



A470/M4 Corridor Congestion Study (WelTAG Stage 2)

Outline Business Case Report

Appendices A, B, C, D, E and F only

ARUP

Appendix A

Option Shortlisting and Preferred Options

A470 Type of Measures ¹	Long List of Options (A470)	Source	Shortlisted Option Description/Commentary [Option excluded from short-list]	A470 Preferred Options ²
Bus Rapid Transit services connecting cross-valleys	Cross-Valley Bus Rapid Transit services (as a Metro extension)	1/3	Cross-Valley Bus Rapid Transit services (as a Metro extension) connecting cross-valleys (Pontypool – Newbridge – Ystrad Mynach – Pontypridd) extending to Talbot Green. Addresses study problems and objectives but considered deliverable in the medium term and thus will be considered at concept level only.	✓✓
Local bus service re-orientation to serve Metro Stations	Bus priority – Cardiff to Pontypridd	1	Insertion of intermittent bus lane on A470. Addresses problems due to likely improvements in bus journey time and reliability but potential deliverability issues due to carriageway width.	Incorporated in Smart Expressway measures
	Bus priority - Pontypridd to Porth	1	[This scheme is outside of the area of scope and therefore does not address this particular study’s problems and objectives]	✓
	Bus Priority - Pontypridd to Aberdare	1	[Mainly situated within the area of scope but is unlikely to have a significant impact on the A470 at key problem areas]	✓
	Bus priority - Pontypridd to Merthyr	1	[Situated within the area of scope but is unlikely to have a significant impact on the A470 at key problem areas]	✓
	New bus station near Merthyr Tydfil rail station	1	[Situated within the area of scope but is unlikely to have a significant impact on the A470 at key problem areas]	✓
	Pontypridd bus station upgrade	1	[Some likely mode share benefits and localised improvements but its impact strategically likely to be insignificant on the A470 itself]	✓
Localised road improvements and bus priority on major side roads	A470 Cardiff Gabalfa - Coryton ‘Make Better Use’ improvements	1	[This scheme is outside of the area of scope and therefore does not address this particular study’s problems and objectives]	✓
	A470 Bus Priority (Nantgarw to Coryton)	7	Insertion of intermittent bus lane on A470 Addresses problems due to likely improvements in bus journey time and reliability but potential deliverability issues due to carriageway width	Incorporated in Smart Expressway measure
Major P&R provision at Metro Stations accessed from the A470	Coryton rail station new P&R facility (Metro)	1	[South of the study area and hence will not have an impact on mode share on the A470 north of Coryton]	✓
	Merthyr Tydfil station P&R (Metro)	1	[Minor impact on mode share through intercepting trips into Cardiff but unlikely to address congestion at key problem areas on the A470]	✓
	Taffs Well Station P&R (Metro)	1	[This scheme should be considered in the context of the outline proposal to provide a new Metro station at Nantgarw (see below)]	✓
	Trefforest station additional P&R spaces (Metro)	1	[Minor impact on mode share through intercepting trips into Cardiff but unlikely to address congestion at key problem areas on the A470]	✓
	Pontypridd Metro Station P&R – utilising parking bays within the existing car park	1	[The scheme is likely to intercept some car journeys into Cardiff, but its impact is likely to be limited at a strategic level on the A470 carriageway]	✓
	A470 Northern Corridor bus P&R	1	[Likely to result in slight mode shift but unlikely to address the key corridor problems which are predominantly on the southern section of the A470]	✓
	Porth Metro Interchange P&R	1	[Minor impact on mode share and outside of study area]	✓
Major traffic management and control measures at A470 Interchanges	A473 Trefforest Industrial Estate new east-west road link to Tonteg Road	1	[This scheme would benefit local congestion during peak periods for those entering the industrial estate. However, this will have limited benefit on the A470 itself, particularly towards its southern section]	✓
	Reduced Speed Limit (A470 Upper Boat to Pontypridd) – Air Quality	5	Pilot implementation and monitoring study by Welsh Government	✓✓✓
	Major traffic management and control measures at A470 Nantgarw Interchange	3/6	Signalisation of Interchange ; Additional ancillary lane to exit lane (NB and SB) Additional lane on Roundabout Gyratory; Improved active travel connection	✓✓✓
	Major traffic management and control measures at A470 Taffs Well Interchange	3/6	Signalisation of southbound slip road onto junction and improved Active Travel connection	✓✓✓
	Major traffic management and control measures at A470 Coryton Interchange	3/6	[A470 Southbound to M4 Westbound – via an elevated structure over Longwood Woodland between the A470 southbound off-slip and the M4 westbound.]	✓
			[A470 Southbound to M4 Westbound – via a through link from A470 Southbound to M4 Westbound with underbridge beneath the M4 motorway.]	✓
			A470 Southbound to M4 Westbound – via a through link from A470 Southbound to M4 Westbound via Traffic Control Wales side road, including provision of a new overbridge structure.	✓✓
			[A470 Southbound to M4 Westbound – via a two-lane A470 Coryton exit slip road, linking to the M4 westbound via a new overbridge structure.]	✓
	Major traffic management and control measures at A470 Upper Boat Interchange	3/6	[Introduction of a one-way system through the industrial estate – to improve slow of traffic leaving the A470 reduce blocking back. Potential improvement (on side roads and hence being addressed by RCT CBC);]	✓
			[Modification of Tonteg Road/Industrial Estate Junction – aimed at regulating and improving flow of traffic leaving the A470 to reduce blocking back. Potential improvement (on side roads and hence being addressed by RCT CBC)]	✓

A470 Type of Measures ¹	Long List of Options (A470)	Source	Shortlisted Option Description/Commentary [Option excluded from short-list]	A470 Preferred Options ²
			[New link road between Tonteg Road and Gwaelod-y-Garth Road [A470-8] to relieve pressure on Tonteg Road/Gwaelod y Garth Road junction – to reduce blocking back onto A470. Potential improvement (on side roads and hence being addressed by RCT CBC)]	✓
	A465 Heads of the Valleys Improvements	1	[This scheme is outside of the study area and does not therefore address study problems and objectives]	✓
	A470 Swansea Road (Trago Mills) roundabout traffic management	8	[Currently being considered as part of another WelTAG study. Addresses important local issues but has less impact on the key corridor problems and objectives.]	✓
SMART Expressway traffic management on mainline A470	Smart expressway & traffic management measures on the A470 South	3	Additional 3rd lane on the A470 mainline between Upper Boat and Nantgarw	✓✓
			Additional 3rd lane on the A470 mainline between Nantgarw and Taffs Well	✓✓✓
			Lane reallocation (southbound) and additional 3rd lane (northbound) on the A470 mainline between Taffs Well and Coryton	✓✓✓
			Speed limit reduction to 50mph as an extension of trial 50mph ‘Air Quality’ scheme on A470 at Pontypridd	✓✓✓
			Overhead Gantries with VMS on A470 (Variable speed limit/lane allocations) Updates to Network Management Plans	✓✓✓
High quality ‘mass transit’ public transport (with P&R)	New rail station at Pentrebach – Hoover Site (Metro)	1	[Addresses study problems and objectives but considered deliverable in the longer term and thus not considered as part of this study]	✓
	Relocation of Trefforest Industrial Estate Station to Nantgarw (Metro)	1	This scheme would benefit local congestion during peak periods for those entering the industrial estate. However, this will have limited benefit on the A470 itself, particularly towards its southern section	✓✓
	New rail station – Pontypridd Interchange, next to the existing bus station (Metro)	1	[Unlikely to have large impact on traffic volumes on southern section of A470, where most congestion and air pollution occur]	✓
	New rail station at Glyngoch on the Taff Line, north of Pontypridd (Metro)	1	[Unlikely to have a significant impact on traffic volumes on the A470 itself, and considered to be a longer-term aspiration]	✓
	New rail station at Ynysboeth on the Aberdare Line (Metro)	1	[Outside of the area of scope and therefore does not address study problems and objectives]	✓
Active travel improvements built in to all improvement options	Active travel will be incorporated within the preferred schemes identified within this study	3/6	Taffs Well Interchange: The proposed Priority Scheme includes a new controlled pedestrian/cycle crossing of the southbound off-slip at its junction with the interchange gyratory (on the NCN 8 route) Nantgarw Interchange: The proposed Priority Scheme includes a controlled pedestrian /cycle crossing at the northbound off-slip junction with the gyratory, and an uncontrolled crossing at the southbound on-slip just south of the gyratory – this providing a high quality and safe pedestrian/cycle link from east-to-west (and linking NCN 8 with employment and education centres on the Trefforest Industrial Estate).	✓✓✓

1. Types of measure based on Stage 1 options
2. Preferred Options column also identified a proposal as a Concept Option (Public Transport/Highway) or not a preferred option in this Study (see key)

Key:

Preferred Priority Option	✓✓✓
Concept Option/Potential longer-term improvement; could be further developed outside this study	✓✓
Not a preferred option in this Study; but could be further developed outside this study	✓
Not a preferred option – and not recommended for further investigation	✗

Sources:

1. Cardiff Capital City Region (CCCR) Regional Transport Authority
2. Cardiff Council Local Development Plan (LDP)
3. WelTAG Stage One Study (M4/A470)
4. WelTAG Stage Two Study (A4119)
5. A470 Pontypridd – WelTAG Stage 2 Report (WSP)
6. M4 A470 – WelTAG Stage 2 study engagement
7. A470 Bus Priority – Preliminary Feasibility Study (Welsh Govt)
8. A470 Swansea Road (Trago Mills) WelTAG Stage 2

M4 Type of Measures ¹	Long List of Options (M4)	Source	Option Design Development	M4 Preferred Options ²
A new heavy rail station (and P&R) accessible from the M4 at J34	New Rail Station – Miskin/Junction 34 (SWML)	1	Addresses study problems and objectives but considered deliverable in the medium term and thus will be considered at concept level only	✓✓
	New Rail Station – St Fagan’s (SWML)	1	[This scheme is likely to have a limited positive impact, as it would serve a small local catchment only]	✓
	New Rail station Brackla (SWML)	1	[Outside of the area of scope and therefore does not address study problems and objectives]	✓
	Enhanced P&R at existing rail stations (Pontyclun/Llanharan/Pencoed)	1	[Outside of the area of scope and therefore does not address study problems and objectives]	✓
Bus Rapid Transit services connecting cross-valleys	Bus priority - Tonypandy to Llantrisant/Talbot Green	1	[This scheme has some beneficial impacts by providing a more attractive travel time – and reduced operator cost – but would require increase in service frequency and integration with other service to be successful]	✓
	Bus priority - Bridgend to Llantrisant/Talbot Green	1	[This scheme has some beneficial impacts on problems by providing a more attractive travel time – and reduced operator cost – but would require increase in service frequency and integration with other service to be successful]	✓
	Cross-Valley Bus Rapid Transit services (as a Metro extension)	1/3	Cross-Valley Bus Rapid Transit services (as a Metro extension) connecting cross-valleys (Pontypool – Newbridge – Ystrad Mynach – Pontypridd) extending to Talbot Green Addresses study problems and objectives but considered deliverable in the medium term and thus will be considered at concept level only.	✓✓
	Rapid Bus Link from J33 to A473	4	Included in above This is a major scheme, which would have a major local positive impact on modal use – and would encourage significant mode-switch from car to public transport for travel from RCT to Cardiff and beyond, and hence reduce traffic congestion significantly	Included in above
	North West Cardiff Corridor Rapid Transit (Metro extension) Pontyclun - Beddau	1	Included in above This is a major scheme and is extension/is dependent on delivery of the Cardiff – Llantrisant option, therefore is not considered as part of this study. It is likely to have a moderate positive impact on modal use	Included in above
High quality ‘mass transit’ public transport (with P&R)	North West Cardiff Corridor Rapid Transit (metro extension) Cardiff - Llantrisant	1	North West Cardiff Corridor Rapid Transit (metro extension) Cardiff – Llantrisant Addresses study problems and objectives and likely to have significant impact, however is a longer-term scheme to be considered as concept only	✓✓
	M4 J33 P&R	1/2	M4 J33 P&R This scheme has beneficial impacts on problems by providing a practical alternative to travel by car into Cardiff from the M4 West and A4119	✓✓
Local bus service re- orientation	Bus priority - Talbot Green/Pontyclun to Cardiff	1	[This scheme will have slight beneficial impacts on problems by providing a more attractive travel time – and reduced operator cost – but would not significantly improve congestion along the M4]	✓
	Cardiff Western Bus Corridor (A48, A4119 and A4232 to M4 Junction 33)	1/2	[This scheme has beneficial impacts on problems by providing a practical alternative to travel by car into Cardiff from the M4 West and A4119. However, the scheme would require an associated P&R service from M4 J33 (considered as part of this study).]	✓
Localised road improvements and bus priority on major side roads	A4119 Castell Mynach junction ‘Make Better Use’	1	[This scheme addresses a key local congestion point however its impact on the M4 motorway itself would be limited]	✓
	A4119 Corridor Junction Capacity Improvements ‘Make Better Use’	1	[This scheme addresses local congestion and would improve the ability of the local road network to cope with development-related travel]	✓
	A4119 Coed Ely improvements	1	[Outside of the area of scope and therefore does not address study problems and objectives]	✓
	A48/A473 Bridgend Corridor Improvements	1	[This scheme addresses local congestion and would improve the ability of the local road network to cope with development-related travel but would have a limited impact on actual traffic congestion along the M4.]	✓
	A473 Llanharan Traffic Relief	1	[This scheme addresses local congestion along the A473 and will increase east-west traffic capacity to cope with major development-generated traffic increases, however impact on the M4 motorway itself would be limited]	✓
	A473 Talbot Green improvements	1	[This scheme addresses local congestion along the A473 and will increase east-west traffic capacity to cope with major development-generated traffic increases, however impact on the M4 motorway itself would be limited]	✓
Major traffic management and control measures at M4	M4 J33 Traffic Management and Control	1	Three-lane approach on the eastbound exit slip for signal stacking (lane 1 would be dedicated for P&R); 100m ancillary lane on the A4232 approach arm; Widening and potential signalisation of the A4232 approach arm and Services arm; Introduction of an additional merge lane at J33 on-slip going westbound.	✓✓✓
			[Grade-separated connections between the A4232 to M4 westbound, and from the M4 (eastbound) to the A4232 (towards Cardiff)]	✓
			Additional lanes on gyratory across motorway – which requires two new bridge structures adjacent to existing bridges – to increase stacking space on gyratory and thereby reduce queues on slip roads.	✗

M4 Type of Measures ¹	Long List of Options (M4)	Source	Option Design Development	M4 Preferred Options ²
Interchanges (J33 and J34)			Additional lanes on western gyratory across motorway – which requires a new bridge structures adjacent to existing bridge - to increase stacking space on gyratory and thereby reduce queues on slip road.	✗
	Junction 34 to A48/Cardiff Airport	1	[Currently being considered as part of another WelTAG study. Schemes developed at J34 to consider potential impact]	✓
	M4 new J34A	1	[Would provide access to major development site, but generated traffic could adversely affect the operation of mainline traffic on the M4 given the additional weaving movements and could add traffic to Junction 33 in particular. A new motorway junction is a long-term aspiration that would fall outside of the Pinch Point Programme objective for short-medium term solutions.]	✓
	M4 J35 ‘Make Better Use’ Improvements	1	[Investigations carried out within Phase 1 of this study indicated that the problems were at a lesser level than at M4 J33 and J34 and hence J35 is not considered further within this Study as a priority location for scheme development. Bridgend CBC is currently considering local improvement measures.]	✓
	M4 J34 Traffic Management and Control	3/6	Widening and signalisation of the A4119 approach arm and gyratory; Widening of slip road merge eastbound	✓✓✓
			Additional lanes on gyratory across motorway, which requires two new bridge structures adjacent to existing bridges - to increase stacking space on gyratory and thereby reduce queues on slip roads.	✗
			[Proposed dedicated cycle lane (north to south) on an overhead structure.]	✓
			Additional lanes on eastern gyratory across motorway, which requires a new bridge structure adjacent to existing bridge - to increase stacking space on gyratory and thereby reduce queues on westbound off-slip road.	✗
			[Dedicated bus lane on western side of junction, to enable a public transport link between Talbot Green and the Vale of Glamorgan to be established. This measure requires a new bridge structure in place adjacent to existing bridge]	✓
			[Dedicated cycle lane on eastern side of junction – which may require a new bridge structure over the M4]	✓
SMART Motorway traffic management and control measures on the M4	Smart motorway & traffic management measures on the M4	3/6	Westbound 4-lane carriageway to match cross-section of eastbound carriageway.	✓✓✓
			Reallocation of lanes on M4 (J34 to J33) eastbound to 2-lane ahead and 2-lane exit (to J33).	✓✓✓
			Overhead Gantries with VMS on M4 J34-J33 and on A4232 (Variable speed limit/lane allocations)	✓✓✓
			Updates to Network Management Plans	✓✓✓
			Parallel road link between Junction 34 and J33, in the form of service roads alongside motorway, or separate road link between A4119 and A4232	✓✓
Active travel improvements built in to all improvement measures	Active travel will be a key consideration when developing all schemes as part of this study		<p>M4 Junction 34: A cycle/walk link across the interchange has been devised, including a new bridge over the M4. This scheme would however only be feasible in future if the M4 J34 to A48 Sycamore Cross scheme is constructed – currently being investigated by the Vale of Glamorgan CBC (see Section 5.4).</p> <p>North West Cardiff Rapid Transit: It is relevant that future consideration and investigation of the proposed North West Cardiff Rapid Transit scheme (which is identified as a Concept Option in this Study) should include for the potential to include a cycle path alongside the rail (or busway) infrastructure.</p> <p>Park and Ride at M54 Junction 33: It would be beneficial to include provision for cycle parking at this potential future Park & Ride site, such that cyclists can arrive from the A4119 (north of the location), park near M4 Junction 33, and travel onwards to Cardiff on the (proposed) North West Cardiff Rapid Transit.</p>	✓✓✓

1. Types of measure based on Stage 1 options
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Key:

Preferred Priority Option	✓✓✓
Concept Option/Potential longer-term improvement; could be further developed outside this study	✓✓
Not a preferred option in this Study; but could be further developed outside this study	✓
Not a preferred option – and not recommended for further investigation	✗

Sources:

1. Cardiff Capital City Region (CCCR) Regional Transport Authority
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5. A470 Pontypridd – WelTAG Stage 2 Report (WSP)
6. M4 A470 – WelTAG Stage 2 study engagement

Appendix B

A470 Preferred Options Assessment

Table 42:Impact of A470 Options against Objectives

Large Beneficial	+++
Moderate Beneficial	++
Slight Beneficial	+
Neutral	0
Slight Adverse	-
Moderate Adverse	--
Large Adverse	---

Table 43: Nantgarw Interchange – Signalisation, widening of gyratory/on approach to better manage queues

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	+	Benefits <ul style="list-style-type: none"> • This will allow platooning and enhances opportunities to ‘hold’ queues on the Nantgarw approach. • Measure would lead to increased capacity along the northbound off-slip and provide related safety benefits with respect to rear-shunt incidents, which primarily occur due to queuing and slow-moving traffic on junction approach. • An additional lane on the roundabout gyratory will provide increased capacity and will also deliver additional ‘stacking’ space for vehicles following the signalisation of the junction.
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	0	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	++	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	++	<ul style="list-style-type: none"> • The existing footpath is informal, however is evidently utilised by pedestrians from initial investigation. Improvements to the existing situation should therefore result in a safety benefit and increase usage of the pedestrian link.
	Improves overall traffic management capability	+++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	++	Design Considerations <ul style="list-style-type: none"> • The existing Nantgarw junction has a gyratory roundabout layout and is grade-separated from the A470 mainline which bridges over the junction. The junction is not currently signalised. • The gyratory carriageway under the A470 overbridges is considered unlikely to be able to accommodate three lanes and hence has been maintained as a two-lane cross-section.
	Is geometrically feasible within existing road space or with limited road widening	-	
	Can be implemented with limited construction impact on traffic conditions	-	
	Provides a safe facility for all road users	++	
	Impacts on utilities and roadside facilities/infrastructure	-	
Deliverability	Cost	--	
	Buildability	-	

Table 44: Taffs Well Interchange – Signalisation of SB off-slip and provide National Cycle Network (NCN) crossing

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	+	<p>Benefits</p> <ul style="list-style-type: none"> • Likely to provide a betterment with respect to road safety in comparison to the existing arrangement which requires cyclists to cross the roundabout at an uncontrolled crossing point, situated at the end of the southbound off-slip. This should encourage transfer of trips from private car. <p>Design Considerations</p> <ul style="list-style-type: none"> • Existing junction includes a cycleway on the nearside edge of the roundabout. This is a part of the National Cycle Network. • Proposals include improving the standard of the NCN route by providing signalised crossings. • The gyratory carriageway under the A470 overbridges is considered unlikely to be able to accommodate three lanes and hence has been maintained as a two-lane cross-section.
	Improves journey time reliability for road vehicles and buses	+	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	0	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	++	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	+	
	Improves overall traffic management capability	++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	+++	
	Is geometrically feasible within existing road space or with limited road widening	0	
	Can be implemented with limited construction impact on traffic conditions	0	
	Provides a safe facility for all road users	++	
	Impacts on utilities and roadside facilities/infrastructure	-	
Deliverability	Cost	-	
	Buildability	-	

Table 45: Upper Boat – Revised traffic management to address queues blocking back to A470

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	+	<p>Benefits</p> <ul style="list-style-type: none"> ● Implementation of a one-way system (or other traffic management variation) would improve the flow of traffic with potential to eradicate the existing issues relating to priority at junctions, which appears to be one of the main cause of queuing. ● Junction modification would enable better traffic management to remove problem of traffic blocking back to A470. ● A new road link would relieve pressure on the existing Tonteg Road/Gwaelod y Garth Road junction (south-west of Upper Boat junction) through provision of an alternative route in/out of the various employment at Trefforest Estate. <p>Design Considerations</p> <ul style="list-style-type: none"> ● Northbound vehicles currently enter Tonteg Road from Upper Boat junction and merge from two lanes to one lane immediately after Trefforest Industrial Estate. This causes significant queuing traffic at peak periods back onto Upper Boat junction. Introducing traffic management at this location is aimed at addressing this issue. ● A new major road link between A473 and Gwaelod-y-Garth Road, with local junction modification, would require consideration of gradient and topography as the western portion of the new link is on higher ground than Upper Boat.
	Improves journey time reliability for road vehicles and buses	+	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	0	
	Provides benefits for bus services	0	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	0	
	Improves overall traffic management capability	+	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	+++	
	Is geometrically feasible within existing road space or with limited road widening	+++	
	Can be implemented with limited construction impact on traffic conditions	+	
	Provides a safe facility for all road users	0	
	Impacts on utilities and roadside facilities/infrastructure	0	
Deliverability	Cost	-	
	Buildability	-	

Table 46: Taffs Well to Nantgarw – Implementing three narrow lanes on two-lane sections Northbound and Southbound

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	++	<p>Benefits</p> <ul style="list-style-type: none"> It is proposed to include additional auxiliary lane for the A470 between Nantgarw and Taffs Well, which will provide additional capacity with the aim of reducing congestion and improving journey time reliability along the route. <p>Design Considerations</p> <ul style="list-style-type: none"> The additional lane will be provided in a lane drop/lane gain between diverge and merge slip roads. The additional auxiliary lane could potentially be accommodated within the existing highway boundary – but with narrow lane widths with approximate dimensions: 1m hard strip, 3.6m lane one, 3.5m lane two, 3.35m lane three and 1m central reserve.
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	0	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	++	
	Improves overall traffic management capability	++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	0	
	Is geometrically feasible within existing road space or with limited road widening	0	
	Can be implemented with limited construction impact on traffic conditions	--	
	Provides a safe facility for all road users	+	
	Impacts on utilities and roadside facilities/infrastructure	-	
Deliverability	Cost	--	
	Buildability	--	

Table 47: Coryton to Taffs Well – Reallocation of three Southbound lanes and narrow lanes in Northbound direction north of Coryton

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	++	<p>Benefits</p> <ul style="list-style-type: none"> It is proposed to provide three lanes in both directions with improved lane allocation to match traffic flows - which will reduce congestion and improve journey time reliability along the route. <p>Design Considerations</p> <ul style="list-style-type: none"> At A470 southbound – two-lane diverge onto Coryton gyratory and one lane ahead onto A470 towards Cardiff. Narrow lane widths can potentially be provided in the northbound direction with approximate dimensions: 1m hard strip, 3.6m lane one, 3.5m lane two, 3.35m lane three and 1m central reserve.
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	0	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	++	
	Improves overall traffic management capability	++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	0	
	Is geometrically feasible within existing road space or with limited road widening	0	
	Can be implemented with limited construction impact on traffic conditions	--	
	Provides a safe facility for all road users	+	
	Impacts on utilities and roadside facilities/infrastructure	-	
Deliverability	Cost	--	
	Buildability	--	

Table 48: Pontypridd to Coryton – Reduced Speed Limit to address Air Quality

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	+	<p>Benefits</p> <ul style="list-style-type: none"> • The scheme would provide benefits with respect to bus journey time and reliability and should also encourage some modal shift from the private car to bus. <p>Design Considerations</p> <ul style="list-style-type: none"> • Preliminary investigation indicates that insertion of intermittent bus lane is potentially geometrically feasible and will involve: <ul style="list-style-type: none"> - use of narrow lanes (3.2m – 3.3m). - reducing the standard of the A470 (e.g. reduce speed limit, replace hard shoulder with 1m strip). - potentially providing bus lanes on Taff Well and Coryton slip roads instead of on the A470 mainline.
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	0	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	++	
Operational Effectiveness	Improves network resilience for highway and public transport	0	
	Improves overall traffic management capability	++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	+++	
	Is geometrically feasible within existing road space or with limited road widening	+++	
	Can be implemented with limited construction impact on traffic conditions	++	
	Provides a safe facility for all road users	++	
	Impacts on utilities and roadside facilities/infrastructure	0	
Deliverability	Cost	-	
	Buildability	-	

Table 49: Variable Message Signage (VME) mounted on gantries on A470 (incl. updates to Network Management Plans, utilising ITS and traffic officers to improve everyday operation and network resilience, particularly in the event of incidents or road works)

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	+	<p>Benefits</p> <ul style="list-style-type: none"> ● VMS provides improved traffic management with resilience and safety benefits. VMS signage can provide capability to vary speed limit according to conditions, and to vary lane allocation for ahead and exit movements depending on traffic conditions, roadworks, accidents etc. ● Updates to Network Management Plans will ensure that network operation will benefit from the latest developments in ITS technology. The Plans will include contingency planning as well as traffic officer coverage, VMS, Smart Route Technology and other measures to improve resilience. <p>Design Considerations</p> <ul style="list-style-type: none"> ● Existing overhead gantries are located on the approach to the southbound and northbound diverge slip roads to the Taffs Well junction. Speed limit signage is installed on the A470 southbound gantries only. <p>Careful consideration will be the need to use existing gantries and insertion of new gantries in compliance with standard spacing requirements.</p> <ul style="list-style-type: none"> ● Ongoing consultations with SWTRA will be required to ascertain the extent of existing network operation planning and monitoring and future aspirations. <p>ITS management strategy applies on whole corridor basis and should take account of other key routes which could provide a diversion route in the event of an incident on the A470 or have an impact on traffic conditions along the corridor.</p>
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	+	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	++	
	Improves overall traffic management capability	+++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	++	
	Is geometrically feasible within existing road space or with limited road widening	+++	
	Can be implemented with limited construction impact on traffic conditions	++	
	Provides a safe facility for all road users	++	
	Impacts on utilities and roadside facilities/infrastructure	0	
Deliverability	Cost	---	
	Buildability	-	

Appendix C

M4 Preferred Design Options Assessment

Table 50: Impact of M4 Options against Objectives

Large Beneficial	+++
Moderate Beneficial	++
Slight Beneficial	+
Neutral	0
Slight Adverse	-
Moderate Adverse	--
Large Adverse	---

Table 51: M4 J34 - Signalisation and gyratory widening – with or without M4 J34 to A48 Transport Link

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	++	Benefits <ul style="list-style-type: none"> • The measure would improve traffic management of the junction and would improve junction traffic capacity with the proposed M4 J34 to A48 Sycamore Cross scheme and a potential new rail station at J34 (Miskin) in place. • Signalisation of A4119 entry allows a two-lane exit from the gyratory lanes • An additional third lane on the gyratory improved traffic management capability at the A4119 and southern entry arms. • The construction of a dedicated cycle lane will require construction of a structure over the M4 motorway but would assist in promoting active travel. This should connect to existing infrastructure north of the junction to provide an entire connection for residents in Talbot Green/Llantrisant. Design Considerations <ul style="list-style-type: none"> • A dedicated left-turn lane to the M4 J34 to A48 Sycamore Cross Link could be provided from M4 westbound as an additional traffic capacity measure. • The layout is compatible with the proposed M4 J34 to A48 Sycamore Cross scheme. • Constraints to all options include Miskin Manor Hotel & Health Club, operational M4, Ely River and Great Western Railway.
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	++	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	+	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	+	
	Improves overall traffic management capability	++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	-	
	Is geometrically feasible within existing road space or with limited road widening	--	
	Can be implemented with limited construction impact on traffic conditions	--	
	Provides a safe facility for all road users	++	
	Impacts on utilities and roadside facilities/infrastructure	-	
Deliverability	Cost	--	
	Buildability	--	

Table 52: M4 J33 - Improved signal control efficiency by signalling A4232 entry to improve platooning on gyratory and signalisation of Services entry

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	++	Benefits <ul style="list-style-type: none"> • This would allow a two-lane movement from the M4 (west) to the A4232 towards Cardiff. • An additional 100m ancillary lane on the eastbound off-slip would enhance stacking space at the junction. • A two-lane approach on the A4232 would allow improved platooning onto gyratory overbridge for right-turn to M4 East • Signalisation of services arm is intended to add capacity to serve future P&R traffic flow. Design Considerations <ul style="list-style-type: none"> • The existing junction was recently improved to include a dedicated lane for the M4 eastbound diverge to A4232 southbound vehicle movement. • Constraints to all options include high-voltage power cables above the A4232, Cardiff West Services, operational M4 and the newly constructed M4-A4232 merge auxiliary lane.
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	++	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	+	
	Improves overall traffic management capability	++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	-	
	Is geometrically feasible within existing road space or with limited road widening	-	
	Can be implemented with limited construction impact on traffic conditions	--	
	Provides a safe facility for all road users	++	
	Impacts on utilities and roadside facilities/infrastructure	-	
Deliverability	Cost	-	
	Buildability	-	

Table 53: Improved lane allocation on eastbound carriageway J34-J33, providing a two-lane exit to A4232 off-slip and two lanes to M4 ahead eastbound

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	++	Benefits <ul style="list-style-type: none"> Traffic flow data indicates that ‘two lanes ahead/two lanes exit’ to J33 is appropriate – and will provide a clearer and safer arrangement than the present ‘three lanes ahead/one lane exit’ arrangement. This layout will reduce weaving movements and effectively allow the nearside (inside) lane to operate as a direct route between J34 and J33. Design Considerations <ul style="list-style-type: none"> It is considered that an upgrade from three to four lanes can be achieved within the existing highway boundary on the M4 Westbound – but only if narrow lanes are used (similar to the cross-section on the M4 Eastbound at this location).
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	+	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	+	The slip road and narrow lane measures will need to be designed as a single scheme from Junction 33 to J34, in both directions.
	Improves overall traffic management capability	++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	0	
	Is geometrically feasible within existing road space or with limited road widening	0	
	Can be implemented with limited construction impact on traffic conditions	--	
	Provides a safe facility for all road users	+	
	Impacts on utilities and roadside facilities/infrastructure	-	
Deliverability	Cost	---	
	Buildability	--	

Table 54: J33-J34 - Provide additional lane on existing three lanes westbound carriageway

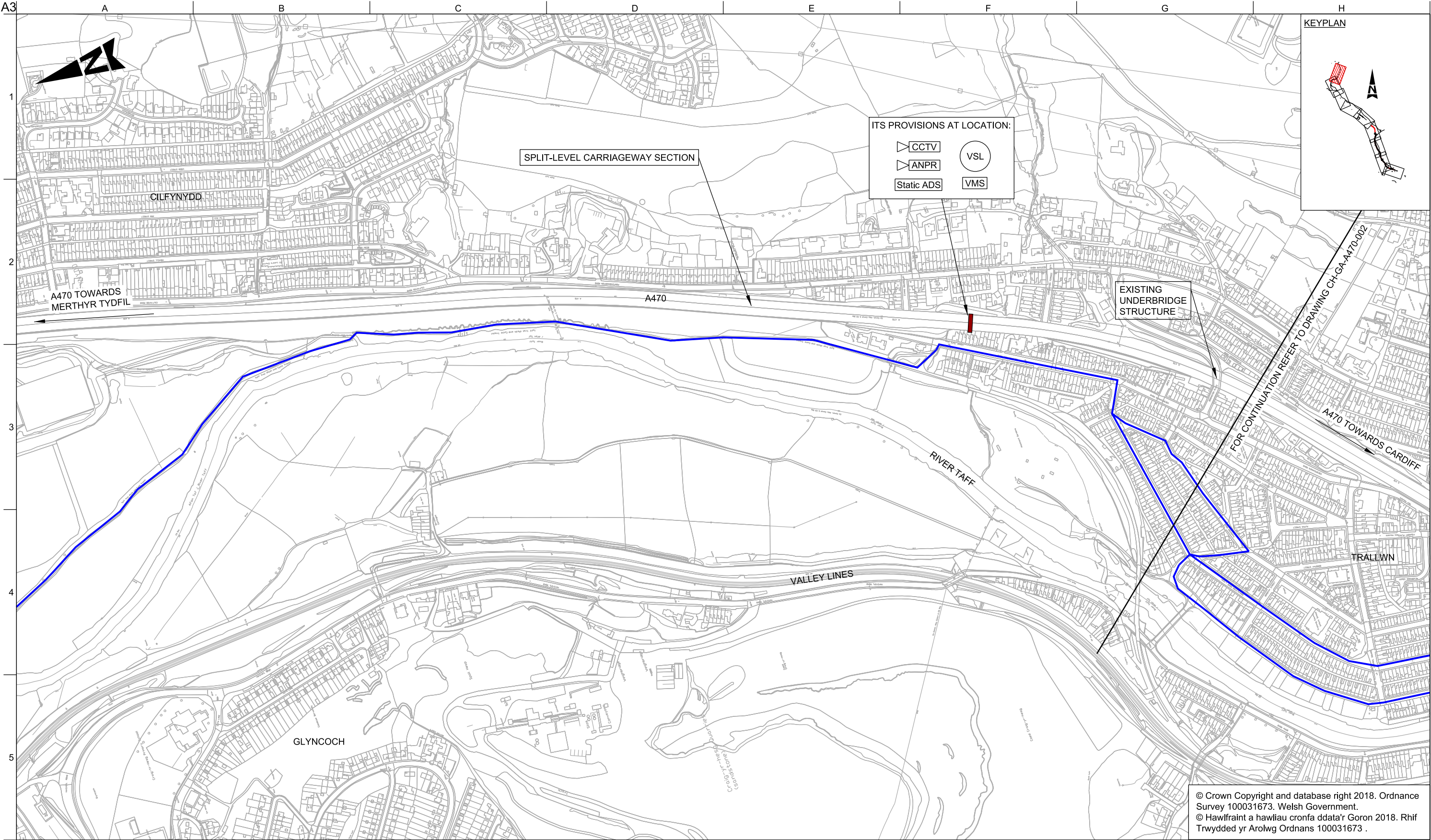
Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	++	Benefits <ul style="list-style-type: none"> ● 4 lanes on the westbound section between J33 and J34 would provide improved traffic management, providing an effective auxiliary lane for motorway traffic travelling from the A4232 (J33 southern arm) to the A4119 (J34 northern arm). Design Considerations <ul style="list-style-type: none"> ● It is considered that an upgrade from three lanes to four lanes can be achieved within the existing highway boundary on the M4 Westbound – but is likely to require narrow lanes are used (similar to the cross-section on the M4 Eastbound at this location). <p>The slip road and narrow lane measures will need to be designed as a single scheme from Junction 33 to J34, in both directions.</p>
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	+	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	+	
	Improves overall traffic management capability	++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	-	
	Is geometrically feasible within existing road space or with limited road widening	-	
	Can be implemented with limited construction impact on traffic conditions	--	
	Provides a safe facility for all road users	0	
	Impacts on utilities and roadside facilities/infrastructure	-	
Deliverability	Cost	--	
	Buildability	--	

Table 55: VMS gantry signage on M4 (incl. updates to Network Management Plans, utilising ITS and traffic officers to improve everyday operation and network resilience, particularly in the event of incidents or road works)

Scheme Objectives	Criteria	Score	Comment
Transport Objectives	Reduce delays	+	Benefits <ul style="list-style-type: none"> Variable message signing provides improved traffic management with resilience and safety benefits. VMS signage can provide capability to vary speed limit according to conditions, and to vary lane allocation for 'ahead' and 'exit' movements depending on traffic conditions, roadworks, accidents etc. VMS signage will provide greater capability for managing event traffic (e.g. major sports events in Cardiff) – for arrival (on M4) and departure (on A4232). Design Considerations <ul style="list-style-type: none"> VMS gantry signage will need to be designed to be incorporated within SWTRA's ITS management system. Careful consideration will be needed to the type of gantry – either spanning the whole road corridor (i.e. both carriageways), or use of cantilever structures on carriageway only.
	Improves journey time reliability for road vehicles and buses	++	
	Provides opportunity for public transport interchange (stops/stations and/or Park & Ride)	+	
	Provides benefits for bus services	+	
	Provides benefits for pedestrians and/or cyclists	0	
	Reduces the transport contribution towards poor air quality	+	
Operational Effectiveness	Improves network resilience for highway and public transport	++	
	Improves overall traffic management capability	+++	
Engineering and Safety Objectives	Is potentially feasible within existing highway corridor	++	
	Is geometrically feasible within existing road space or with limited road widening	+++	
	Can be implemented with limited construction impact on traffic conditions	++	
	Provides a safe facility for all road users	++	
	Impacts on utilities and roadside facilities/infrastructure	0	
Deliverability	Cost	---	
	Buildability	-	

Appendix D

A470 General Arrangement and Junction Improvement Drawings



- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
 - PROPOSED OVERHEAD GANTRY
 - PROPOSED ADAPTIVE SIGNALING

NOTES

1. LAYOUTS TO BE VERIFIED AT A LATER STAGE.

2. LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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CONCEPT DESIGN				
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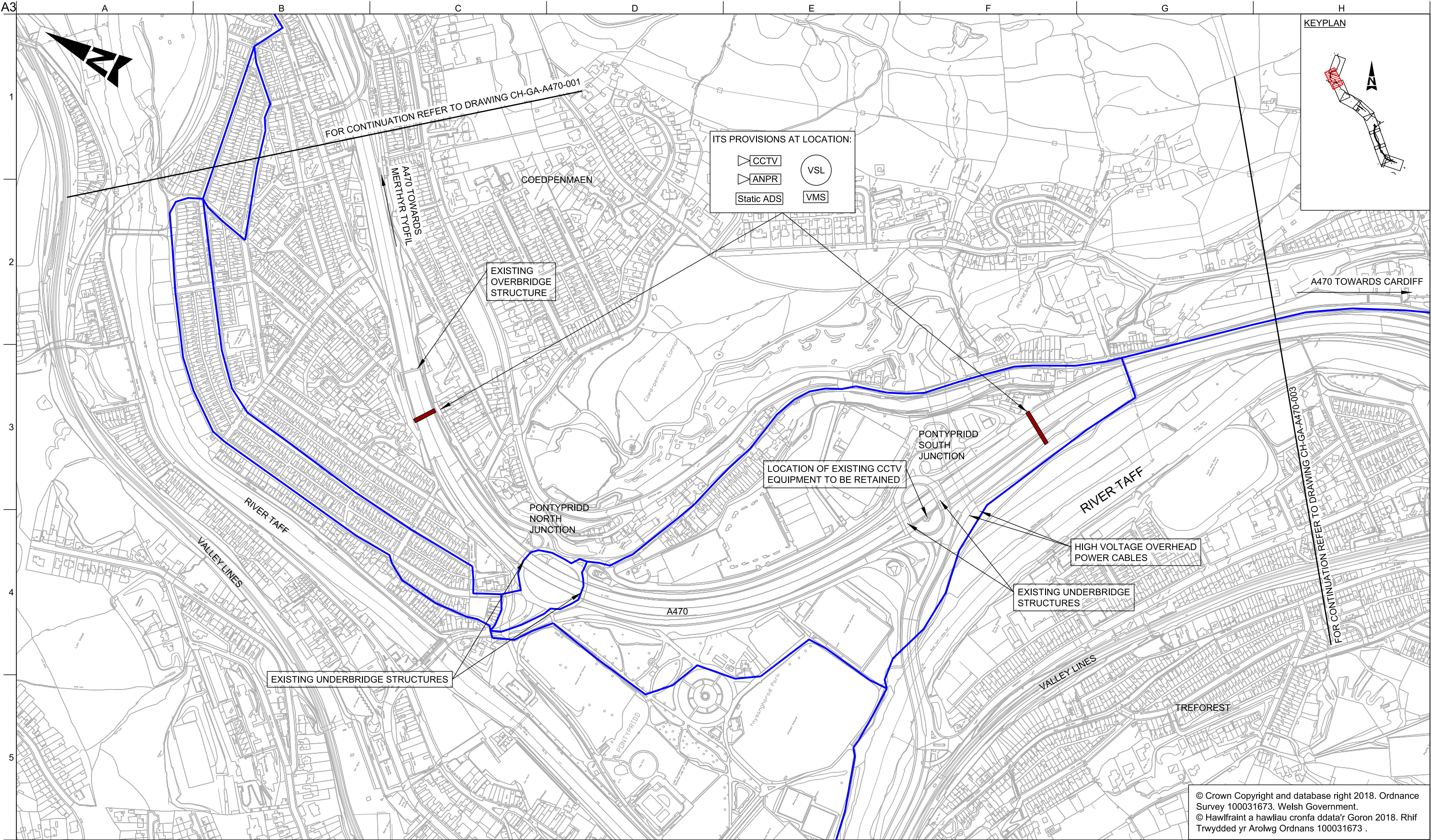
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- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
 - PROPOSED OVERHEAD GANTRY
 - PROPOSED ADAPTIVE SIGNALING

- NOTES**
- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
 - LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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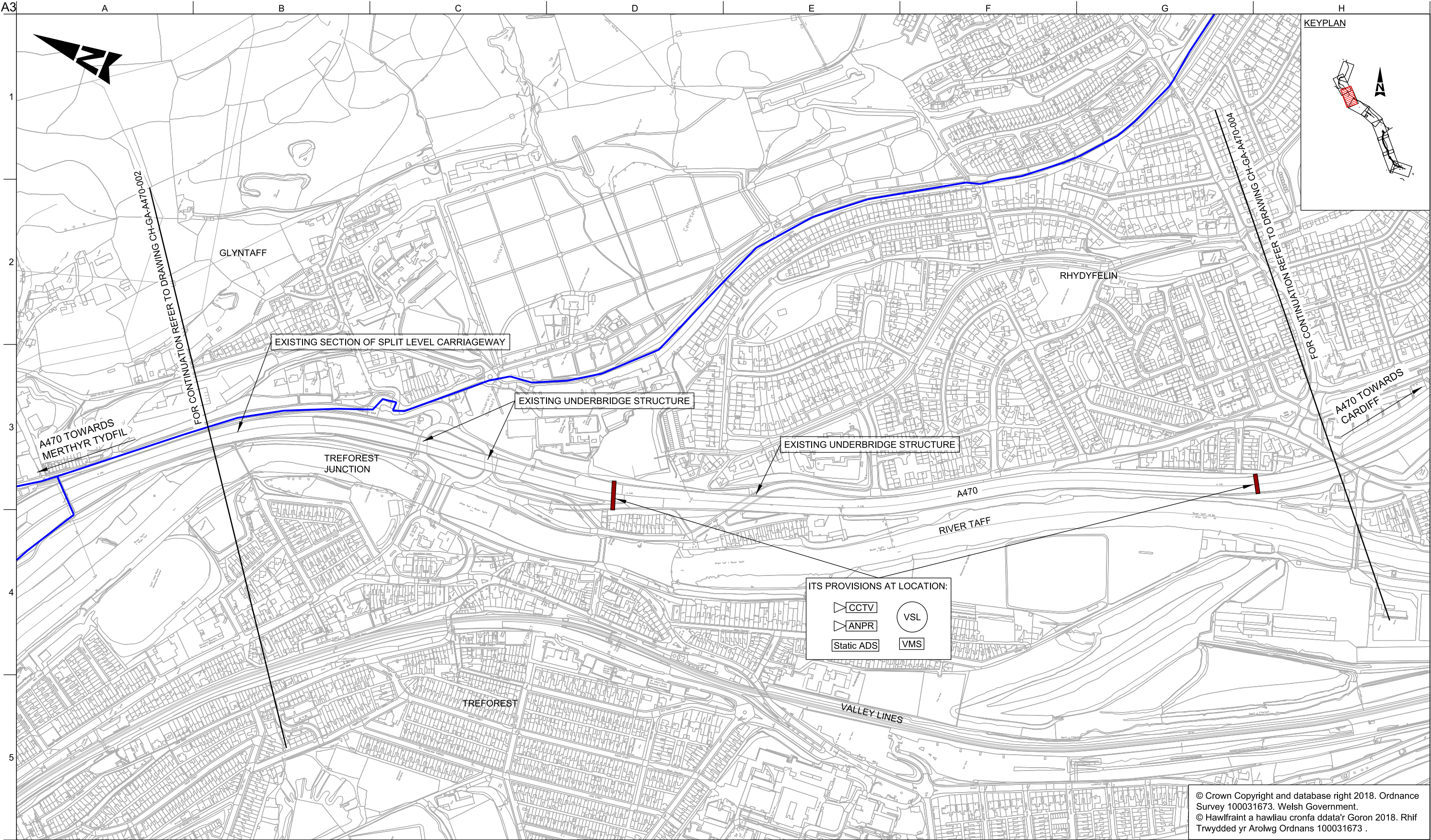
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- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
 - PROPOSED OVERHEAD GANTRY
 - PROPOSED ADAPTIVE SIGNALING

- NOTES**
- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
 - LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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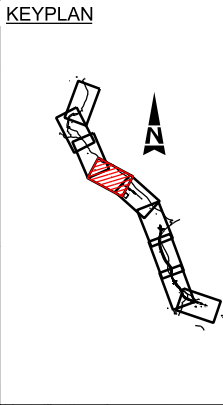
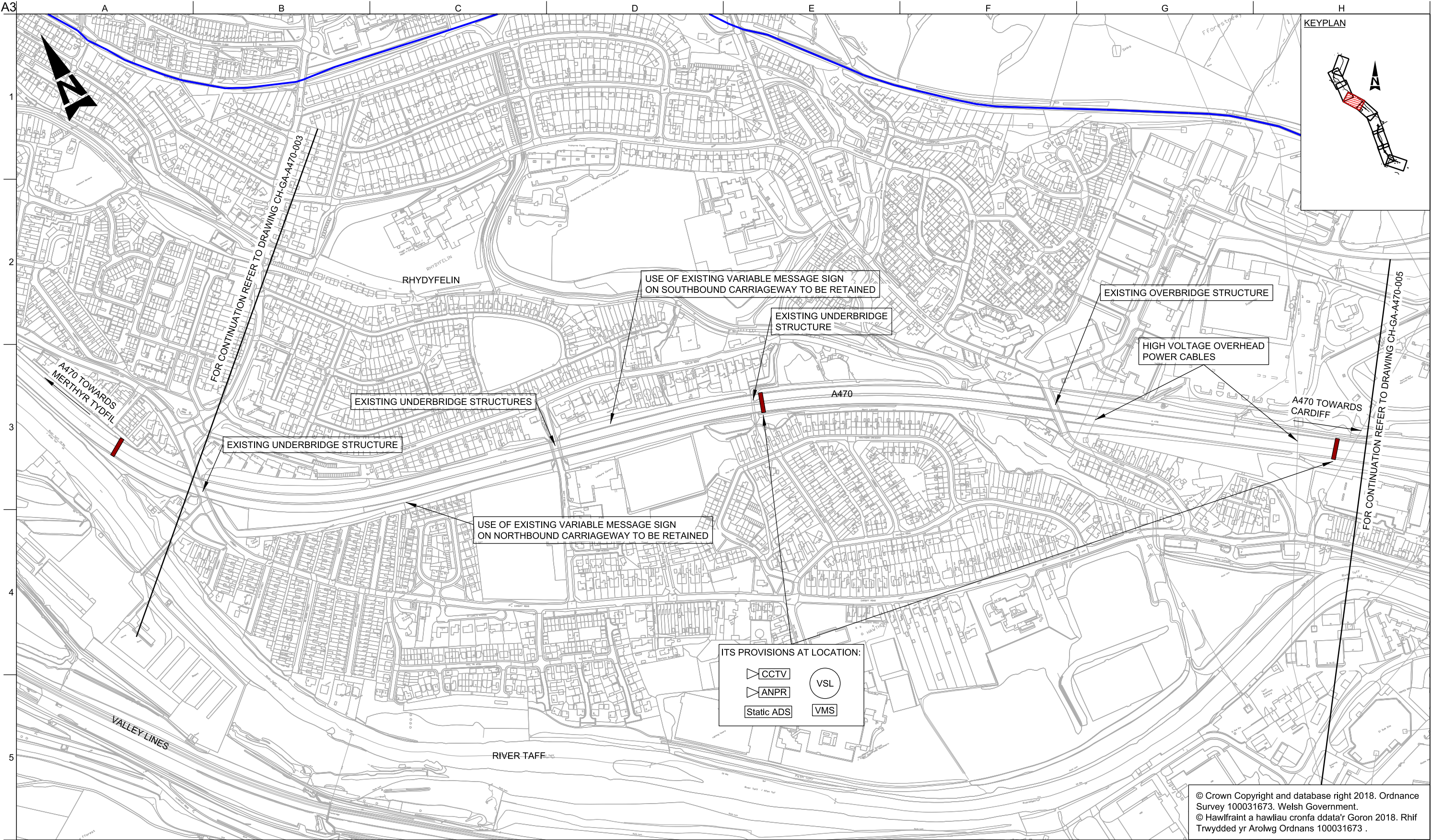
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- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
 - PROPOSED OVERHEAD GANTRY
 - PROPOSED ADAPTIVE SIGNALING

- NOTES**
- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
 - LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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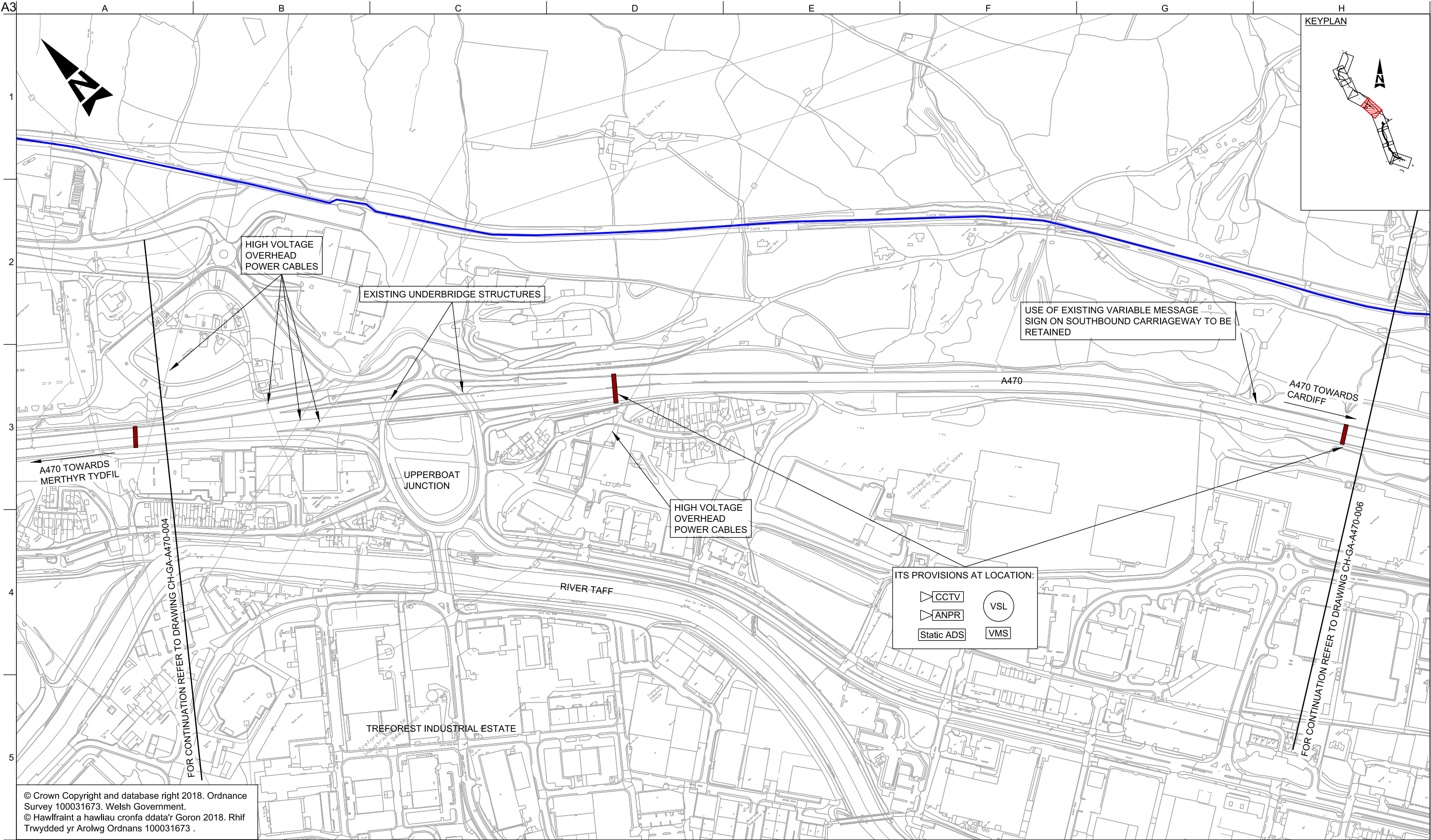
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LEGEND

- PROPOSED EDGE OF CARRIAGEWAY
- PROPOSED STOP LINE
- PROPOSED FOOTWAY/CYCLEWAY
- PROPOSED ROAD MARKING
- PROPOSED STRUCTURE
- NATIONAL CYCLE NETWORK
- ACTIVE TRAVEL WALES ROUTE
- PROPOSED OVERHEAD GANTRY
- PROPOSED ADAPTIVE SIGNALING

NOTES

- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
- LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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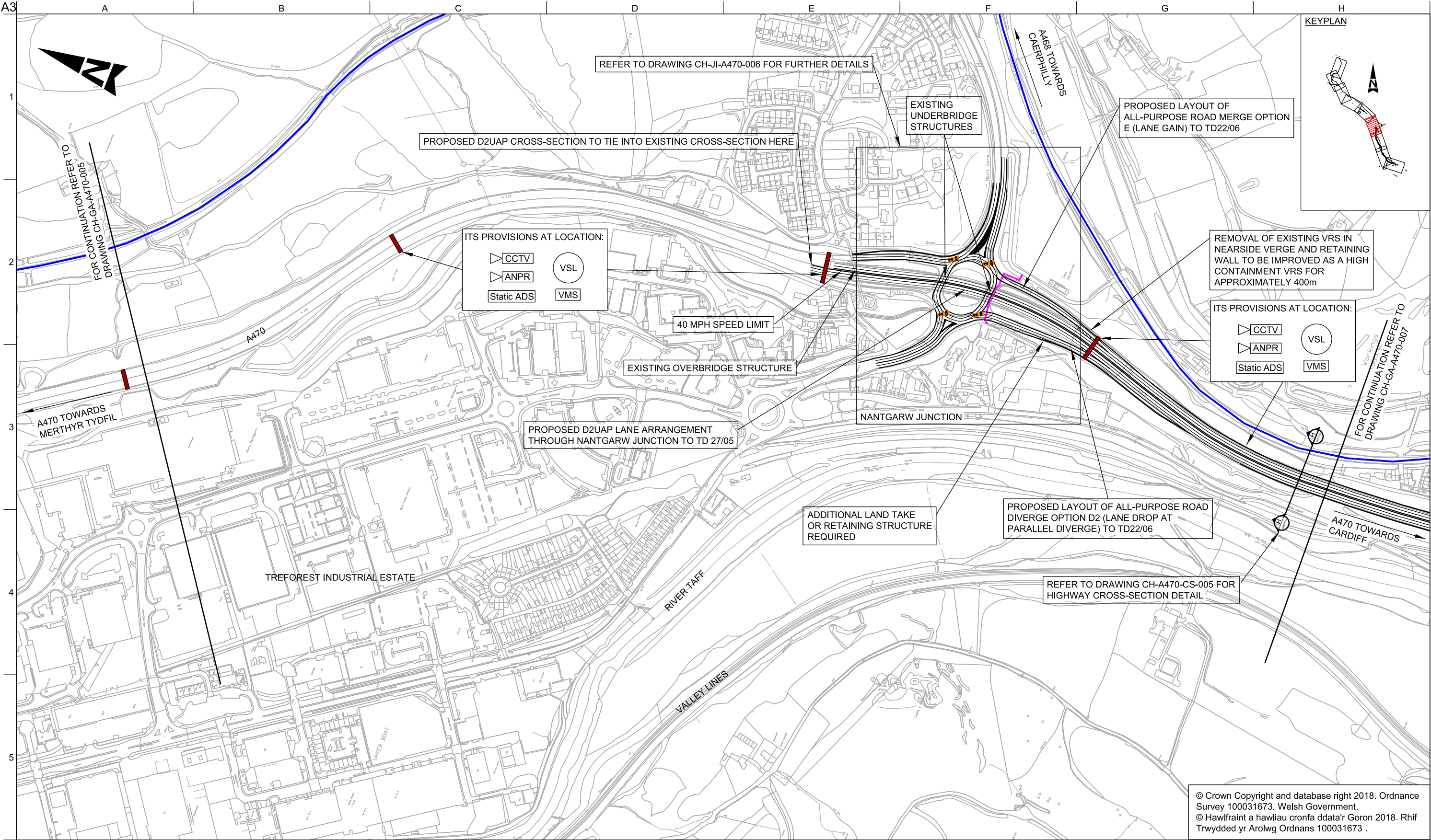
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- LEGEND**
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 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
 - PROPOSED OVERHEAD GANTRY
 - PROPOSED ADAPTIVE SIGNALING

- NOTES**
- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
 - LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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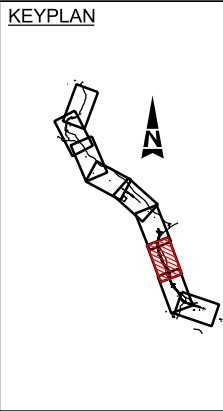
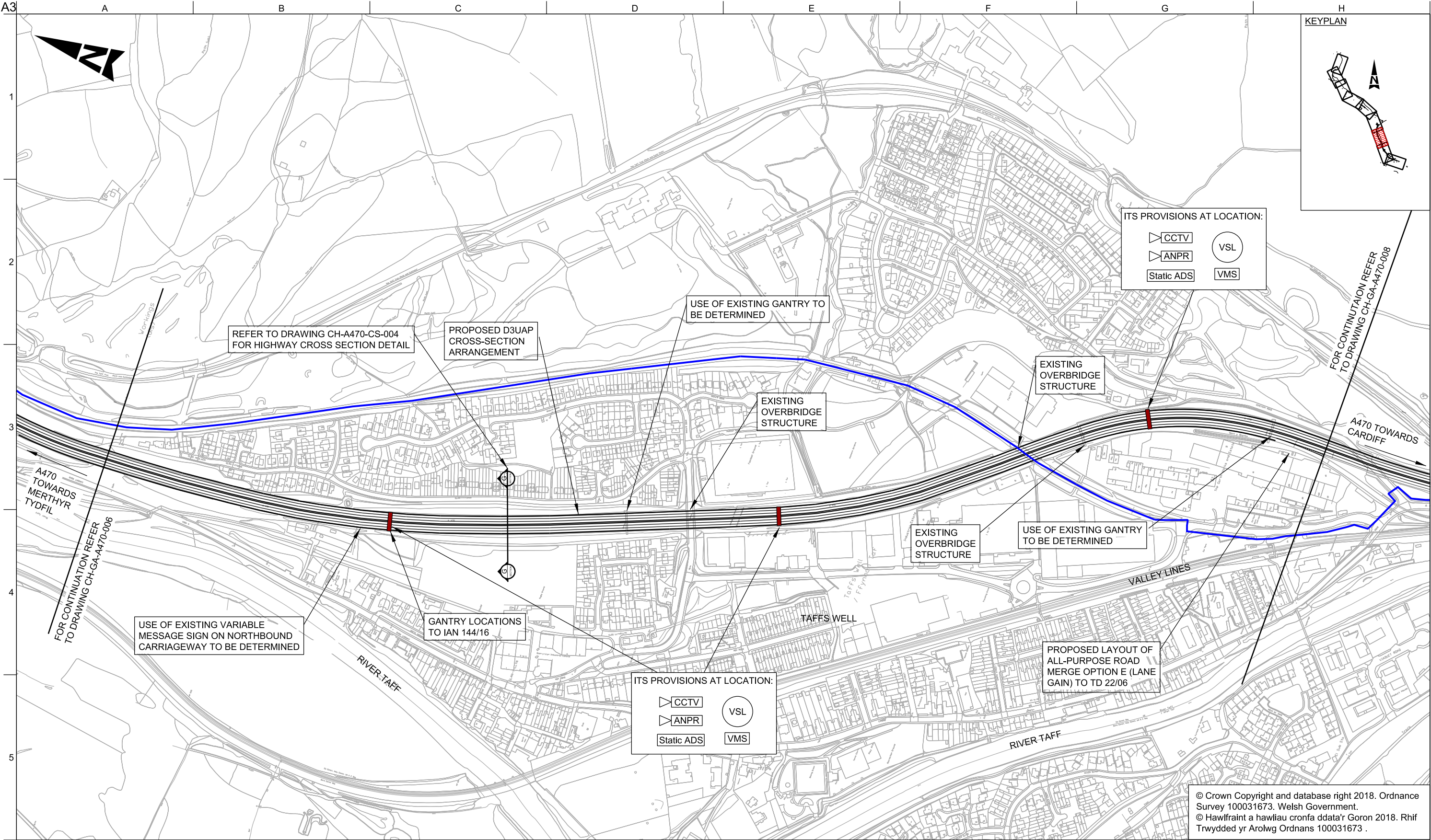
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LEGEND

- PROPOSED EDGE OF CARRIAGEWAY
- PROPOSED STOP LINE
- PROPOSED FOOTWAY/CYCLEWAY
- PROPOSED ROAD MARKING
- PROPOSED STRUCTURE
- NATIONAL CYCLE NETWORK
- ACTIVE TRAVEL WALES ROUTE
- PROPOSED OVERHEAD GANTRY
- PROPOSED ADAPTIVE SIGNALING

NOTES

- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
- LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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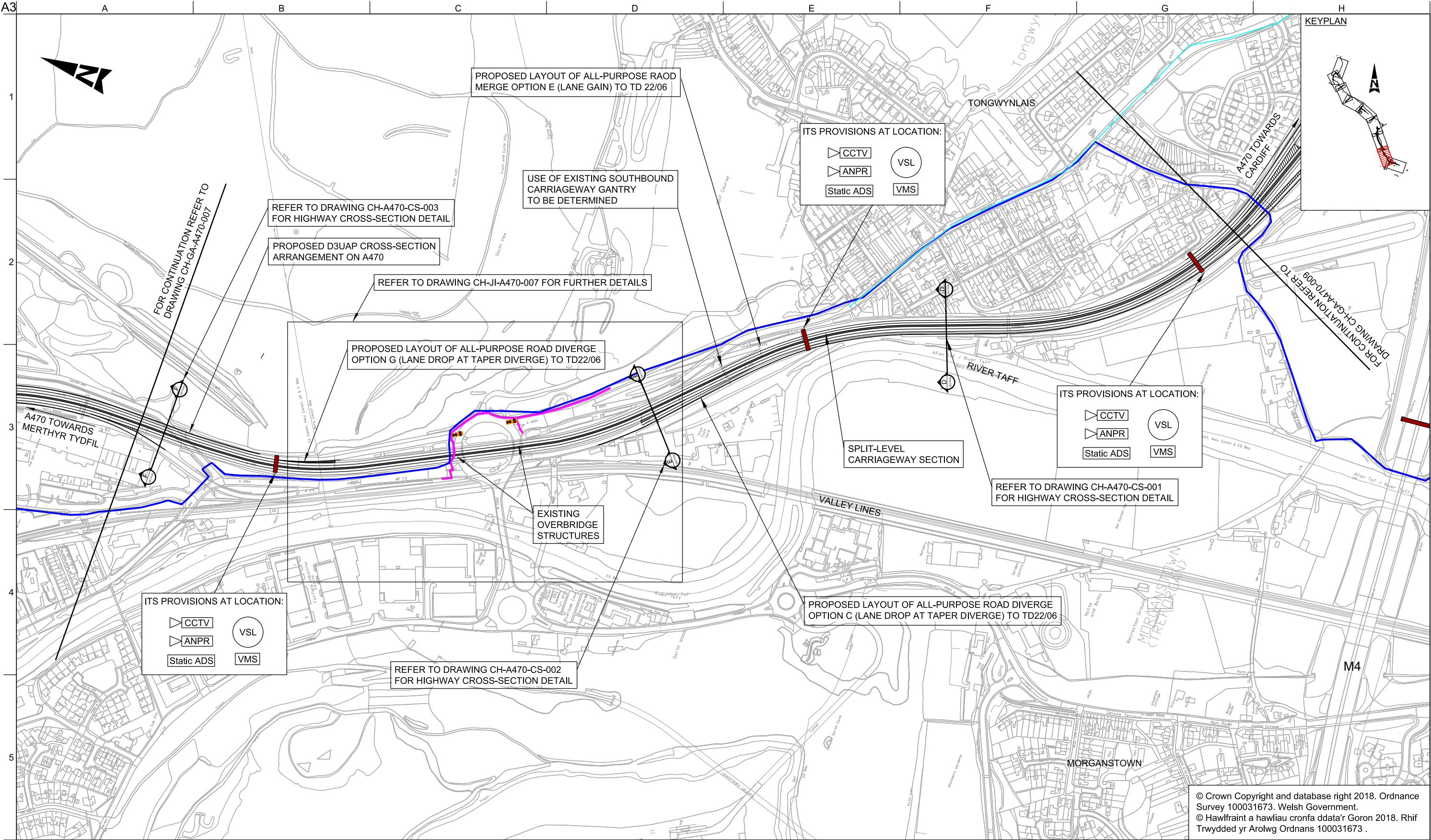
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- PROPOSED STOP LINE
- PROPOSED FOOTWAY/CYCLEWAY
- PROPOSED ROAD MARKING
- PROPOSED STRUCTURE
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NOTES

- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
- LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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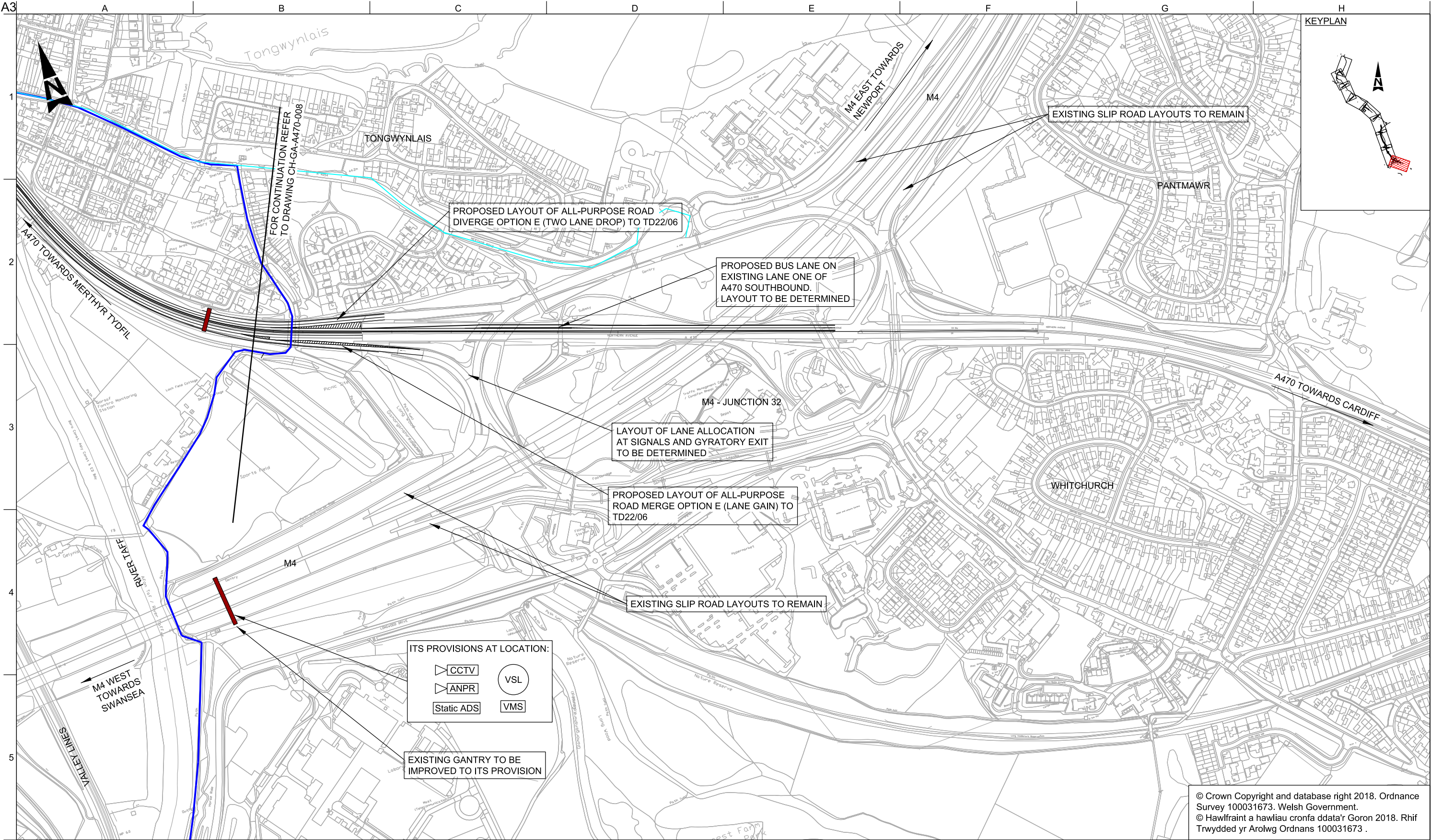
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 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
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 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
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 - PROPOSED ADAPTIVE SIGNALING

- NOTES**
- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
 - LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

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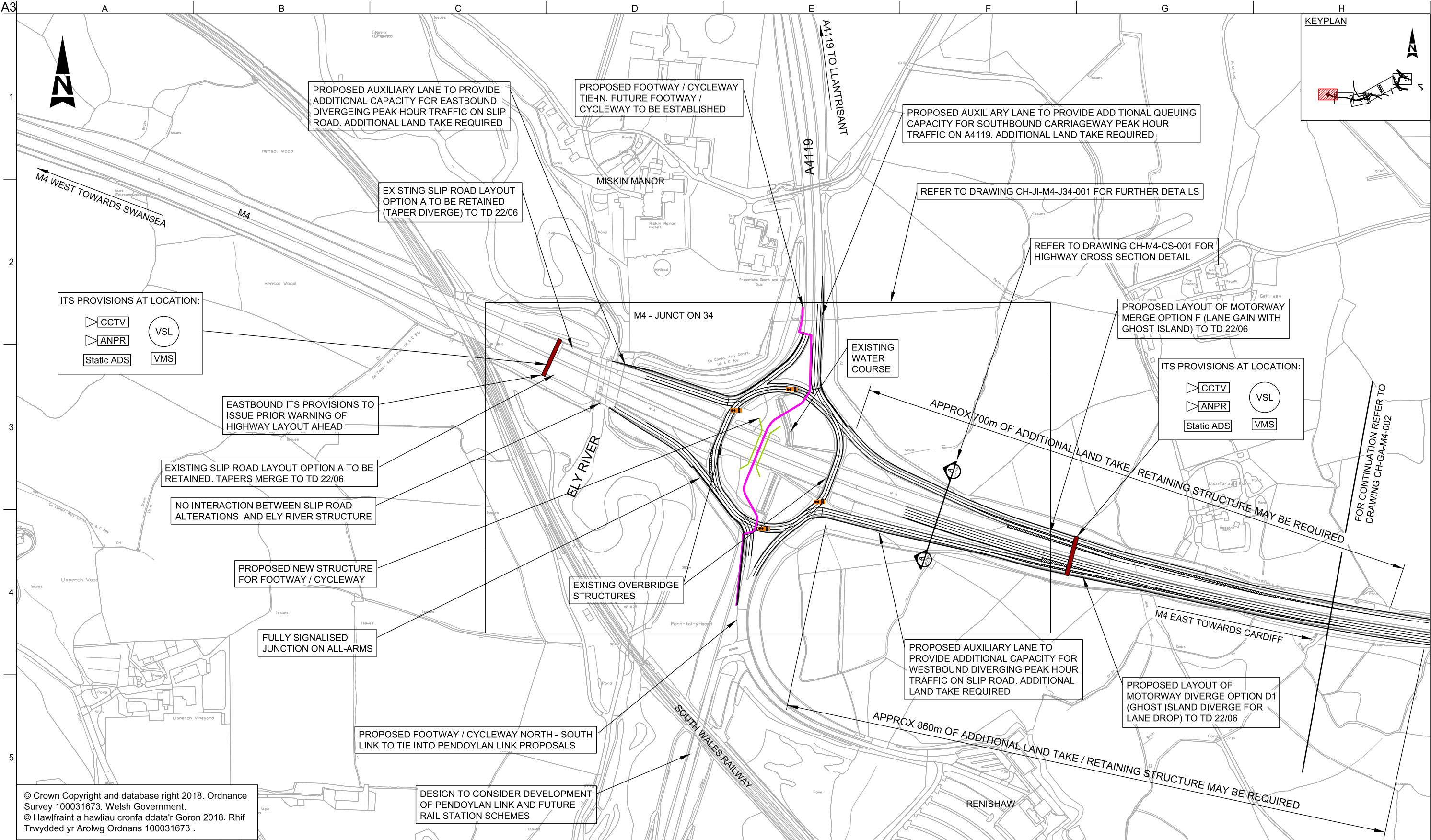
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GENERAL ARRANGEMENT
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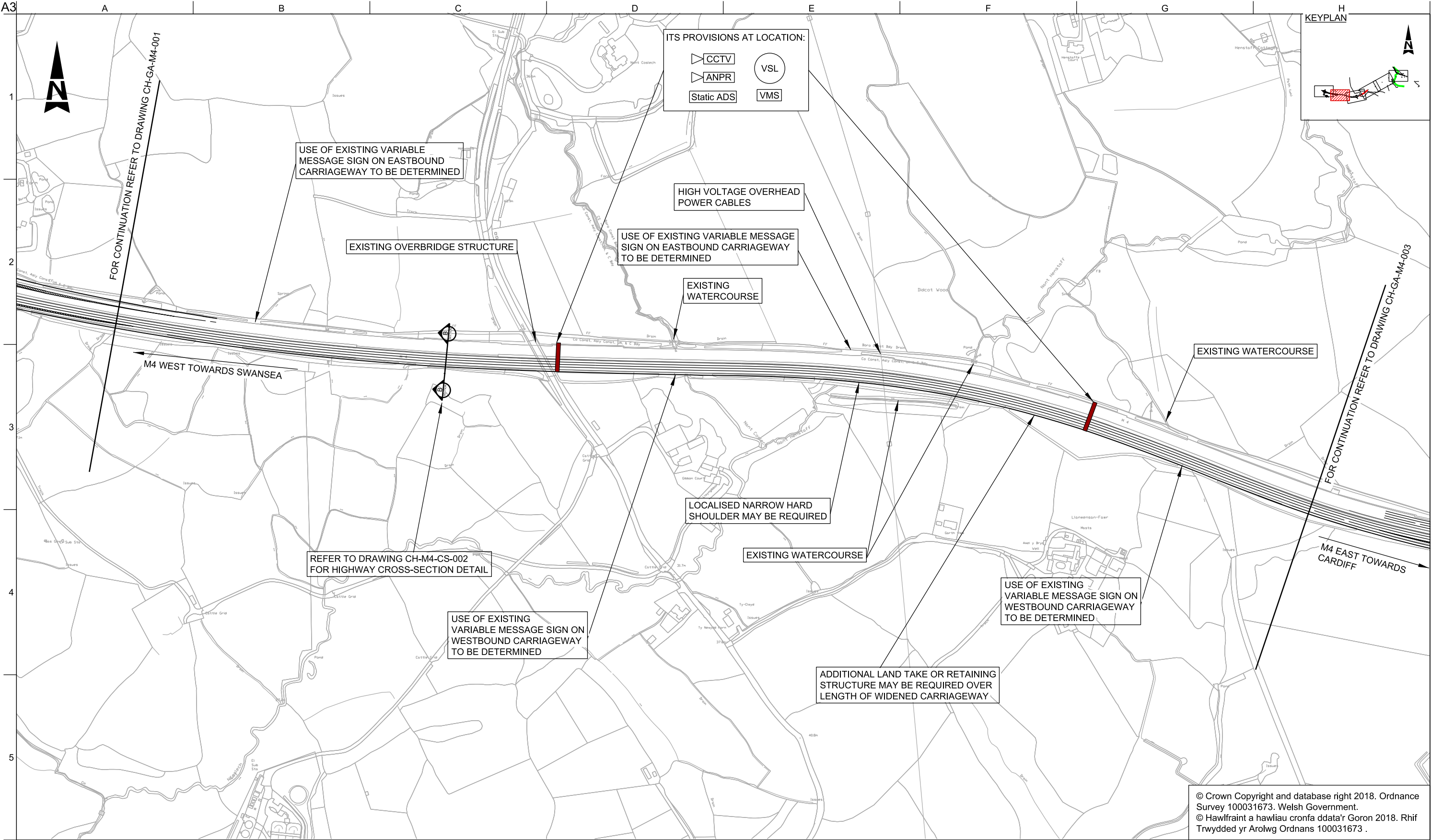
Drawing Status
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Job No 261240	Drawing No CH-GA-A470-009	Issue P01
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Appendix E

M4 General Arrangement and Junction Improvement Drawings





- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
 - PROPOSED OVERHEAD GANTRY
 - PROPOSED ADAPTIVE SIGNALING

NOTES

1. LAYOUTS TO BE VERIFIED AT A LATER STAGE.

2. LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

P01	23/04/19	RJ	TE	GE
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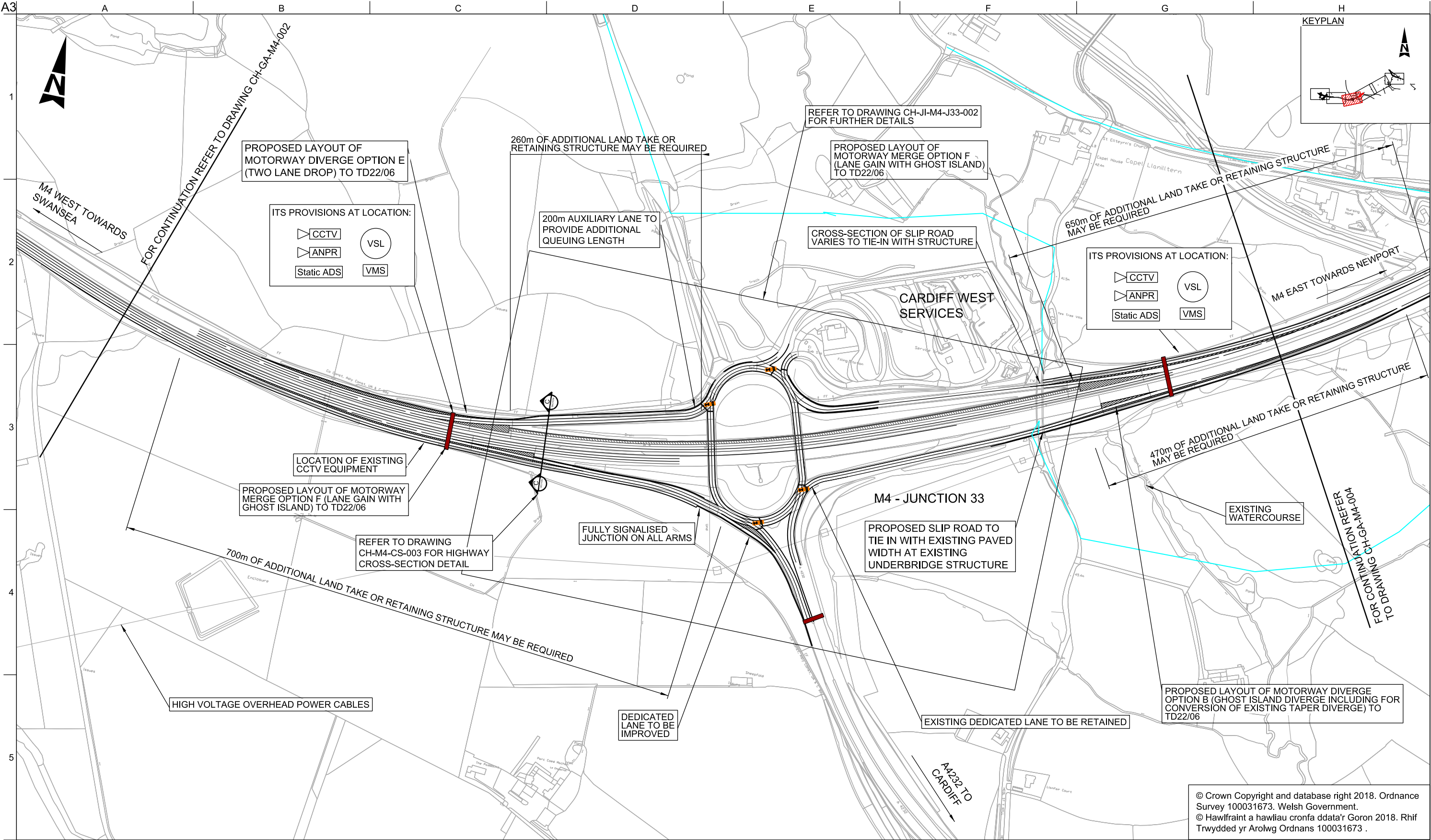
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GENERAL ARRANGEMENT
SHEET 2 OF 6

Drawing Status
Concept Design

Job No
261240

Drawing No
CH-GA-M4-002

Issue
P01



- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
 - PROPOSED OVERHEAD GANTRY
 - PROPOSED ADAPTIVE SIGNALING

- NOTES**
- LAYOUTS TO BE VERIFIED AT A LATER STAGE.
 - LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

P01	23/04/19	RJ	TE	GE
CONCEPT DESIGN				
Issue	Date	By	Chkd	Appd

Client
Welsh Government

Job Title
A470/M4 WeITAG
Stage 2

Scale at A3
1:5000

Discipline
Highways

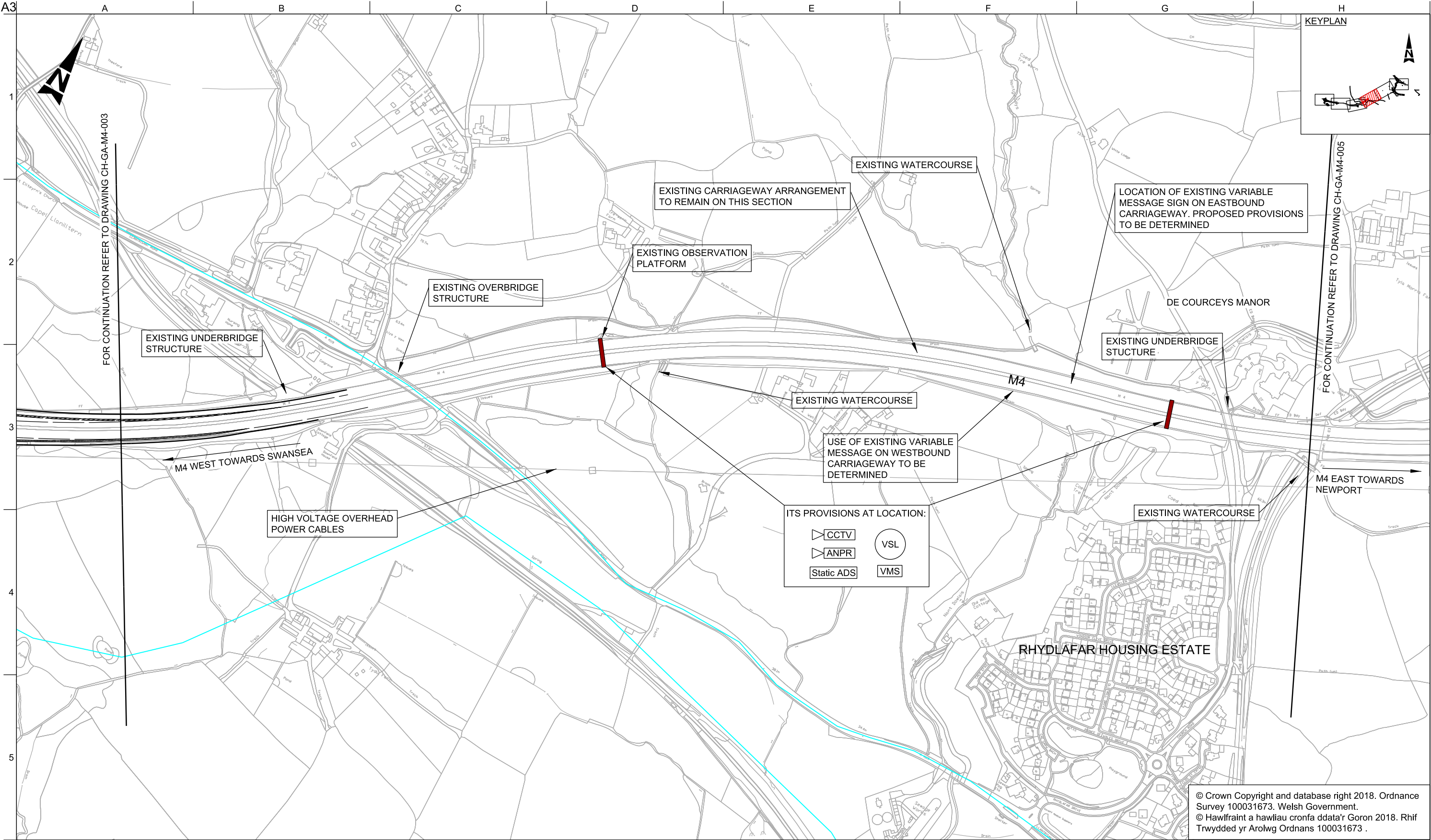
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Drawing Title
M4 IMPROVEMENTS
GENERAL ARRANGEMENT
SHEET 3 OF 6

Drawing Status
Concept Design

Job No 261240	Drawing No CH-GA-M4-003	Issue P01
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- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
 - PROPOSED OVERHEAD GANTRY
 - PROPOSED ADAPTIVE SIGNALING

- NOTES**
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 - LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

P01	23/04/19	RJ	TE	GE
CONCEPT DESIGN				
Issue	Date	By	Chkd	Appd

Client
Welsh Government

Job Title
A470/M4 WeITAG
Stage 2

Scale at A3
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Discipline
Highways

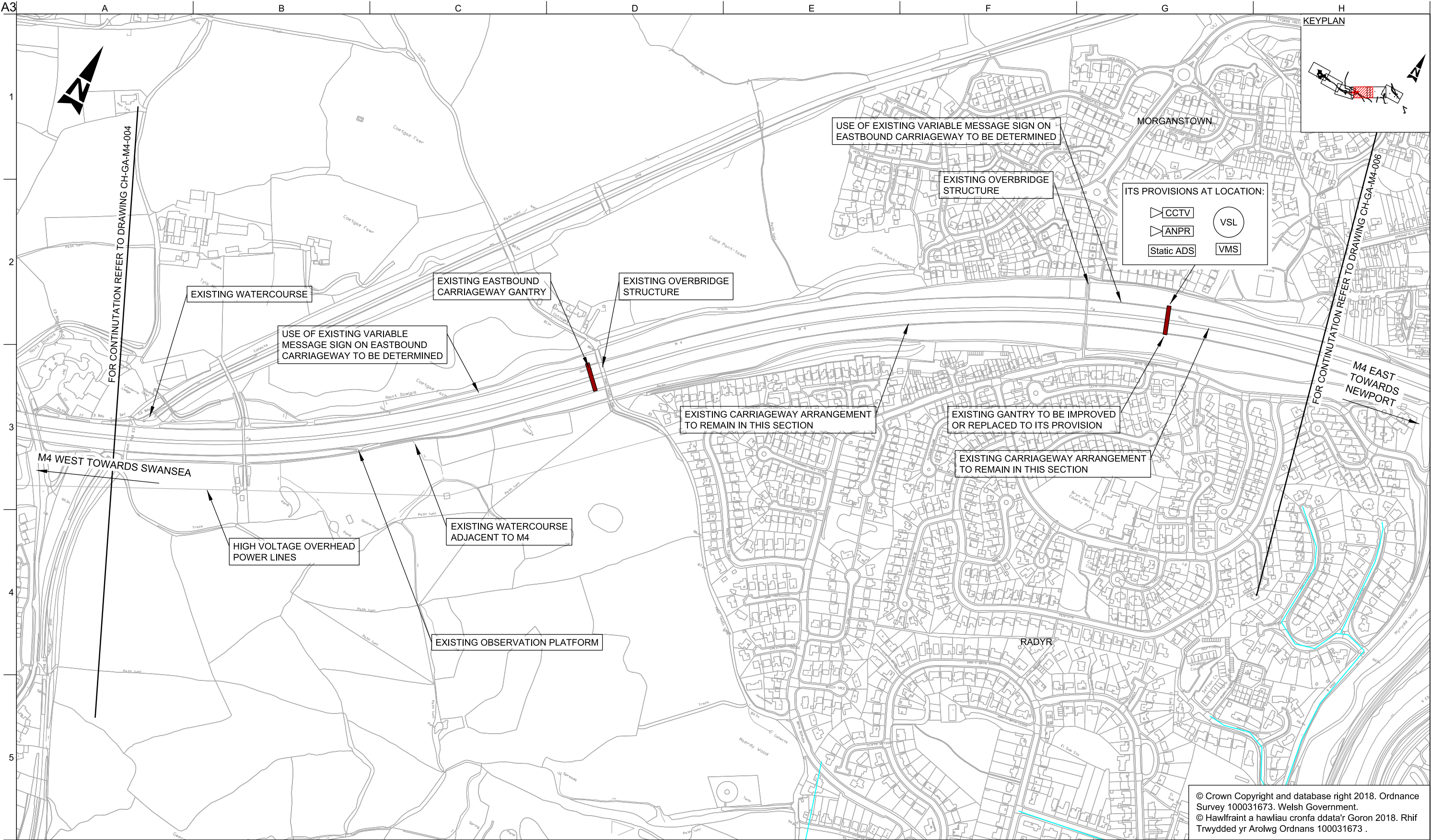
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Drawing Title
M4 IMPROVEMENTS
GENERAL ARRANGEMENT
SHEET 4 OF 6

Drawing Status
Concept Design

Job No 261240	Drawing No CH-GA-M4-004	Issue P01
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- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
 - NATIONAL CYCLE NETWORK
 - ACTIVE TRAVEL WALES ROUTE
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 - PROPOSED ADAPTIVE SIGNALING

- NOTES**
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 - LAYOUTS BASED ON OBSERVED AND/OR MODELLED (SEWTM) TRAFFIC FLOWS AVAILABLE IN 2018.

P01	23/04/19	RJ	TE	GE
CONCEPT DESIGN				
Issue	Date	By	Chkd	Appd

Client
Welsh Government

Job Title
A470/M4 WeITAG
Stage 2

Scale at A3
1:5000
Discipline
Highways

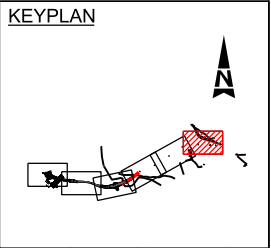
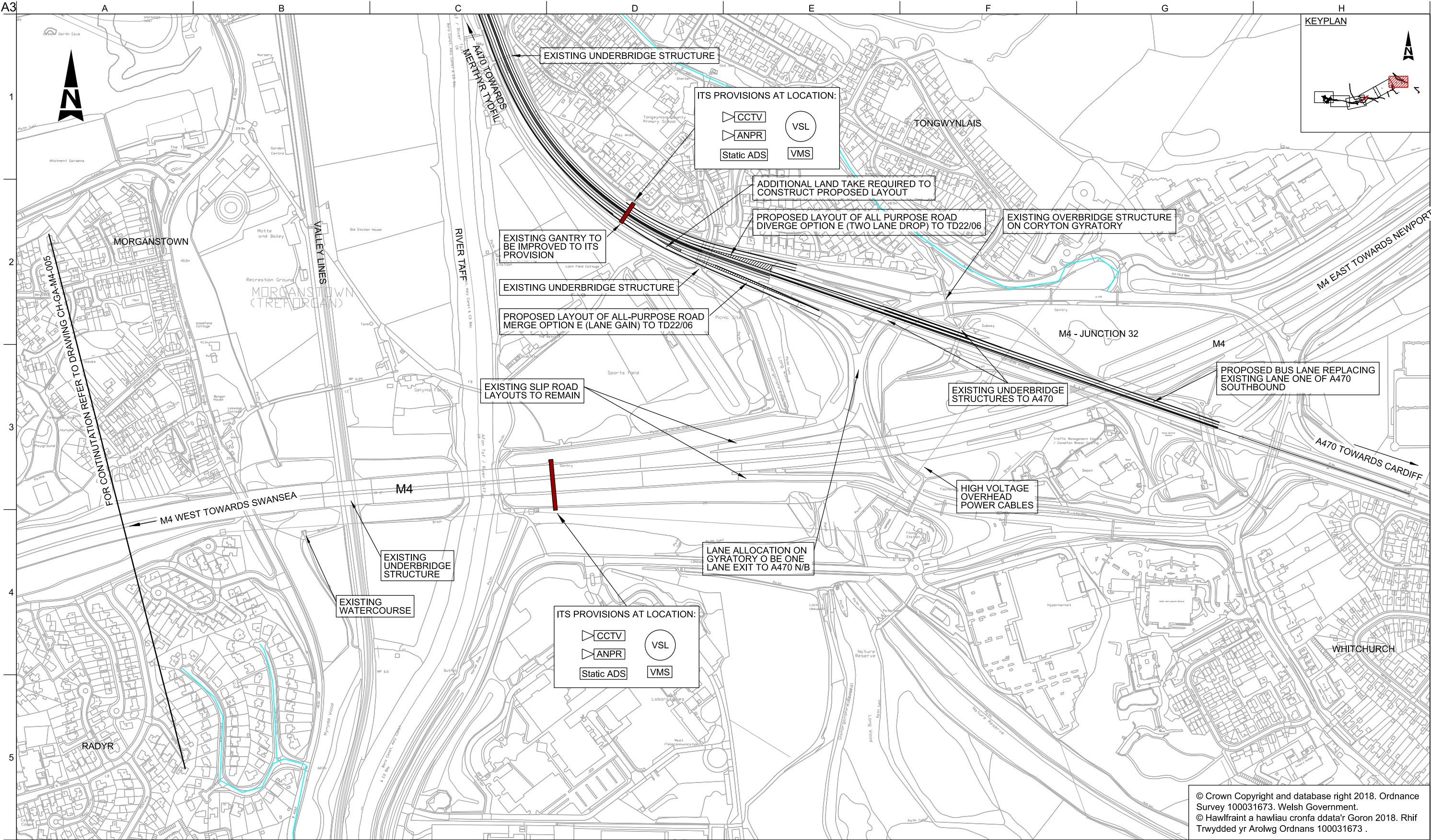
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Drawing Title
M4 IMPROVEMENTS
GENERAL ARRANGEMENT
SHEET 5 OF 6

Drawing Status
Concept Design

Job No 261240	Drawing No CH-GA-M4-005	Issue P01
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- LEGEND**
- PROPOSED EDGE OF CARRIAGEWAY
 - PROPOSED STOP LINE
 - PROPOSED FOOTWAY/CYCLEWAY
 - PROPOSED ROAD MARKING
 - PROPOSED STRUCTURE
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P01	23/04/19	RJ	TE	GE
CONCEPT DESIGN				
Issue	Date	By	Chkd	Appd

Client
Welsh Government

Job Title
A470/M4 WeITAG
Stage 2

Scale at A3
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Discipline
Highways

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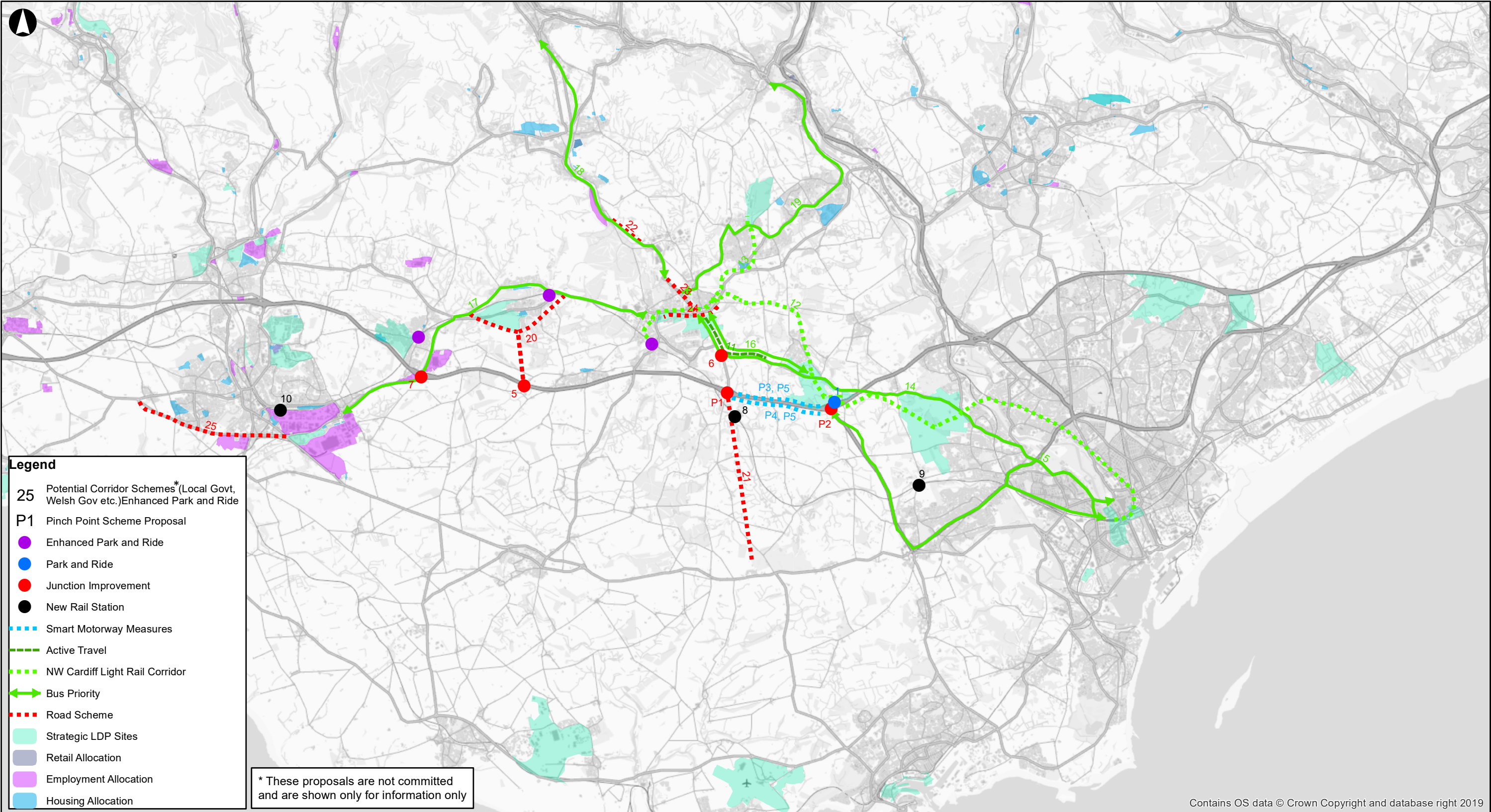
Drawing Title
**M4 IMPROVEMENTS
GENERAL ARRANGEMENT
SHEET 6 OF 6**

Drawing Status
Concept Design

Job No 261240	Drawing No CH-GA-M4-006	Issue P01
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Appendix F

Map of Priority Design Schemes and Other Relevant Transport Proposals in Study Corridor



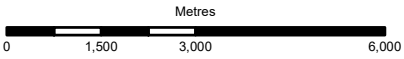
- 1 | M4 J33 Park and Ride
- 2 | Enhanced Park and Ride - Pontyclun
- 3 | Enhanced Park and Ride - Llanharan
- 4 | Enhanced Park and Ride - Pencoed
- 5 | M4 new J34A
- 6 | A4119 Castell Mynach junction 'Make Better Use'
- 7 | M4 J35 'Make Better Use' Improvements
- 8 | New Rail Station - Miskin/M4 J34
- 9 | New Rail Station - St Fagans
- 10 | New Rail Station - Brackla
- 11 | Active Travel
- 12 | North West Cardiff Corridor Rapid Transit (Metro extension) Cardiff - Llantrisant
- 13 | North West Cardiff Corridor Rapid Transit (Metro extension) Pontyclun - Beddau
- 14 | Bus Priority - Talbot Green/Pontyclun to Cardiff

- 15 | Western Bus Corridor (A48, A4119 and A4232 to M4 J33)
- 16 | Rapid Bus Link from J33 to A473
- 17 | Bus Priority - Bridgend to Llantrisant / Talbot Green
- 18 | Bus Priority - Tonypany to Llantrisant / Talbot Green
- 19 | Cross-Valley Bus Rapid Transit Extension - Pontypridd to Llantrisant
- 20 | A473 Llanharan Traffic Relief
- 21 | Junction 34 to A48/Cardiff Airport
- 22 | A4119 Coed Ely Improvements
- 23 | A4119 Corridor Junction Capacity Improvements 'Make Better Use'
- 24 | A473 Talbot Green improvements
- 25 | A48/A473 Bridgend Corridor Improvements
- P1 | M4 J34 - Signalisation and gyratory widening**
- P2 | M4 J33 - Improved signal control by signalling A4232 and Services entries**
- P3 | J34-J33 - Improved lane allocation on EB carriageway, 2 lanes off/2 lanes ahead**
- P4 | J33-J34 - Provide additional lane on existing 3 lane WB carriageway**
- P5 | VMS/ITS Improvements**

P0	2019-07-12	GD	GE	GE
Issue	Date	By	Chkd	Appd

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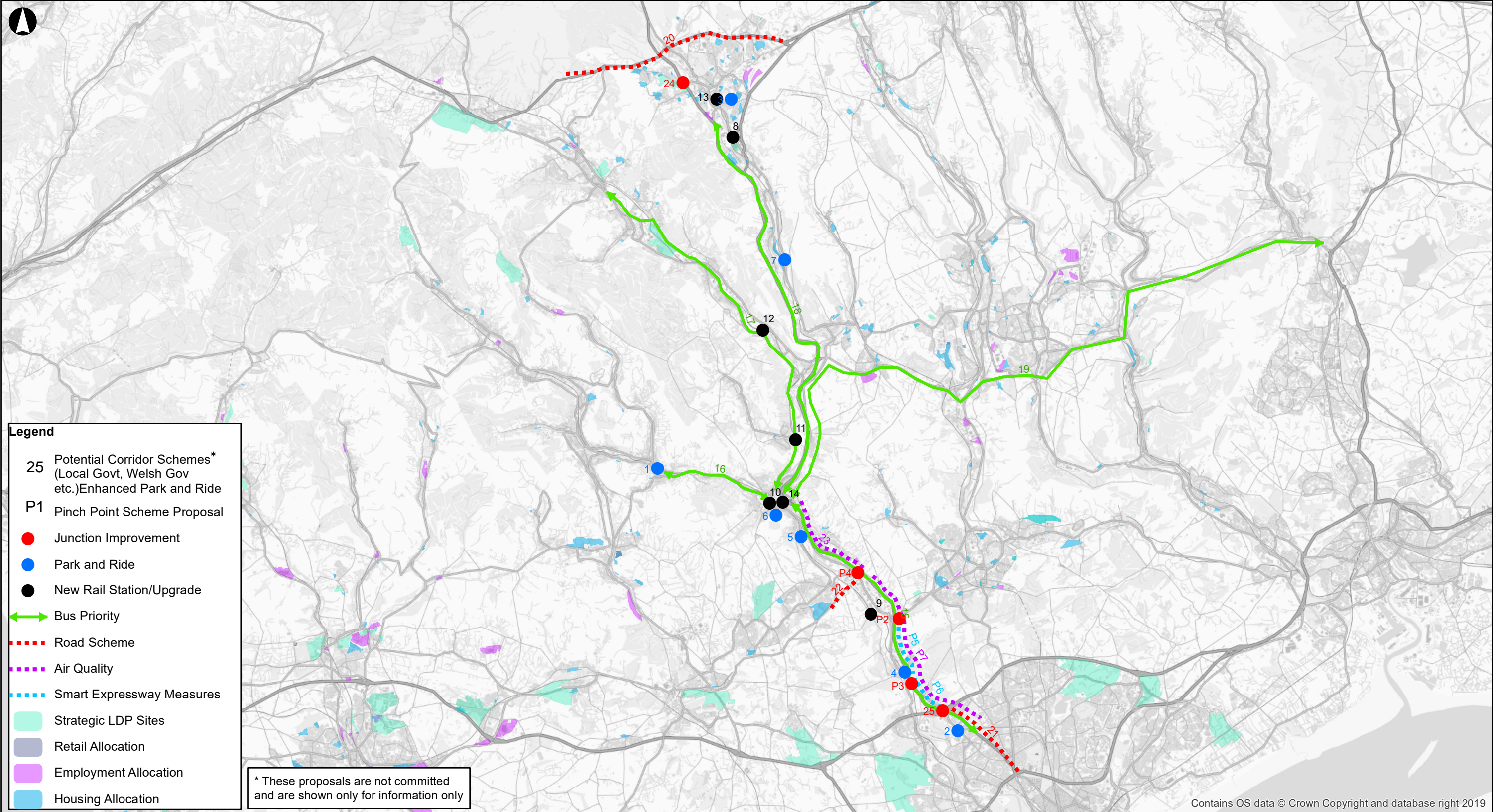
Job Title
M4 A470 WelTAG Stage Two Corridor Study

M4 Corridor Pinch Point Proposals

Scale at A3

1:120,000

Job No 261240-00	Drawing Status Preliminary
Drawing No 001	Issue P0



- 1 | Porth Metro Interchange P&R
- 2 | Coryton rail station P&R
- 3 | Merthyr Tydfil Metro station P&R
- 4 | Taffs Well Metro station P&R
- 5 | Trefforest Metro station P&R
- 6 | Pontypridd Metro station P&R
- 7 | A470 Northern Corridor bus P&R
- 8 | New Metro Station – Merthyr (Hoover)
- 9 | New Metro station - Nantgarw
- 10 | New Metro station – Pontypridd interchange
- 11 | New Metro station - Glyngoch
- 12 | New Metro station - Ynysboeth
- 13 | Merthyr bus/rail interchange (new Metro station)
- 14 | Pontypridd Metro station upgrade
- 15 | Bus priority – Cardiff to Pontypridd
- 16 | Bus priority - Pontypridd to Porth
- 17 | Bus Priority - Pontypridd to Aberdare

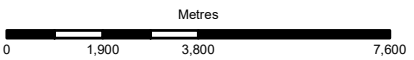
- 18 | Bus priority - Pontypridd to Merthyr
- 19 | Cross-Valley Bus Rapid Transit (Pontypridd – Ystrad Mynach – Newbridge – Pontypool)
- 20 | A465 Heads of the Valleys Improvements
- 21 | A470 Cardiff Gabalfa - Coryton 'Make Better Use' improvements
- 22 | A473 Trefforest Industrial Estate new east-west road link
- 23 | Reduced Speed Limit (Upper Boat to Pontypridd) – Air Quality
- 24 | A470 Swansea Road (Trago Mills) roundabout traffic management
- 25 | Major traffic management and control measures – Coryton Interchange

- P1 | VMS/ITS Improvements**
- P2 | Nantgarw Interchange - Signalisation, widening of gyratory/on approach**
- P3 | Taffs Well Interchange - Signalisation of SB off-slip and cycle improvements**
- P4 | Upper Boat Interchange - Revised traffic management to address queues**
- P5 | Taffs Well to Nantgarw - 3 narrow lanes on 2-lane sections NB and SB**
- P6 | Coryton to Taffs Well - Reallocation of 3 SB lanes and narrow lanes NB north of Coryton**
- P7 | Pontypridd to Coryton - Reduced speed limit to address air quality**

P0	2019-07-08	GD	GE	GE
Issue	Date	By	Chkd	Appd

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Welsh Government

Job Title
M4 A470 WelTAG Stage Two Corridor Study

A470 Corridor Pinch Point Proposals

Scale at A3
1:150,000

Job No 261240-00	Drawing Status Preliminary
Drawing No 001	Issue P0