

**Legend**

	Cabinet and Verts		Copper Joint		Trough Duct Cable Tray		Signal Box		FTN Core Node		Screen Joint Routeworks		Manhole details: Cross-To be used Filled-In use Clear-Empty		Overbridge		Signal		Engineer's Line Reference
	Cabinet with Regenerator and Verts		Fibre Joint		Cable - Type Identified by FTN Code Status - as per Key Below		Electrical Control Room		Core Node with GSM-R Colocated		Copper Joint Routeworks		Manhole		Underbridge		Vehicle Access Point		Mile Post
	<b>KEY</b>		Screening Conductor Joint with/without Earth		Manhole		Mid Length Sheath Gap Fibre		FTN Access Node		Cabinet Routeworks		Sheath Gap Copper		Platform		Pedestrian Access Point		Telephone
	Proposed Fibre & Civils Elements are shown in RED		Existing Fibre Cable		Existing Copper Cable		Existing Screen Cable		FTN Access Node with GSM-R Colocated		Fibre Joint Routeworks		Tunnel		Earth Form		Buffer Stop		Mast

**Notes**

19/07/12	Redrafted from NTPOSLD11241125001A.dwg & NTPOSLD11251128001AB3.dwg	SM	JW	CT	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

**ndcconsultants**  
 Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

ELR & Mileage: **BML2**

Designed	Simon McElroy	Sign.	[Signature]	Date	19/07/2012
Checked	Joe Winter	Sign.	[Signature]	Date	19/07/2012
Approved	Chris Tappenden	Sign.	[Signature]	Date	19/07/2012

Project: **FTN/GSM-R Project Stage 2 Design**

Drawing Title: **Beaulieu Station (1125) to Ashurst (6349)**

**Network Rail**

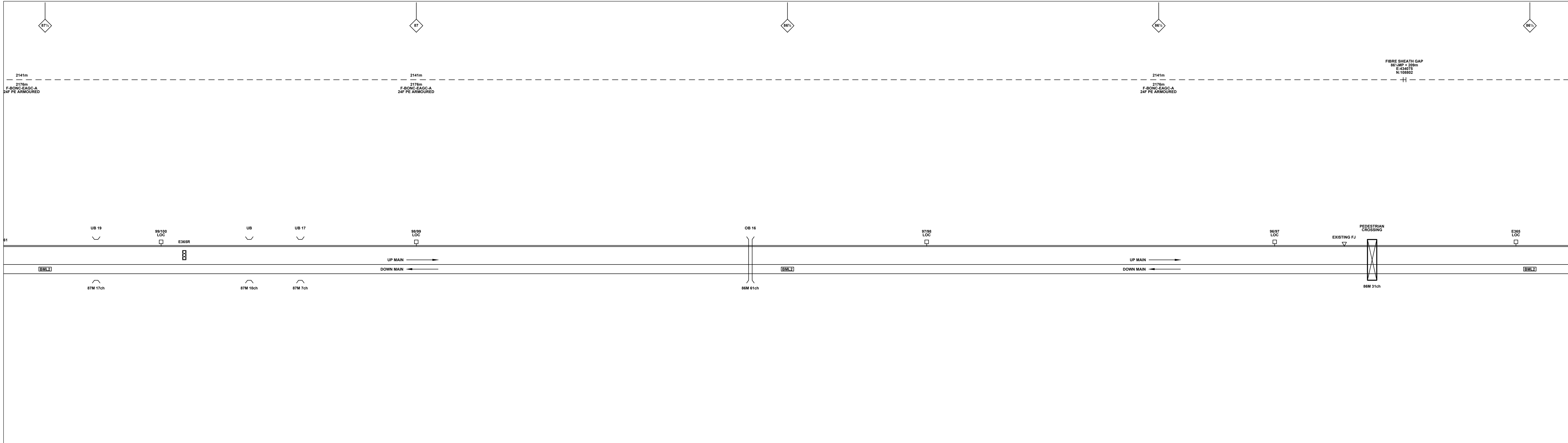
FTN/GSM-R Project  
 Tournament House  
 Passington  
 London  
 W12 1HA

Alternative Reference: **See Layout Tab A3 Sheets 1 and 2**

Drawing Number: **NTPO\SLD\1125\6349\001**

Sheet **1** of **3**  
 Revision **A**

Sheet Size 841x297



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Manhole	Overbridge	Signal	Engineer's Line Reference
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole details: Cross-To be used Filled-In use Clear-Empty	Underbridge	Vehicle Access Point	Mile Post
<b>KEY</b>	Screening Conductor Joint with/without Earth	Cable - Type Identified by FTN Code	Manhole	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	Crossing
Proposed Fibre & Civils Elements are shown in RED		1988m	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Form	Buffer Stop	Telephone	Gantry
Proposed Copper Elements are shown in BLUE		2034m	Sheath Gap Copper						Gas Line
Proposed Screening Elements are shown in MAGENTA		F-DIDC-RGAC-A							HV Cable
All Recoveries are shown in GREEN		Status - as per Key Below							LV Cable
									Sewer
									Telecoms
									Water
									Mast

**Notes**

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	Description of Revisions	Drawn	Chkd	Appr

**ndcconsultants**  
Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): ELR & Mileage  
BML2

Drawn	Simon McElroy	Sign.		Date	19/07/2012
Checked	Joe Winter	Sign.		Date	19/07/2012
Approved	Chris Tappenden	Sign.		Date	19/07/2012

Project: FTN/GSM-R Project  
Stage 2 Design

Drawing Title: Beaulieu Station (1125) to Ashurst (6349)

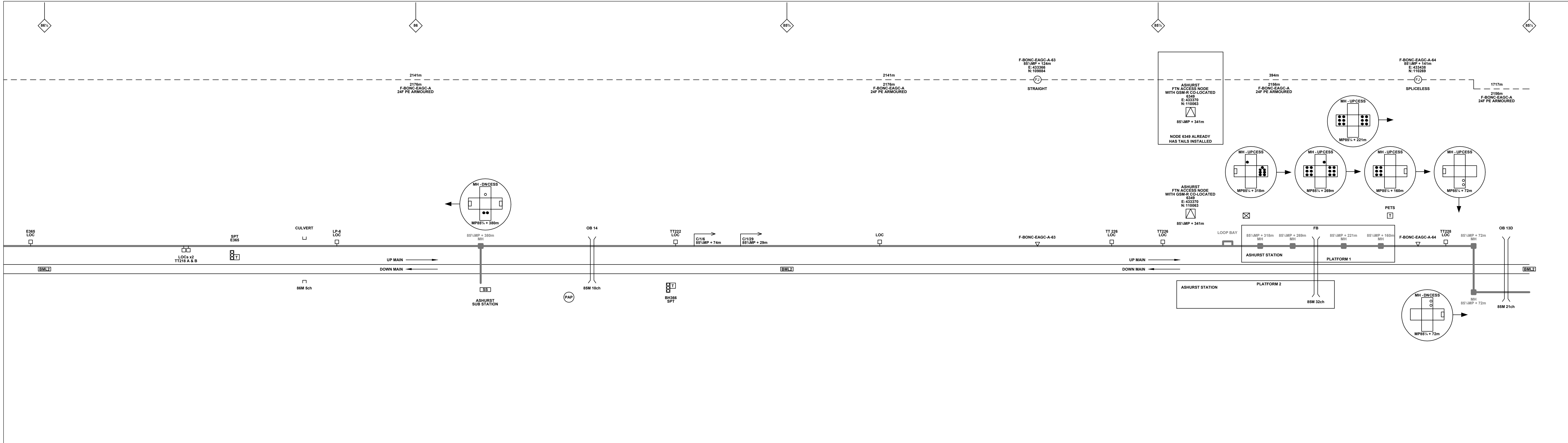
**Network Rail**

FTN/GSM-R Project  
Tournament House  
Passington  
London  
W12 1HA

Alternative Reference: See Layout Tab A3 Sheets 3 and 4

Drawing Number: NTPO\SLD\1125\6349\001

Sheet: 2 of 3  
Revision: A



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code Status - as per Key Below	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks
<b>KEY</b>	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks
<b>Proposed Fibre &amp; Civils Elements are shown in RED</b>	F-DIDC-RGAC-A	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Manhole details: Cross-To be used Filled-In use Clear-Empty
<b>Proposed Copper Elements are shown in BLUE</b>		Tunnel	Overbridge	Signal	Engineer's Line Reference
<b>Proposed Screening Elements are shown in MAGENTA</b>		Underbridge	Vehicle Access Point	Pedestrian Access Point	Mile Post
<b>All Recoveries are shown in GREEN</b>		Earth Form	Platform	Telephone	Crossing
			Gantry	Gas Line	HV Cable
			Cable Pull	LV Cable	Sewer
				Telecoms	Water
				Mast	

**Notes**

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**ndcconsultants**  
Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

ELR & Mileage: **BML2**

Contractor(s)	Designed	Sign.	Date
	Drawn	Sign.	Date
	Checked	Sign.	Date
	Approved	Sign.	Date
Project	FTN/GSM-R Project Stage 2 Design		
Drawing Title	Beaulieu Station (1125) to Ashurst (6349)		

**Network Rail**

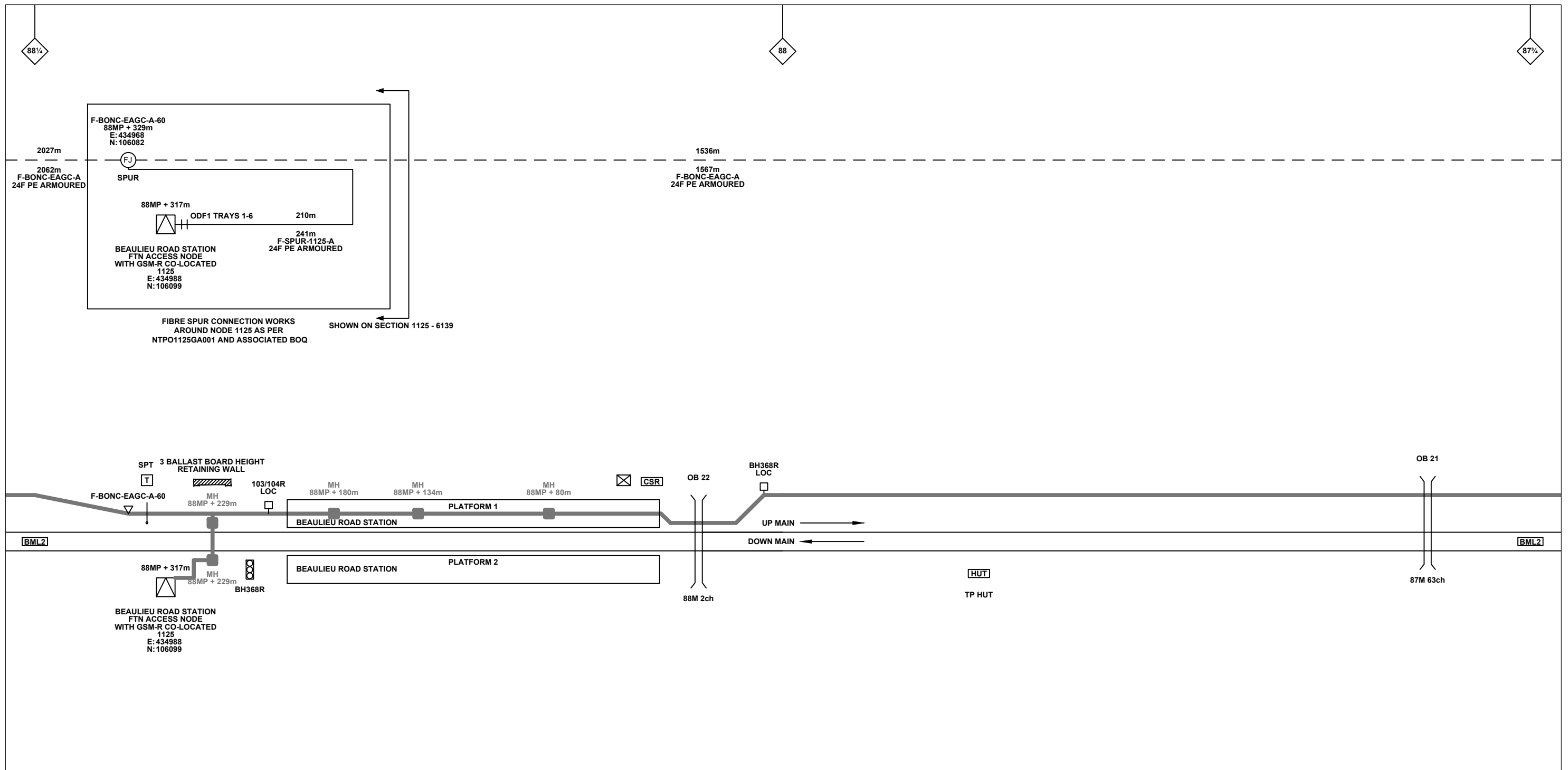
FTN/GSM-R Project  
Tournament House  
Passington  
London  
W12 1HA

Alternative Reference: **See Layout Tab A3 Sheets 5 and 6**

Drawing Number: **NTPOSLD\1125\6349\001**

Sheet: **3 of 3**

Revision: **A**



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Crossing	Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV Cable
<b>KEY</b>	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	Sewer	LV Cable
Proposed Fibre & Civils Elements are shown in RED		Status - as per Key Below	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telecoms	Water
Proposed Copper Elements are shown in BLUE		Existing Fibre Cable						Telephone	Cable Pull	Mast
Proposed Screening Elements are shown in MAGENTA		Existing Copper Cable								
All Recoveries are shown in GREEN		Existing Screen Cable								

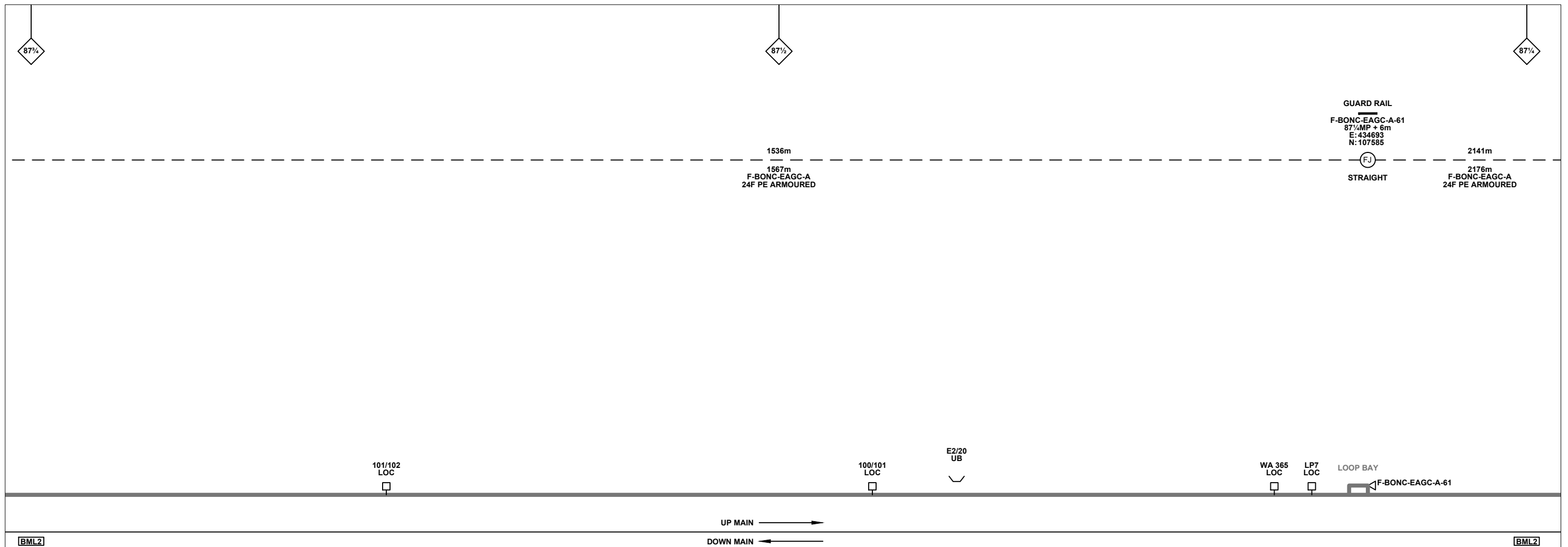
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Contractor(s)	ndc consultants		
Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000			
Status	Design		
Scale(s)	NTS	ELR & Mileage	BML2
Rev	Date	Description of Revisions	Drawn Chkd Appr
A	19/07/12	Redrafted from NTPOSLD11241125001A.dwg & NTPOSLD11251128001AB3.dwg	SM JW CT

Designed		Sign.		Date	
Drawn	Simon McElroy	Sign.		Date	19/07/2012
Checked	Joe Winter	Sign.		Date	19/07/2012
Approved	Chris Tappenden	Sign.		Date	19/07/2012
Project	FTN/GSM-R Project Stage 2 Design				
Drawing Title	Beaulieu Station (1125) to Ashurst (6349)				

Alternative Reference	See Layout Tab 841 x 297 Sheet 1	Sheet	1 of 6
Drawing Number	NTPO\SLD\1125\6349\001	Revision	A

FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Crossing	Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Vehicle Access Point	Mile Post	HV Cable	LV Cable
<b>KEY</b>	Screening Conductor Joint with/without Earth	Status - as per Key Below	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	Sewer	Water
Proposed Fibre & Civils Elements are shown in RED		All Existing Elements are shown in BLACK	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Telephone	Copper Blue Fibre Red Screen Green	Mast
Proposed Copper Elements are shown in BLUE		Existing Fibre Cable					Buffer Stop			
Proposed Screening Elements are shown in MAGENTA		Existing Copper Cable								
All Recoveries are shown in GREEN		Existing Screen Cable								

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	19/07/12	Redrafted from NTPOSLD11241125001A.dwg & NTPOSLD11251128001AB3.dwg	SM	JW	CT

Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS, ELR & Mileage: BML2

Designed	Sign.	Date
Drawn: Simon McElroy	Sign.	Date: 19/07/2012
Checked: Joe Winter	Sign.	Date: 19/07/2012
Approved: Chris Tappenden	Sign.	Date: 19/07/2012
Project: FTN/GSM-R Project Stage 2 Design		
Drawing Title: Beaulieu Station (1125) to Ashurst (6349)		

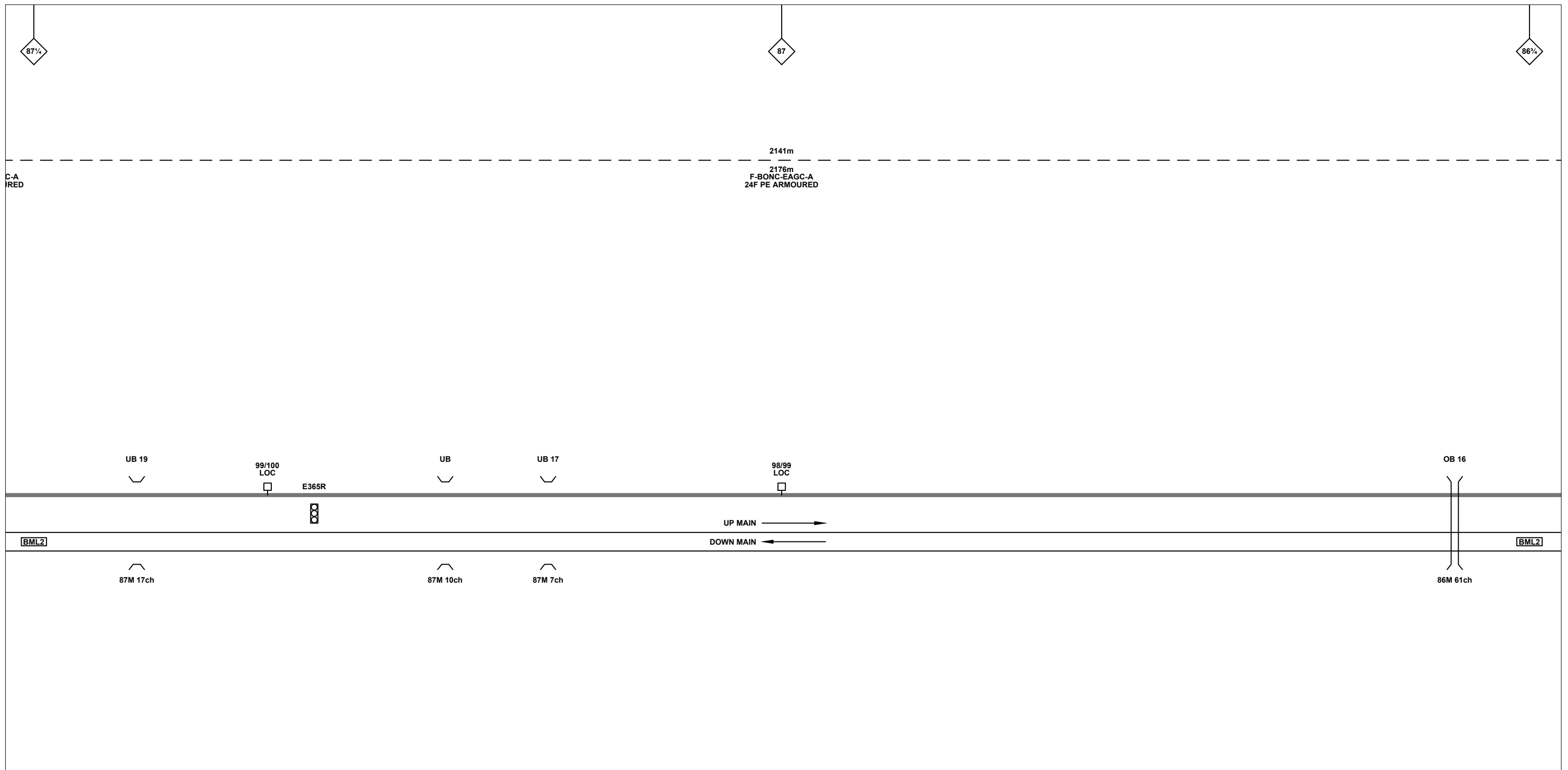
FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 1

Drawing Number: NTPO\SLD\1125\6349\001

Sheet: 2 of 6

Revision: A



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Crossing	Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	HV Cable	LV Cable
<b>KEY</b> Proposed Fibre & Civils Elements are shown in RED Proposed Copper Elements are shown in BLUE Proposed Screening Elements are shown in MAGENTA All Recoveries are shown in GREEN	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	Sewer	Telecoms
All Existing Elements are shown in BLACK	Existing Fibre Cable	Existing Copper Cable	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	Telephone	Water	Mast

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
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Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS

ELR & Mileage: BML2

Designed		Sign.		Date	
Drawn	Simon McElroy	Sign.		Date	19/07/2012
Checked	Joe Winter	Sign.		Date	19/07/2012
Approved	Chris Tappenden	Sign.		Date	19/07/2012
Project	FTN/GSM-R Project Stage 2 Design				
Drawing Title	Beaulieu Station (1125) to Ashurst (6349)				

FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

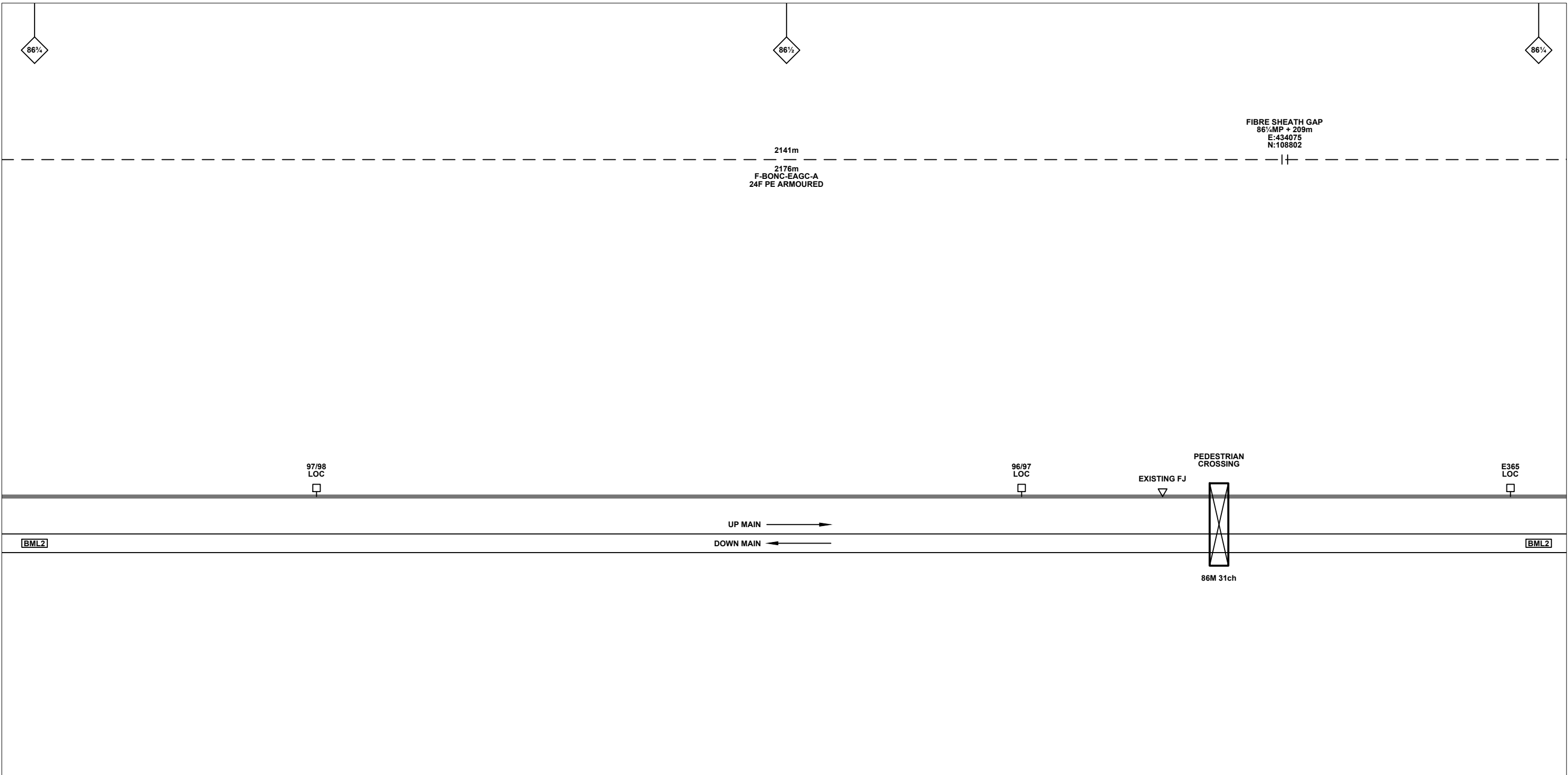
Alternative Reference: See Layout Tab 841 x 297 Sheet 2

Drawing Number: NTPO\SLD\1125\6349\001

Sheet: 3 of 6

Revision: A

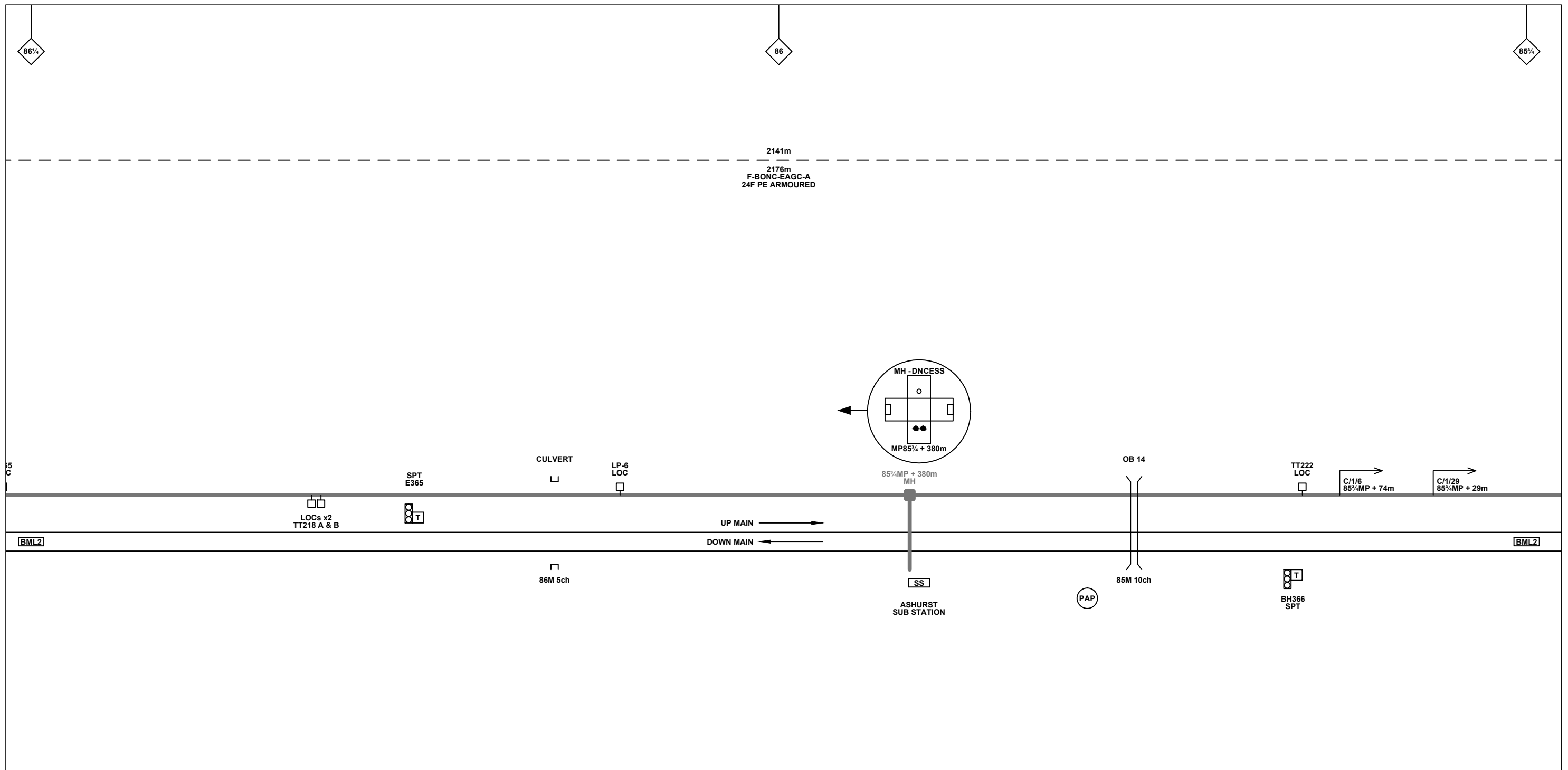




**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Crossing	Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Vehicle Access Point	Mile Post	HV Cable	LV Cable
<b>KEY</b>	Screening Conductor Joint with/without Earth	1988m	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	Sewer	Water
Proposed Fibre & Civils Elements are shown in RED		2034m F-DIDC-RGAC-A	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Telephone	Copper Blue Fibre Red Screen Green	Mast
Proposed Copper Elements are shown in BLUE		All Existing Elements are shown in BLACK								
Proposed Screening Elements are shown in MAGENTA		Existing Fibre Cable								
All Recoveries are shown in GREEN		Existing Copper Cable								
		Existing Screen Cable								

Contractor(s)		 Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000		Designed		Sign.		Date	
Status		Design		Drawn	Simon McElroy	Sign.		Date	19/07/2012
Scale(s)		NTS		Checked	Joe Winter	Sign.		Date	19/07/2012
ELR & Mileage		BML2		Approved	Chris Tappenden	Sign.		Date	19/07/2012
Drawing Title		Beulieu Station (1125) to Ashurst (6349)		Project		FTN/GSM-R Project Stage 2 Design		FTN/GSM-R Project Tournament House Paddington London W2 1HA	
Alternative Reference		See Layout Tab 841 x 297 Sheet 2		Drawing Number		NTPO\SLD\1125\6349\001		Sheet 4 of 6	
Revision		A		Description of Revisions		Redrafted from NTPOSLD11241125001A.dwg & NTPOSLD11251128001AB3.dwg		Drawn: SM Chkd: JW Appr: CT	
Rev	Date								



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Crossing	GAS — GAS — Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	VAP Vehicle Access Point	Mile Post	HV — HV — HV Cable	LV — LV — LV Cable
<b>KEY</b>	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Tunnel	PAP Pedestrian Access Point	Platform	SEW — SEW — Sewer	TEL — TEL — Telecoms
Proposed Fibre & Civils Elements are shown in RED				FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	Telephone	v — v — Water	Mast
Proposed Copper Elements are shown in BLUE										
Proposed Screening Elements are shown in MAGENTA										
All Recoveries are shown in GREEN										

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	19/07/12	Redrafted from NTPOSLD11241125001A.dwg & NTPOSLD11251128001AB3.dwg	SM	JW	CT

Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS, ELR & Mileage BML2

Designed		Sign.		Date	
Drawn	Simon McElroy	Sign.		Date	19/07/2012
Checked	Joe Winter	Sign.		Date	19/07/2012
Approved	Chris Tappenden	Sign.		Date	19/07/2012
Project	FTN/GSM-R Project Stage 2 Design				
Drawing Title	Beaulieu Station (1125) to Ashurst (6349)				

FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

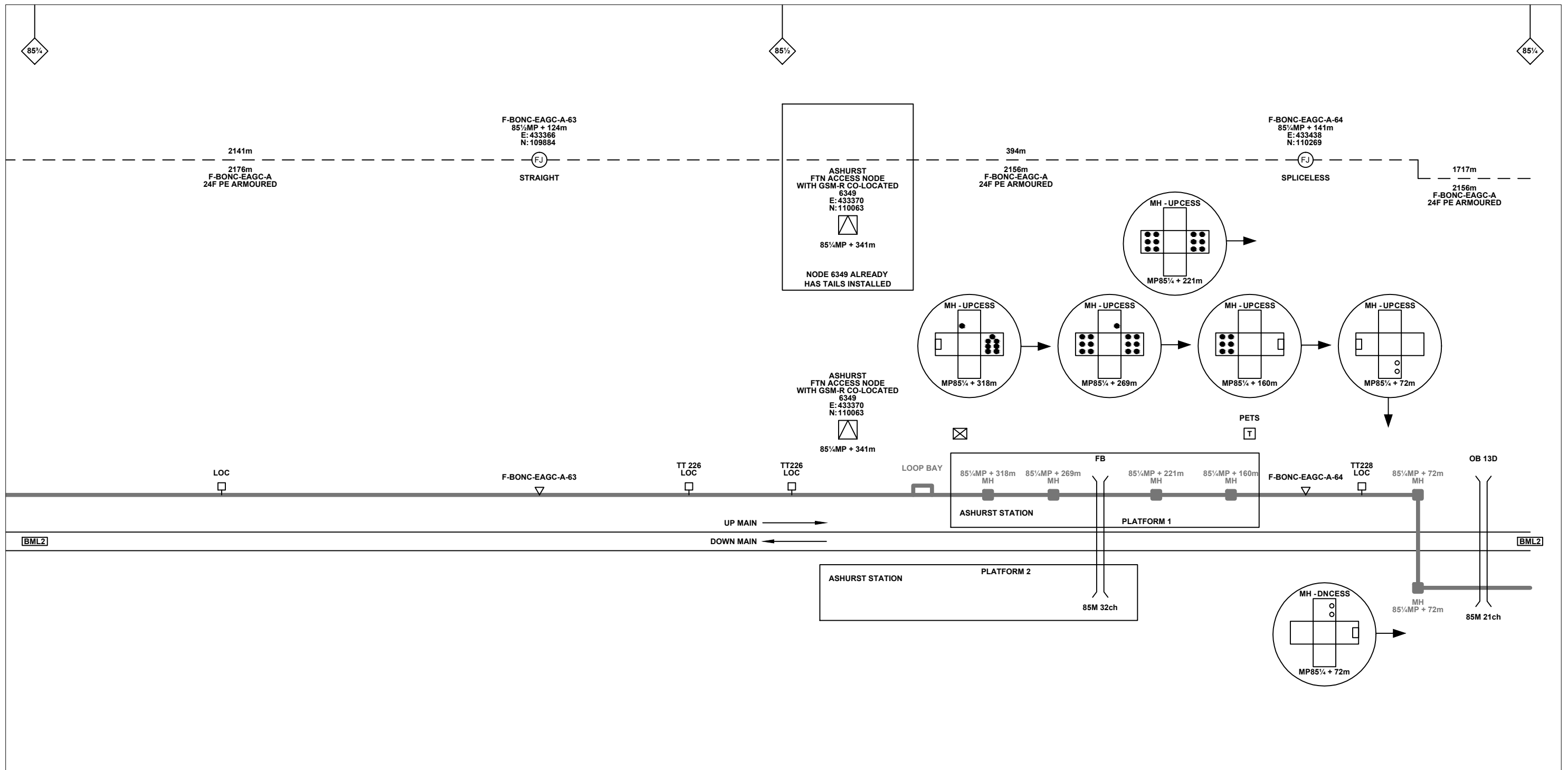
Alternative Reference: See Layout Tab 841 x 297 Sheet 3

Drawing Number: NTPO\SLD\1125\6349\001

Sheet: 5 of 6

Revision: A





**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Crossing	Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV Cable
<b>KEY</b>	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	Sewer	LV Cable
<b>Proposed Fibre &amp; Civils Elements are shown in RED</b>	Existing Fibre Cable	Manhole	Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telephone	Water
<b>Proposed Copper Elements are shown in BLUE</b>	Existing Copper Cable	Manhole	Sheath Gap Copper							
<b>Proposed Screening Elements are shown in MAGENTA</b>	Existing Screen Cable									
<b>All Recoveries are shown in GREEN</b>										

Notes		Contractor(s)		Designed		Sign.		Date			
		 Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000		Drawn		Sign.		Date			
				Simon McElroy		Sign.		Date 19/07/2012			
				Joe Winter		Sign.		Date 19/07/2012			
				Chris Tappenden		Sign.		Date 19/07/2012			
		Status		Project		Drawing Title		Alternative Reference		Sheet	
		Design		FTN/GSM-R Project Stage 2 Design		Beaulieu Station (1125) to Ashurst (6349)		See Layout Tab 841 x 297 Sheet 3		6 of 6	
Scale(s)		NTS		ELR & Mileage		BML2		Drawing Number		Revision	
								NTPO\SLD\1125\6349\001		A	
Rev		Date		Description of Revisions		Drawn		Chkd		Appr	
A		19/07/12		Redrafted from NTPOSLD11241125001A.dwg & NTPOSLD11251128001AB3.dwg		SM		JW		CT	