levelling mark	LT120425	82291.9474	36558.6098	109.1052
Levelling mark	LT120426	82290.0635	36558.2982	109.0988

Levelling mark	LT120427	82288.1535	36557.9669	109.0934
Levelling mark	LT120428	82286.1824	36557.6085	109.0841
Levelling mark	LT120429	82286.1824	36557.6085	109.0841
Levelling mark	LT120430	82284.2878	36557.2417	109.0715
Levelling mark	LT120431	82282.3142	36556.8445	109.0550
Levelling mark	LT120432	82280.4361	36556.4428	109.0424
Levelling mark	LT120501	83091.1899	36335.3619	108.0823
Levelling mark	LT120502	83089.2895	36336.0668	108.0919
Levelling mark	LT120503	83087.4193	36336.7779	108.1102
Levelling mark	LT120504	83085.6742	36337.4556	108.1235
Levelling mark	LT120505	83083.7052	36338.2275	108.1337
Levelling mark	LT120506	83081.7718	36339.0106	108.1440
Levelling mark	LT120507	83079.9319	36339.7994	108.1611
Levelling mark	LT120508	83078.1118	36340.6033	108.1795
Levelling mark	LT120509	83076.1805	36341.4540	108.1945
Levelling mark	LT120510	83074.3506	36342.2917	108.2054
Levelling mark	LT120511	83072.6023	36343.1049	108.2202
Levelling mark	LT120512	83070.8667	36343.9613	108.2335
Levelling mark	LT120513	83069.0228	36344.8880	108.2521
Levelling mark	LT120514	83067.2622	36345.7938	108.2640
Levelling mark	LT120515	83065.5220	36346.7084	108.2766
Levelling mark	LT120516	83063.7656	36347.6623	108.2911
Levelling mark	LT120517	83061.9506	36348.6524	108.3078
Levelling mark	LT120518	83060.2331	36349.6019	108.3197

Levelling mark	LT120519	83058.4412	36350.5926	108.3289
Levelling mark	LT120520	83056.7374	36351.5577	108.3374
Levelling mark	LT120521	83055.0231	36352.5246	108.3532
Levelling mark	LT120522	83053.3209	36353.4791	108.3634
Levelling mark	LT120523	83051.4960	36354.4804	108.3749
Levelling mark	LT120524	83049.8161	36355.3799	108.3883
Levelling mark	LT120525	83048.0991	36356.2850	108.3988
Levelling mark	LT120526	83046.4174	36357.1737	108.4067
Levelling mark	LT120527	83044.5146	36358.1467	108.4144
Levelling mark	LT120528	83042.7716	36359.0156	108.4204
Levelling mark	LT120529	83041.0355	36359.8760	108.4208
Levelling mark	LT120530	83039.2623	36360.7322	108.4236
Levelling mark	LT120531	83037.5476	36361.5019	108.4308
Levelling mark	LT120532	83035.6790	36362.3689	108.4359
Levelling mark	LT120533	83033.8497	36363.1784	108.4316
Levelling mark	LT120534	83032.0089	36363.9897	108.4285
Levelling mark	LT120535	83030.1052	36364.7940	108.4344
Levelling mark	LT120536	83028.3959	36365.5398	108.4423
Levelling mark	LT120537	83026.4078	36366.3908	108.4437
Levelling mark	LT120538	83024.6809	36367.1613	108.4457
Levelling mark	LT120539	83022.8955	36367.9195	108.4470
Levelling mark	LT120540	83020.9861	36368.7684	108.4473
Levelling mark	LT120541	83019.2722	36369.5121	108.4498
Levelling mark	LT120542	83017.3442	36370.3426	108.4552

Levelling mark	LT120543	83015.5468	36371.1371	108.4616
Levelling mark	LT120544	83013.7843	36371.8890	108.4720
Levelling mark	LT120545	83011.8100	36372.7475	108.4800
Levelling mark	LT120546	83010.1555	36373.4725	108.4832
Levelling mark	LT120547	83008.2078	36374.3162	108.4841
Levelling mark	LT120548	83006.4678	36375.0515	108.4833
Levelling mark	LT120549	83004.4596	36375.9314	108.4883
Levelling mark	LT120550	83002.8745	36376.6087	108.4898
Levelling mark	LT120551	83000.9309	36377.4499	108.4892
Levelling mark	LT120552	82999.0391	36378.2565	108.4922
Levelling mark	LT120553	82997.2497	36379.0229	108.4960
Levelling mark	LT120554	82995.4618	36379.8077	108.4937
Levelling mark	LT120555	82993.5543	36380.6226	108.4855
Levelling mark	LT120556	82991.7879	36381.3897	108.4844
Levelling mark	LT120557	82989.9166	36382.1780	108.4823
Levelling mark	LT120558	82988.0533	36382.9698	108.4819
Levelling mark	LT120559	82986.1122	36383.8235	108.4868
Levelling mark	LT120560	82984.4665	36384.5228	108.4866
Levelling mark	LT120561	82982.5981	36385.3254	108.4853
Levelling mark	LT120562	82980.6981	36386.1453	108.4873
Levelling mark	LT120563	82978.8599	36386.9410	108.4908
Levelling mark	LT120564	82977.0672	36387.6992	108.4954
Levelling mark	LT120565	82975.2334	36388.4957	108.5049
Levelling mark	LT120566	82973.3545	36389.2974	108.5064

Levelling mark	LT120567	82971.5336	36390.0752	108.5018
Levelling mark	LT120568	82969.8656	36390.8016	108.4988
Levelling mark	LT120569	82967.9544	36391.6161	108.4970
Levelling mark	LT120570	82965.9653	36392.4738	108.4981
Levelling mark	LT120571	82964.2193	36393.2310	108.5007
Levelling mark	LT120572	82962.3975	36394.0024	108.4980
Levelling mark	LT120573	82960.4657	36394.8201	108.4911
Levelling mark	LT120574	82958.6560	36395.6037	108.4894
Levelling mark	LT120575	82956.8233	36396.3803	108.4834
Levelling mark	LT120576	82954.9978	36397.1603	108.4769
Levelling mark	LT120577	82953.1357	36397.9707	108.4747
Levelling mark	LT120578	82951.3965	36398.7045	108.4752
Levelling mark	LT120579	82949.5666	36399.4980	108.4742
Levelling mark	LT120580	82947.7303	36400.2924	108.4677
Levelling mark	LT120581	82945.8755	36401.0996	108.4620
Levelling mark	LT120582	82944.0760	36401.8616	108.4610
Levelling mark	LT120583	82942.2120	36402.6588	108.4634
Levelling mark	LT120584	82940.3056	36403.4712	108.4560
Levelling mark	LT120585	82938.4743	36404.2545	108.4480
Levelling mark	LT120586	82936.5677	36405.0663	108.4417
Levelling mark	LT120587	82934.7689	36405.8473	108.4345
Levelling mark	LT120588	82932.9280	36406.6368	108.4285
Levelling mark	LT120589	82931.1179	36407.4154	108.4285
Levelling mark	LT120590	82929.1969	36408.2334	108.4222

Levelling mark	LT120591	82927.2550	36409.0675	108.4120
Levelling mark	LT120592	82925.4813	36409.8213	108.4006
Levelling mark	LT120593	82923.6720	36410.6015	108.3895
Levelling mark	LT120594	82921.9333	36411.3503	108.3722
Levelling mark	LT120595	82920.0141	36412.1672	108.3570
Levelling mark	LT120596	82918.1984	36412.9548	108.3496
Levelling mark	LT120597	82916.3958	36413.7299	108.3495
Levelling mark	LT120598	82914.6388	36414.4915	108.3482
Levelling mark	LT120599	82912.7950	36415.2749	108.3326
Levelling mark	LT120600	82910.9240	36416.0868	108.3218
Levelling mark	LT120601	82909.0755	36416.8742	108.3163
Levelling mark	LT120602	82907.2445	36417.6654	108.3198
Levelling mark	LT120603	82905.4487	36418.4264	108.3032
Levelling mark	LT120604	82903.5783	36419.2315	108.2957
Levelling mark	LT120605	82901.7225	36420.0294	108.2862
Levelling mark	LT120606	82899.9749	36420.7629	108.2747
Levelling mark	LT120607	82898.0738	36421.5794	108.2659
Levelling mark	LT120608	82896.1808	36422.3991	108.2619
Levelling mark	LT120609	82894.4269	36423.1519	108.2597
Levelling mark	LT120610	82892.5227	36423.9626	108.2493
Levelling mark	LT120611	82890.6353	36424.7758	108.2392
Levelling mark	LT120612	82888.8774	36425.5357	108.2341
Levelling mark	LT120613	82886.9719	36426.3590	108.2282
Levelling mark	LT120614	82885.1353	36427.1311	108.2132

Levelling mark	LT120615	82883.3048	36427.9252	108.1957
Levelling mark	LT120616	82881.4769	36428.7141	108.1795
Levelling mark	LT120617	82879.6834	36429.4931	108.1677
Levelling mark	LT120618	82877.9112	36430.2388	108.1552
Levelling mark	LT120619	82876.0820	36431.0183	108.1393
Levelling mark	LT120620	82874.2442	36431.8162	108.1232
Levelling mark	LT120621	82872.4013	36432.5969	108.1005
Levelling mark	LT120622	82870.5615	36433.3929	108.0709
Levelling mark	LT120623	82868.7832	36434.1615	108.0419
Levelling mark	LT120624	82866.8354	36435.0090	108.0107
Levelling mark	LT120625	82865.0885	36435.7889	107.9807
Levelling mark	LT120626	82863.2211	36436.5808	107.9529
Levelling mark	LT120627	82861.4583	36437.3310	107.9276
Levelling mark	LT120628	82859.5838	36438.1341	107.9010
Levelling mark	LT120629	82857.6402	36438.9761	107.8772
Levelling mark	LT120630	82855.8984	36439.7354	107.8552
Levelling mark	LT120631	82854.0531	36440.5341	107.8304
Levelling mark	LT120632	82852.1079	36441.3614	107.8005
Levelling mark	LT120633	82850.2857	36442.1482	107.7776
Levelling mark	LT120634	82848.5046	36442.9245	107.7582
Levelling mark	LT120635	82846.6469	36443.7105	107.7325
Levelling mark	LT120636	82844.8022	36444.4881	107.7049
Levelling mark	LT120637	82842.9765	36445.2863	107.6760
Levelling mark	LT120638	82841.0890	36446.0905	107.6517

Levelling mark	LT120639	82839.2732	36446.8781	107.6259
Levelling mark	LT120640	82837.4841	36447.6481	107.5969
Levelling mark	LT120641	82835.5750	36448.4682	107.5654
Levelling mark	LT120642	82833.8404	36449.2166	107.5375
Levelling mark	LT120643	82832.0111	36450.0096	107.5108
Levelling mark	LT120644	82830.1545	36450.7946	107.4804
Levelling mark	LT120645	82828.2801	36451.6018	107.4527
Levelling mark	LT120646	82826.4864	36452.3751	107.4269
Levelling mark	LT120647	82824.6698	36453.1595	107.3989
Levelling mark	LT120648	82822.6822	36454.0233	107.3633
Levelling mark	LT120649	82820.9527	36454.7652	107.3395
Levelling mark	LT120650	82819.0408	36455.5980	107.3146
Levelling mark	LT120651	82817.2454	36456.3695	107.2855
Levelling mark	LT120652	82815.3499	36457.1927	107.2531
Levelling mark	LT120653	82813.6328	36457.9362	107.2251
Levelling mark	LT120654	82811.7417	36458.7413	107.1937
Levelling mark	LT120655	82809.8355	36459.5615	107.1666
Levelling mark	LT120656	82807.9883	36460.3537	107.1412
Levelling mark	LT120657	82806.1113	36461.1538	107.1118
Levelling mark	LT120658	82804.2972	36461.9458	107.0824
Levelling mark	LT120659	82802.5224	36462.7129	107.0551
Levelling mark	LT120660	82800.6487	36463.5273	107.0303
Levelling mark	LT120661	82798.8290	36464.3112	107.0070
Levelling mark	LT120662	82796.9983	36465.0962	106.9799

Levelling mark	LT120663	82795.1583	36465.8777	106.9551
Levelling mark	LT120664	82793.3117	36466.6588	106.9376
Levelling mark	LT120665	82791.4938	36467.4464	106.9197
Levelling mark	LT120666	82789.6943	36468.2043	106.9018
Levelling mark	LT120667	82787.9226	36468.9769	106.8881
Levelling mark	LT120668	82786.0490	36469.7806	106.8745
Levelling mark	LT120669	82784.2257	36470.5608	106.8575
Levelling mark	LT120670	82782.3585	36471.3627	106.8351
Levelling mark	LT120671	82780.4187	36472.2022	106.8261
Levelling mark	LT120672	82778.7381	36472.9169	106.8204
Levelling mark	LT120673	82776.7746	36473.7564	106.8095
Levelling mark	LT120674	82774.9775	36474.5436	106.8022
Levelling mark	LT120675	82773.1559	36475.3267	106.8027
Levelling mark	LT120676	82771.5954	36475.9834	106.8063
Levelling mark	LT120677	82769.3759	36476.9356	106.8081
Levelling mark	LT120678	82767.5650	36477.6871	106.8169
Levelling mark	LT120679	82765.6855	36478.5299	106.8120
Levelling mark	LT120680	82763.8482	36479.2875	106.8145
Levelling mark	LT120681	82762.0350	36480.0652	106.8179
Levelling mark	LT120682	82760.2878	36480.8392	106.8238
Levelling mark	LT120683	82758.4291	36481.6164	106.8391
Levelling mark	LT120684	82756.5738	36482.4292	106.8580
Levelling mark	LT120685	82754.6820	36483.2468	106.8746
Levelling mark	LT120686	82752.9660	36483.9856	106.8868

Levelling mark	LT120687	82751.0946	36484.7988	106.8994
Levelling mark	LT120688	82749.2769	36485.6008	106.9174
Levelling mark	LT120689	82747.4165	36486.3937	106.9337
Levelling mark	LT120690	82745.6176	36487.1879	106.9535
Levelling mark	LT120691	82743.6975	36488.0065	106.9753
Levelling mark	LT120692	82741.7665	36488.8465	107.0001
Levelling mark	LT120693	82740.0056	36489.6107	107.0239
Levelling mark	LT120694	82738.2609	36490.3663	107.0415
Levelling mark	LT120695	82736.3256	36491.1950	107.0614
Levelling mark	LT120696	82734.6030	36491.9293	107.0843
Levelling mark	LT120697	82732.7403	36492.7171	107.1060
Levelling mark	LT120698	82730.9323	36493.5051	107.1294
Levelling mark	LT120699	82729.0510	36494.3133	107.1572
Levelling mark	LT120700	82727.1986	36495.1119	107.1842
Levelling mark	LT120701	82725.4835	36495.8377	107.2096
Levelling mark	LT120702	82723.6324	36496.6337	107.2379
Levelling mark	LT120703	82721.8197	36497.4159	107.2661
Levelling mark	LT120704	82719.9615	36498.2201	107.2957
Levelling mark	LT120705	82718.0759	36499.0154	107.3229
Levelling mark	LT120706	82716.1930	36499.8175	107.3497
Levelling mark	LT120707	82714.3877	36500.6001	107.3749
Levelling mark	LT120708	82712.5857	36501.3742	107.4019
Levelling mark	LT120709	82710.7092	36502.1773	107.4268
Levelling mark	LT120710	82708.8708	36502.9677	107.4514

Levelling mark	LT120711	82706.9908	36503.7773	107.4776
Levelling mark	LT120712	82705.0786	36504.5952	107.5026
Levelling mark	LT120713	82703.3155	36505.3653	107.5337
Levelling mark	LT120714	82701.3901	36506.1842	107.5659
Levelling mark	LT120715	82699.6262	36506.9516	107.5937
Levelling mark	LT120716	82697.8037	36507.7352	107.6193
Levelling mark	LT120717	82695.8602	36508.5717	107.6475
Levelling mark	LT120718	82694.0443	36509.3362	107.6737
Levelling mark	LT120719	82692.2581	36510.0861	107.7015
Levelling mark	LT120720	82690.4213	36510.8614	107.7314
Levelling mark	LT120721	82688.7061	36511.5933	107.7586
Levelling mark	LT120722	82686.7889	36512.3888	107.7919
Levelling mark	LT120723	82684.9205	36513.1517	107.8238
Levelling mark	LT120724	82683.0050	36513.9240	107.8514
Levelling mark	LT120725	82681.1849	36514.6676	107.8786
Levelling mark	LT120726	82679.3403	36515.4057	107.9051
Levelling mark	LT120727	82677.5070	36516.1354	107.9319
Levelling mark	LT120728	82675.6999	36516.8490	107.9593
Levelling mark	LT120729	82673.7853	36517.5967	107.9872
Levelling mark	LT120730	82671.9816	36518.2975	108.0164
Levelling mark	LT120731	82670.1033	36519.0334	108.0397
Levelling mark	LT120732	82668.2447	36519.7454	108.0687
Levelling mark	LT120733	82666.4131	36520.4333	108.0847
Levelling mark	LT120734	82664.4550	36521.1739	108.1126

Levelling mark	LT120735	82662.5814	36521.8814	108.1378
Levelling mark	LT120736	82660.7627	36522.5647	108.1596
Levelling mark	LT120737	82658.9226	36523.2514	108.1839
Levelling mark	LT120738	82657.0496	36523.9490	108.2040
Levelling mark	LT120739	82655.1698	36524.6481	108.2253
Levelling mark	LT120740	82653.2674	36525.3597	108.2495
Levelling mark	LT120741	82651.4023	36526.0414	108.2719
Levelling mark	LT120742	82649.5511	36526.7298	108.2923
Levelling mark	LT120743	82647.6616	36527.4291	108.3140
Levelling mark	LT120744	82645.7999	36528.1109	108.3384
Levelling mark	LT120745	82643.8515	36528.8364	108.3641
Levelling mark	LT120746	82642.0290	36529.5122	108.3870
Levelling mark	LT120747	82640.1371	36530.1985	108.4099
Levelling mark	LT120748	82638.3083	36530.8699	108.4355
Levelling mark	LT120749	82636.3565	36531.5889	108.4624
Levelling mark	LT120750	82634.4106	36532.3007	108.4895
Levelling mark	LT120751	82632.6133	36532.9613	108.5165
Levelling mark	LT120752	82630.6357	36533.6887	108.5430
Levelling mark	LT120753	82628.8595	36534.3404	108.5699
Levelling mark	LT120754	82627.0251	36535.0147	108.5999
Levelling mark	LT120755	82625.1253	36535.7122	108.6353
Levelling mark	LT120756	82623.2558	36536.3987	108.6711
Levelling mark	LT120757	82621.2726	36537.1242	108.6998
Levelling mark	LT120758	82619.4536	36537.7940	108.7254

Levelling mark	LT120759	82617.5162	36538.4981	108.7570
Levelling mark	LT120760	82615.7082	36539.1594	108.7860
Levelling mark	LT120761	82613.8332	36539.8421	108.8144
Levelling mark	LT120762	82611.8851	36540.5494	108.8419
Levelling mark	LT120763	82610.0298	36541.2239	108.8684
Levelling mark	LT120764	82608.1198	36541.9209	108.8941
Levelling mark	LT120765	82606.2762	36542.5953	108.9177
Levelling mark	LT120766	82604.4742	36543.2561	108.9402
Levelling mark	LT120767	82602.5515	36543.9507	108.9649
Levelling mark	LT120768	82600.6398	36544.6432	108.9901
Levelling mark	LT120769	82598.6632	36545.3648	109.0165
Levelling mark	LT120770	82596.8940	36545.9974	109.0386
Levelling mark	LT120771	82595.0334	36546.6718	109.0636
Levelling mark	LT120772	82593.1567	36547.3528	109.0904
Levelling mark	LT120773	82591.2612	36548.0333	109.1164
Levelling mark	LT120774	82589.4531	36548.6805	109.1419
Levelling mark	LT120775	82587.5947	36549.3538	109.1709
Levelling mark	LT120776	82585.6798	36550.0378	109.1997
Levelling mark	LT120777	82583.7411	36550.7306	109.2303
Levelling mark	LT120778	82581.9377	36551.3763	109.2575
Levelling mark	LT120779	82579.9847	36552.0570	109.2849
Levelling mark	LT120780	82578.1266	36552.7054	109.3129
Levelling mark	LT120781	82576.3673	36553.3029	109.3441
Levelling mark	LT120782	82574.2975	36553.9990	109.3821

Levelling mark	LT120783	82572.5390	36554.5861	109.4070
Levelling mark	LT120784	82570.6250	36555.2019	109.4320
Levelling mark	LT120785	82568.6755	36555.8267	109.4643
Levelling mark	LT120786	82566.8316	36556.4139	109.4980
Levelling mark	LT120787	82564.9174	36557.0022	109.5324
Levelling mark	LT120788	82563.0194	36557.5796	109.5619
Levelling mark	LT120789	82561.1897	36558.1230	109.5863
Levelling mark	LT120790	82559.2241	36558.6961	109.6153
Levelling mark	LT120791	82557.2373	36559.2565	109.6532
Levelling mark	LT120792	82555.2675	36559.8271	109.6988
Levelling mark	LT120793	82553.3598	36560.3503	109.7335
Levelling mark	LT120794	82551.4865	36560.8533	109.7648
Levelling mark	LT120795	82549.5796	36561.3636	109.7989
Levelling mark	LT120796	82547.6557	36561.8654	109.8374
Levelling mark	LT120797	82545.7316	36562.3547	109.8770
Levelling mark	LT120798	82543.8246	36562.8212	109.9056
Levelling mark	LT120799	82541.8812	36563.2885	109.9330
Levelling mark	LT120800	82540.0268	36563.7339	109.9584
Levelling mark	LT120801	82538.1638	36564.1689	109.9851
Levelling mark	LT120802	82536.2398	36564.6063	110.0132
Levelling mark	LT120803	82534.2490	36565.0404	110.0403
Levelling mark	LT120804	82532.2385	36565.4708	110.0625
Levelling mark	LT120805	82530.4915	36565.8203	110.0788
Levelling mark	LT120806	82528.4658	36566.2126	110.0912

Levelling mark	LT120807	82526.3708	36566.6408	110.0954
Levelling mark	LT120808	82524.4488	36567.0005	110.1098
Levelling mark	LT120809	82522.5178	36567.3380	110.1229
Levelling mark	LT120810	82520.5539	36567.6790	110.1397
Levelling mark	LT120811	82518.5593	36568.0315	110.1571
Levelling mark	LT120812	82516.6551	36568.3373	110.1671
Levelling mark	LT120813	82514.6603	36568.6541	110.1700
Levelling mark	LT120814	82512.7011	36568.9435	110.1658
Levelling mark	LT120815	82510.7291	36569.2398	110.1653
Levelling mark	LT120816	82508.7731	36569.5315	110.1617
Levelling mark	LT120817	82506.7986	36569.7935	110.1551
Levelling mark	LT120818	82504.8462	36570.0459	110.1464
Levelling mark	LT120819	82502.8842	36570.2778	110.1361
Levelling mark	LT120820	82500.8794	36570.4902	110.1260
Levelling mark	LT120821	82498.8838	36570.6937	110.1138
Levelling mark	LT120822	82496.9717	36570.8768	110.1021
Levelling mark	LT120823	82494.9242	36571.0473	110.0834
Levelling mark	LT120824	82493.0563	36571.2039	110.0691
Levelling mark	LT120825	82491.0498	36571.3620	110.0466
Levelling mark	LT120826	82489.0156	36571.5024	110.0154
Levelling mark	LT120827	82486.9868	36571.6489	109.9892
Levelling mark	LT120828	82485.0544	36571.7735	109.9681
Levelling mark	LT120829	82483.0754	36571.9134	109.9537
Levelling mark	LT120830	82481.0062	36572.0264	109.9380

Levelling mark	LT120831	82479.0894	36572.1358	109.9301
Levelling mark	LT120832	82477.2076	36572.2087	109.9104
Levelling mark	LT120833	82475.2015	36572.2727	109.8912
Levelling mark	LT120834	82473.2012	36572.3477	109.8817
Levelling mark	LT120835	82471.1780	36572.3961	109.8733
Levelling mark	LT120836	82469.2032	36572.4451	109.8653
Levelling mark	LT120837	82467.1527	36572.4862	109.8539
Levelling mark	LT120838	82465.2155	36572.4982	109.8334
Levelling mark	LT120839	82463.1891	36572.5236	109.8138
Levelling mark	LT120840	82461.2187	36572.5342	109.8024
Levelling mark	LT120841	82459.2111	36572.5191	109.8032
Levelling mark	LT120842	82457.3364	36572.5092	109.8006
Levelling mark	LT120843	82455.3664	36572.4911	109.7893
Levelling mark	LT120844	82453.2822	36572.4575	109.7693
Levelling mark	LT120845	82451.3123	36572.4062	109.7471
Levelling mark	LT120846	82449.3125	36572.3434	109.7278
Levelling mark	LT120847	82447.2331	36572.2852	109.7176
Levelling mark	LT120848	82445.3032	36572.2107	109.7096
Levelling mark	LT120849	82443.3442	36572.1290	109.7076
Levelling mark	LT120850	82441.2130	36572.0367	109.7109
Levelling mark	LT120851	82439.3023	36571.9438	109.7104
Levelling mark	LT120852	82437.3395	36571.8341	109.7033
Levelling mark	LT120853	82435.2733	36571.7284	109.6914
Levelling mark	LT120854	82433.2951	36571.6038	109.6812

Levelling mark	LT120855	82431.3596	36571.4680	109.6732
Levelling mark	LT120856	82429.3164	36571.3248	109.6598
Levelling mark	LT120857	82427.2880	36571.1454	109.6398
Levelling mark	LT120858	82425.2650	36571.0017	109.6316
Levelling mark	LT120859	82423.1582	36570.8339	109.6130
Levelling mark	LT120860	82421.2417	36570.6796	109.5975
Levelling mark	LT120861	82419.2497	36570.5333	109.5849
Levelling mark	LT120862	82417.2049	36570.3697	109.5725
Levelling mark	LT120863	82415.3397	36570.2248	109.5601
Levelling mark	LT120864	82413.2916	36570.0785	109.5500
Levelling mark	LT120865	82411.3232	36569.9435	109.5453
Levelling mark	LT120866	82409.3456	36569.8075	109.5387
Levelling mark	LT120867	82407.3501	36569.6428	109.5307
Levelling mark	LT120868	82405.3107	36569.4878	109.5199
Levelling mark	LT120869	82403.3671	36569.3372	109.5106
Levelling mark	LT120870	82401.4054	36569.1861	109.5119
Levelling mark	LT120871	82399.4212	36569.0336	109.5150
Levelling mark	LT120872	82397.2723	36568.8615	109.5075
Levelling mark	LT120873	82395.3152	36568.7161	109.4965
Levelling mark	LT120874	82393.3749	36568.5705	109.4818
Levelling mark	LT120875	82391.3702	36568.4206	109.4724
Levelling mark	LT120876	82389.3835	36568.2781	109.4704
Levelling mark	LT120877	82387.4082	36568.1157	109.4655
Levelling mark	LT120878	82385.3650	36567.9607	109.4551

Levelling mark	LT120879	82383.3984	36567.8019	109.4462
Levelling mark	LT120880	82381.3499	36567.6391	109.4411
Levelling mark	LT120881	82379.4348	36567.4861	109.4513
Levelling mark	LT120882	82377.2636	36567.3129	109.4472
Levelling mark	LT120883	82375.3343	36567.1627	109.4433
Levelling mark	LT120884	82373.2152	36567.0024	109.4371
Levelling mark	LT120885	82371.3762	36566.8632	109.4299
Levelling mark	LT120886	82369.3954	36566.7143	109.4224
Levelling mark	LT120887	82367.2912	36566.5386	109.4166
Levelling mark	LT120888	82365.4244	36566.4083	109.4067
Levelling mark	LT120889	82363.3619	36566.2468	109.3952
Levelling mark	LT120890	82361.3257	36566.1097	109.3877
Levelling mark	LT120891	82359.4591	36565.9632	109.3843
Levelling mark	LT120892	82357.3230	36565.7909	109.3762
Levelling mark	LT120893	82355.3171	36565.6387	109.3631
Levelling mark	LT120894	82353.3586	36565.4888	109.3532
Levelling mark	LT120895	82351.4610	36565.3407	109.3437
Levelling mark	LT120896	82349.4080	36565.1931	109.3392
Levelling mark	LT120897	82347.4593	36565.0408	109.3292
Levelling mark	LT120898	82345.4278	36564.8918	109.3149
Levelling mark	LT120899	82343.4260	36564.7349	109.3025
Levelling mark	LT120900	82341.4679	36564.5861	109.2946
Levelling mark	LT120901	82339.3787	36564.4187	109.2877
Levelling mark	LT120902	82337.3670	36564.2754	109.2860

Levelling mark	LT120903	82335.4385	36564.1276	109.2821
Levelling mark	LT120904	82333.4217	36563.9527	109.2689
Levelling mark	LT120905	82331.4579	36563.8147	109.2586
Levelling mark	LT120906	82329.4004	36563.6525	109.2463
Levelling mark	LT120907	82327.4254	36563.4989	109.2376
Levelling mark	LT120908	82325.4100	36563.3462	109.2325
Levelling mark	LT120909	82323.4015	36563.1957	109.2181
Levelling mark	LT120910	82321.3907	36563.0465	109.2050
Levelling mark	LT120911	82319.4900	36562.9870	109.1960
Levelling mark	LT120912	82317.4791	36562.7594	109.1889
Levelling mark	LT120913	82315.4247	36562.5965	109.1651
Levelling mark	LT120914	82313.4292	36562.4414	109.1482
Levelling mark	LT120915	82311.5227	36562.2900	109.1445
Levelling mark	LT120916	82309.4767	36562.1328	109.1422
Levelling mark	LT120917	82307.4925	36561.9767	109.1426
Levelling mark	LT120918	82305.5040	36561.7930	109.1398
Levelling mark	LT120919	82303.5798	36561.6126	109.1366
Levelling mark	LT120920	82301.5790	36561.4182	109.1342
Levelling mark	LT120921	82299.5976	36561.1891	109.1306
Levelling mark	LT120922	82297.6627	36560.9550	109.1351
Levelling mark	LT120923	82295.6568	36560.6850	109.1450
Levelling mark	LT120924	82293.7220	36560.4027	109.1521
Levelling mark	LT120925	82291.7080	36560.0909	109.1550
Levelling mark	LT120926	82289.7967	36559.7723	109.1540

Levelling mark	LT120927	82287.8869	36559.4319	109.1492
Levelling mark	LT120928	82285.9381	36559.0794	109.1410
Levelling mark	LT120929	82285.9381	36559.0794	109.1410
Levelling mark	LT120930	82282.0054	36558.3038	109.1243
Levelling mark	LT120931	82280.1295	36557.9120	109.1160
Levelling mark	LT121001	83092.3904	36338.6048	108.0901
Levelling mark	LT121002	83090.4176	36339.2909	108.1070
Levelling mark	LT121003	83088.5322	36339.9759	108.1243
Levelling mark	LT121004	83086.7220	36340.6408	108.1441
Levelling mark	LT121005	83084.8741	36341.3531	108.1650
Levelling mark	LT121006	83083.0026	36342.1069	108.1783
Levelling mark	LT121007	83081.1454	36342.8931	108.1848
Levelling mark	LT121008	83079.3373	36343.6725	108.1936
Levelling mark	LT121009	83077.5385	36344.4754	108.1984
Levelling mark	LT121010	83075.7811	36345.2843	108.2057
Levelling mark	LT121011	83073.9476	36346.2108	108.2117
Levelling mark	LT121012	83072.4016	36347.0111	108.2212
Levelling mark	LT121013	83070.5576	36347.9832	108.2316
Levelling mark	LT121014	83068.8556	36348.9008	108.2401
Levelling mark	LT121015	83067.1816	36349.7893	108.2511
Levelling mark	LT121016	83065.4717	36350.7194	108.2672
Levelling mark	LT121017	83063.5295	36351.7693	108.2848
Levelling mark	LT121018	83061.9090	36352.6652	108.3001
Levelling mark	LT121019	83060.1092	36353.6770	108.3094

Levelling mark	LT121020	83058.3757	36354.6256	108.3149
Levelling mark	LT121021	83056.7273	36355.5365	108.3231
Levelling mark	LT121022	83054.9710	36356.4916	108.3294
Levelling mark	LT121023	83053.2082	36357.4378	108.3357
Levelling mark	LT121024	83051.4281	36358.3764	108.3446
Levelling mark	LT121025	83049.6269	36359.2923	108.3607
Levelling mark	LT121026	83047.8893	36360.1877	108.3773
Levelling mark	LT121027	83046.0839	36361.0633	108.3913
Levelling mark	LT121028	83044.2570	36361.9313	108.3980
Levelling mark	LT121029	83042.4650	36362.7833	108.4034
Levelling mark	LT121030	83040.6887	36363.6193	108.4096
Levelling mark	LT121031	83038.8380	36364.4697	108.4149
Levelling mark	LT121032	83037.0260	36365.2945	108.4223
Levelling mark	LT121033	83035.2049	36366.1143	108.4317
Levelling mark	LT121034	83033.3185	36366.9545	108.4369
Levelling mark	LT121035	83031.5228	36367.7552	108.4405
Levelling mark	LT121036	83029.7297	36368.5582	108.4483
Levelling mark	LT121037	83027.8812	36369.3613	108.4560
Levelling mark	LT121038	83026.0646	36370.1719	108.4599
Levelling mark	LT121039	83024.1966	36370.9792	108.4691
Levelling mark	LT121040	83022.3844	36371.7741	108.4792
Levelling mark	LT121041	83020.5624	36372.5594	108.4898
Levelling mark	LT121042	83018.7474	36373.3556	108.4928
Levelling mark	LT121043	83016.9241	36374.1504	108.4921

Levelling mark	LT121044	83015.0916	36374.9484	108.4926
Levelling mark	LT121045	83013.2242	36375.7412	108.4937
Levelling mark	LT121046	83011.4135	36376.5573	108.4934
Levelling mark	LT121047	83009.5678	36377.3398	108.4910
Levelling mark	LT121048	83007.7563	36378.1206	108.4905
Levelling mark	LT121049	83005.9329	36378.9281	108.4926
Levelling mark	LT121050	83004.0886	36379.7193	108.4937
Levelling mark	LT121051	83002.2588	36380.5095	108.4947
Levelling mark	LT121052	83000.4293	36381.3105	108.4884
Levelling mark	LT121053	82998.5991	36382.0931	108.4867
Levelling mark	LT121054	82996.7697	36382.8871	108.4877
Levelling mark	LT121055	82994.9136	36383.6824	108.7006
Levelling mark	LT121056	82993.1044	36384.4815	108.4958
Levelling mark	LT121057	82991.2639	36385.2655	108.5018
Levelling mark	LT121058	82989.4411	36386.0524	108.5037
Levelling mark	LT121059	82987.5805	36386.8584	108.5037
Levelling mark	LT121060	82985.7619	36387.6434	108.5021
Levelling mark	LT121061	82983.9113	36388.4423	108.5009
Levelling mark	LT121062	82982.0999	36389.2228	108.4954
Levelling mark	LT121063	82980.2352	36390.0248	108.4919
Levelling mark	LT121064	82978.4231	36390.8035	108.4917
Levelling mark	LT121065	82976.5765	36391.5875	108.4916
Levelling mark	LT121066	82974.6907	36392.4047	108.4904
Levelling mark	LT121067	82972.9125	36393.1720	108.4865

Levelling mark	LT121068	82971.0687	36393.9565	108.4828
Levelling mark	LT121069	82969.2366	36394.7492	108.4818
Levelling mark	LT121070	82967.3826	36395.5441	108.4814
Levelling mark	LT121071	82965.5452	36396.3330	108.4806
Levelling mark	LT121072	82963.7159	36397.1103	108.4819
Levelling mark	LT121073	82961.8691	36397.8980	108.4835
Levelling mark	LT121074	82960.0083	36398.6940	108.4832
Levelling mark	LT121075	82958.1854	36399.4667	108.4820
Levelling mark	LT121076	82956.3333	36400.2703	108.4802
Levelling mark	LT121077	82954.5228	36401.0471	108.4773
Levelling mark	LT121078	82952.6738	36401.8336	108.4738
Levelling mark	LT121079	82950.8533	36402.6174	108.4687
Levelling mark	LT121080	82949.0126	36403.4172	108.4656
Levelling mark	LT121081	82947.1232	36404.2164	108.4638
Levelling mark	LT121082	82945.3120	36404.9915	108.4584
Levelling mark	LT121083	82943.4808	36405.7640	108.4493
Levelling mark	LT121084	82941.6591	36406.5586	108.4430
Levelling mark	LT121085	82939.8270	36407.3448	108.4367
Levelling mark	LT121086	82937.9687	36408.1448	108.4322
Levelling mark	LT121087	82936.1563	36408.9178	108.4302
Levelling mark	LT121088	82934.3243	36409.7173	108.4303
Levelling mark	LT121089	82932.5489	36410.4667	108.4280
Levelling mark	LT121090	82930.6449	36411.2860	108.4277
Levelling mark	LT121091	82928.6952	36412.1431	108.4250

Levelling mark	LT121092	82927.0010	36412.8688	108.4226
Levelling mark	LT121093	82925.1850	36413.6602	108.4216
Levelling mark	LT121094	82923.3215	36414.4543	108.4210
Levelling mark	LT121095	82921.4667	36415.2590	108.4166
Levelling mark	LT121096	82919.6285	36416.0374	108.4079
Levelling mark	LT121097	82917.8035	36416.8306	108.3993
Levelling mark	LT121098	82915.9600	36417.6268	108.3909
Levelling mark	LT121099	82914.1192	36418.4139	108.3813
Levelling mark	LT121100	82912.2702	36419.2032	108.3753
Levelling mark	LT121101	82910.4580	36419.9862	108.3693
Levelling mark	LT121102	82908.6491	36420.7739	108.3589
Levelling mark	LT121103	82906.7814	36421.5739	108.3512
Levelling mark	LT121104	82904.9489	36422.3581	108.3396
Levelling mark	LT121105	82903.1197	36423.1506	108.3302
Levelling mark	LT121106	82901.3135	36423.9175	108.3204
Levelling mark	LT121107	82899.4686	36424.7154	108.3110
Levelling mark	LT121108	82897.5730	36425.5157	108.2960
Levelling mark	LT121109	82895.7778	36426.2812	108.2895
Levelling mark	LT121110	82893.9390	36427.0867	108.2896
Levelling mark	LT121111	82892.1425	36427.8704	108.2880
Levelling mark	LT121112	82890.2229	36428.6634	108.2708
Levelling mark	LT121113	82888.4747	36429.4558	108.2680
Levelling mark	LT121114	82886.6014	36430.2795	108.2410
Levelling mark	LT121115	82884.6245	36431.0954	108.2223

Levelling mark	LT121116	82882.9058	36431.8455	108.2050
Levelling mark	LT121117	82881.0753	36432.6419	108.1876
Levelling mark	LT121118	82879.2429	36433.4364	108.1754
Levelling mark	LT121119	82877.3965	36434.2236	108.1588
Levelling mark	LT121120	82875.5647	36435.0228	108.1300
Levelling mark	LT121121	82873.8149	36435.7703	108.0963
Levelling mark	LT121122	82871.9013	36436.5895	108.0591
Levelling mark	LT121123	82870.0569	36437.3977	108.0298
Levelling mark	LT121124	82868.2351	36438.1896	107.9994
Levelling mark	LT121125	82866.4348	36438.9876	107.9757
Levelling mark	LT121126	82864.5931	36439.7633	107.9502
Levelling mark	LT121127	82862.7594	36440.5653	107.9250
Levelling mark	LT121128	82860.9021	36441.3584	107.8950
Levelling mark	LT121129	82859.0784	36442.1582	107.8695
Levelling mark	LT121130	82857.2485	36442.9543	107.8436
Levelling mark	LT121131	82855.3936	36443.7456	107.8155
Levelling mark	LT121132	82853.5398	36444.5458	107.7834
Levelling mark	LT121133	82851.7073	36445.3397	107.7491
Levelling mark	LT121134	82849.8741	36446.1330	107.7247
Levelling mark	LT121135	82848.0583	36446.9161	107.7010
Levelling mark	LT121136	82846.2319	36447.7044	107.6715
Levelling mark	LT121137	82844.3782	36448.4820	107.6401
Levelling mark	LT121138	82842.5555	36449.2760	107.6148
Levelling mark	LT121139	82840.7159	36450.0655	107.5855

Levelling mark	LT121140	82838.8985	36450.8503	107.5582
Levelling mark	LT121141	82837.0518	36451.6335	107.5270
Levelling mark	LT121142	82835.1866	36452.4386	107.4960
Levelling mark	LT121143	82833.3607	36453.2314	107.4666
Levelling mark	LT121144	82831.5434	36454.0202	107.4403
Levelling mark	LT121145	82829.7134	36454.8066	107.4160
Levelling mark	LT121146	82827.8937	36455.5906	107.3939
Levelling mark	LT121147	82826.0242	36456.3971	107.3678
Levelling mark	LT121148	82824.1731	36457.1890	107.3391
Levelling mark	LT121149	82822.3151	36458.0009	107.3164
Levelling mark	LT121150	82820.3865	36458.8128	107.2950
Levelling mark	LT121151	82818.6825	36459.5637	107.2723
Levelling mark	LT121152	82816.7682	36460.3694	107.2450
Levelling mark	LT121153	82814.9296	36461.1580	107.2175
Levelling mark	LT121154	82813.0972	36461.9428	107.1877
Levelling mark	LT121155	82811.3178	36462.7109	107.1562
Levelling mark	LT121156	82809.4385	36463.5059	107.1246
Levelling mark	LT121157	82807.5866	36464.3056	107.0960
Levelling mark	LT121158	82805.7716	36465.0931	107.0677
Levelling mark	LT121159	82803.8820	36465.9061	107.0357
Levelling mark	LT121160	82802.1070	36466.6804	107.0109
Levelling mark	LT121161	82800.2723	36467.4677	106.9901
Levelling mark	LT121162	82798.3736	36468.2717	106.9639
Levelling mark	LT121163	82796.5650	36469.0514	106.9424

Levelling mark	LT121164	82794.7404	36469.8397	106.9217
Levelling mark	LT121165	82792.8956	36470.6326	106.9029
Levelling mark	LT121166	82791.0687	36471.4337	106.8854
Levelling mark	LT121167	82789.2079	36472.2173	106.8709
Levelling mark	LT121168	82787.4222	36472.9803	106.8597
Levelling mark	LT121169	82785.5990	36473.7714	106.8520
Levelling mark	LT121170	82783.7016	36474.5907	106.8460
Levelling mark	LT121171	82781.8953	36475.3738	106.8397
Levelling mark	LT121172	82780.0181	36476.1762	106.8344
Levelling mark	LT121173	82778.1775	36476.9739	106.8260
Levelling mark	LT121174	82776.3736	36477.7399	106.8158
Levelling mark	LT121175	82774.5024	36478.5511	106.8081
Levelling mark	LT121176	82772.7131	36479.3194	106.8077
Levelling mark	LT121177	82770.7240	36480.1743	106.8072
Levelling mark	LT121178	82768.9282	36480.9416	106.8123
Levelling mark	LT121179	82767.0870	36481.7369	106.8188
Levelling mark	LT121180	82765.2687	36482.5238	106.8227
Levelling mark	LT121181	82763.4663	36483.2963	106.8261
Levelling mark	LT121182	82761.5795	36484.1265	106.8303
Levelling mark	LT121183	82759.8345	36484.8735	106.8396
Levelling mark	LT121184	82757.9595	36485.6815	106.8498
Levelling mark	LT121185	82756.1382	36486.4679	106.8630
Levelling mark	LT121186	82754.3213	36487.2291	106.8762
Levelling mark	LT121187	82752.4188	36488.0556	106.8924

Levelling mark	LT121188	82750.6369	36488.8279	106.9052
Levelling mark	LT121189	82748.7292	36489.6361	106.9191
Levelling mark	LT121190	82746.9824	36490.3988	106.9397
Levelling mark	LT121191	82745.1502	36491.1777	106.9619
Levelling mark	LT121192	82743.2443	36492.0003	106.9860
Levelling mark	LT121193	82741.3792	36492.7875	107.0108
Levelling mark	LT121194	82739.5485	36493.5807	107.0358
Levelling mark	LT121195	82737.7465	36494.3433	107.0608
Levelling mark	LT121196	82735.9793	36495.1226	107.0868
Levelling mark	LT121197	82734.2481	36495.8743	107.1094
Levelling mark	LT121198	82732.3632	36496.6884	107.1326
Levelling mark	LT121199	82730.5255	36497.4681	107.1556
Levelling mark	LT121200	82728.6705	36498.2817	107.1812
Levelling mark	LT121201	82726.8477	36499.0588	107.1990
Levelling mark	LT121202	82725.0496	36499.8342	107.2183
Levelling mark	LT121203	82723.1772	36500.6327	107.2416
Levelling mark	LT121204	82721.3773	36501.4169	107.2652
Levelling mark	LT121205	82719.5271	36502.1979	107.2909
Levelling mark	LT121206	82717.7008	36502.9967	107.3244
Levelling mark	LT121207	82715.7549	36503.8492	107.3605
Levelling mark	LT121208	82713.9210	36504.6348	107.3910
Levelling mark	LT121209	82712.1563	36505.4195	107.4158
Levelling mark	LT121210	82710.2162	36506.2313	107.4379
Levelling mark	LT121211	82708.4733	36506.9917	107.4631

Levelling mark	LT121212	82706.4584	36507.8621	107.4965
Levelling mark	LT121213	82704.6624	36508.6211	107.5267
Levelling mark	LT121214	82702.8332	36509.4033	107.5450
Levelling mark	LT121215	82700.9817	36510.1959	107.5662
Levelling mark	LT121216	82699.1652	36510.9691	107.6039
Levelling mark	LT121217	82697.2878	36511.7687	107.6448
Levelling mark	LT121218	82695.4991	36512.5239	107.6766
Levelling mark	LT121219	82693.5988	36513.3098	107.7051
Levelling mark	LT121220	82691.7840	36514.0609	107.7323
Levelling mark	LT121221	82689.9266	36514.8463	107.7592
Levelling mark	LT121222	82688.0773	36515.6049	107.7842
Levelling mark	LT121223	82686.2365	36516.3609	107.8052
Levelling mark	LT121224	82684.3606	36517.1204	107.8280
Levelling mark	LT121225	82682.5080	36517.8705	107.8511
Levelling mark	LT121226	82680.6747	36518.6034	107.8806
Levelling mark	LT121227	82678.8232	36519.3405	107.9163
Levelling mark	LT121228	82676.8521	36520.1253	107.9550
Levelling mark	LT121229	82675.0488	36520.8572	107.9791
Levelling mark	LT121230	82673.1608	36521.5444	108.0027
Levelling mark	LT121231	82671.3687	36522.2806	108.0224
Levelling mark	LT121232	82669.4238	36523.0162	108.0510
Levelling mark	LT121233	82667.5624	36523.7267	108.0804
Levelling mark	LT121234	82665.6425	36524.4635	108.1060
Levelling mark	LT121235	82663.7724	36525.1634	108.1239

Levelling mark	LT121236	82661.9981	36525.8361	108.1428
Levelling mark	LT121237	82660.0748	36526.5620	108.1670
Levelling mark	LT121238	82658.1865	36527.2663	108.1900
Levelling mark	LT121239	82656.3257	36527.9618	108.2133
Levelling mark	LT121240	82654.5237	36528.6273	108.2365
Levelling mark	LT121241	82652.6049	36529.3331	108.2585
Levelling mark	LT121242	82650.6693	36530.0469	108.2815
Levelling mark	LT121243	82648.7949	36530.7417	108.3083
Levelling mark	LT121244	82646.9386	36531.4190	108.3364
Levelling mark	LT121245	82645.0553	36532.1018	108.3589
Levelling mark	LT121246	82643.2224	36532.7895	108.3803
Levelling mark	LT121247	82641.2775	36533.5059	108.4053
Levelling mark	LT121248	82639.3699	36534.2003	108.4312
Levelling mark	LT121249	82637.5457	36534.8756	108.4571
Levelling mark	LT121250	82635.6724	36535.5556	108.4830
Levelling mark	LT121251	82633.8415	36536.2210	108.5102
Levelling mark	LT121252	82631.8714	36536.9469	108.5384
Levelling mark	LT121253	82630.0350	36537.6324	108.5653
Levelling mark	LT121254	82628.1747	36538.2994	108.5944
Levelling mark	LT121255	82626.2693	36538.9948	108.6300
Levelling mark	LT121256	82624.3315	36539.6978	108.6666
Levelling mark	LT121257	82622.5357	36540.3731	108.6895
Levelling mark	LT121258	82620.6159	36541.0792	108.7102
Levelling mark	LT121259	82618.8057	36541.7366	108.7405

Levelling mark	LT121260	82616.9312	36542.4120	108.7750
Levelling mark	LT121261	82615.0320	36543.1049	108.8062
Levelling mark	LT121262	82613.1319	36543.7969	108.8332
Levelling mark	LT121263	82611.1875	36544.5103	108.8587
Levelling mark	LT121264	82609.3716	36545.1869	108.8822
Levelling mark	LT121265	82607.4557	36545.8902	108.9040
Levelling mark	LT121266	82605.5992	36546.5623	108.9253
Levelling mark	LT121267	82603.6993	36547.2581	108.9485
Levelling mark	LT121268	82601.8557	36547.9380	108.9797
Levelling mark	LT121269	82599.9176	36548.6504	109.0131
Levelling mark	LT121270	82598.1114	36549.3015	109.0371
Levelling mark	LT121271	82596.2195	36549.9966	109.0649
Levelling mark	LT121272	82594.2839	36550.7105	109.0928
Levelling mark	LT121273	82592.4255	36551.3844	109.1171
Levelling mark	LT121274	82590.6321	36552.0412	109.1485
Levelling mark	LT121275	82588.6900	36552.7453	109.1896
Levelling mark	LT121276	82586.8498	36553.3976	109.2165
Levelling mark	LT121277	82584.9135	36554.1062	109.2469
Levelling mark	LT121278	82583.0461	36554.7658	109.2789
Levelling mark	LT121279	82581.1096	36555.4476	109.3103
Levelling mark	LT121280	82579.2247	36556.1117	109.3415
Levelling mark	LT121281	82577.3573	36556.6716	109.3741
Levelling mark	LT121282	82575.3814	36557.4097	109.4105
Levelling mark	LT121283	82573.5486	36558.0499	109.4398

Levelling mark	LT121284	82571.6950	36558.6512	109.4662
Levelling mark	LT121285	82569.7777	36559.2791	109.4978
Levelling mark	LT121286	82567.8949	36559.8735	109.5312
Levelling mark	LT121287	82566.0258	36560.4677	109.5654
Levelling mark	LT121288	82564.0522	36561.0740	109.6030
Levelling mark	LT121289	82562.1311	36561.6669	109.6405
Levelling mark	LT121290	82560.1892	36562.2473	109.6688
Levelling mark	LT121291	82558.2646	36562.8149	109.6920
Levelling mark	LT121292	82556.3215	36563.3788	109.7037
Levelling mark	LT121293	82554.3951	36563.9269	109.7284
Levelling mark	LT121294	82552.4635	36564.4746	109.7559
Levelling mark	LT121295	82550.5294	36564.9908	109.7833
Levelling mark	LT121296	82548.6107	36565.5168	109.8085
Levelling mark	LT121297	82546.6977	36566.0221	109.8341
Levelling mark	LT121298	82544.7627	36566.5029	109.8588
Levelling mark	LT121299	82542.7146	36566.9903	109.8893
Levelling mark	LT121300	82540.8426	36567.4159	109.9202
Levelling mark	LT121301	82538.8845	36567.8553	109.9482
Levelling mark	LT121302	82536.9735	36568.2701	109.9790
Levelling mark	LT121303	82534.9515	36568.6791	110.0059
Levelling mark	LT121304	82533.0112	36569.0871	110.0326
Levelling mark	LT121305	82531.0404	36569.4967	110.0605
Levelling mark	LT121306	82529.0531	36569.8888	110.0808
Levelling mark	LT121307	82527.1620	36570.2432	110.0967

Levelling mark	LT121308	82525.1328	36570.6385	110.1167
Levelling mark	LT121309	82523.1174	36570.9963	110.1393
Levelling mark	LT121310	82521.1741	36571.3469	110.1562
Levelling mark	LT121311	82519.1308	36571.6497	110.1716
Levelling mark	LT121312	82517.1245	36571.8589	110.1797
Levelling mark	LT121313	82515.1430	36572.2911	109.0084
Levelling mark	LT121314	82513.1878	36572.5709	109.0145
Levelling mark	LT121315	82511.1328	36572.8344	109.0096
Levelling mark	LT121316	82509.1604	36573.0651	110.2053
Levelling mark	LT121317	82507.1100	36573.2924	110.2084
Levelling mark	LT121318	82505.1380	36573.5131	110.2149
Levelling mark	LT121319	82503.1899	36573.6937	110.2076
Levelling mark	LT121320	82501.1346	36573.8942	110.2037
Levelling mark	LT121321	82499.1702	36574.0773	110.2032
Levelling mark	LT121322	82497.1955	36574.2357	110.1987
Levelling mark	LT121323	82495.2473	36574.3980	110.1967
Levelling mark	LT121324	82493.2493	36574.5544	110.2004
Levelling mark	LT121325	82491.1880	36574.7065	110.2032
Levelling mark	LT121326	82489.1942	36574.8464	110.1970
Levelling mark	LT121327	82487.1957	36574.9710	110.1771
Levelling mark	LT121328	82485.1348	36575.0905	110.1503
Levelling mark	LT121329	82483.1856	36575.2143	110.1276
Levelling mark	LT121330	82481.1438	36575.3382	110.1062
Levelling mark	LT121331	82479.1589	36575.4578	110.0954

Levelling mark	LT121332	82477.2441	36575.5363	110.0877
Levelling mark	LT121333	82475.2406	36575.6254	110.0794
Levelling mark	LT121334	82473.2531	36575.7038	110.0673
Levelling mark	LT121335	82471.2548	36575.7610	110.0530
Levelling mark	LT121336	82469.2561	36575.8147	110.0371
Levelling mark	LT121337	82467.1754	36575.8593	110.0130
Levelling mark	LT121338	82465.2110	36575.8773	109.9840
Levelling mark	LT121339	82463.1553	36575.9011	109.9551
Levelling mark	LT121340	82461.2160	36575.8950	109.9332
Levelling mark	LT121341	82459.1791	36575.8830	109.9173
Levelling mark	LT121342	82457.1348	36575.8565	109.8978
Levelling mark	LT121343	82455.1896	36575.8172	109.8621
Levelling mark	LT121344	82453.1360	36575.7898	109.8262
Levelling mark	LT121345	82451.1344	36575.7291	109.7972
Levelling mark	LT121346	82449.1065	36575.6637	109.7740
Levelling mark	LT121347	82446.9934	36575.5834	109.7538
Levelling mark	LT121348	82445.0990	36575.5164	109.7433
Levelling mark	LT121349	82443.1256	36575.4331	109.7359
Levelling mark	LT121350	82440.9839	36575.3279	109.7235
Levelling mark	LT121351	82439.1295	36575.2401	109.7095
Levelling mark	LT121352	82437.0279	36575.1197	109.6984
Levelling mark	LT121353	82435.0747	36575.0082	109.6908
Levelling mark	LT121354	82433.0346	36574.8793	109.6787
Levelling mark	LT121355	82431.0572	36574.7567	109.6603

Levelling mark	LT121356	82429.1447	36574.6058	109.6438
Levelling mark	LT121357	82427.0251	36574.4629	109.6158
Levelling mark	LT121358	82424.8844	36574.3138	109.5864
Levelling mark	LT121359	82422.9200	36574.1670	109.5914
Levelling mark	LT121360	82420.9883	36574.0160	109.5926
Levelling mark	LT121361	82419.0357	36573.5373	109.5793
Levelling mark	LT121362	82417.0143	36573.7075	109.5698
Levelling mark	LT121363	82415.0073	36573.5512	109.5681
Levelling mark	LT121364	82413.0436	36573.4020	109.5707
Levelling mark	LT121365	82411.0456	36573.2465	109.5677
Levelling mark	LT121366	82409.0527	36573.0869	109.5533
Levelling mark	LT121367	82406.9796	36572.9266	109.5405
Levelling mark	LT121368	82405.0504	36572.7807	109.5323
Levelling mark	LT121369	82403.0427	36572.6154	109.5258
Levelling mark	LT121370	82401.0224	36572.4497	109.5223
Levelling mark	LT121371	82398.9983	36572.2920	109.5243
Levelling mark	LT121372	82397.0137	36572.1493	109.5348
Levelling mark	LT121373	82394.9969	36571.9860	109.5300
Levelling mark	LT121374	82393.0832	36571.8445	109.5168
Levelling mark	LT121375	82391.0473	36571.6922	109.5063
Levelling mark	LT121376	82389.1188	36571.5299	109.5032
Levelling mark	LT121377	82387.0089	36571.3661	109.5069
Levelling mark	LT121378	82385.0907	36571.2228	109.5034
Levelling mark	LT121379	82383.1184	36571.0697	109.4921

Levelling mark	LT121380	82381.1446	36570.9400	109.4836
Levelling mark	LT121381	82379.1170	36570.7512	109.4884
Levelling mark	LT121382	82377.0509	36570.6000	109.4818
Levelling mark	LT121383	82375.0886	36570.4512	109.4727
Levelling mark	LT121384	82373.1554	36570.3220	109.4408
Levelling mark	LT121385	82371.0689	36570.1503	109.4407
Levelling mark	LT121386	82369.1621	36570.0214	109.4280
Levelling mark	LT121387	82367.1009	36569.8645	109.4156
Levelling mark	LT121388	82365.1659	36569.7236	109.4034
Levelling mark	LT121389	82363.1294	36569.5502	109.3880
Levelling mark	LT121390	82361.0958	36569.3994	109.3772
Levelling mark	LT121391	82359.0877	36569.2357	109.3658
Levelling mark	LT121392	82357.0755	36569.0892	109.3510
Levelling mark	LT121393	82355.0931	36568.9452	109.3339
Levelling mark	LT121394	82353.1633	36568.8054	109.3191
Levelling mark	LT121395	82351.1726	36568.6580	109.3030
Levelling mark	LT121396	82349.1573	36568.5166	109.2852
Levelling mark	LT121397	82347.0945	36568.3668	109.2734
Levelling mark	LT121398	82345.0583	36568.2059	109.2692
Levelling mark	LT121399	82343.1261	36568.0597	109.2665
Levelling mark	LT121400	82341.1237	36567.9167	109.2568
Levelling mark	LT121401	82339.1026	36567.7717	109.2477
Levelling mark	LT121402	82337.0267	36567.6215	109.2359
Levelling mark	LT121403	82335.1361	36567.4844	109.2236

Levelling mark	LT121404	82333.0757	36567.3280	109.2168
Levelling mark	LT121405	82331.1425	36567.1856	109.2155
Levelling mark	LT121406	82329.0481	36567.0214	109.2054
Levelling mark	LT121407	82327.2233	36566.8937	109.1965
Levelling mark	LT121408	82325.0902	36566.7339	109.1875
Levelling mark	LT121409	82323.1366	36566.5942	109.1796
Levelling mark	LT121410	82321.1313	36566.4334	109.1740
Levelling mark	LT121411	82319.2043	36566.3783	109.1918
Levelling mark	LT121412	82317.1591	36566.1502	109.1722
Levelling mark	LT121413	82315.0638	36565.9954	109.1720
Levelling mark	LT121414	82313.1602	36565.8625	109.1761
Levelling mark	LT121415	82311.2386	36565.7069	109.1786
Levelling mark	LT121416	82309.2041	36565.5524	109.1793
Levelling mark	LT121417	82307.1740	36565.3836	109.1819
Levelling mark	LT121418	82305.1520	36565.1991	109.1908
Levelling mark	LT121419	82303.2025	36565.0057	109.1992
Levelling mark	LT121420	82301.2552	36564.8276	109.2065
Levelling mark	LT121421	82299.2712	36564.6119	109.2139
Levelling mark	LT121422	82297.1984	36564.3520	109.2217
Levelling mark	LT121423	82295.2046	36564.1007	109.2317
Levelling mark	LT121424	82293.1996	36563.8105	109.2371
Levelling mark	LT121425	82291.1960	36563.5095	109.2405
Levelling mark	LT121426	82289.2394	36563.1771	109.2446
Levelling mark	LT121427	82287.2923	36562.8618	109.2551

Levelling mark	LT121428	82285.3147	36562.4999	109.2627
Levelling mark	LT121429	82285.3147	36562.4999	109.2627
Levelling mark	LT121430	82285.5431	36561.0127	109.2005
Levelling mark	LT121431	82283.5877	36560.6436	109.2026
Levelling mark	LT121432	82281.5887	36560.2487	109.1987
Levelling mark	LT121433	82279.6471	36559.8170	109.1907
Levelling mark	LT121501	83091.8226	36337.1985	108.1517
Levelling mark	LT121502	83089.9076	36337.8795	108.1689
Levelling mark	LT121503	83088.0710	36338.5503	108.1857
Levelling mark	LT121504	83086.1927	36339.2452	108.1997
Levelling mark	LT121505	83084.3148	36339.9619	108.2131
Levelling mark	LT121506	83082.4333	36340.7251	108.2252
Levelling mark	LT121507	83080.5843	36341.4835	108.2323
Levelling mark	LT121508	83078.7403	36342.2903	108.2350
Levelling mark	LT121509	83076.9242	36343.1008	108.2393
Levelling mark	LT121510	83075.1423	36343.9406	108.2462
Levelling mark	LT121511	83073.3135	36344.8471	108.2504
Levelling mark	LT121512	83071.7216	36345.6543	108.2538
Levelling mark	LT121513	83069.8687	36346.6340	108.2583
Levelling mark	LT121514	83068.1483	36347.5586	108.2647
Levelling mark	LT121515	83066.4660	36348.4637	108.2722
Levelling mark	LT121516	83064.6995	36349.4119	108.2808
Levelling mark	LT121517	83062.8157	36350.4534	108.2916
Levelling mark	LT121518	83061.1726	36351.3714	108.2995

Levelling mark	LT121519	83059.4004	36352.3458	108.3049
Levelling mark	LT121520	83057.6530	36353.3237	108.3053
Levelling mark	LT121521	83055.9759	36354.2301	108.3105
Levelling mark	LT121522	83054.2352	36355.1710	108.3144
Levelling mark	LT121523	83052.4469	36356.1129	108.3152
Levelling mark	LT121524	83050.7216	36357.0431	108.3214
Levelling mark	LT121525	83048.9490	36357.9462	108.3347
Levelling mark	LT121526	83047.2181	36358.8175	108.3413
Levelling mark	LT121527	83045.4232	36359.7056	108.3483
Levelling mark	LT121528	83043.6063	36360.5730	108.3619
Levelling mark	LT121529	83041.7938	36361.4287	108.3690
Levelling mark	LT121530	83040.0315	36362.2564	108.3720
Levelling mark	LT121531	83038.2684	36363.0706	108.3749
Levelling mark	LT121532	83036.3859	36363.9177	108.3824
Levelling mark	LT121533	83034.5513	36364.7535	108.3941
Levelling mark	LT121534	83032.7411	36365.5613	108.4038
Levelling mark	LT121535	83030.9173	36366.3752	108.4139
Levelling mark	LT121536	83029.1393	36367.1788	108.4268
Levelling mark	LT121537	83027.2935	36367.9790	108.4358
Levelling mark	LT121538	83025.4373	36368.7971	108.4438
Levelling mark	LT121539	83023.6063	36369.6037	108.4577
Levelling mark	LT121540	83021.7493	36370.4035	108.4692
Levelling mark	LT121541	83019.9577	36371.1947	108.4792
Levelling mark	LT121542	83018.1621	36371.9818	108.4863

Levelling mark	LT121543	83016.3097	36372.7734	108.4896
Levelling mark	LT121544	83014.4573	36373.5650	108.4929
Levelling mark	LT121545	83012.6049	36374.3566	108.4962
Levelling mark	LT121546	83010.8036	36375.1775	108.4941
Levelling mark	LT121547	83008.9759	36375.9749	108.4926
Levelling mark	LT121548	83007.1928	36376.7345	108.4904
Levelling mark	LT121549	83005.2916	36377.5468	108.4885
Levelling mark	LT121550	83003.4652	36378.3483	108.4899
Levelling mark	LT121551	83001.7710	36379.3015	108.5028
Levelling mark	LT121552	82999.8409	36379.9238	108.4873
Levelling mark	LT121553	82997.9869	36380.7337	108.4862
Levelling mark	LT121554	82996.1950	36381.5219	108.4831
Levelling mark	LT121555	82994.3521	36382.3081	108.4853
Levelling mark	LT121556	82992.5599	36383.0827	108.4913
Levelling mark	LT121557	82990.6795	36383.8974	108.4970
Levelling mark	LT121558	82988.8245	36384.6965	108.4952
Levelling mark	LT121559	82986.9815	36385.4876	108.4932
Levelling mark	LT121560	82985.1653	36386.2779	108.4917
Levelling mark	LT121561	82983.3208	36387.0719	108.4945
Levelling mark	LT121562	82981.5025	36387.8672	108.4922
Levelling mark	LT121563	82979.6466	36388.6534	108.4892
Levelling mark	LT121564	82977.8488	36389.4328	108.4896
Levelling mark	LT121565	82975.9682	36390.2387	108.4918
Levelling mark	LT121566	82974.0966	36391.0352	108.4913

Levelling mark	LT121567	82972.3461	36391.7820	108.4851
Levelling mark	LT121568	82970.4472	36392.6112	108.4792
Levelling mark	LT121569	82968.6374	36393.3844	108.4789
Levelling mark	LT121570	82966.7616	36394.1783	108.4804
Levelling mark	LT121571	82964.9833	36394.9383	108.4797
Levelling mark	LT121572	82963.1088	36395.7484	108.4802
Levelling mark	LT121573	82961.2530	36396.5383	108.4814
Levelling mark	LT121574	82959.4064	36397.3239	108.4808
Levelling mark	LT121575	82957.5867	36398.1011	108.4789
Levelling mark	LT121576	82955.7948	36398.8739	108.4742
Levelling mark	LT121577	82953.9468	36399.6566	108.4727
Levelling mark	LT121578	82952.0811	36400.4619	108.4737
Levelling mark	LT121579	82950.2787	36401.2482	108.4691
Levelling mark	LT121580	82948.4206	36402.0393	108.4593
Levelling mark	LT121581	82946.4850	36402.8674	108.4503
Levelling mark	LT121582	82944.7419	36403.6033	108.4477
Levelling mark	LT121583	82942.9370	36404.3769	108.4473
Levelling mark	LT121584	82941.0690	36405.1804	108.4458
Levelling mark	LT121585	82939.2216	36405.9833	108.4398
Levelling mark	LT121586	82937.3277	36406.7919	108.4360
Levelling mark	LT121587	82935.5602	36407.5547	108.4310
Levelling mark	LT121588	82933.7343	36408.3484	108.4250
Levelling mark	LT121589	82931.9411	36409.1190	108.4234
Levelling mark	LT121590	82930.0587	36409.9178	108.4228

Levelling mark	LT121591	82928.0867	36410.7689	108.4210
Levelling mark	LT121592	82926.3785	36411.5010	108.4208
Levelling mark	LT121593	82924.5795	36412.2830	108.4185
Levelling mark	LT121594	82922.7498	36413.0710	108.4195
Levelling mark	LT121595	82920.8315	36413.9001	108.4164
Levelling mark	LT121596	82919.0264	36414.6641	108.4079
Levelling mark	LT121597	82917.2051	36415.4519	108.3980
Levelling mark	LT121598	82915.3417	36416.2632	108.3927
Levelling mark	LT121599	82913.5489	36417.0301	108.3839
Levelling mark	LT121600	82911.6758	36417.8360	108.3785
Levelling mark	LT121601	82909.8272	36418.6243	108.3705
Levelling mark	LT121602	82908.0623	36419.3870	108.3582
Levelling mark	LT121603	82906.2185	36420.1939	108.3500
Levelling mark	LT121604	82904.3611	36420.9803	108.3412
Levelling mark	LT121605	82902.5334	36421.7801	108.3305
Levelling mark	LT121606	82900.7344	36422.5603	108.3137
Levelling mark	LT121607	82898.8544	36423.3470	108.3024
Levelling mark	LT121608	82897.0252	36424.1453	108.2922
Levelling mark	LT121609	82895.1812	36424.9137	108.2916
Levelling mark	LT121610	82893.3612	36425.6825	108.2891
Levelling mark	LT121611	82891.4686	36426.4533	108.2879
Levelling mark	LT121612	82889.6915	36427.2903	108.2770
Levelling mark	LT121613	82887.8171	36428.1039	108.2591
Levelling mark	LT121614	82885.9894	36428.8732	108.2397

Levelling mark	LT121615	82884.1009	36429.7066	108.2260
Levelling mark	LT121616	82882.2479	36430.5003	108.2104
Levelling mark	LT121617	82880.4609	36431.2758	108.1906
Levelling mark	LT121618	82878.6829	36432.0437	108.1724
Levelling mark	LT121619	82876.8707	36432.8450	108.1508
Levelling mark	LT121620	82875.0033	36433.6311	108.1267
Levelling mark	LT121621	82873.1583	36434.4297	108.0911
Levelling mark	LT121622	82871.3258	36435.2402	108.0542
Levelling mark	LT121623	82869.4719	36436.0208	108.0347
Levelling mark	LT121624	82867.6591	36436.8223	108.0063
Levelling mark	LT121625	82865.8536	36437.6035	107.9792
Levelling mark	LT121626	82864.0459	36438.3940	107.9522
Levelling mark	LT121627	82862.1487	36439.2069	107.9257
Levelling mark	LT121628	82860.3095	36440.0095	107.8970
Levelling mark	LT121629	82858.4750	36440.7985	107.8755
Levelling mark	LT121630	82856.6558	36441.6048	107.8521
Levelling mark	LT121631	82854.8061	36442.3868	107.8204
Levelling mark	LT121632	82852.9200	36443.1933	107.7883
Levelling mark	LT121633	82851.1142	36443.9713	107.7576
Levelling mark	LT121634	82849.2993	36444.7613	107.7321
Levelling mark	LT121635	82847.4676	36445.5430	107.7054
Levelling mark	LT121636	82845.7058	36446.2893	107.6798
Levelling mark	LT121637	82843.7709	36447.1293	107.6476
Levelling mark	LT121638	82841.9727	36447.9074	107.6166

Levelling mark	LT121639	82840.0906	36448.7133	107.5854
Levelling mark	LT121640	82838.2973	36449.4788	107.5605
Levelling mark	LT121641	82836.4075	36450.2883	107.5308
Levelling mark	LT121642	82834.6048	36451.0831	107.4997
Levelling mark	LT121643	82832.7243	36451.8916	107.4706
Levelling mark	LT121644	82830.9090	36452.6097	108.5616
Levelling mark	LT121645	82829.1139	36453.4369	107.4250
Levelling mark	LT121646	82827.2809	36454.2357	107.3993
Levelling mark	LT121647	82825.4158	36455.0419	107.3721
Levelling mark	LT121648	82823.5580	36455.8410	107.3430
Levelling mark	LT121649	82821.6683	36456.6502	107.3196
Levelling mark	LT121650	82819.8479	36457.4331	107.2967
Levelling mark	LT121651	82818.0424	36458.2017	107.2723
Levelling mark	LT121652	82816.1928	36459.0020	107.2488
Levelling mark	LT121653	82814.3785	36459.7838	107.2201
Levelling mark	LT121654	82812.5354	36460.5686	107.1902
Levelling mark	LT121655	82810.7146	36461.3419	107.1584
Levelling mark	LT121656	82808.8605	36462.1476	107.1247
Levelling mark	LT121657	82806.9780	36462.9555	107.0952
Levelling mark	LT121658	82805.1713	36463.7408	107.0685
Levelling mark	LT121659	82803.3175	36464.5341	107.0402
Levelling mark	LT121660	82801.4921	36465.3248	107.0144
Levelling mark	LT121661	82799.6998	36466.0935	106.9874
Levelling mark	LT121662	82797.8387	36466.8998	106.9606

Levelling mark	LT121663	82795.9834	36467.6861	106.9424
Levelling mark	LT121664	82794.1475	36468.4717	106.9222
Levelling mark	LT121665	82792.3176	36469.2690	106.9051
Levelling mark	LT121666	82790.4721	36470.0497	106.8897
Levelling mark	LT121667	82788.6234	36470.8414	106.8741
Levelling mark	LT121668	82786.8039	36471.6385	106.8628
Levelling mark	LT121669	82784.9796	36472.4242	106.8524
Levelling mark	LT121670	82783.1281	36473.2182	106.8450
Levelling mark	LT121671	82781.2985	36474.0060	106.8384
Levelling mark	LT121672	82779.4445	36474.7966	106.8313
Levelling mark	LT121673	82777.5979	36475.6031	106.8215
Levelling mark	LT121674	82775.7603	36476.3957	106.8197
Levelling mark	LT121675	82773.9277	36477.1779	106.8151
Levelling mark	LT121676	82772.0945	36477.9687	106.8128
Levelling mark	LT121677	82770.1567	36478.7915	106.8117
Levelling mark	LT121678	82768.3401	36479.5867	106.8167
Levelling mark	LT121679	82766.5112	36480.3719	106.8226
Levelling mark	LT121680	82764.6823	36481.1570	106.8284
Levelling mark	LT121681	82762.8403	36481.9331	106.8317
Levelling mark	LT121682	82760.9983	36482.7092	106.8350
Levelling mark	LT121683	82759.2174	36483.5200	106.8452
Levelling mark	LT121684	82757.3746	36484.3063	106.8542
Levelling mark	LT121685	82755.5516	36485.0851	106.8644
Levelling mark	LT121686	82753.7414	36485.8728	106.8778

Levelling mark	LT121687	82751.8709	36486.6703	106.8946
Levelling mark	LT121688	82750.0304	36487.4599	106.9096
Levelling mark	LT121689	82748.2111	36488.2441	106.9217
Levelling mark	LT121690	82746.3796	36489.0420	106.9406
Levelling mark	LT121691	82744.5202	36489.8232	106.9672
Levelling mark	LT121692	82742.6402	36490.6330	106.9916
Levelling mark	LT121693	82740.8297	36491.3944	107.0184
Levelling mark	LT121694	82738.9912	36492.1897	107.0415
Levelling mark	LT121695	82737.1368	36492.9862	107.0666
Levelling mark	LT121696	82735.3755	36493.7570	107.0859
Levelling mark	LT121697	82733.6028	36494.5133	107.1064
Levelling mark	LT121698	82731.7028	36495.3419	107.1316
Levelling mark	LT121699	82729.8640	36496.1293	107.1598
Levelling mark	LT121700	82728.0382	36496.9384	107.1798
Levelling mark	LT121701	82726.2429	36497.6999	107.2007
Levelling mark	LT121702	82724.4362	36498.4761	107.2215
Levelling mark	LT121703	82722.5969	36499.2806	107.2420
Levelling mark	LT121704	82720.8038	36500.0462	107.2652
Levelling mark	LT121705	82718.8917	36500.8676	107.2900
Levelling mark	LT121706	82717.0488	36501.6598	107.3194
Levelling mark	LT121707	82715.1353	36502.5008	107.3511
Levelling mark	LT121708	82713.3648	36503.2633	107.3824
Levelling mark	LT121709	82711.5530	36504.0510	107.4120
Levelling mark	LT121710	82709.6367	36504.8632	107.4405

Levelling mark	LT121711	82707.8186	36505.6490	107.4706
Levelling mark	LT121712	82705.8905	36506.4792	107.5013
Levelling mark	LT121713	82704.0442	36507.2572	107.5281
Levelling mark	LT121714	82702.2286	36508.0464	107.5438
Levelling mark	LT121715	82700.3894	36508.8279	107.5633
Levelling mark	LT121716	82698.5667	36509.6055	107.5981
Levelling mark	LT121717	82696.7435	36510.3747	107.6335
Levelling mark	LT121718	82694.8807	36511.1672	107.6638
Levelling mark	LT121719	82693.0279	36511.9449	107.6905
Levelling mark	LT121720	82691.1984	36512.7042	107.7168
Levelling mark	LT121721	82689.3470	36513.4710	107.7412
Levelling mark	LT121722	82687.5012	36514.2390	107.7663
Levelling mark	LT121723	82685.6472	36514.9821	107.7900
Levelling mark	LT121724	82683.7846	36515.7414	107.8127
Levelling mark	LT121725	82681.9385	36516.4827	107.8359
Levelling mark	LT121726	82680.1131	36517.2252	107.8633
Levelling mark	LT121727	82678.2587	36517.9617	107.8958
Levelling mark	LT121728	82676.3678	36518.7010	107.9308
Levelling mark	LT121729	82674.5377	36519.4358	107.9553
Levelling mark	LT121730	82672.6900	36520.1410	107.9841
Levelling mark	LT121731	82670.8163	36520.8768	108.0065
Levelling mark	LT121732	82668.9159	36521.6053	108.0383
Levelling mark	LT121733	82667.0456	36522.3258	108.0691
Levelling mark	LT121734	82665.1902	36523.0373	108.0956

Levelling mark	LT121735	82663.3067	36523.7430	108.1224
Levelling mark	LT121736	82661.4644	36524.4329	108.1462
Levelling mark	LT121737	82659.5493	36525.1590	108.1688
Levelling mark	LT121738	82657.7036	36525.8547	108.1892
Levelling mark	LT121739	82655.8193	36526.5474	108.2133
Levelling mark	LT121740	82653.9659	36527.2364	108.2376
Levelling mark	LT121741	82652.0896	36527.9224	108.2628
Levelling mark	LT121742	82650.1797	36528.6364	108.2857
Levelling mark	LT121743	82648.2836	36529.3307	108.3115
Levelling mark	LT121744	82646.4378	36530.0056	108.3391
Levelling mark	LT121745	82644.5433	36530.6981	108.3627
Levelling mark	LT121746	82642.6947	36531.3785	108.3864
Levelling mark	LT121747	82640.7731	36532.0801	108.4132
Levelling mark	LT121748	82638.9040	36532.7697	108.4376
Levelling mark	LT121749	82637.0472	36533.4552	108.4641
Levelling mark	LT121750	82635.1912	36534.1548	108.4909
Levelling mark	LT121751	82633.2697	36534.8451	108.5201
Levelling mark	LT121752	82631.3950	36535.5297	108.5427
Levelling mark	LT121753	82629.5234	36536.2215	108.5656
Levelling mark	LT121754	82627.6537	36536.9048	108.5940
Levelling mark	LT121755	82625.7652	36537.5804	108.6334
Levelling mark	LT121756	82623.8770	36538.2780	108.6665
Levelling mark	LT121757	82621.9888	36538.9756	108.6995
Levelling mark	LT121758	82620.1194	36539.6593	108.7218

Levelling mark	LT121759	82618.2398	36540.3445	108.7528
Levelling mark	LT121760	82616.3596	36541.0289	108.7841
Levelling mark	LT121761	82614.4862	36541.7140	108.8134
Levelling mark	LT121762	82612.5771	36542.4093	108.8394
Levelling mark	LT121763	82610.6897	36543.1005	108.8642
Levelling mark	LT121764	82608.8158	36543.7901	108.8891
Levelling mark	LT121765	82606.9685	36544.4710	108.9108
Levelling mark	LT121766	82605.1036	36545.1446	108.9337
Levelling mark	LT121767	82603.2008	36545.8433	108.9570
Levelling mark	LT121768	82601.3334	36546.5267	108.9844
Levelling mark	LT121769	82599.4374	36547.2223	109.0133
Levelling mark	LT121770	82597.5819	36547.9129	109.0384
Levelling mark	LT121771	82595.7311	36548.5834	109.0635
Levelling mark	LT121772	82593.7942	36549.2735	109.0883
Levelling mark	LT121773	82591.9465	36549.9559	109.1120
Levelling mark	LT121774	82590.1041	36550.6320	109.1384
Levelling mark	LT121775	82588.1965	36551.3282	109.1745
Levelling mark	LT121776	82586.3488	36551.9983	109.2031
Levelling mark	LT121777	82584.4567	36552.7704	109.2297
Levelling mark	LT121778	82582.5482	36553.3561	109.2590
Levelling mark	LT121779	82580.6231	36554.0319	109.2863
Levelling mark	LT121780	82578.7496	36554.6897	109.3137
Levelling mark	LT121781	82576.9064	36555.3249	109.3474
Levelling mark	LT121782	82574.9604	36555.9831	109.3835

Levelling mark	LT121783	82573.0892	36556.6132	109.4046
Levelling mark	LT121784	82571.2129	36557.2327	109.4291
Levelling mark	LT121785	82569.3246	36557.8450	109.4601
Levelling mark	LT121786	82567.4201	36558.4507	109.4941
Levelling mark	LT121787	82565.5516	36559.0402	109.5231
Levelling mark	LT121788	82563.6112	36559.6484	109.5509
Levelling mark	LT121789	82561.7102	36560.2321	109.5789
Levelling mark	LT121790	82559.7618	36560.8114	109.6047
Levelling mark	LT121791	82557.8560	36561.3766	109.6287
Levelling mark	LT121792	82555.9215	36561.9336	109.6440
Levelling mark	LT121793	82554.0196	36562.4842	109.6653
Levelling mark	LT121794	82552.0761	36563.0432	109.6879
Levelling mark	LT121795	82550.1345	36563.5611	109.7148
Levelling mark	LT121796	82548.2204	36564.0630	109.7407
Levelling mark	LT121797	82546.3262	36564.5542	109.7678
Levelling mark	LT121798	82544.3907	36565.0377	109.7959
Levelling mark	LT121799	82542.4013	36565.5173	109.8282
Levelling mark	LT121800	82540.4678	36565.9688	109.8552
Levelling mark	LT121801	82538.5712	36566.3823	109.8871
Levelling mark	LT121802	82536.6018	36566.8082	109.9192
Levelling mark	LT121803	82534.6406	36567.2140	109.9443
Levelling mark	LT121804	82532.6999	36567.6242	109.9671
Levelling mark	LT121805	82530.7546	36568.0182	109.9921
Levelling mark	LT121806	82528.7803	36568.4112	110.0208

Levelling mark	LT121807	82526.8025	36568.7919	110.0415
Levelling mark	LT121808	82524.8537	36569.1691	110.0621
Levelling mark	LT121809	82522.8844	36569.5155	110.0821
Levelling mark	LT121810	82520.9011	36569.8631	110.0976
Levelling mark	LT121811	82518.9226	36570.1917	110.1136
Levelling mark	LT121812	82516.9257	36570.5065	108.9387
Levelling mark	LT121813	82514.9434	36570.7985	108.9514
Levelling mark	LT121814	82512.9604	36571.0793	108.9507
Levelling mark	LT121815	82510.9990	36571.3295	108.9471
Levelling mark	LT121816	82508.9876	36571.5623	110.1479
Levelling mark	LT121817	82506.9933	36571.7944	110.1492
Levelling mark	LT121818	82505.0005	36572.0123	110.1457
Levelling mark	LT121819	82503.0228	36572.2113	110.1378
Levelling mark	LT121820	82501.0303	36572.4129	110.1338
Levelling mark	LT121821	82499.0377	36572.5610	110.1251
Levelling mark	LT121822	82497.0466	36572.7536	110.1221
Levelling mark	LT121823	82495.0973	36572.9099	110.1236
Levelling mark	LT121824	82493.0857	36573.0692	110.1275
Levelling mark	LT121825	82491.0957	36573.2212	110.1304
Levelling mark	LT121826	82489.0517	36573.3603	110.1248
Levelling mark	LT121827	82487.0806	36573.4800	110.1043
Levelling mark	LT121828	82485.0917	36573.6081	110.0824
Levelling mark	LT121829	82483.0881	36573.7216	110.0635
Levelling mark	LT121830	82481.0612	36573.8395	110.0498

Levelling mark	LT121831	82479.0992	36573.9502	110.0394
Levelling mark	LT121832	82477.1979	36574.0434	110.0301
Levelling mark	LT121833	82475.1951	36574.1312	110.0266
Levelling mark	LT121834	82473.2297	36574.2156	110.0200
Levelling mark	LT121835	82471.1991	36574.2758	110.0087
Levelling mark	LT121836	82469.2440	36574.2510	109.9690
Levelling mark	LT121837	82467.1699	36574.3599	109.9637
Levelling mark	LT121838	82465.2102	36574.2942	109.9156
Levelling mark	LT121839	82463.1858	36574.4008	109.9100
Levelling mark	LT121840	82461.1923	36574.3992	109.8877
Levelling mark	LT121841	82459.1814	36574.3972	109.8660
Levelling mark	LT121842	82457.1710	36574.3631	109.8408
Levelling mark	LT121843	82455.2165	36574.3349	109.8015
Levelling mark	LT121844	82453.1672	36574.2868	109.7679
Levelling mark	LT121845	82451.1845	36574.2442	109.7440
Levelling mark	LT121846	82449.1989	36574.1766	109.7279
Levelling mark	LT121847	82447.0904	36574.1067	109.7050
Levelling mark	LT121848	82445.1346	36574.0291	109.6951
Levelling mark	LT121849	82443.1985	36573.9526	109.6907
Levelling mark	LT121850	82441.1218	36573.8573	109.6803
Levelling mark	LT121851	82439.1731	36573.7482	109.6709
Levelling mark	LT121852	82437.1110	36573.6423	109.6651
Levelling mark	LT121853	82435.1475	36573.5213	109.6603
Levelling mark	LT121854	82433.1301	36573.3943	109.6538

Levelling mark	LT121855	82431.1878	36573.2594	109.6492
Levelling mark	LT121856	82429.2033	36573.0903	109.6143
Levelling mark	LT121857	82427.1226	36572.9541	109.5963
Levelling mark	LT121858	82425.0418	36572.8179	109.5783
Levelling mark	LT121859	82423.0216	36572.6654	109.5790
Levelling mark	LT121860	82421.0844	36572.5204	109.5780
Levelling mark	LT121861	82419.0915	36572.3553	109.5669
Levelling mark	LT121862	82417.1136	36572.2157	109.5561
Levelling mark	LT121863	82415.1226	36572.0425	109.5559
Levelling mark	LT121864	82413.1435	36571.8908	109.5626
Levelling mark	LT121865	82411.1571	36571.7356	109.5611
Levelling mark	LT121866	82409.1417	36571.5814	109.5529
Levelling mark	LT121867	82407.1233	36571.4321	109.5429
Levelling mark	LT121868	82405.1277	36571.2725	109.5306
Levelling mark	LT121869	82403.1784	36571.1130	109.5225
Levelling mark	LT121870	82401.1895	36570.9619	109.5221
Levelling mark	LT121871	82399.1790	36570.7951	109.5249
Levelling mark	LT121872	82397.1274	36570.6316	109.5318
Levelling mark	LT121873	82395.1323	36570.4886	109.5289
Levelling mark	LT121874	82393.1244	36570.3382	109.5120
Levelling mark	LT121875	82391.1664	36570.1908	109.4994
Levelling mark	LT121876	82389.1906	36570.0300	109.5003
Levelling mark	LT121877	82387.1649	36569.8713	109.5062
Levelling mark	LT121878	82385.2042	36569.7264	109.5062

Levelling mark	LT121879	82383.2201	36569.5699	109.4973
Levelling mark	LT121880	82381.2231	36569.4219	109.4879
Levelling mark	LT121881	82379.1784	36569.2560	109.4930
Levelling mark	LT121882	82377.1747	36569.0961	109.4907
Levelling mark	LT121883	82375.1867	36568.9469	109.4806
Levelling mark	LT121884	82373.1630	36568.8015	109.4638
Levelling mark	LT121885	82371.1977	36568.6590	109.4449
Levelling mark	LT121886	82369.2353	36568.5188	109.4309
Levelling mark	LT121887	82367.2190	36568.3763	109.4175
Levelling mark	LT121888	82365.2610	36568.2121	109.4084
Levelling mark	LT121889	82363.2360	36568.0680	109.3940
Levelling mark	LT121890	82361.2242	36567.9181	109.3796
Levelling mark	LT121891	82359.2238	36567.7558	109.3672
Levelling mark	LT121892	82357.1844	36567.6072	109.3497
Levelling mark	LT121893	82355.2082	36567.4586	109.3322
Levelling mark	LT121894	82353.2510	36567.3180	109.3168
Levelling mark	LT121895	82351.2508	36567.1731	109.3005
Levelling mark	LT121896	82349.2516	36567.0274	109.2815
Levelling mark	LT121897	82347.2296	36566.8757	109.2721
Levelling mark	LT121898	82345.2191	36566.7359	109.2667
Levelling mark	LT121899	82343.2297	36566.5815	109.2602
Levelling mark	LT121900	82341.2413	36566.4354	109.2517
Levelling mark	LT121901	82339.2374	36566.2794	109.2447
Levelling mark	LT121902	82337.1899	36566.1415	109.2320

Levelling mark	LT121903	82335.2285	36565.9882	109.2214
Levelling mark	LT121904	82333.2350	36565.8331	109.2164
Levelling mark	LT121905	82331.2419	36565.6867	109.2168
Levelling mark	LT121906	82329.2372	36565.5501	109.2067
Levelling mark	LT121907	82327.2311	36565.4081	109.1878
Levelling mark	LT121908	82325.2273	36565.2582	109.1710
Levelling mark	LT121909	82323.2367	36565.1014	109.1625
Levelling mark	LT121910	82321.2502	36564.9535	109.1643
Levelling mark	LT121911	82319.2987	36564.8747	109.1779
Levelling mark	LT121912	82317.2885	36564.6714	109.1585
Levelling mark	LT121913	82315.2940	36564.5232	109.1547
Levelling mark	LT121914	82313.2980	36564.3769	109.1560
Levelling mark	LT121915	82311.3213	36564.2176	109.1559
Levelling mark	LT121916	82309.312	36564.060	109.150
Levelling mark	LT121917	82307.294	36563.896	109.151
Levelling mark	LT121918	82305.322	36563.714	109.159
Levelling mark	LT121919	82303.316	36563.521	109.161
Levelling mark	LT121920	82301.377	36563.340	109.156
Levelling mark	LT121921	82299.355	36563.108	109.165
Levelling mark	LT121922	82297.355	36562.887	109.168
Levelling mark	LT121923	82295.371	36562.618	109.176
Levelling mark	LT121924	82293.415	36562.336	109.179
Levelling mark	LT121925	82291.398	36562.033	109.180
Levelling mark	LT121926	82289.464	36561.722	109.184

Levelling mark	LT121927	82287.513	36561.373	109.192
Levelling mark	LT121928	82285.543	36561.013	109.201
Levelling mark	LT121929	82285.543	36561.013	109.201
Levelling mark	LT121930	82281.360	36561.703	109.259
Levelling mark	LT121931	82279.357	36561.292	109.252
Levelling mark	LT121932	82279.647	36559.817	109.191

Learning Legacy Document