

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	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	Mid Length Sheath Gap Fibre	Underbridge	Vehicle Access Point	Mile Post	HV Cable
KEY	Screening Conductor Joint with/without Earth	Manhole Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Sheath Gap Copper	Tunnel	Pedestrian Access Point	Platform	LV Cable
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	Earth Farm	Buffer Stop	Telephone	Cable Pull	Sewer
Proposed Copper Elements are shown in BLUE										Telecoms
Proposed Screening Elements are shown in MAGENTA										Water
All Recoveries are shown in GREEN										AC Stanchion

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/2010	Redrafted from NTPOSLD1141116001A.dwg	BW	JW	CT

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

Design
ELR & Mileage
BML2

Designed	NDC Consultants	Sign.		Date	22/11/2010
Drawn	Ben Winter	Sign.		Date	22/11/2010
Checked	Joe Winter	Sign.		Date	22/11/2010
Approved	Chris Tappenden	Sign.		Date	22/11/2010

FTN / GSM-R Project Stage 2 Design

Drawing Title: **Stoborough (1114) to Holton Heath (6406)**

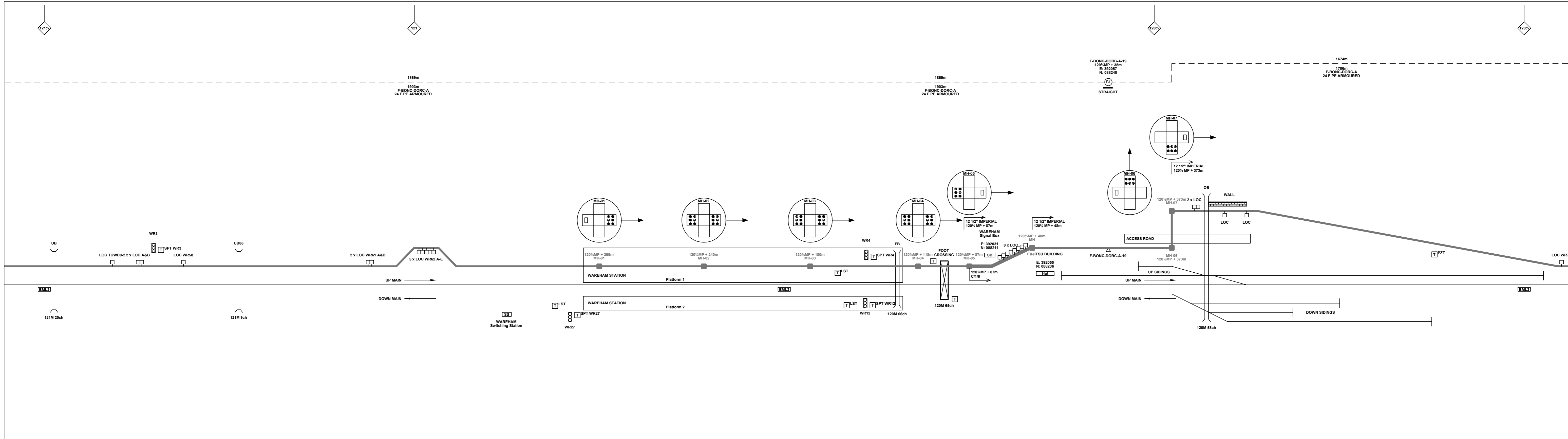
Network Rail

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

Alternative Reference: See Layout Tab A3 Sheets 1 and 2

Drawing Number: NTPO\SLD\1114\6406\001

Sheet: 1 of 4
Revision: A



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		Crossing		Gas Line		HV Cable		LV Cable		Sewer		Telecoms		Water		
	Cabinet with Regenerator and Verts		Fibre Joint		Electrical Control Room		Core Node with GSM-R Colocated		FTN Access Node		Cabinet Routeworks		Manhole		Underbridge		Vehicle Access Point		Pedestrian Access Point		Platform		Gantry		Copper Blue Fibre		Red Fibre		Screen Green Fibre		AC Stanchion				
	Screening Conductor Joint with/without Earth		1988m Cable - Type Identified by FTN Code		2034m Cable - Type Identified by FTN Code		Manhole with Sheath Gap Fibre		FTN Access Node with GSM-R Colocated		Fibre Joint Routeworks		Tunnel		Earth Farm		Buffer Stop		Telephone		Cable Pull														

KEY

Proposed Fibre & Civils Elements are shown in RED
 Existing Fibre Cable is shown in BLACK
 Proposed Copper Elements are shown in BLUE
 Existing Copper Cable is shown in BLACK
 Proposed Screening Elements are shown in MAGENTA
 Existing Screen Cable is shown in BLACK
 All Recoveries are shown in GREEN

Notes

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Contractor(s)

Design

ELR & Message
BML2

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Project

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

Drawing Title

**Stoborough (1114)
to Holton Heath (6406)**

Network Rail

FTN/GSM-R Project
Tournament House
Passington
London
W2 1HS

Alternative Reference

See Layout Tab A3 Sheets 3 and 4

Drawing Number

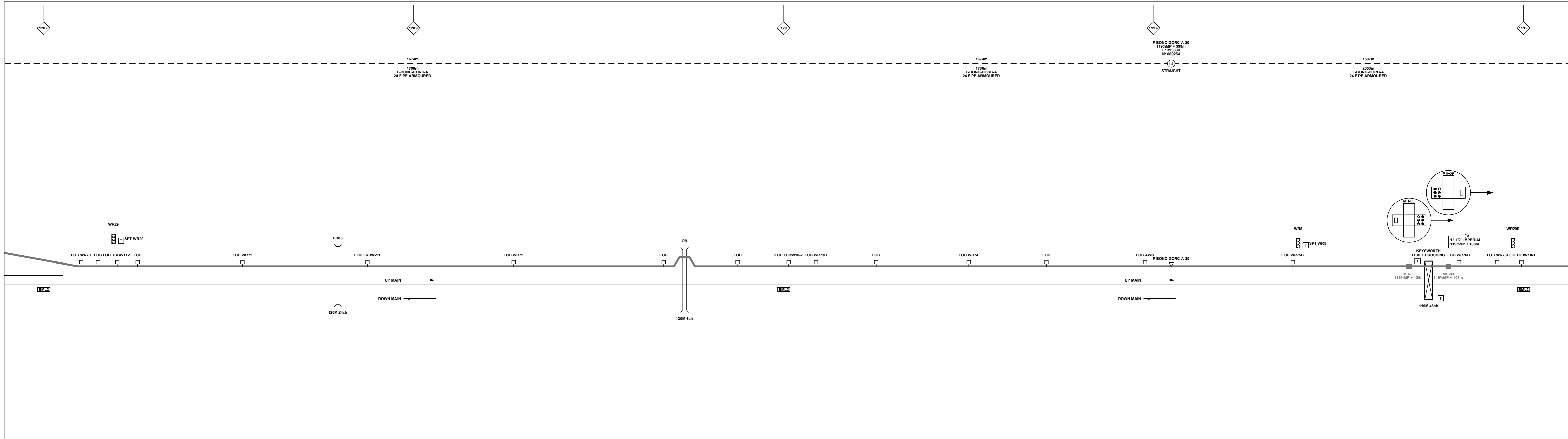
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Sheet

2 of 4

Revision

A



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	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	Mid Length Sheath Gap Fibre	Underbridge	Vehicle Access Point	Mile Post	HV Cable
KEY	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Sheath Gap Copper	Tunnel	Pedestrian Access Point	Platform	LV Cable
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	Earth Farm	Buffer Stop	Telephone	Cable Pull	Sewer
Proposed Copper Elements are shown in BLUE										Telecoms
Proposed Screening Elements are shown in MAGENTA										Water
All Recoveries are shown in GREEN										AC Stanchion

Notes

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Contractor(s)

Scale(s): NTS

Design

ELR & Message: BML2

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Approved	Chris Tappenden	Sign.		Date	22/11/2010

Project: FTN / GSM-R Project
Stoborough (1114) to Holton Heath (6406)

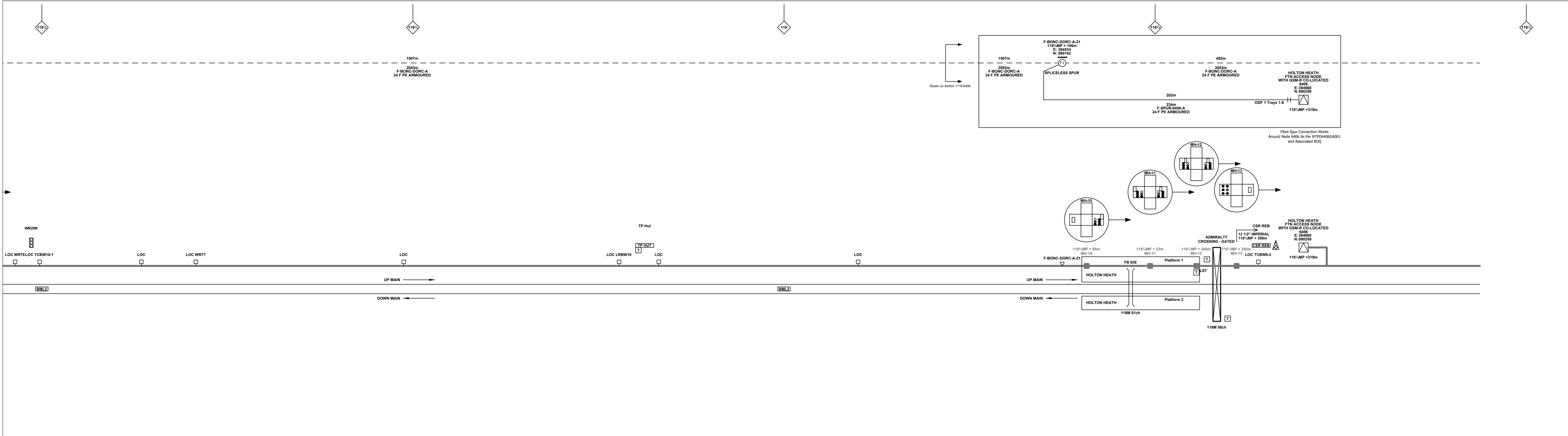
Network Rail

FTN / GSM-R Project
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Passington
London
W2 1HS

Alternative Reference: See Layout Tab A3 Sheets 5 and 6

Drawing Number: NTPO\SLD\1114\6406\001

Sheet: 3 of 4
Revision: A



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		Crossing		Gas Line		HV Cable		LV Cable		Sewer		Telecoms		Water		Copper Blue Fibre Red Screen Green		AC Stanchion		
	Cabinet with Regenerator and Verts		Fibre Joint		Electrical Control Room		Core Node with GSM-R Colocated		Mile Post		Copper Joint Routeworks		Vehicle Access Point		Underbridge		Pedestrian Access Point		Platform		Gantry		Cable Pull		Earth Farm		Buffer Stop		Telephone		Tunnel								
	KEY		Screening Conductor		Manhole		FTN Access Node		Platform		Cabinet Routeworks		FTN Access Node with GSM-R Colocated		Earth Farm		Buffer Stop		Telephone		Gantry		Cable Pull		Earth Farm		Buffer Stop		Telephone		Tunnel								

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

Notes

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

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Scale(s)

NTS

Design

ELR & Message

BML2

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Approved	Chris Tappenden	Sign.		Date	22/11/2010

Project

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

Drawing Title

**Stoborough (1114)
to Holton Heath (6406)**

FTN/GSM-R Project
Tournament House
Passington
London
W2 1HS

Alternative Reference

See Layout Tab A3 Sheets 7 and 8

Drawing Number

NTPO\SLD\1114\6406\001

Sheet

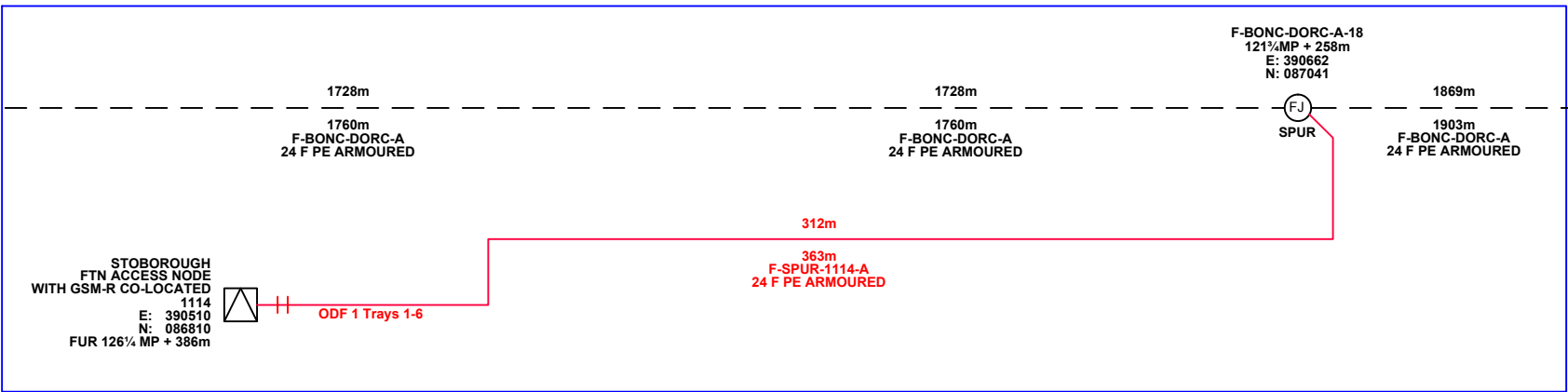
4 of 4

Revision

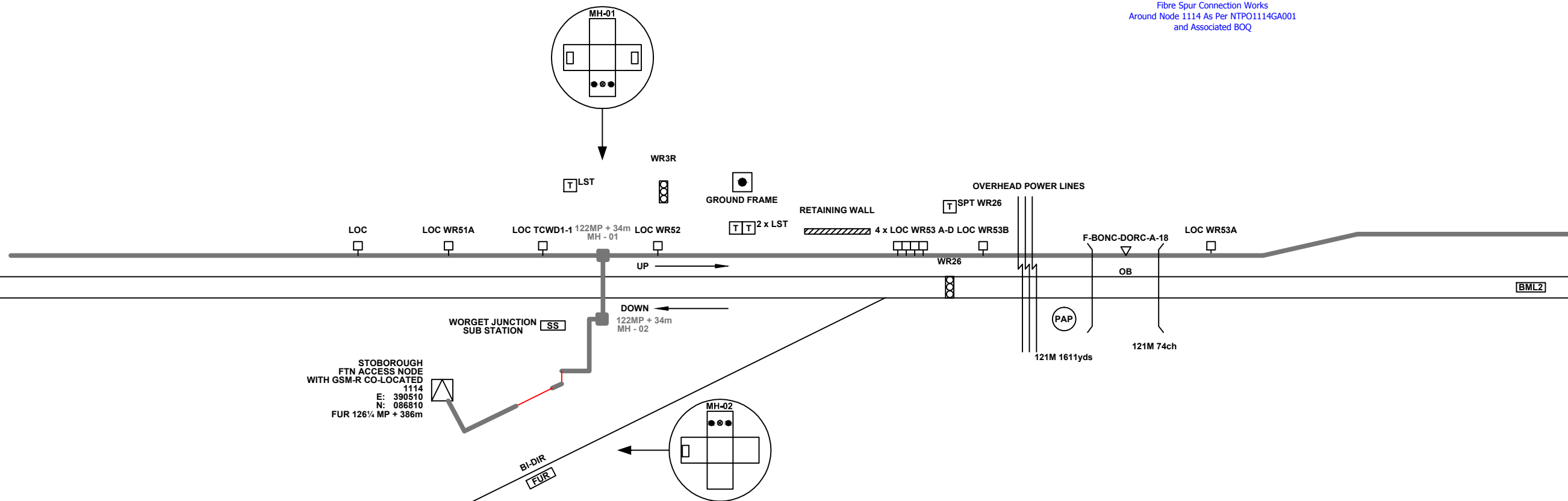
A

122

121%



Fibre Spur Connection Works
Around Node 1114 As Per NTPO1114GA001
and Associated BOQ



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 Line
	Cabinet with Regenerator and Verts		Fibre Joint		Electrical Control Room		Manhole		Core Node with GSM-R Colocated		Copper Joint Routeworks		Underbridge		Vehicle Access Point		Mile Post		Gantry		HV	HV Cable
	KEY		Screening Conductor Joint with/without Earth		Cable - Type Identified by FTN Code		Mid Length Sheath Gap Fibre		FTN Access Node		Cabinet Routeworks		Tunnel		Pedestrian Access Point		Platform		Water		LV	LV Cable
			Status - as per Key Below		Sheath Gap Fibre		FTN Access Node with GSM-R Colocated		Fibre Joint Routeworks		Earth Farm		Buffer Stop		Cable Pull		Telephone		AC Stanchion		SEW	Sewer
			Existing Fibre Cable		Existing Copper Cable		Existing Screen Cable				Manhole details: Cross-To be used Filled-In use Clear-Empty										TEL	Telecoms
			Proposed Fibre & Civils Elements are shown in RED																		Copper Blue	
			Proposed Copper Elements are shown in BLUE																		Fibre Red	
			Proposed Screening Elements are shown in MAGENTA																		Screen Green	
			All Recoveries are shown in GREEN																			

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/2010	Redrafted from NTPOSLD11141116001A.dwg	BW	JW	CT

Contractor(s)

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Status: **Design**

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

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Project	FTN / GSM-R Project Stage 2 Design				
Drawing Title	Stoborough (1114) to Holton Heath (6406)				

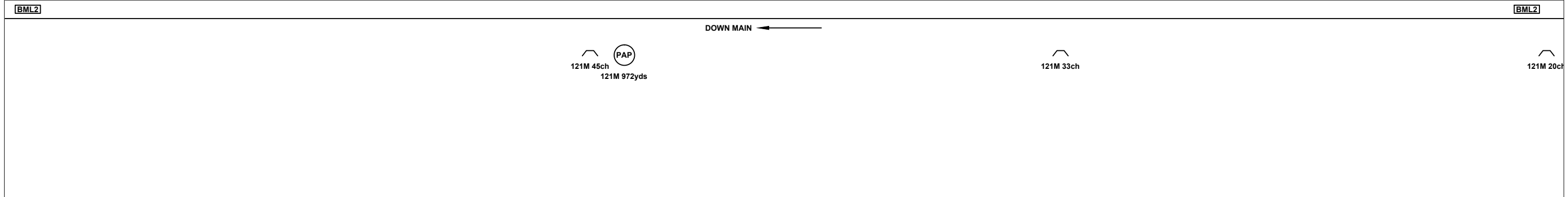
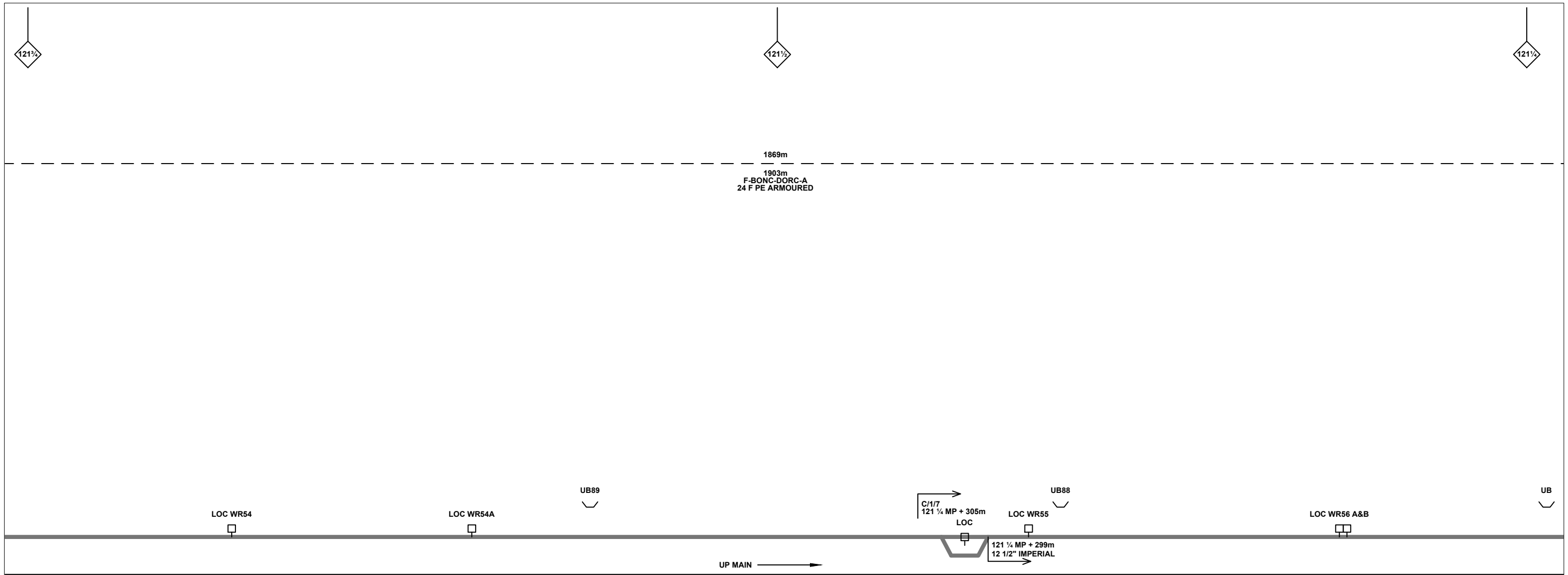
FTN/GSM-R Project
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W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 1

Drawing Number: NTPO\SLD\1114\6406\001

Sheet: 1 of 8

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
KEY	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	Sewer	Telecoms
Proposed Fibre & Civils Elements are shown in RED									Water	
Proposed Copper Elements are shown in BLUE										
Proposed Screening Elements are shown in MAGENTA										
All Recoveries are shown in GREEN										
All Existing Elements are shown in BLACK										
Existing Fibre Cable										
Existing Copper Cable										
Existing Screen Cable										
									Earth Farm	Buffer Stop
									Telephone	AC Stanchion

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/2010	Redrafted from NTPOSLD11141116001A.dwg	BW	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

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Project	FTN / GSM-R Project Stage 2 Design				
Drawing Title	Stoborough (1114) to Holton Heath (6406)				

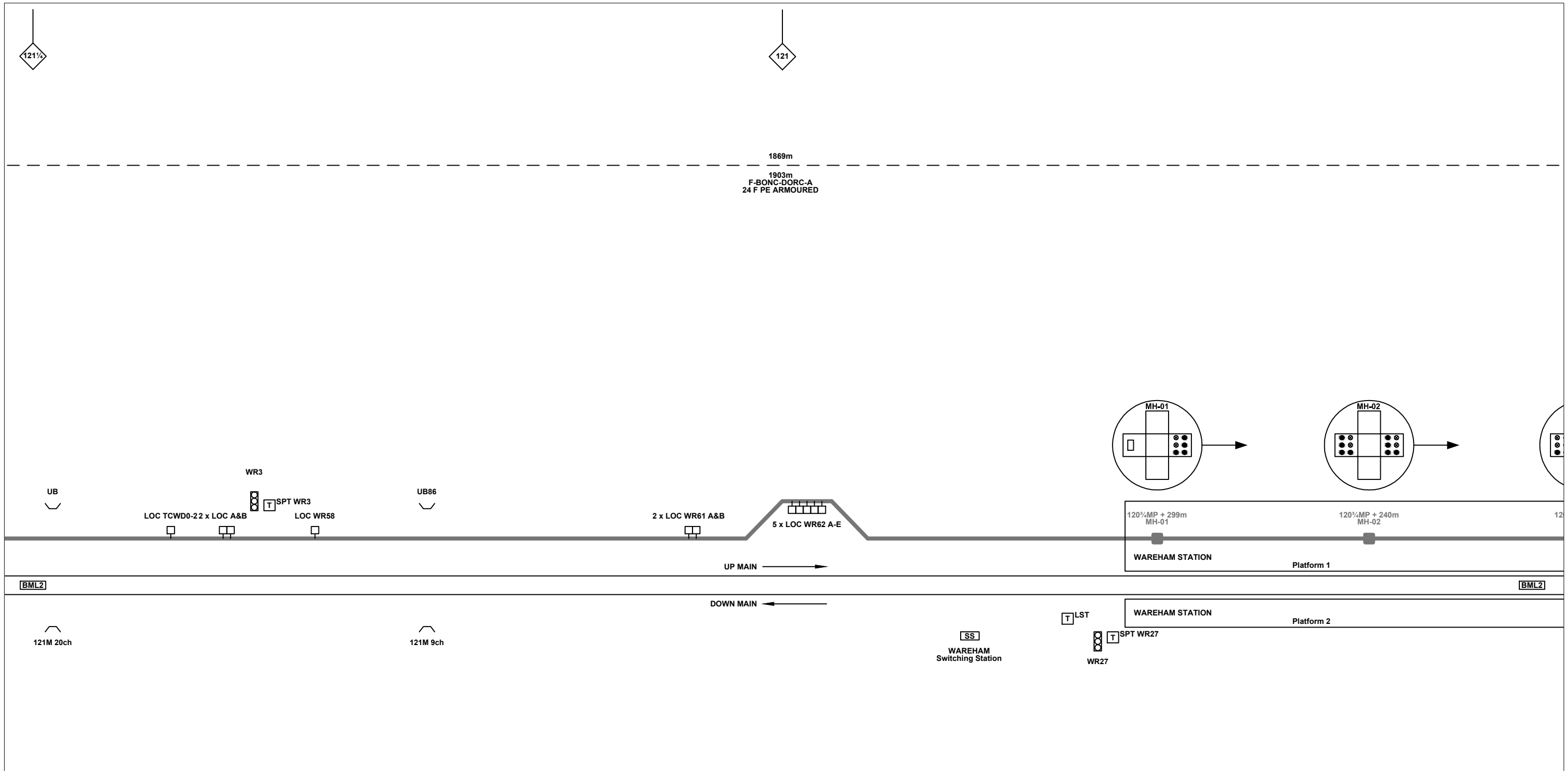
FTN/GSM-R Project
Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 1

Drawing Number: NTPO\SLD\1114\6406\001

Sheet: 2 of 8

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 — 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	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	PAP Pedestrian Access Point	Platform	SEW — SEW — Sewer	LV — LV — LV Cable
Proposed Fibre & Civils Elements are shown in RED		All Existing Elements are shown in BLACK	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telephone	TEL — TEL — Telecoms
Proposed Copper Elements are shown in BLUE		Existing Fibre Cable	Sheath Gap Copper							W — W — Water
Proposed Screening Elements are shown in MAGENTA		Existing Copper Cable								Cable Pull
All Recoveries are shown in GREEN		Existing Screen Cable								AC Stanchion

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/2010	Redrafted from NTPOSLD11141116001A.dwg	BW	JW	CT

Contractor(s)

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Status: **Design**

Scale(s): NTS

ELR & Mileage: BML2

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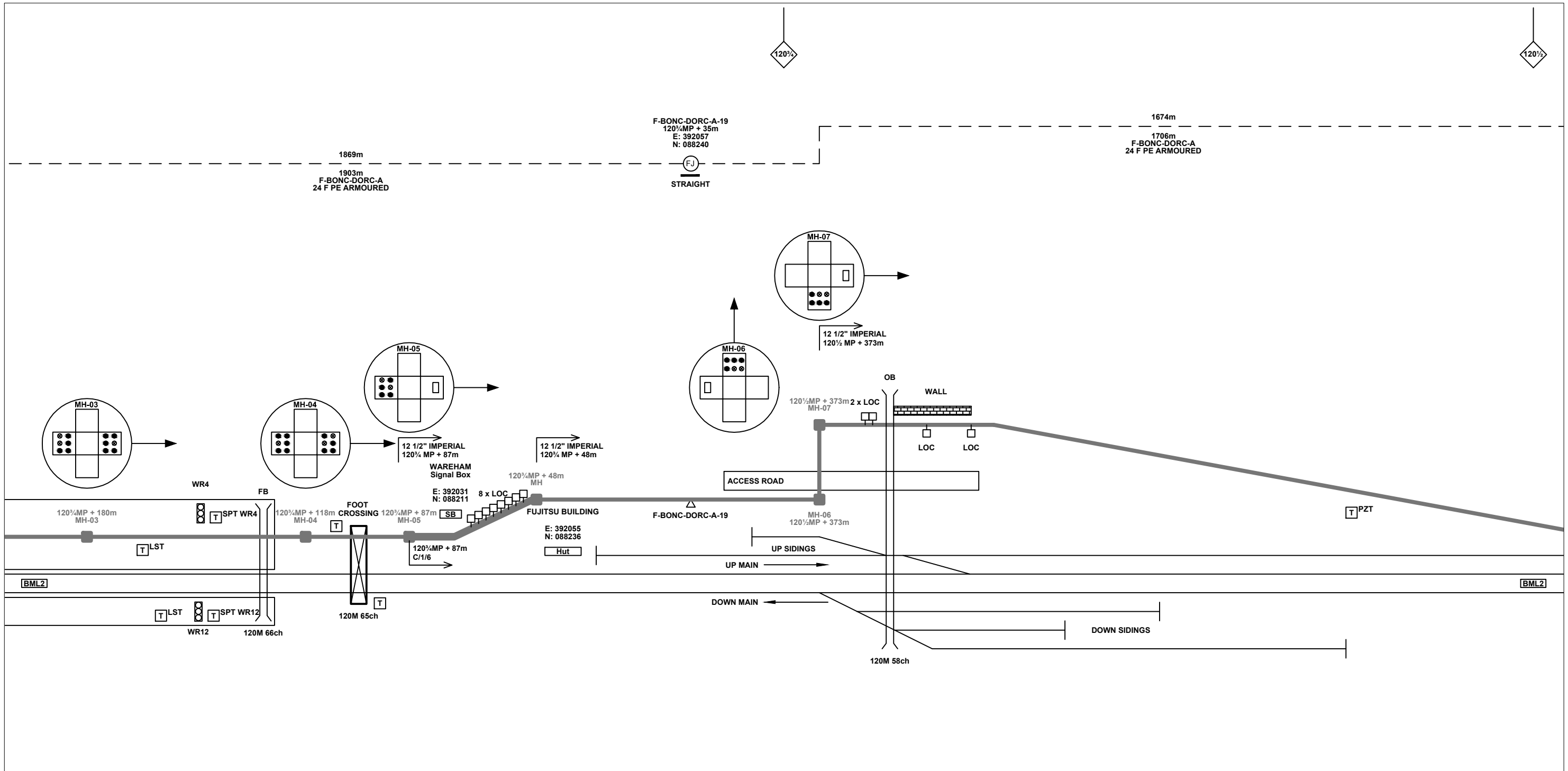
FTN/GSM-R Project
Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 2

Drawing Number: NTPO\SLD\1114\6406\001

Sheet: 3 of 8

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 — 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	Vehicle Access Point	Mile Post	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	SEW — SEW — Sewer	TEL — TEL — Telecoms
Proposed Fibre & Civils Elements are shown in RED		All Existing Elements are shown in BLACK	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	W — W — Water	AC Stanchion
Proposed Copper Elements are shown in BLUE		--- Existing Fibre Cable	Sheath Gap Copper							
Proposed Screening Elements are shown in MAGENTA		--- Existing Copper Cable								
All Recoveries are shown in GREEN		--- Existing Screen Cable								

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Drawing Title	Stoborough (1114) to Holton Heath (6406)			

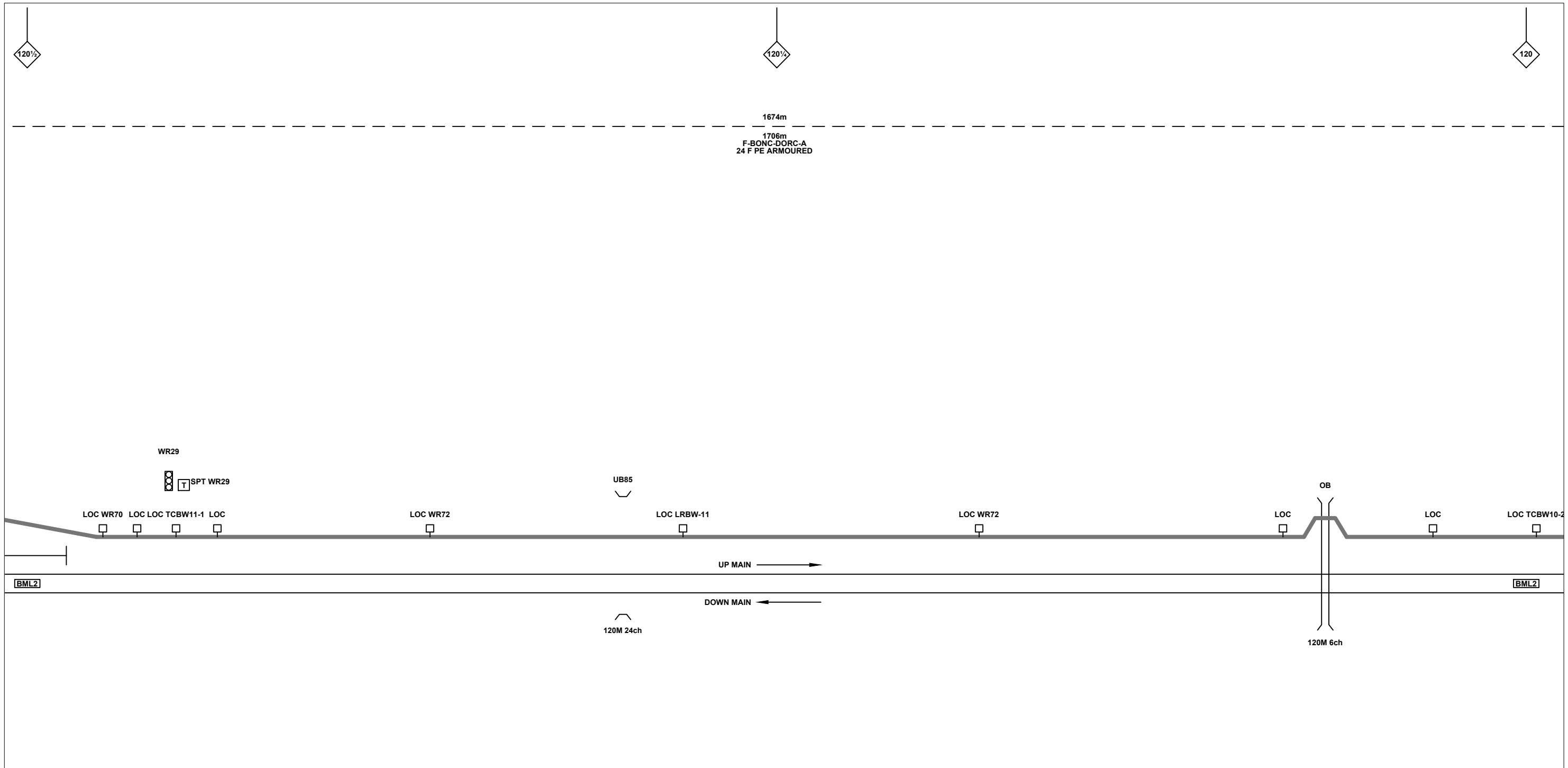
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London
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Alternative Reference: See Layout Tab 841 x 297 Sheet 2

Drawing Number: NTPO\SLD\1114\6406\001

Sheet: 4 of 8

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 — 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	Vehicle Access Point	Mile Post	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	SEW — SEW — Sewer	LV — LV — LV Cable
Proposed Fibre & Civils Elements are shown in RED				FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	Telephone	TEL — TEL — Telecoms	W — W — Water
Proposed Copper Elements are shown in BLUE									Cable Pull	AC Stanchion
Proposed Screening Elements are shown in MAGENTA										
All Recoveries are shown in GREEN										
All Existing Elements are shown in BLACK										
Existing Fibre Cable										
Existing Copper Cable										
Existing Screen Cable										

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Drawing Title	Stoborough (1114) to Holton Heath (6406)				

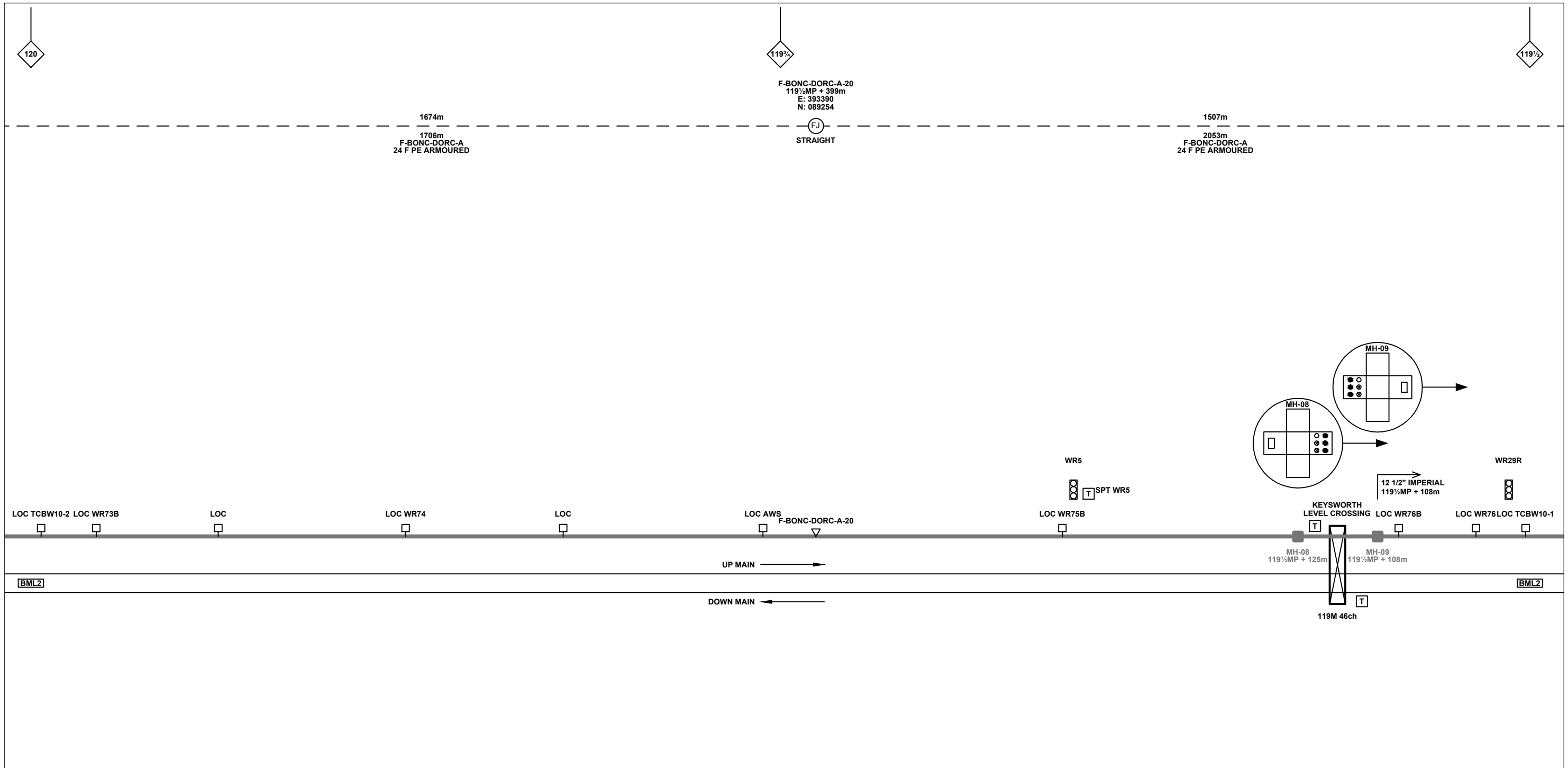
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Alternative Reference: See Layout Tab 841 x 297 Sheet 3

Drawing Number: NTPO\SLD\1114\6406\001

Sheet: 5 of 8

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 — 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	Vehicle Access Point	Mile Post	Gantry	HV — HV — HV Cable
KEY	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	SEW — SEW — Sewer	LV — LV — LV Cable
Proposed Fibre & Civils Elements are shown in RED		Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telephone	TEL — TEL — Telecoms	W — W — Water
Proposed Copper Elements are shown in BLUE									Cable Pull	AC Stanchion
Proposed Screening Elements are shown in MAGENTA										
All Recoveries are shown in GREEN										

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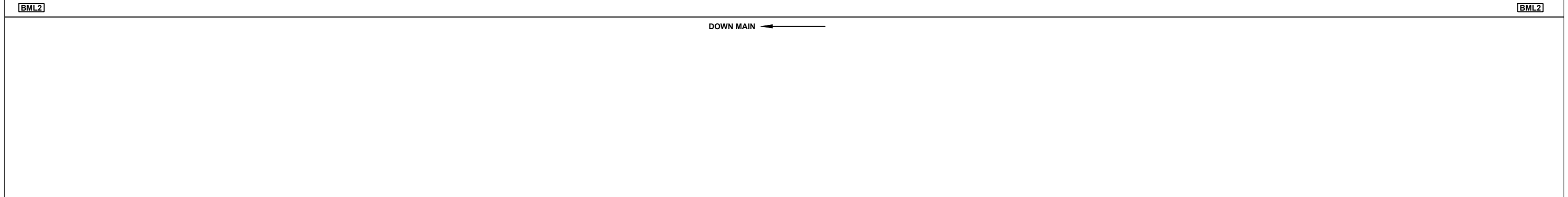
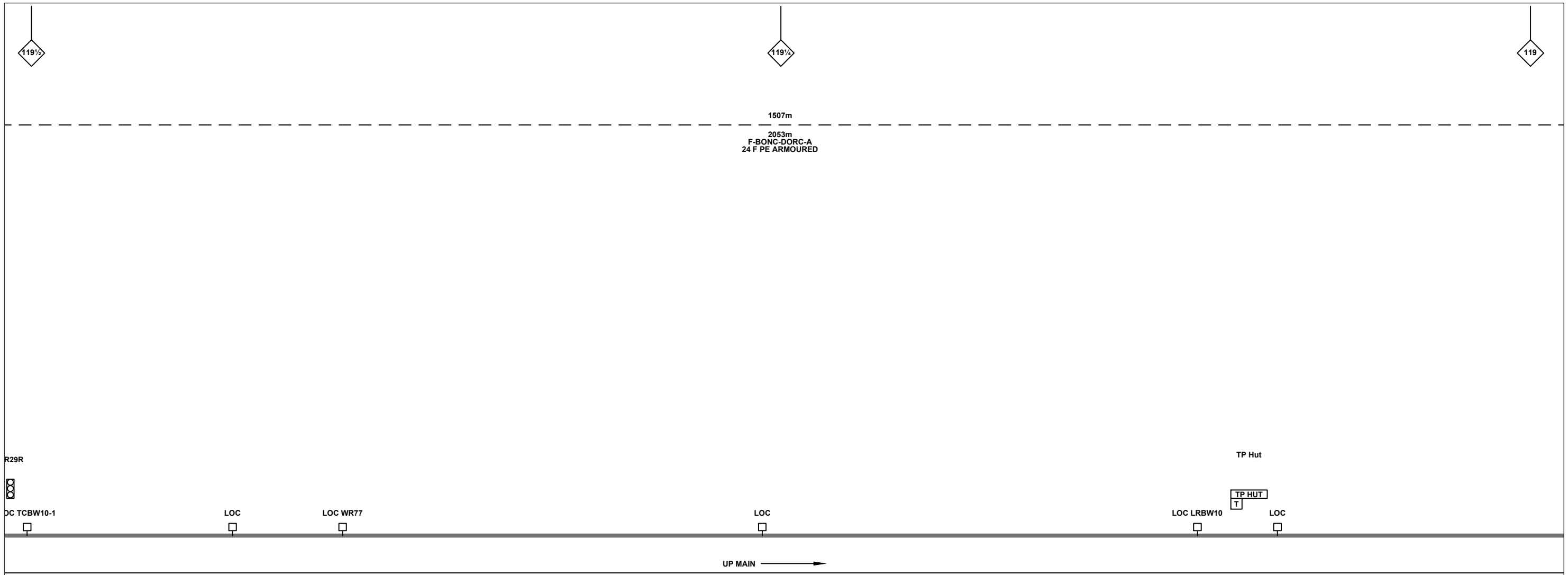
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Alternative Reference: See Layout Tab 841 x 297 Sheet 3

Drawing Number: NTPO\SLD\1114\6406\001

Sheet: 6 of 8

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 — 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	Vehicle Access Point	Mile Post	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	SEW — SEW — Sewer	LV — LV — LV Cable
Proposed Fibre & Cables Elements are shown in RED									TEL — TEL — Telecoms	W — W — Water
Proposed Copper Elements are shown in BLUE									Earth Farm	Buffer Stop
Proposed Screening Elements are shown in MAGENTA									Telephone	Cable Pull
All Recoveries are shown in GREEN									AC Stanchion	
All Existing Elements are shown in BLACK										
Existing Fibre Cable										
Existing Copper Cable										
Existing Screen Cable										

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Designed	NDC Consultants	Sign.		Date	22/11/2010
Drawn	Ben Winter	Sign.		Date	22/11/2010
Checked	Joe Winter	Sign.		Date	22/11/2010
Approved	Chris Tappenden	Sign.		Date	22/11/2010
Project	FTN / GSM-R Project Stage 2 Design				
Drawing Title	Stoborough (1114) to Holton Heath (6406)				

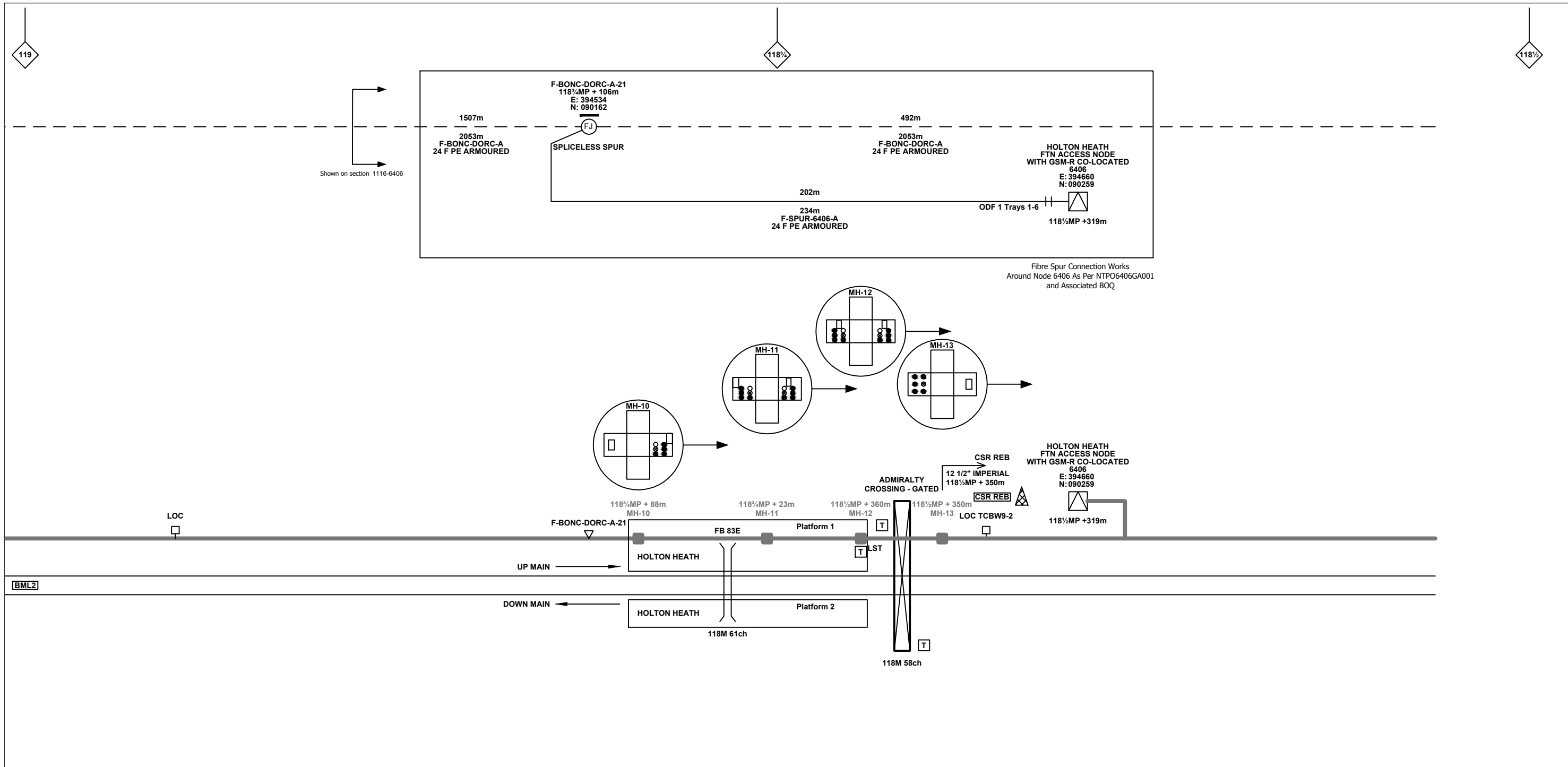
FTN/GSM-R Project
Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 4

Drawing Number: NTPO\SLD\1114\6406\001

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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	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	HV Cable	
	KEY		Screening Conductor Joint with/without Earth		Manhole		Mid Length Sheath Gap Fibre		FTN Access Node		Cabinet Routeworks		Tunnel		Pedestrian Access Point		Platform		Earth Farm		LV	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		Buffer Stop		AC Stanchion				SEW	Sewer		W	Water
	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	22/11/2010	Redrafted from NTPOSLD11141116001A.dwg	BW	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

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