
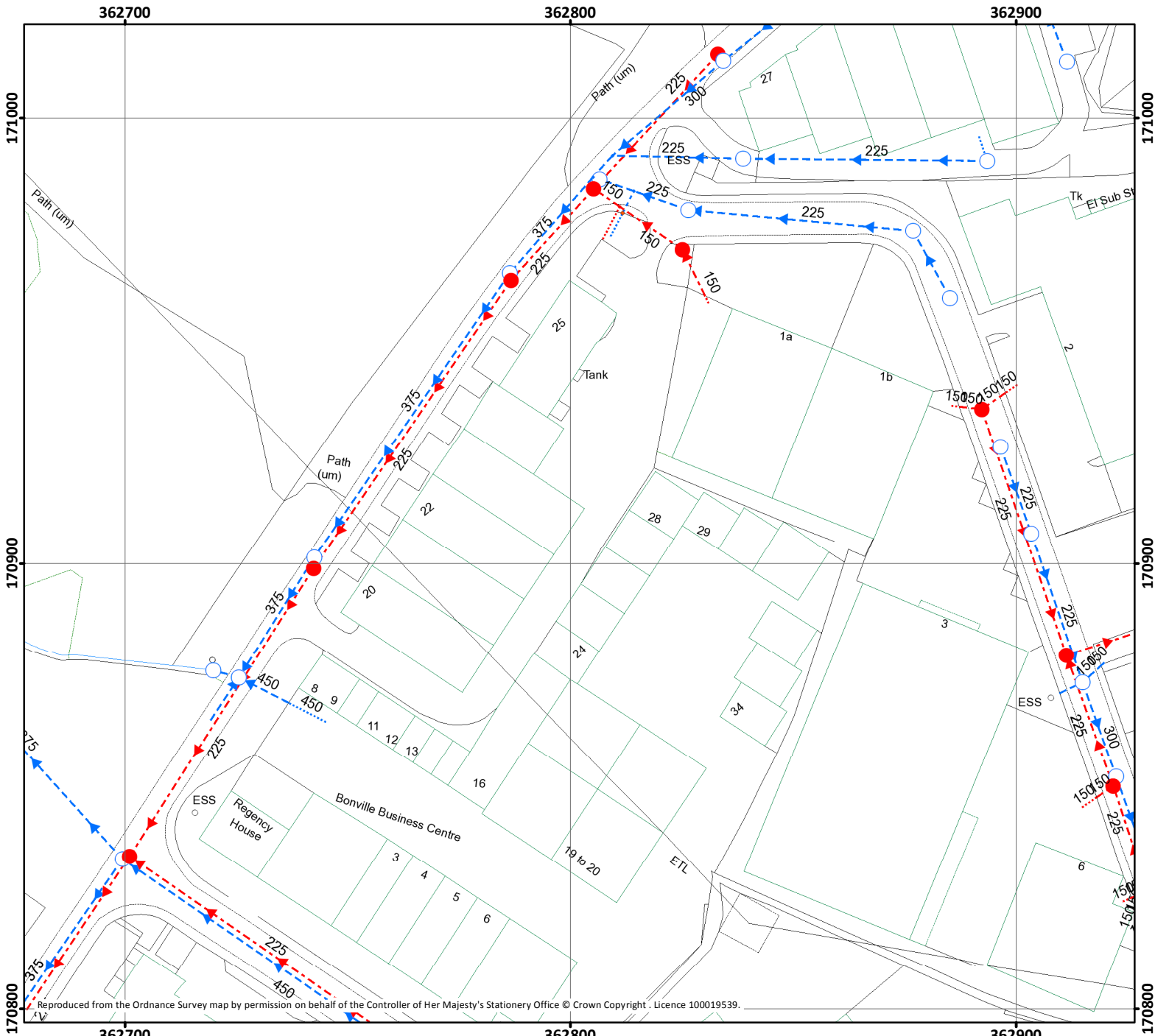






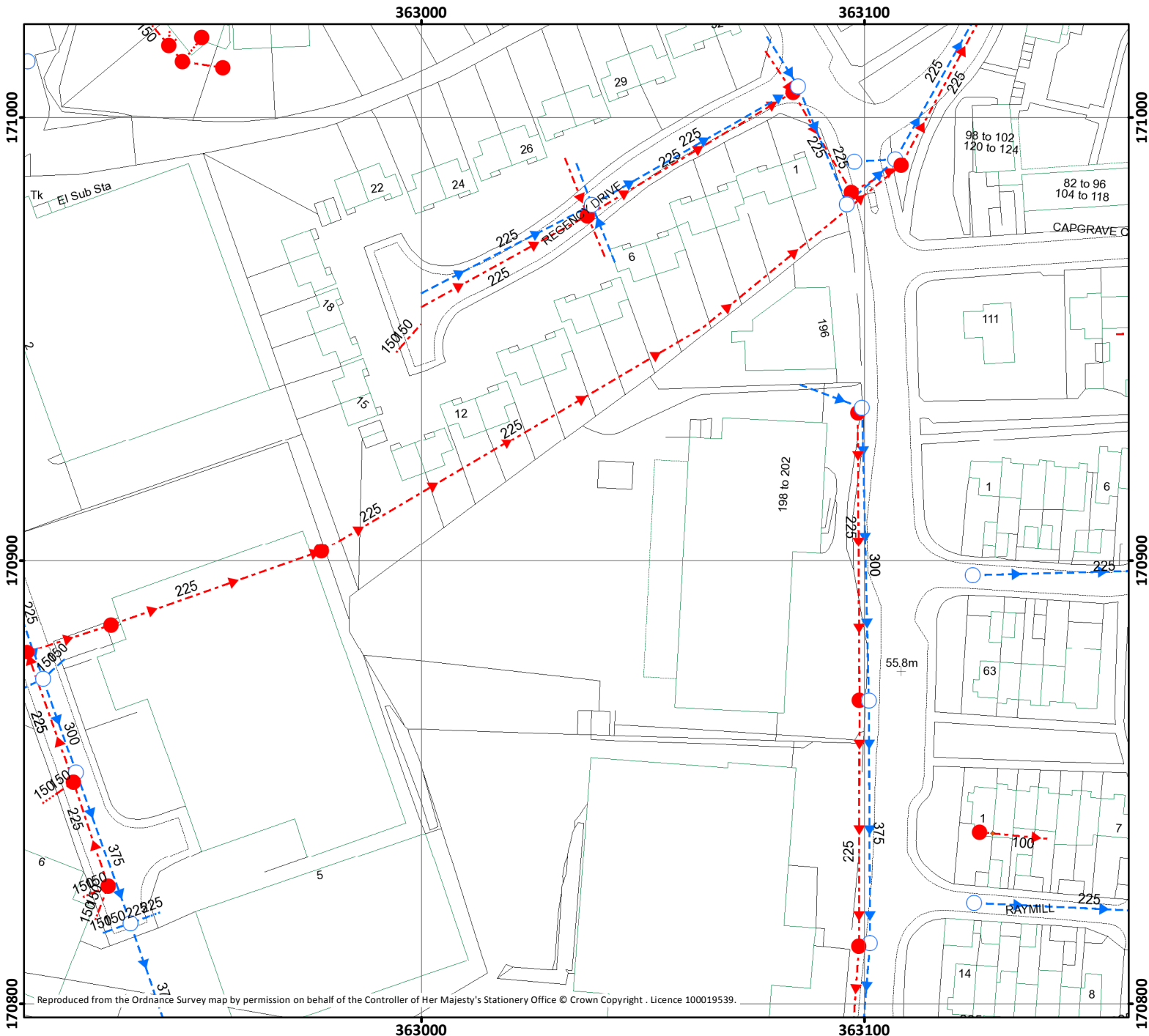
WASTE			SUPPLY	
PUBLIC SEWERS Foul Sewer Surface Water Sewer Combined Sewer Rising Main Siphon Overflow Use Unknown			WATER MAINS Distribution Main Washout Main Raw Water Main Abandoned Main Private Main	
NON-PUBLIC SEWERS & PIPELINES Private Sewer/Drain Highway Drain Culverted Watercourse Abandoned Sewer Status Unknown Section 104 - Foul Section 104 - Surface Section 104 - Combined Private Rising Main Effluent Disposal Main			FITTINGS Fire Hydrant Washout Hydrant Other Fitting	
STRUCTURES G Manhole - Foul L Manhole - Surface O Manhole - Combined Outfall Inlet Lamphole Bifurcation - Foul			OTHER STRUCTURES Attenuation Tank Storage Tank Chamber Tunnel Interceptor R Rodding Eye C Catchpit K Flushing Chamber E Soakaway Q Non Return Valve A Air Valve W Washout H Hatch Box	
STRUCTURES F Bifurcation - Surface Z Bifurcation - Combined L Combined Sewage Overflow D Pumping Station - Surface P Pumping Stn - Foul/Combined I Gully Vent Column			 a YTL company	
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.			Printed: 10/09/2019 Map Scale - 1:1250	

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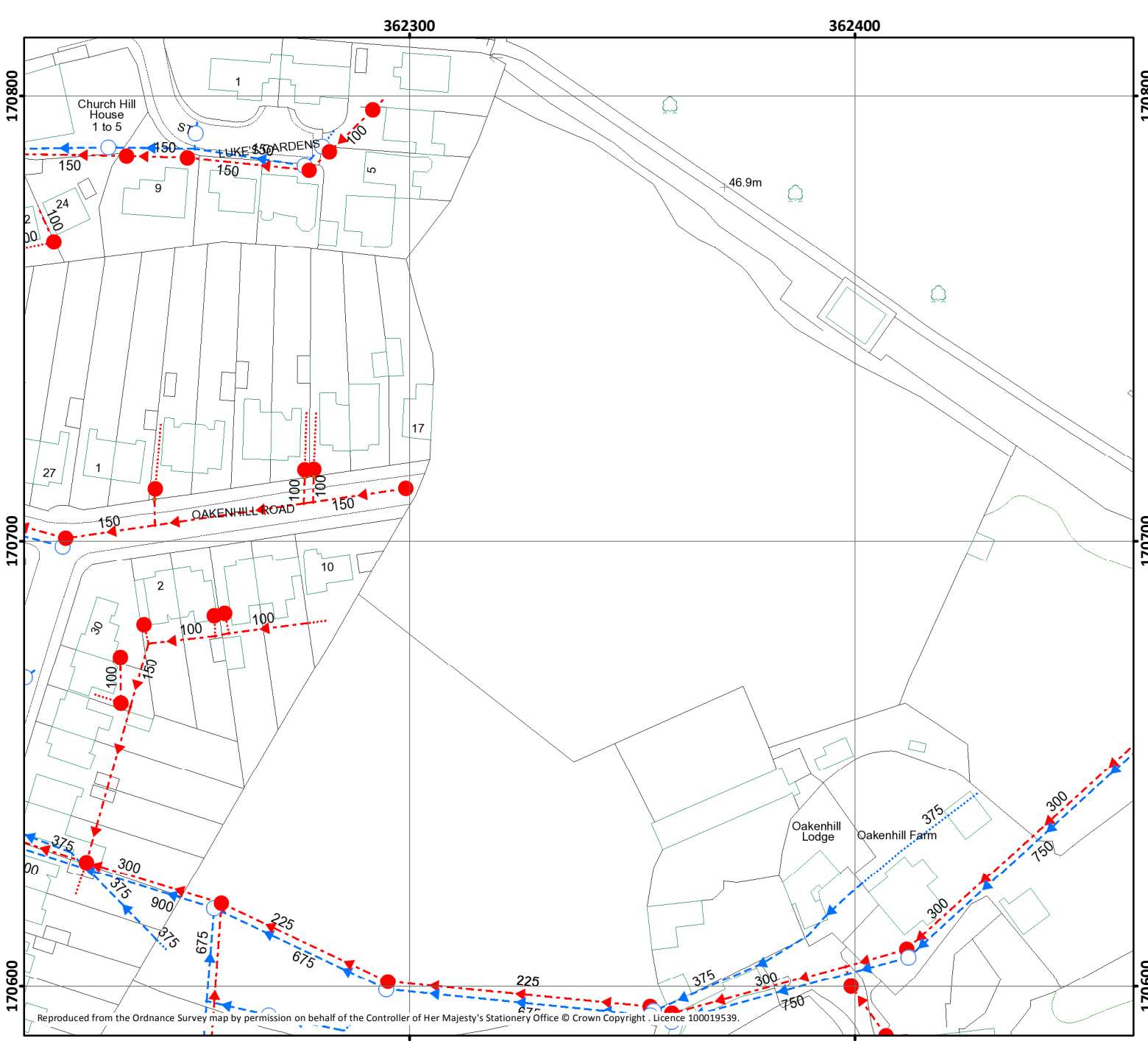
WASTE				SUPPLY	
PUBLIC SEWERS		NON-PUBLIC SEWERS & PIPELINES		WATER MAINS	
	Foul Sewer		Private Sewer/Drain		Distribution Main
	Surface Water Sewer		Highway Drain		Washout Main
	Combined Sewer		Culverted Watercourse		Raw Water Main
	Rising Main		Abandoned Sewer		Abandoned Main
	Syphon		Status Unknown		Private Main
	Overflow		Section 104 - Foul	FITTINGS	
	Use Unknown		Section 104 - Surface		Fire Hydrant
STRUCTURES			Section 104 - Combined		Washout Hydrant
	Manhole - Foul		Private Rising Main		Other Fitting
	Manhole - Surface		Effluent Disposal Main	 a YTL company	
	Manhole - Combined				
	Outfall				
	Inlet				
	Lamphole			 a YTL company	
	Bifurcation - Foul				
	Bifurcation - Surface				
	Bifurcation - Combined				
	Combined Sewage Overflow			 a YTL company	
	Pumping Station - Surface				
	Pumping Stn - Foul/Combined				
	Gully				
	Vent Column			 a YTL company	
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.				OTHER STRUCTURES	
					Attenuation Tank
					Storage Tank
					Chamber
					Tunnel
					Interceptor
					Rodding Eye
					Catchpit
					Flushing Chamber
					Soakaway
					Non Return Valve
					Air Valve
					Washout
					Hatch Box
				Printed: 10/09/2019	
				Map Scale - 1:1250	

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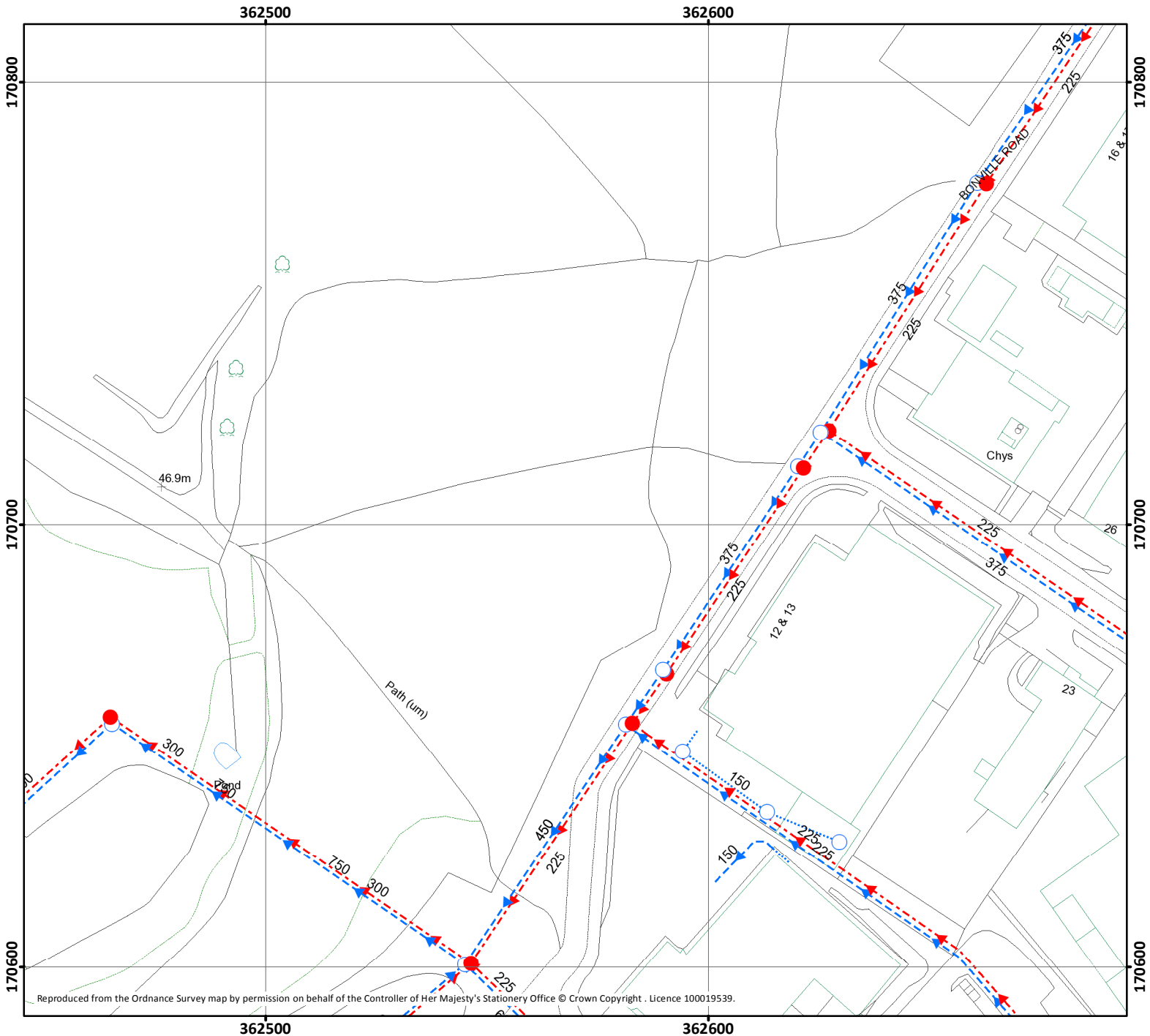
WASTE				SUPPLY	
PUBLIC SEWERS		NON-PUBLIC SEWERS & PIPELINES		OTHER STRUCTURES	
	Foul Sewer		Private Sewer/Drain		Attenuation Tank
	Surface Water Sewer		Highway Drain		Storage Tank
	Combined Sewer		Culverted Watercourse		Chamber
	Rising Main		Abandoned Sewer		Tunnel
	Syphon		Status Unknown		Interceptor
	Overflow		Section 104 - Foul	FITTINGS	
	Use Unknown		Section 104 - Surface		
STRUCTURES			Section 104 - Combined		
			Private Rising Main		
			Effluent Disposal Main		
	Manhole - Foul		Bifurcation - Surface		Rodding Eye
	Manhole - Surface		Bifurcation - Combined		Catchpit
	Manhole - Combined		Combined Sewage Overflow		Flushing Chamber
	Outfall		Pumping Station - Surface		Soakaway
	Inlet		Pumping Stn - Foul/Combined		Non Return Valve
	Lamphole		Gully		Air Valve
	Bifurcation - Foul		Vent Column		Washout
					Hatch Box
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.					
				 a YTL company	
				Printed: 10/09/2019	Map Scale - 1:1250


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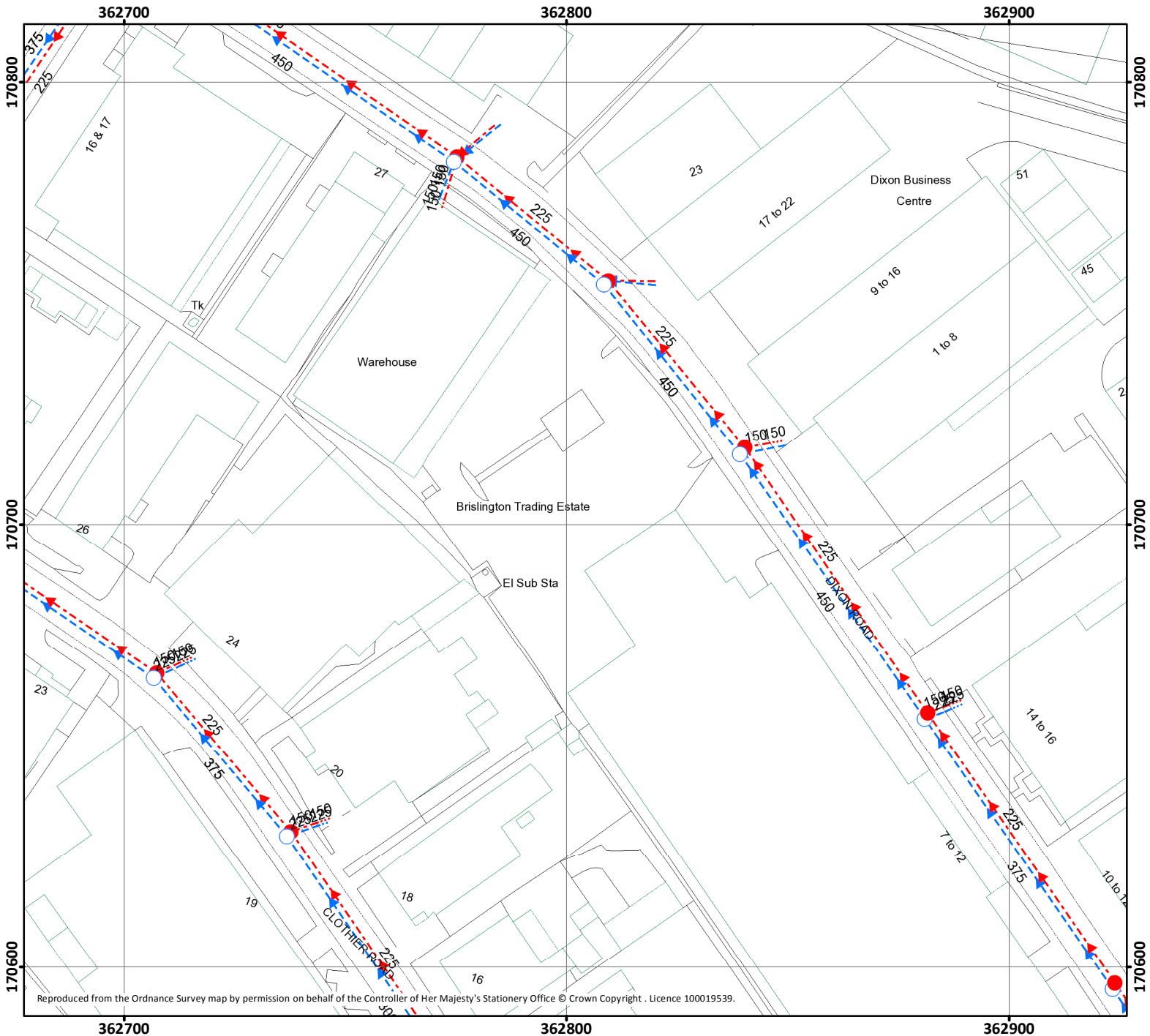
WASTE			SUPPLY	
PUBLIC SEWERS			WATER MAINS	
	Foul Sewer			Distribution Main
	Surface Water Sewer			Washout Main
	Combined Sewer			Raw Water Main
	Rising Main			Abandoned Main
	Syphon			Private Main
	Overflow		FITTINGS	
	Use Unknown			Fire Hydrant
STRUCTURES				Washout Hydrant
	Manhole - Foul			Other Fitting
	Manhole - Surface		 a YTL company	
	Manhole - Combined			
	Outfall		Printed: 10/09/2019	
	Inlet		Map Scale - 1:1250	
	Lamphole			
	Bifurcation - Foul			
NON-PUBLIC SEWERS & PIPELINES				
	Private Sewer/Drain			
	Highway Drain			
	Culverted Watercourse			
	Abandoned Sewer			
	Status Unknown			
	Section 104 - Foul			
	Section 104 - Surface			
	Section 104 - Combined			
	Private Rising Main			
	Effluent Disposal Main			
	Bifurcation - Surface			
	Bifurcation - Combined			
	Combined Sewage Overflow			
	Pumping Station - Surface			
	Pumping Stn - Foul/Combined			
	Gully			
	Vent Column			
OTHER STRUCTURES				
	Attenuation Tank			
	Storage Tank			
	Chamber			
	Tunnel			
	Interceptor			
	Rodding Eye			
	Catchpit			
	Flushing Chamber			
	Soakaway			
	Non Return Valve			
	Air Valve			
	Washout			
	Hatch Box			






















































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WASTE			SUPPLY
PUBLIC SEWERS <ul style="list-style-type: none">Foul SewerSurface Water SewerCombined SewerRising MainSyphonOverflowUse Unknown			WATER MAINS <ul style="list-style-type: none">Distribution MainWashout MainRaw Water MainAbandoned MainPrivate Main FITTINGS <ul style="list-style-type: none">Fire HydrantWashout HydrantOther Fitting
STRUCTURES <ul style="list-style-type: none">G Manhole - FoulL Manhole - SurfaceO Manhole - CombinedOutfallInletLampholeR Bifurcation - Foul	NON-PUBLIC SEWERS & PIPELINES <ul style="list-style-type: none">Private Sewer/DrainHighway DrainCulverted WatercourseAbandoned SewerStatus UnknownSection 104 - FoulSection 104 - SurfaceSection 104 - CombinedPrivate Rising MainEffluent Disposal Main <ul style="list-style-type: none">f Bifurcation - Surfacez Bifurcation - CombinedL Combined Sewage Overflowd Pumping Station - SurfaceP Pumping Stn - Foul/CombinedI GullyV Vent Column	OTHER STRUCTURES <ul style="list-style-type: none">Attenuation TankStorage TankChamberTunnelInterceptor <ul style="list-style-type: none">N Rodding EyeK CatchpitC Flushing ChamberE SoakawayQ Non Return Valve¢ Air Valve\$ WashoutO Hatch Box	
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.			 a YTL company
			Printed: 10/09/2019 Map Scale - 1:1250

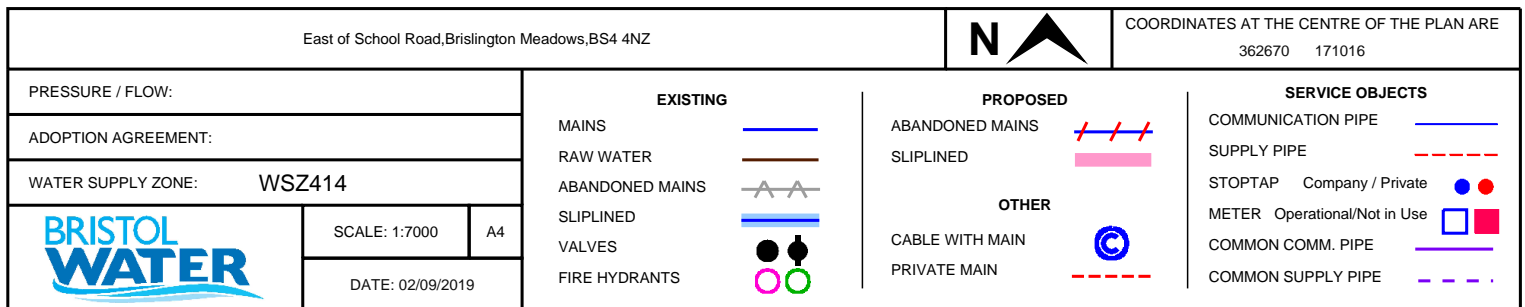
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WASTE			SUPPLY	
PUBLIC SEWERS		NON-PUBLIC SEWERS & PIPELINES	OTHER STRUCTURES	WATER MAINS
 Foul Sewer	 Surface Water Sewer	 Private Sewer/Drain	 Attenuation Tank	 Distribution Main
 Combined Sewer	 Rising Main	 Highway Drain	 Storage Tank	 Washout Main
 Syphon	 Overflow	 Culverted Watercourse	 Chamber	 Raw Water Main
 Use Unknown		 Abandoned Sewer	 Tunnel	 Abandoned Main
		 Status Unknown	 Interceptor	 Private Main
		 Section 104 - Foul		
		 Section 104 - Surface		
		 Section 104 - Combined		
		 Private Rising Main		
		 Effluent Disposal Main		
STRUCTURES				FITTINGS
 Manhole - Foul	 Bifurcation - Surface	 Rodding Eye	 Fire Hydrant	
 Manhole - Surface	 Bifurcation - Combined	 Catchpit	 Washout Hydrant	
 Manhole - Combined	 Combined Sewage Overflow	 Flushing Chamber	 Other Fitting	
 Outfall	 Pumping Station - Surface	 Soakaway		
 Inlet	 Pumping Stn - Foul/Combined	 Non Return Valve		
 Lamphole	 Gully	 Air Valve		
 Bifurcation - Foul	 Vent Column	 Washout		
		 Hatch Box		
<p>Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.</p>				
			 a YTL company	
			Printed: 10/09/2019 Map Scale - 1:1250	

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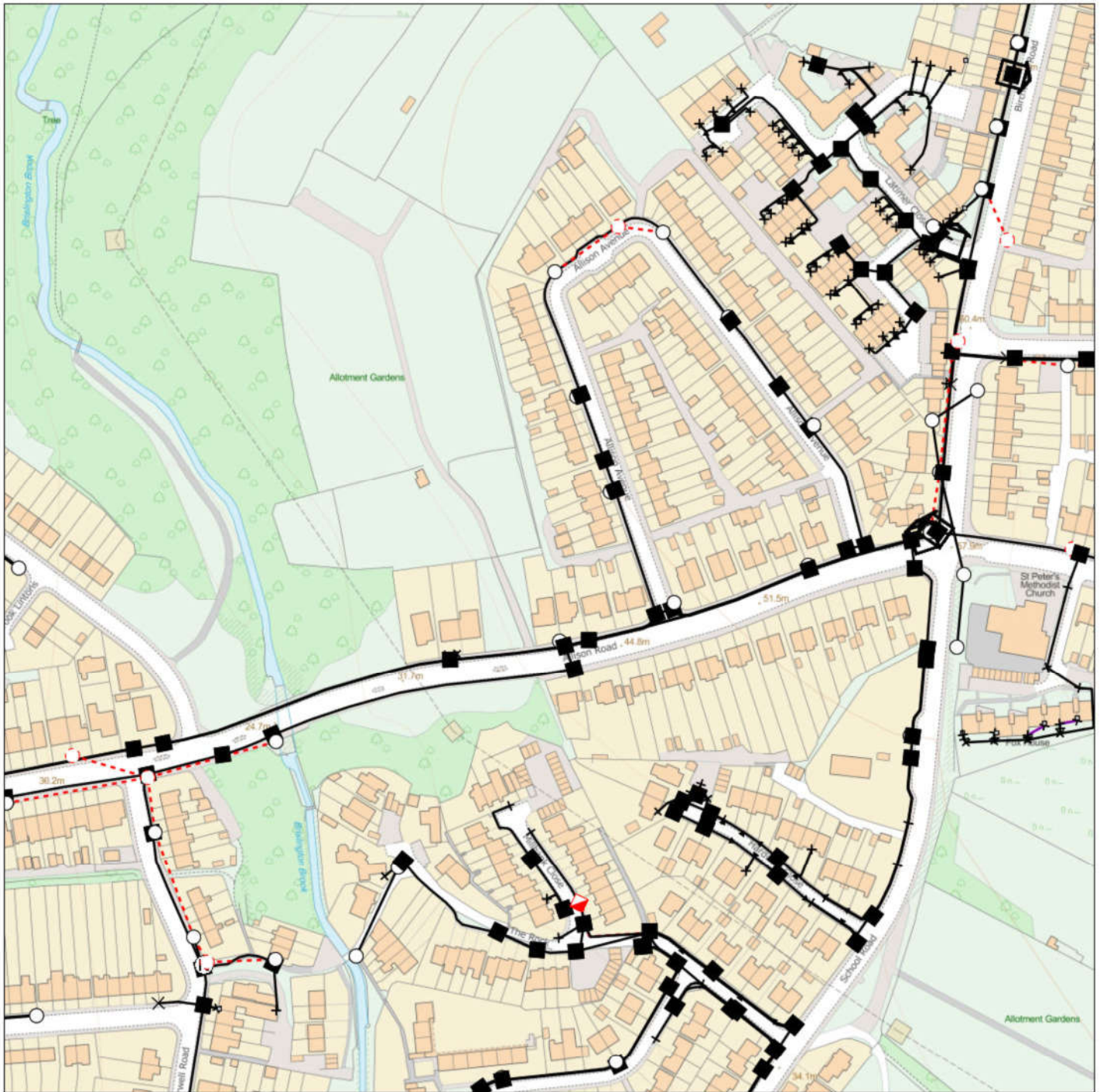
Appendix F: Bristol Water Asset Plan



This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of the Company's pipes or apparatus. Not all service pipes are shown on this plan. Based on the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office (c) Crown Copyright reserved Licence Number: 100018106. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
Bristol Water plc, Bridgwater Road, Bristol, BS13 7AT. Tel (0117) 9665881 Fax (0117) 9634576

Appendix G: Virgin Media & British Telecom Asset Plans

Maps by email Plant Information Reply



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KEY TO BT SYMBOLS

	Planned	Live	Change Of State	+	Hatchings	
PCP			Split Coupling	X	Built	
Pole			Duct Tee	▲	Planned	
Box			Building		Inferred	
Manhole			Kiosk		Duct	
Cabinet			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.			
		Pending Add	In Place	Pending Remove	Not In Use	
Power Cable						
Power Duct				N/A		

BT Ref : RAR11368K

Map Reference : (centre) ST6222271404

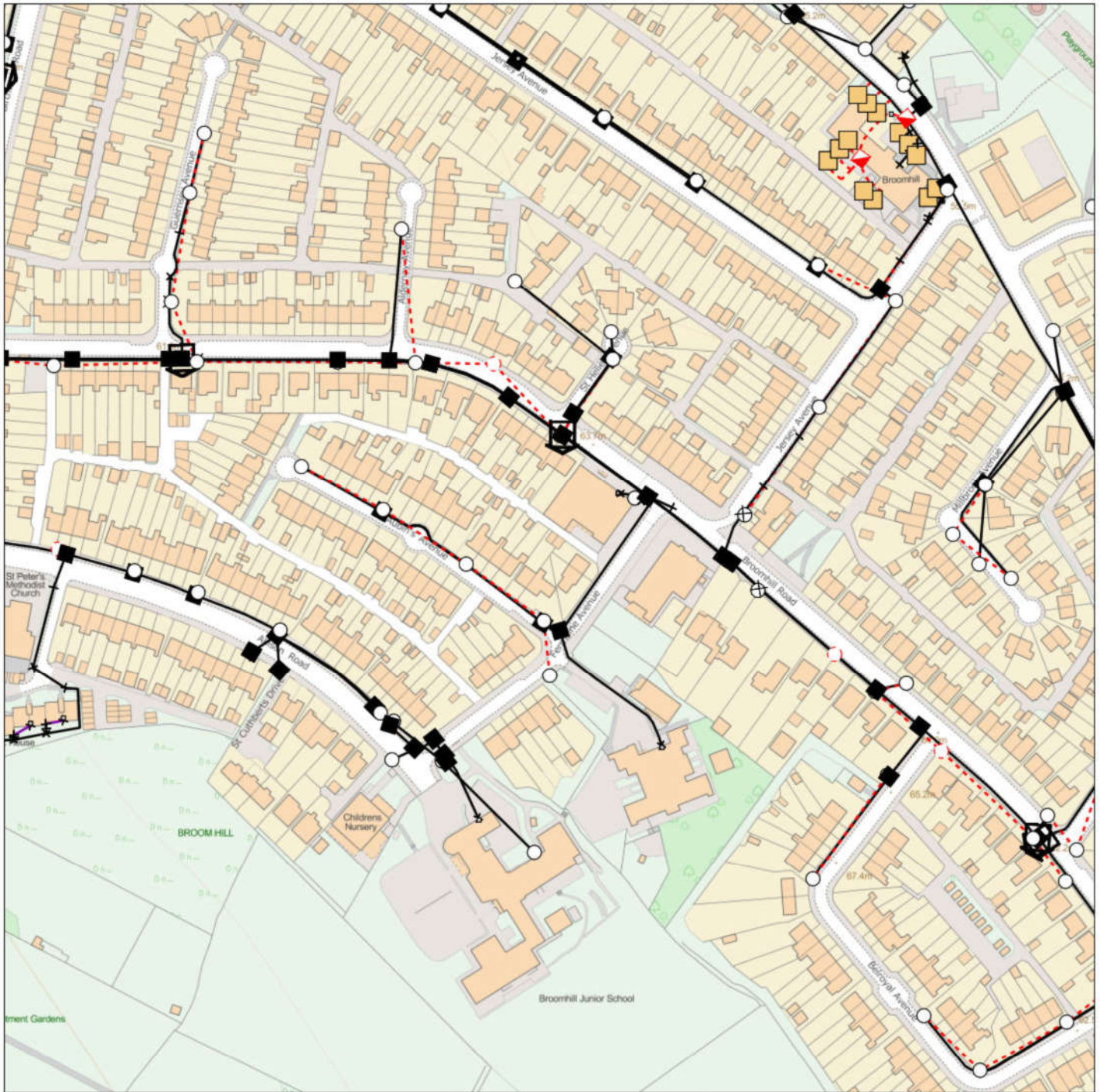
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Issued : 11/09/2019 11:36:34

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PCP			Split Coupling		Built	
Pole			Duct Tee		Planned	
Box			Building		Inferred	
Manhole			Kiosk		Duct	
Cabinet			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.			
	Pending Add	In Place	Pending Remove	Not In Use		
Power Cable						
Power Duct				N/A		

BT Ref : KIY11367Q

Map Reference : (centre) ST6268771404

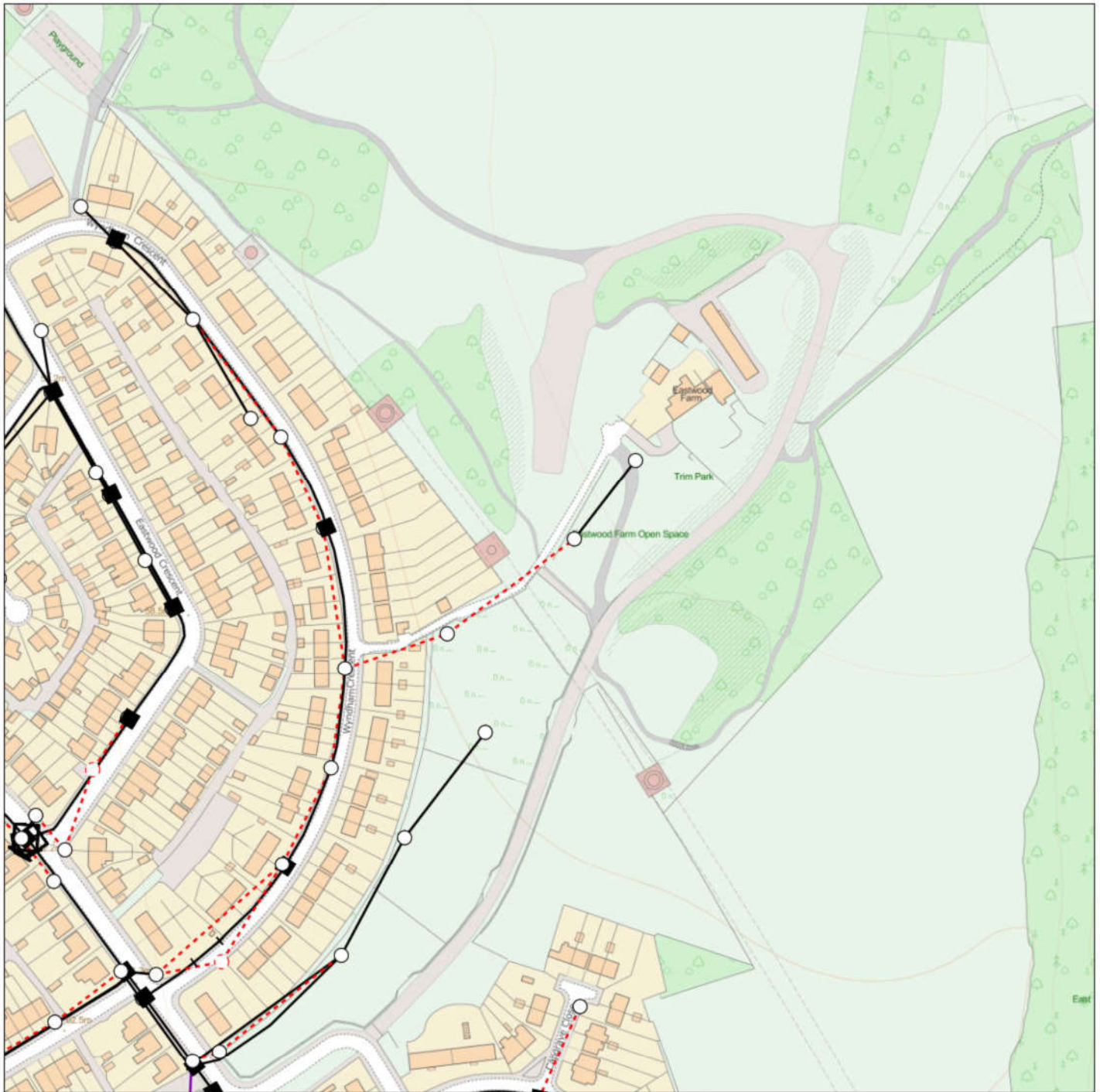
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Issued : 11/09/2019 11:36:37

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	Planned	Live	Change Of State	+	Hatchings	
PCP			Split Coupling		Built	
Pole			Duct Tee		Planned	
Box			Building		Inferred	
Manhole			Kiosk		Duct	
Cabinet			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.			
	Pending Add	In Place	Pending Remove	Not In Use		
Power Cable						
Power Duct				N/A		

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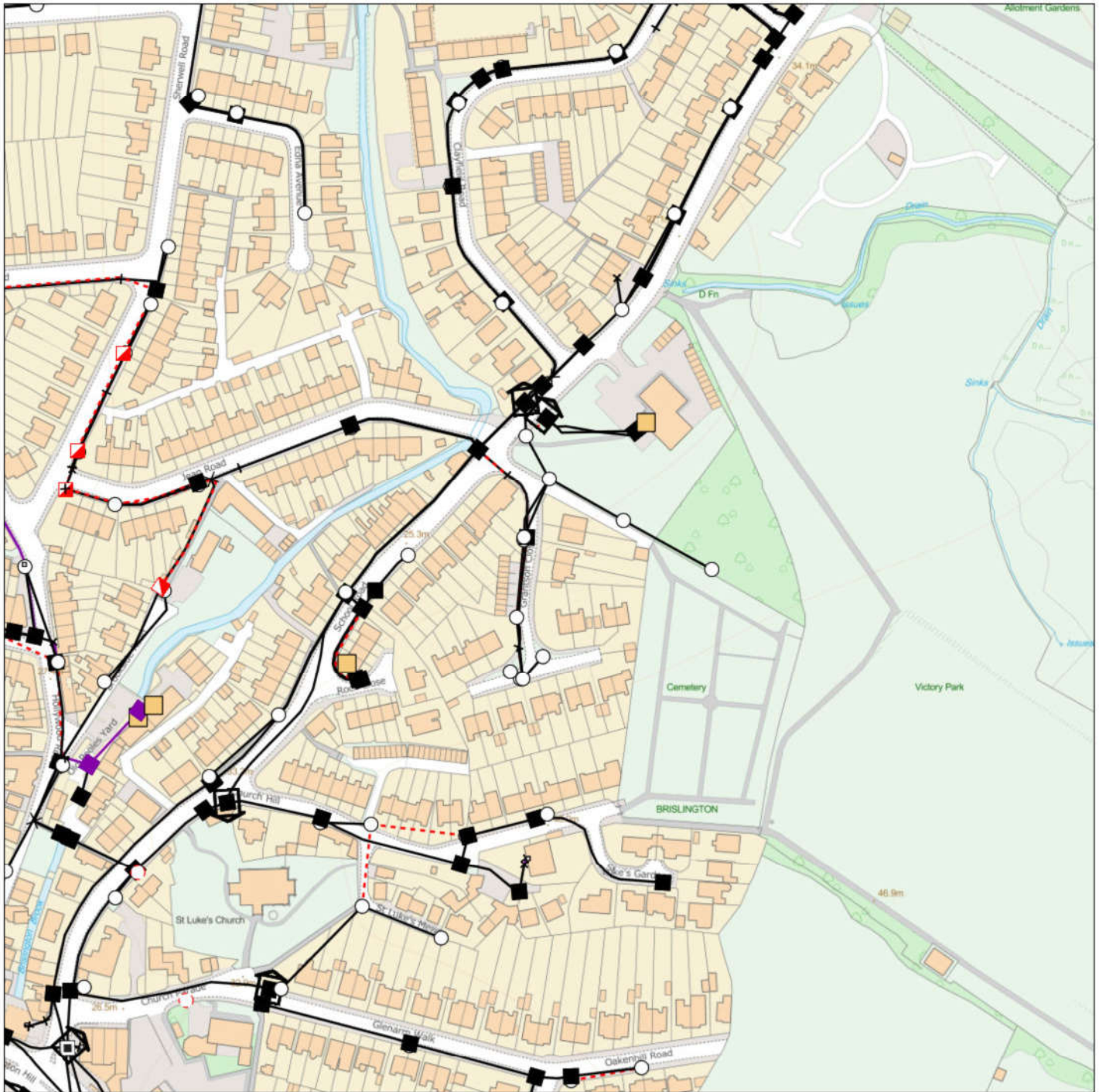
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KEY TO BT SYMBOLS

KEY TO BT SYMBOLS			Change Of State	+	Hatchings	
	<i>Planned</i>	<i>Live</i>	Split Coupling	×	Built	
PCP			Duct Tee	▲	Planned	
Pole			Building		Inferred	
Box			Kiosk		Duct	
Manhole			<p>Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.</p>			
Cabinet						

	<i>Pending Add</i>	<i>In Place</i>	<i>Pending Remove</i>	<i>Not In Use</i>
Power Cable				
Power Duct				N/A

BT Ref : PHA11106B

Map Reference : (centre) ST6222270940

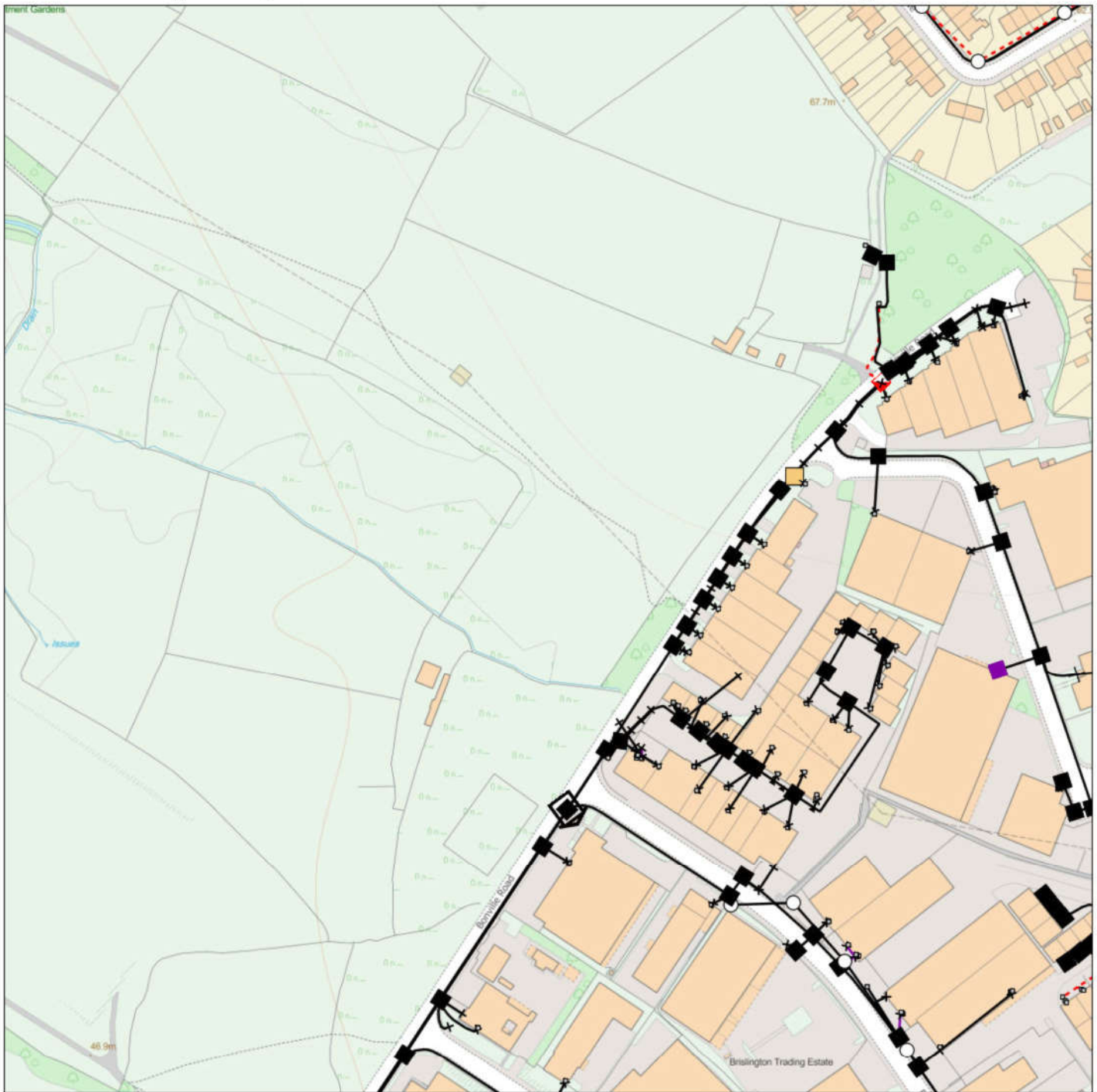
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Issued : 11/09/2019 11:10:51

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Maps by email Plant Information Reply



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KEY TO BT SYMBOLS

	Planned	Live	Change Of State	+	Hatchings	
PCP			Split Coupling		Built	
Pole			Duct Tee		Planned	
Box			Building		Inferred	
Manhole			Kiosk		Duct	
Cabinet			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.			
	Pending Add	In Place	Pending Remove	Not In Use		
Power Cable						
Power Duct				N/A		

BT Ref : QWP11549H

Map Reference : (centre) ST6268770940

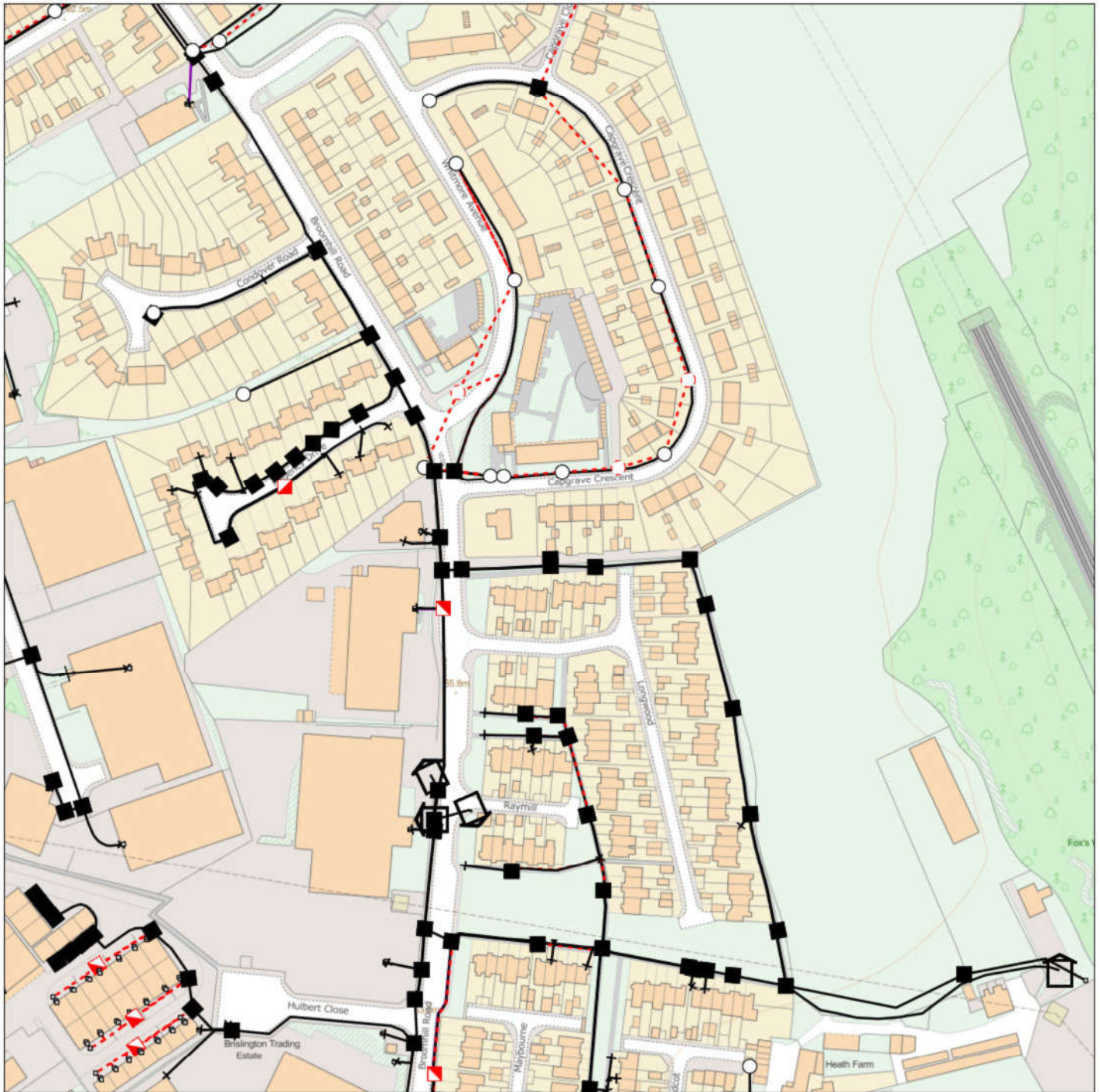
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KEY TO BT SYMBOLS

KEY TO BT SYMBOLS			Change Of State	+	Hatchings	
	<i>Planned</i>	<i>Live</i>	Split Coupling	×	Built	
PCP			Duct Tee	▲	Planned	
Pole			Building		Inferred	
Box			Kiosk		Duct	
Manhole			<p>Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.</p>			
Cabinet						
	<i>Pending Add</i>	<i>In Place</i>	<i>Pending Remove</i>	<i>Not In Use</i>		
Power Cable						
Power Duct				N/A		

BT Ref : XJC11101V

Map Reference : (centre) ST6315170940

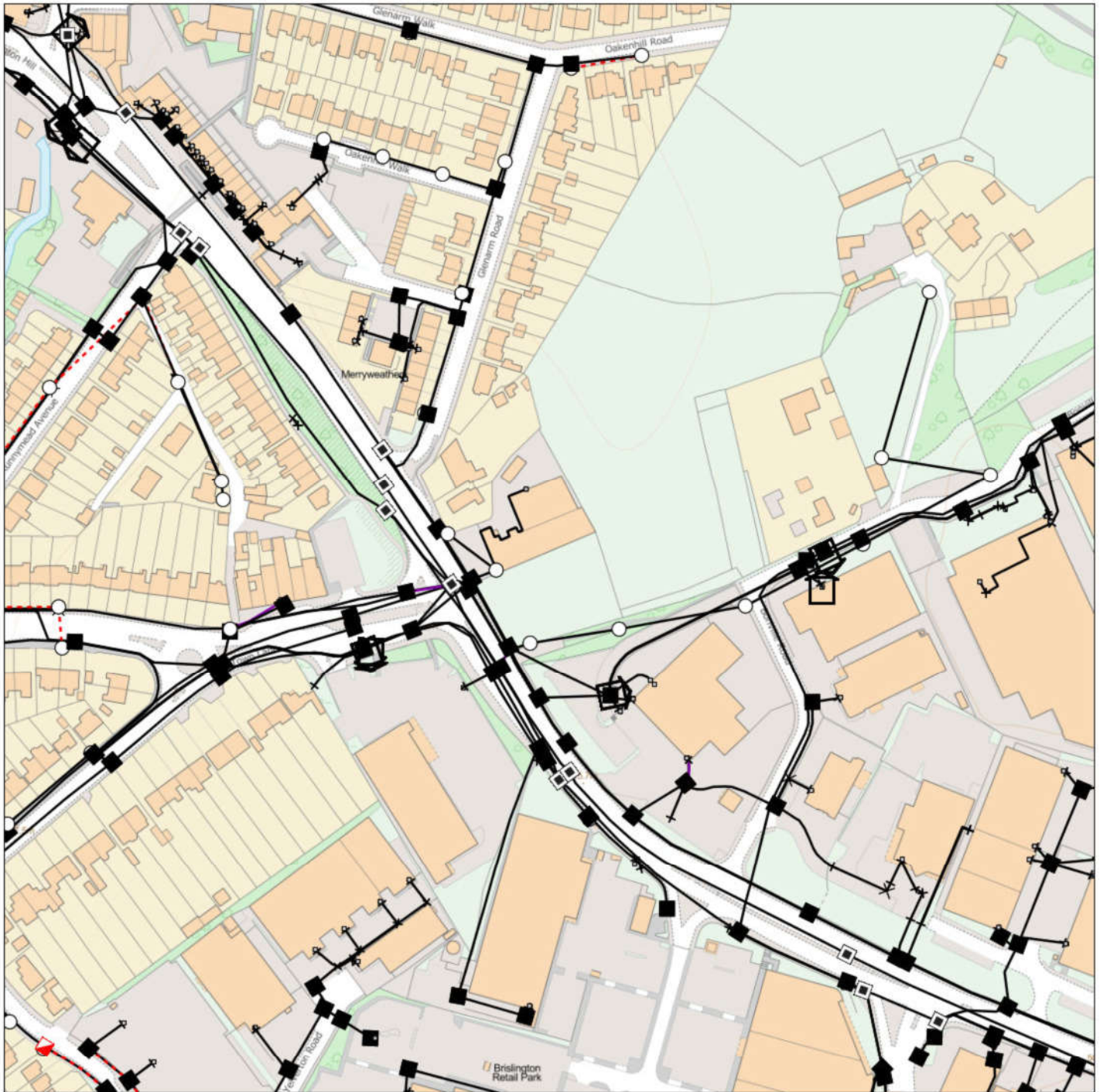
Easting/Northing : (centre) 363151,170940

Issued : 11/09/2019 11:11:04

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Maps by email Plant Information Reply



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KEY TO BT SYMBOLS

	Planned	Live	Change Of State	+	Hatchings	
PCP			Split Coupling	X	Built	
Pole			Duct Tee	▲	Planned	
Box			Building		Inferred	
Manhole			Kiosk		Duct	
Cabinet			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.			
	Pending Add	In Place	Pending Remove	Not In Use		
Power Cable						
Power Duct				N/A		

BT Ref : CNA11366J

Map Reference : (centre) ST6222270475

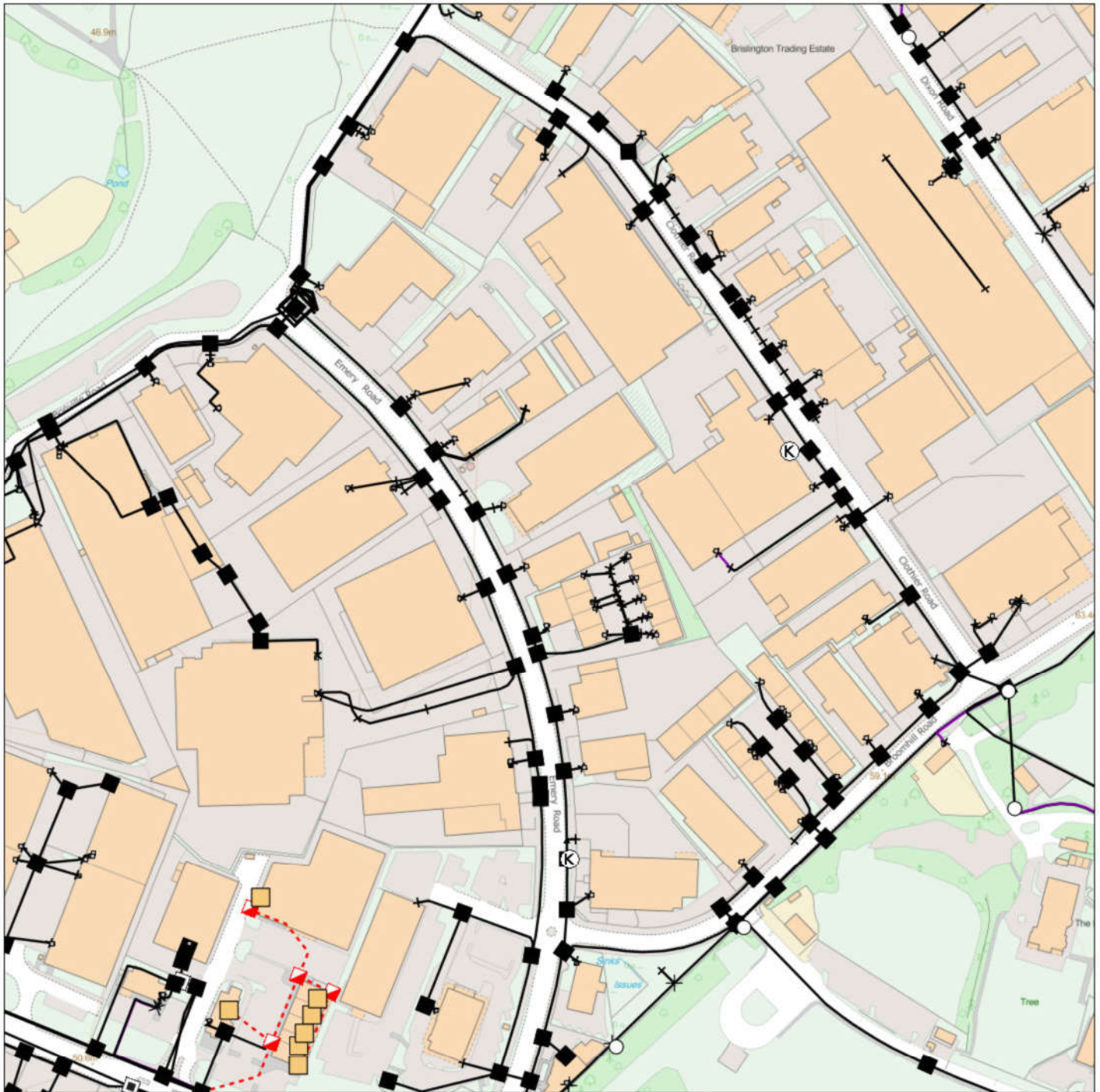
Easting/Northing : (centre) 362222,170475

Issued : 11/09/2019 11:36:40

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Maps by email Plant Information Reply



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ADVANCE NOTICE REQUIRED

(Office hours: Monday - Friday 08.00 to 17.00)

www.openreach.co.uk/cbyd

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KEY TO BT SYMBOLS

	Planned	Live	Change Of State	+	Hatchings	
PCP			Split Coupling	X	Built	
Pole			Duct Tee	▲	Planned	
Box			Building		Inferred	
Manhole			Kiosk	(K)	Duct	
Cabinet			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.			
	Pending Add	In Place	Pending Remove	Not In Use		
Power Cable						
Power Duct				N/A		

BT Ref : KZQ11117Y

Map Reference : (centre) ST6268770475

Easting/Northing : (centre) 362687,170475

Issued : 11/09/2019 11:11:17

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Date: 10/09/19

Scale: 1:9323

Map Centre: 362690,171179

Data updated: 02/09/19

Telecoms Plan A4

Important Information - please read The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducting. Further details can be found using the "Affected Postcodes.pdf", which can be downloaded from this website. Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, its employees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan. This plan is produced by Virgin Media Limited (c) Crown copyright and database rights 2019 Ordnance Survey 100019209.

Duct, Trench



Chamber



Cabinet



bharath.gowda@virginmedia.co.uk

VM.1146419



Appendix H: Western Power Distribution Correspondence



RE: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development? King, Adam to TamiloreAkande@campbellreith.com 14/07/2021 15:48
Cc "BlessingFarirai@campbellreith.com", "TristanTucker@campbellreith.com"

History:

This message has been forwarded.

2 Attachments



brislington meadows - budget estimate letter.pdf brislington meadows - budget estimate offsite works drawing.pdf

Hi Tamilore,

Sorry again for the delay; please find attached an estimate for the two options. The only difference between the two is the upstream reinforcement contribution. I must stress this is a very approximate figure at present as the reinforcement work is at the earliest stages of design development.

For on-site works given I've not had sight of a layout, I've given a very rough and conservative "price list".

The requirements can most likely be met with two substations, but if depending on layout and locations (and consequently LV mains cable lengths necessary) and third may be needed.

Please let me know if you have any questions or require anything further at this stage.

Kind regards,

Adam H. King

11kV Design | Western Power Distribution | Avonbank, Feeder Road, Bristol, BS2 0TB | Tel: 0117 933 2267

Web: www.westernpower.co.uk

Please note WPD does not have an out-of-office reply service. Contact centre: 0800 096 3080.

From: TamiloreAkande@campbellreith.com <TamiloreAkande@campbellreith.com>

Sent: 08 July 2021 12:05

To: King, Adam <aking@westernpower.co.uk>

Cc: BlessingFarirai@campbellreith.com; TristanTucker@campbellreith.com

Subject: RE: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

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Hi Adam,

Thanks for your quick response.

Please can you provide two estimates? One for option 1A and One for option 2A.

Kind Regards,

Tamilore Akande

Project Engineer

Wessex House,
Pixash Lane,
Keynsham, Bristol
BS31 1TP

Tel +44 (0)117 916 1066
www.campbellreith.com

From: "King, Adam" <aking@westernpower.co.uk>

To: "TamiloreAkande@campbellreith.com" <TamiloreAkande@campbellreith.com>

Cc: "BlessingFarirai@campbellreith.com" <BlessingFarirai@campbellreith.com>, "TristanTucker@campbellreith.com"

<TristanTucker@campbellreith.com>

Date: 08/07/2021 11:57

Subject: RE: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

Hi Tamilore,

Thanks for your email.

I'm just trying to work out what happened and why this went cold.

I can see from my diary we had a call on 30/9/20 but unfortunately can't remember the content of it or what if any action was agreed at that time.

Assuming it's something that I completely failed to do and fell off my radar, I can try and put something together as soon as I possibly can.

Though please can you confirm which option from the below email you'd like me to base it on?

Please note primary substation capacity is now a significant issue and this development would need to contribute to reinforcement, for which we presently have an estimated cost per MVA of £130k.

Apologies, and kind regards,

Adam H. King

11kV Design | Western Power Distribution | Avonbank, Feeder Road, Bristol, BS2 0TB | Tel: 0117 933 2267

Web: www.westernpower.co.uk

Please note WPD does not have an out-of-office reply service. Contact centre: 0800 096 3080.

From: TamiloreAkande@campbellreith.com <TamiloreAkande@campbellreith.com>

Sent: 08 July 2021 11:44

To: King, Adam <aking@westernpower.co.uk>

Cc: BlessingFarirai@campbellreith.com; Dashfield, Zoe <zdashfield@westernpower.co.uk>; TristanTucker@campbellreith.com

Subject: RE: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

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Hi Adam,

Hope you are doing well.

I just realised we are yet to receive the high level estimate based on the email below. You may have issued it but I can't seem to find it anywhere.

Please could you forward this to me. Sorry to chase, but please could it be as early as you can as we need it quite urgently.

Kind Regards,

Tamilore Akande
Project Engineer

Wessex House,
Pixash Lane,
Keynsham, Bristol
BS31 1TP

Tel +44 (0)117 916 1066
www.campbellreith.com

From: "King, Adam" <aking@westernpower.co.uk>

To: "TamiloreAkande@campbellreith.com" <TamiloreAkande@campbellreith.com>

Cc: "BlessingFarirai@campbellreith.com" <BlessingFarirai@campbellreith.com>, "Dashfield, Zoe" <zdashfield@westernpower.co.uk>

Date: 16/09/2020 12:37

Subject: RE: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

Hi Tamilore,

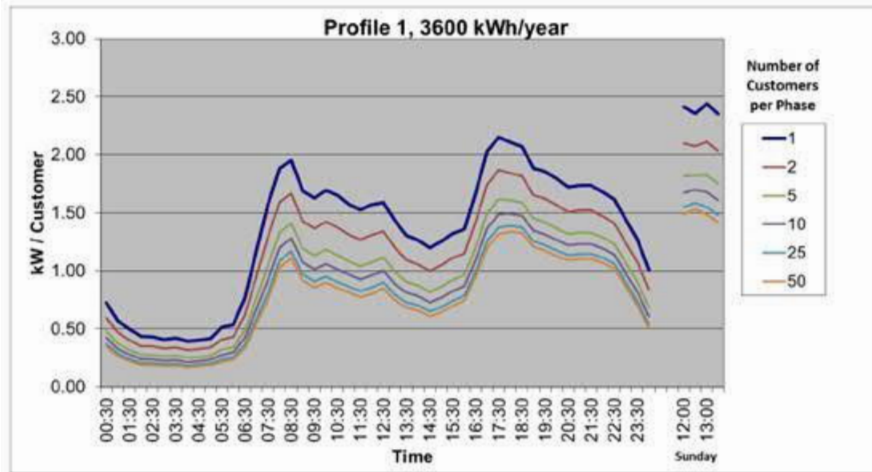
I've been looking at your options.

Just summing peaks does not provide a meaningful figure so the overall figures against your list of options does not represent what we would need to allow at 11kV for the development.

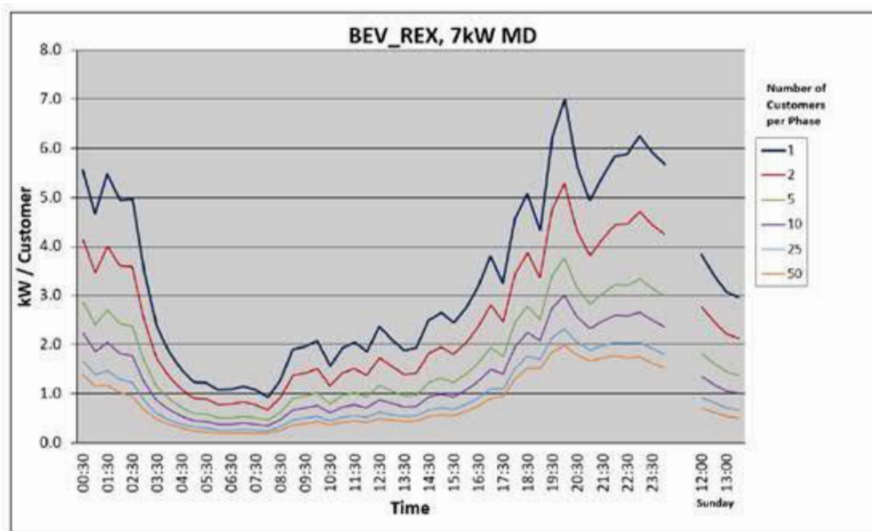
Electrical diversity is a bit of a dark art and there are different approaches; all-electric developments of the modern, non-Economy 7 type are still relatively new. We have a growing body of usage data for established city centre apartment blocks, but relatively limited data for houses.

Is it proposed to use heat pumps in this case? That will make some difference too.

For many years a rough rule of thumb has been to allow 2kVA ADMD (after-diversity maximum demand, ie. each unit's contribution to the overall peak) per typical gas-heated 3-bed house. When carrying out more detailed LV network design we use software which adds diversity (diversity increases with quantity), and uses long standing ELEXON Profiles and annual consumptions. See below a profile for 3600kWh/yr usage, the "standard 3-bed gas-heated semi":



We also have a profile shape for 7kW EV chargers based on our recent "Electric Nation" research project.



Your gas-heated options would work out as:

3A	
300 houses@3600kWh/yr Profile 1	435kVA (1.45kVA ADMD)
450x 7kW chargers	644kVA
Total	1079kVA
With diversity applied between car chargers and houses	<u>950kVA</u>

3B	
300 houses@3600kWh/yr Profile 1	435kVA
225x 7kW chargers	348kVA
Total	783kVA
With diversity applied between car chargers and houses	<u>654kVA</u>

These would of course vary if your assessed annual kWh usage was different to 3600. Energy efficiency increases in recent years mean this usage figure can be considered high.

Moving on to the electrically heated, it all depends on what we might consider to be the expected annual usage. Looking at a couple of established developments of mid-rise city centre flats, annual usages are distributed in the range 2000-8000. Of course, houses are going to use a fair bit more than flats, and usage will depend on design, type of heating etc.. It could also be said that ELEXON Profile 1 does not necessarily represent the usage profile of a non-E7 electrically heated property accurately, and the peaks could be a little higher. You may of course have assessed estimated annual usages, but to try a few:

300 houses@8000 kWh/yr Profile 1	966kVA (3.22kVA ADMD)
300 houses@10000 kWh/yr Profile 1	1207kVA (4.02kVA ADMD)
300 houses@12500 kWh/yr Profile 1	1509kVA (5.03kVA ADMD)

NB. 12500 is the "standard" day+night annual usage of ELEXON Profile 2 (Economy 7). A modern house is just not going to do that much.

Allowing 10000kWh/yr say, would give the following:

1A	
300 houses@10000kWh/yr Profile 1	1207kVA
450x 7kW chargers	644kVA
Total	1851kVA
With diversity applied between car chargers and houses	<u>1518kVA</u>

1B	
300 houses@10000kWh/yr Profile 1	1207kVA
225x 7kW chargers	348kVA
Total	1555kVA
With diversity applied between car chargers and houses	<u>1286kVA</u>

2A	
150 houses@3600kWh/yr Profile 1	
150 houses@10000kWh/yr Profile 1	824kVA
450x 7kW chargers	644kVA
Total	1851kVA
With diversity applied between car chargers and houses	<u>1224kVA</u>

2B	
150 houses@3600kWh/yr Profile 1	
150 houses@10000kWh/yr Profile 1	824kVA
225x 7kW chargers	348kVA
Total	1172kVA
With diversity applied between car chargers and houses	<u>960kVA</u>

Any of those scenarios, presuming we can settle on figures that aren't too dissimilar, can be served with relative ease from nearby 11kV circuits.

(Do you propose to use heat pumps, or install any rapid chargers? That would need to be taken into consideration also)

Please can you let me know your thoughts on the above, and I will be able to draw up a high-level budget estimate.

With regards to diversions, there is a 132kV tower line which will need to be designed around, and a mobile phone mast. Whether the mast is retained in situ, removed or relocated would need to be discussed with its owner/operator – any service diversion would then follow accordingly.

If you would like to discuss this over the phone please feel free to call me at any time.

Kind regards,

Adam H. King

11kV Design | Western Power Distribution | Avonbank, Feeder Road, Bristol, BS2 0TB | Tel: 0117 933 2267

Web: www.westernpower.co.uk

Please note WPD does not have an out-of-office reply service. Contact centre: 0800 096 3080.

From: TamiloreAkande@campbellreith.com <TamiloreAkande@campbellreith.com>

Sent: 11 September 2020 13:53

To: King, Adam <aking@westernpower.co.uk>

Cc: BlessingFarirai@campbellreith.com

Subject: RE: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

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Good Afternoon Adam,

Thank you for your email.

I did send the latest email with the correct figures late afternoon yesterday but here it is below.

This email supersedes the email I sent earlier in the day and includes the latest figures.

Our client is proposing to develop a site at Brislington Meadows in Bristol. This development proposal includes the construction of approximately 300 new residential dwellings. The site is currently a Greenfield. The site is centred on approximate Grid Reference ST 62628 71123. The nearest postcode reference is BS4 4NZ.

What we require

The proposal is to make connections onto the existing WPD utilities network. There are three options being considered for the development.

Option 1 - 100% of homes will utilise electricity for central heating, hot water and cooking.

Option 2 - 50% of homes using electricity whilst the remaining 50% will utilise gas for central heating, hot water and cooking.

Option 3 - 100% of homes will utilise gas for central heating, hot water and cooking.

The number of vehicle charging points required on the site has not yet been confirmed however we have assumed 2 potential options (450 and 225). I have therefore split the three options into 2 sub options to take into account the 2 options of either 450 or 225 electric vehicle chargers.

We have estimated the simultaneous peak usage (i.e. no diversity factor has been applied to this figure, as this varies within utility companies) for all options based upon a peak usage of 15kW per day for electricity including its use for central heating, hot water and cooking, 7kW for electric vehicle chargers and 4kW per dwelling per day for electrical appliances assuming electricity would not be used for central heating, hot water and cooking. Please confirm the values we have factored in are correct. The peak usage results are indicated below and are included in the attached utility usage spreadsheet.

Option 1A - 7650kW

Option 1B - 6075kW

Option 2A - 6000kW

Option 2B - 4425kW

Option 3A - 4350kW

Option 3B - 2775kW

Please refer to the attached utility usage spreadsheet for more details.

Can you please confirm if there is will be adequate capacity within your infrastructure to serve the development for all six scenarios?

If there is insufficient capacity within your existing network, please can you confirm what off-site reinforcement works would be required to serve the proposed development, and can you please provide us with a budget costs for the off site reinforcement works.

If there is insufficient capacity within your existing network, can you please confirm the maximum number of dwellings that can be served based on the existing available capacity within the WPD network.

Finally, if any diversions are required, please could you provide details of the works that will need to be carried out and budget costs for the diversionary works.

Please can you also confirm potential connection points?

Attached are copies of the site plan, utility usage calcs and an extract of WPD asset plans we have been provided with.

Kind Regards,

Tamilore Akande
Project Engineer

Wessex House,
Pixash Lane,
Keynsham, Bristol
BS31 1TP

Tel +44 (0)117 916 1066
www.campbellreith.com

From: "King, Adam" <aking@westernpower.co.uk>
To: "TamiloreAkande@campbellreith.com" <TamiloreAkande@campbellreith.com>
Cc: "BlessingFarirai@campbellreith.com" <BlessingFarirai@campbellreith.com>
Date: 11/09/2020 13:35
Subject: RE: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

Hi Tamilore,

Thanks for getting in touch. I am the 11kV Planner for Bristol and have dealt with previous preliminary enquiries regarding this development.

Your enquiry number is 3753075 - as per your follow-up I will hold off responding until you have updated your figures. Please forward to me directly.

Assessing the capacity requirements of electrically-heated dwellings can be difficult and when you're dealing with several hundred a few kVA can make all the difference – large modern all-electric developments are still fairly new in Bristol but we do have some established usage data to draw upon to assist.

I look forward to hearing from you when you have revised your requirements.

Kind regards,

Adam H. King

11kV Design | Western Power Distribution | Avonbank, Feeder Road, Bristol, BS2 0TB | Tel: 0117 933 2267

Web: www.westernpower.co.uk

Please note WPD does not have an out-of-office reply service. Contact centre: 0800 096 3080.

From:Valentine, Connor T. <cvalentine@westernpower.co.uk>

Sent: 11 September 2020 08:42

To: King, Adam <aking@westernpower.co.uk>

Subject: FW: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

Connor Valentine

Planner

Bristol North East

cvalentine@westernpower.co.uk

Phone: 01179 332176

Mobile: 07544162647

From:Parry, Tamsin <tparry@westernpower.co.uk>On Behalf Of WPD, New Supplies

Sent: 10 September 2020 14:39

To: Valentine, Connor T. <cvalentine@westernpower.co.uk>

Subject: FW: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

Hi,

Please see below

Thanks

Tamsin

From:TamiloreAkande@campbellreith.com<TamiloreAkande@campbellreith.com>

Sent: 10 September 2020 14:24

To: WPD, New Supplies <wpdnewsupplies@westernpower.co.uk>

Cc: BlessingFarirai@campbellreith.com

Subject: Re: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

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Good Afternoon,

Please ignore my email below as we are currently reviewing some of the numbers. I will be following up with the revised details in due course.

Kind Regards,

Tamilore Akande

Project Engineer

Wessex House,
Pixash Lane,
Keynsham, Bristol
BS31 1TP

Tel +44 (0)117 916 1066
www.campbellreith.com

From: Tamilore Akande/CRH
To: wpdnewsupplies@westernpower.co.uk
Cc: Blessing Farirai/CRH@Campbellreith
Date: 10/09/2020 13:13
Subject: 13492 Brislington Meadow, Bristol - Is there Capacity within existing WPD Infrastructure to serve the proposed development?

Good afternoon,

Our client is proposing to develop a site at Brislington Meadows in Bristol.
This development proposal includes the construction of approximately 300 new residential dwellings. The site is currently a Greenfield.
The site is centred on approximate Grid Reference ST 62628 71123. The nearest postcode reference is BS4 4NZ.

What we require

The proposal is to make connections onto the existing WPD utilities network.
There are three options being considered for the development.

- Option 1 - 100% of homes will utilise electricity for central heating, hot water and cooking.
- Option 2 - 50% of homes using electricity whilst the remaining 50% will utilise gas for central heating, hot water and cooking.
- Option 3 - 100% of homes will utilise gas for central heating, hot water and cooking.

The number of vehicle charging points required on the site has not yet been confirmed however we have assumed 2 potential options (450 and 225). I have therefore split the three options into 2 sub options to take into account the 2 options of either 450 or 225 electric vehicle chargers.

We have estimated the simultaneous peak usage (i.e. no diversity factor has been applied to this figure, as this varies within utility companies) for all options based upon a peak usage of 17kW per day for central heating, hot water and cooking, 7kW for electric vehicle chargers and 4kW per dwelling per day for all other electrical appliances. Please confirm the values we have factored in are correct. The peak usage results are indicated below and are included in the attached utility usage spreadsheet.

Option 1A - 9450kW
Option 1B - 7875kW
Option 2A - 6900kW
Option 2B - 5325kW
Option 3A - 4350kW
Option 3B - 2775kW

Please refer to the attached utility usage spreadsheet for more details.

Can you please confirm if there is will be adequate capacity within your infrastructure to serve the development for all six scenarios?

If there is insufficient capacity within your existing network, please can you confirm what off-site reinforcement works would be required to serve the proposed development, and can you please provide us with a budget costs for the off site reinforcement works.

If there is insufficient capacity within your existing network, can you please confirm the maximum number of dwellings that can be served based on the existing available capacity within the WPD network.

Finally, if any diversions are required, please could you provide details of the works that will need to be carried out and budget costs for the diversionary works.

Please can you also confirm potential connection points?

Attached are copies of the site plan, utility usage calcs and an extract of WPD asset plans we have been provided with.

Kind Regards,

Tamilore Akande
Project Engineer

Wessex House,
Pixash Lane,
Keynsham, Bristol
BS31 1TP

Tel +44 (0)117 916 1066
www.campbellreith.com

[attachment "13492 Utility Usage Spreadsheet WPD.pdf" deleted by Tamilore Akande/CRH] [attachment "WPD Existing Utilities.pdf" deleted by Tamilore Akande/CRH] [attachment "Appendix A Site Plan Brislington Meadows.pdf" deleted by Tamilore Akande/CRH]

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Registered Office: Avonbank, Feeder Road, Bristol, BS2 0TB

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Registered in England and Wales

Registered number: 2366894 (South West) / 2366985 (South Wales) / 2366923 (East Midlands) / 3600574 (West Midlands)

Registered Office: Avonbank, Feeder Road, Bristol, BS2 0TB

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Feeder Road
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Tel: 0117 933 2267

e-mail: aking@westernpower.co.uk

Date

14th July 2021

Our Ref:
4032319

Dear Mr Akande,

Budget Estimate for electricity connection works by Western Power Distribution (South West) plc ("WPD") at [Brislington Meadows, School Road, Broomhill, Bristol](#) ("the Connection Works").

Thank you for your enquiry. I am pleased to provide an indication of WPD's likely costs to carry out the Connection Works for you ("**the Budget Estimate**").

Basis of Information

WPD's proposals are based on the information provided, as summarised below:-

- [Your enquiry and subsequent correspondence](#)

WPD's proposals are based on the following design criteria:-

- **OPTION 1**
 - [300 houses @ 10,000kWh/yr annual usage Elexon Profile 1](#)
 - [450x 7kW EV Chargers diversified per WPD policy/Windebut software](#)
 - [Total 1518kVA.](#)
- **OPTION 2**
 - [150 houses @ 10,000kWh/yr annual usage Elexon Profile 1](#)
 - [150 houses @ 3,600kWh/yr annual usage Elexon Profile 1](#)
 - [450x 7kW EV Chargers diversified per WPD policy/Windebut software](#)
 - [Total 1224kVA.](#)

No particular consideration has been made for the use of heat pumps.

Proposed Connection Works

The Budget Estimate is based upon WPD undertaking both non-contestable and contestable Connection Works. You are able to seek competitive prices for some or all of the contestable elements. The enclosed guide provides further explanation on competition in new connections works. An outline of the proposed Connection Works is provided below;

Scope of sole-use works does not change between the two options, the only difference is the upstream reinforcement contribution.

New 11kV ring within site for 2 or 3 No. distribution substations, to be connected adjacent to site on School Road. Whether two or three substations are required depends on the layout of the site and available substation locations (central to the load is preferable).

Reinforcement

All significant new capacity requirements at Budget Estimate stage are currently expected to need to contribute to a significant reinforcement scheme at our major substation site at Feeder Road, comprising the construction of a new 132-11kV BSP and rearrangement of the existing network. Designs are at an early stage but we are currently quoting £130,000 per MVA for estimating purposes.

Estimate OPTION 1 £197,340 OPTION 2 £159,120

Offsite HV works

Make road crossing, trench either side to meet site entrance footpath. Cut and straight joint two 185 EPR cables to ring in new substations. Cables on-site in footpath up to the new roadway.

Estimate £25,500

Substations – each

1000kVA ringed substation, including HV joints and switchgear terminations, LV switchgear terminations, earthing, GRP enclosure. Not including plinth or civils. (800kVA substations also available)

Estimate £46,500 of which £3935 for GRP enclosure; to be omitted if indoor substations used.

HV Cable On-site

Estimate average **£15,000 per substation** not including excavation, assuming fairly wide-spaced. Very much dependent on positions and routes! (£44/m supply and lay, not including joints at £1250 each)

LV Mains and Jointing

A dense estimate, may be able to be reduced. Based on 300mm² Wavecon. Quite dependent on site design

Estimate £20,000 per substation

Services (3ph now standard for houses): **House £550 each**

BNO Intake for block of flats up to 400A £1700

Other options for flats are available including multi-service distribution boards on ground floors.

Factors which will affect the estimate include works phasing, detailed layout and sub positioning etc. Where connections are to new build houses VAT is 0% exempt.

Assessment and Design Fees are chargeable on each connection offer in accordance with our published Connections Charging Methodology.

A more detailed estimate can be produced once a provisional site layout is available.

Please note that these proposals are based upon a provisional investigation and no site visit or detailed study has been carried out. Unless otherwise stated it does not include costs for any reinforcement or diversionary work that may be required, or for any environmental, earthing, or stability studies which may also be necessary, although these are generally only required for larger capacity connections.

Estimated connection charge

The estimated connection charges are outlined above. Payment terms will be stipulated in any subsequent connection offer.

Please note that the estimated connection charge is for **guidance purposes** only and subject, in particular, to any wayleaves and other consents being successfully obtained. It is based on present day prices and includes a 10% contingency to allow for changes in labour and material costs. Except where indicated it does not include the costs of any necessary civil works, which should be provided by you at your expense.

Progression to Offer stage

This Budget Estimate is not legally binding, but sets out the amount we reasonably estimate we would require you to pay for the Connection Works under a formal connection offer (including the more detailed studies we would need to carry out). If you would like WPD to provide a formal offer for connection please forward your application to the address given below together with any supporting information that will allow us to carry out a detailed study.

Western Power Distribution
Records Team
Lostwithiel Road
Bodmin
Cornwall PL31 1DE

E-mail: wpdnewsupplies@westernpower.co.uk

[Or contact me directly.](#)

Upon receipt of the application WPD will finalise the design of the Connection Works and firm up the connection charge. Once this has been done WPD will send you an offer, which will reflect any contestable work you wish to carry out and include payment terms and conditions for connection.

If you have any queries regarding this budget estimate please do not hesitate to contact me at the address or telephone number given at the top of this letter.

Please note that this letter and attachments are not to be treated as an offer from WPD to carry out the Connection Works.

Yours sincerely,

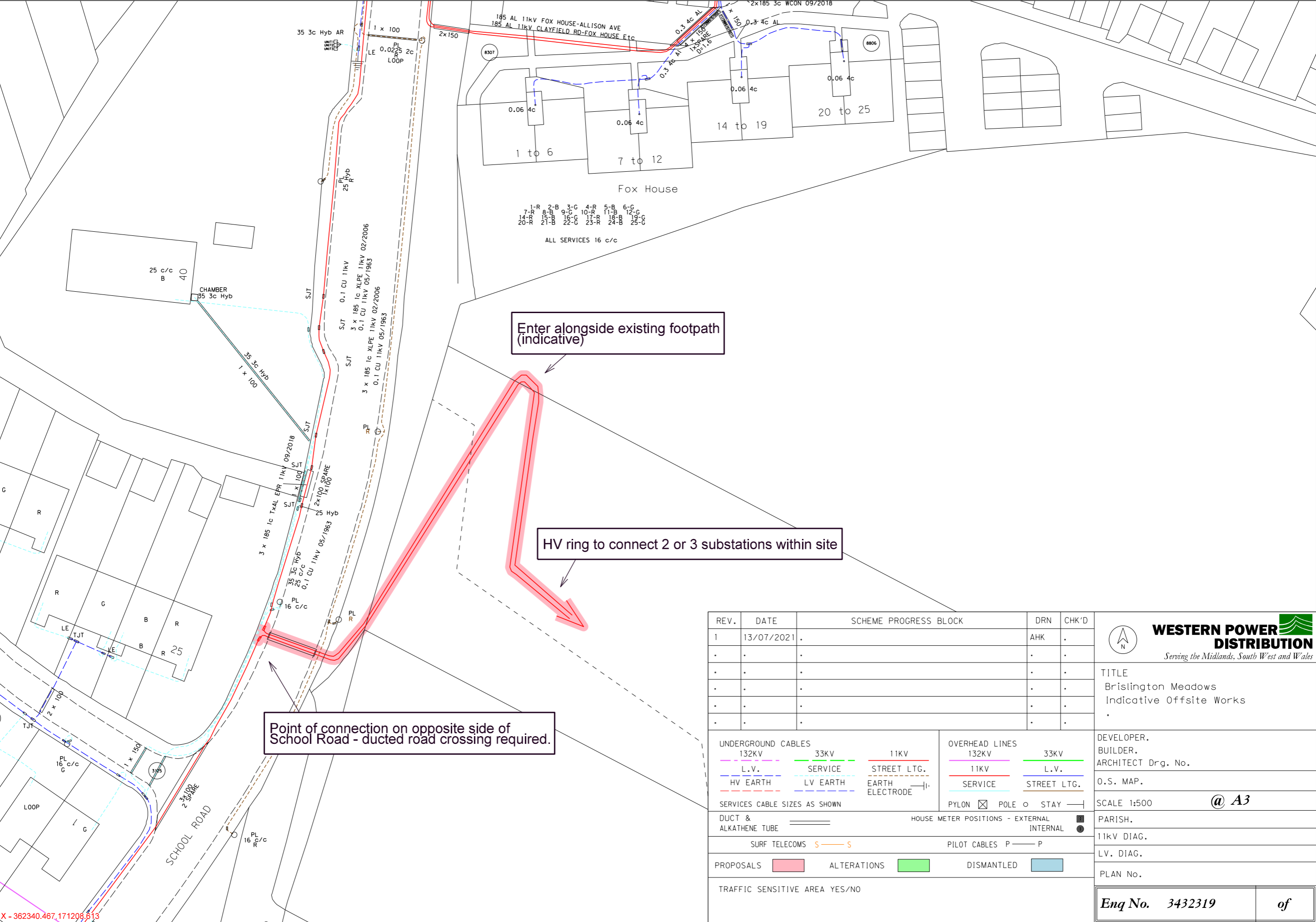


Adam H. King
11kV Design

Bristol

Information is given as a guide only
and its accuracy cannot be guaranteed.

PLEASE NOTE: This plan ONLY shows assets owned by Western Power Distribution.
Electricity assets owned by IDNO's (Independent Network Operators)
MAY be present in this area.



Enter alongside existing footpath
(indicative)

HV ring to connect 2 or 3 substations within site

Point of connection on opposite side of
School Road - ducted road crossing required.

REV.	DATE	SCHEME PROGRESS BLOCK	DRN	CHK'D
1	13/07/2021		AHK	
.
.
.
.
.

UNDERGROUND CABLES	OVERHEAD LINES
132KV	132KV
33KV	33KV
L.V.	L.V.
SERVICE	SERVICE
HV EARTH	STREET LTG.
LV EARTH	EARTH ELECTRODE

SERVICES CABLE SIZES AS SHOWN

DUCT & ALKATHENE TUBE

HOUSE METER POSITIONS - EXTERNAL INTERNAL

SURF TELECOMS S S

PILOT CABLES P P

PROPOSALS ALTERATIONS DISMANTLED

TRAFFIC SENSITIVE AREA YES/NO

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

TITLE
Brislington Meadows
Indicative Offsite Works

DEVELOPER.
BUILDER.
ARCHITECT Drg. No.
O.S. MAP.
SCALE 1:500 @ A3
PARISH.
11KV DIAG.
LV. DIAG.
PLAN No.

Enq No. 3432319 of