HD Ltd

ISLAND FARM, BRIDGEND

DEVELOPMENT TRAFFIC DISTRIBUTION ASSESSMENT

19-00637/TN/03

April 2021

CORUN
Transport and Highway Engineering

TRANSPORT NOTE

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Introduction

This Transport Note ('TN') has been produced by Corun Associates Ltd (Corun) as part of the Island Farm development site proposals in Bridgend.

The Island Farm site benefits from outline consent (planning ref. P/08/1114/OUT) for a proposal including a number of sports facilities, major stadium, tennis centre and office space. Since being consented however, revised proposals have been developed for the Island Farm site.

The purpose of this note is to provide an assessment of the development traffic distribution for both the committed and revised Island Farm development proposals, as requested by Bridgend County Borough Council (BCBC) in their email of 3rd February 2021 (a copy of which is contained at **Appendix A)**.

Original Island Farm Consented Scheme (Ref: P/08/1114/OUT)

The original consented Island Farm proposal comprised a number of sports facilities including a major stadium, tennis centre and office space. As part of application reference P/14/354/RES, outline planning approval was granted for the tennis centre to include 7 indoor courts, 12 outdoor courts and ancillary uses.

Revised Island Farm Development Proposal

A revised proposal has been discussed with the Local Highway Authority to change the proposals on Island Farm to accommodate circa 733 dwellings (40dph), 2 schools, a commercial/community area to serve the site, and a tennis centre.

The revised Island Farm site (along with the neighbouring residential Craig Y Parcau development) is now being promoted in the emerging Bridgend County Borough Council (BCBC) replacement Local Development Plan (LDP) for residential-led development.

Revised Tennis Centre Proposal (Ref: P/20/995/FUL)

A revised tennis centre application has been submitted to include 6 indoor courts, 4 outdoor courts and ancillary uses.

Vehicular Access Arrangments

Island Farm Coommitted Development

The committed proposals included two separate vehicle access points into the Island Farm development, as follows:

- **Committed Site Access A** – A48 proposed new access point.
- **Committed Site Access B** – B4265 / Technology Drive existing junction.

Within the consented scheme Site Access A was proposed as the main access serving the development, with Site Access B providing main access for the Science Park part of the proposals.

Island Farm Revised Development

The revised proposals include three separate vehicle access points into the Island Farm development, as follows:

- **Revised Site Access A** – A48 proposed new access point.
- **Revised Site Access B** – B4265 / Technology Drive existing junction.
- **Revised Site Access C** – B4265 / Ewenny Road existing junction.

The access arrangements for each revised element of the proposed development are discussed later in this note.

Distribution Assessment

Traffic Distribution Network

A traffic assessment for the consented scheme was outlined within the supporting Environmental Statement for the application, Appendix 6.1, Movement Assessment (prepared by Opus).

As requested by BCBC, the development traffic for this assessment has been distributed over the same junctions that were assessed as part of the consented scheme. These junctions are as follows:

- **Junction 1** – Broadlands Roundabout.
- **Junction 2** – A48 Proposed Site Access **('Site Acces A').**
- **Junction 3** – Ewenny Roundabout.
- **Junction 4** – B4265 / Technology Drive Junction **('Site Acces B').**
- **Junction 5** – B4265 / Ewenny Road Junction **('Site Acces C').**
- **Junction 6** – Picton Close Roundabout.
- **Junction 7** – Waterton Cross Roundabout.
- **Junction 8** – Coychurch Roundabout.
- **Junction 9** – Bocam Park Roundabout.

A diagram identifying this distribution network is contained at **Appendix B** (*Diagram Ref: 1*).

Baseline Traffic Flows

Under normal circumstances new traffic data would have been collected at each of the junctions to provide an updated baseline traffic flow position. The ongoing Covid pandemic however has impacted on traffic flows and patterns across the country, leading to difficulties in the collection of new representative traffic data to support any updated assessments for the revised proposals on the Island Farm site.

BCBC have requested that this distribution note be prepared for the purposes of making the LDP as robust as possible. Analysis has identified that the traffic flows used in the consented Island Farm application are far higher than the current (even pre-Covid) situation. As such the original Opus report can be considered to be very robust. As agreed by BCBC, the baseline traffic flows used for the consented scheme assessment have therefore been taken as the baseline flows for this assessment.

The consented assessment work included a distribution of committed development traffic flows across the study junction network. As these committed development flows were developed in 2009, these flows would now be expected on the network, and can will be considered to form part of the 'Baseline Flows' scenario.

A diagram showing these 'Baseline Flows' for the AM and PM peak hour periods is contained at **Appendix B** (*Diagram Ref: 2A and 2B*). These AM and PM peak hour periods have been based on those used in the consented scheme assessment, and represent the periods of 0800 to 0900 and 1700 to 1800 respectively.

Forecast Year Traffic Flows

BCBC has requested the traffic distribution assessment should cover a forecast year of 2033. The Baseline traffic flows have therefore been adjusted to represent a 2033 year using TEMPro (version 7.2b) growth factors.

TEMPro growth factors for the period between 2021 and 2033 covering the Bridgend area, using NTM traffic growth calculations (NTM AF15 Dataset) are identified in **Table 1** below.

Table 1: 2021 to 2033 TEMPro growth factors for Bridgend area

Road Type	AM Period Growth Factor	PM Period Growth Factor
Trunk	**1.1085**	**1.1092**
Principal	**1.0967**	**1.0974**
Minor	**1.1044**	**1.1051**

A diagram showing these 2033 Baseline flows for the AM and PM peak hour periods is contained at **Appendix B** (*Diagram Ref: 3A and 3B*).

Craig Y Parcau Proposal Traffic Flows

A proposal for 115 residential dwellings on Craig Y Parcau (a site situated on the southwest periphery of Bridgend near the Island Farm site) is also being promoted through the Local Development Plan. Development flows for this proposal have also been considered in the distribution assessment.

Expected trip generation has been taken from the supporting Transport Strategic Appraisal for the proposal (prepared by Corun Associates), with flows distributed as per the gravity model for residential sites

developed for the Island Farm Revised Development distribution (discussed later in this note). Vehicle access to the site is proposed from a new southern arm developed on the Broadlands Roundabout (Junction 1 of this assessment).

A diagram showing the distributed Craig Y Parcau flows for the AM and PM peak hour periods is contained at **Appendix B** (*Diagram Ref: 4A and 4B*).

Consented Traffic Flows

Consented traffic flows (and their distribution through the network), have been based on the trip generation within the supporting Environmental Statement for the application.

A diagram showing these Consented Development flows for the AM and PM peak hour periods is contained at **Appendix B** (*Diagram Ref: 5A and 5B*).

Island Farm Revised Proposal Traffic Flows

The revised proposals considered for the Island Farm development are outlined in **Table 2** below.

Table 2: Island Farm Revised Development proposals

Development Type	Description	Vehicle Access Point
Residential Units	733 Residential Units	Site Access A
Special School	Relocated Heronsbridge School. Based on max occupancy of 300 pupils	Site Access B
Primary School	Proposed new one form entry school. Based on max occupancy of 255 pupils	Site Access A
Commercial / Community Development	A commercial hub intended to service the site and local areas. No external trips are expected to be generated from this unit	NA
Tennis Centre – Tennis Courts	10 court tennis centre development	Site Access C
Tennis Centre – Gym *	715m^2 GFA gym associated as part of wider tennis centre development	Site Access C
Tennis Centre – Office *	287m^2 GFA office use associated with tennis centre development	Site Access C
Tennis Centre – Café *	445m^2 GFA cafe associated as part of wider tennis centre development	Site Access C

** Standalone units within the wider Tennis Centre development*

For the non-tennis centre units of the Island Farm site, the trip generation from each has been based on the October 2020 Transport Strategic Appraisal report to support these proposals (prepared by Corun Associates).

For the tennis centre related units, the trip generation has been based on the December 2020 Transport Assessment report to support the application (prepared by Corun Associates).

It should be noted that the trip rates developed for each revised Island Farm unit do not include any reductions to account for the high proportion of internalised trips expected between each (i.e. trips that stay within the site and do not impact on the wider highway network), and the trip forecast methodology used provides a highly robust assessment scenario. This allows a more direct comparison with the original consent. The assessment is therefore very much a worst-case sensitivity test. If the Local Highway Authority draws from this that the results indicate a material impact, further assessment will be required using an appropriate trip discount.

Island Farm Distribution

Gravity modelling has been used to distribute the revised Island Farm trips across the distribution network. Two separate distribution models have been developed using Census data based on population density and distance from site, or commuting data (WF01BEW - Location of usual residence and place of work).

The population gravity model was applied to all non-residential units of the revised Island Farm proposals to represent where the greatest demand for use these non-commuting trips would be located.

The commuting gravity model was applied to the residential units only to represent the expected travel to work movements during each peak hour. The latest National Travel survey data (2019) suggests that just under a quarter of all trips made during these periods are for commuting, so a proportional split has been applied on this basis, with the remaining residential trips distributed using the population gravity model.

A detailed breakdown of the gravity model development process will be provided within a Transport Assessment to support the revised Island Farm application.

Diagrams showing the revised Island Farm development flows from each site access for the AM and PM peak hour periods are contained at **Appendix B** (*Diagram Ref: 6A to 6H*).

It should be noted that the Transport Assessment report prepared for the revised Tennis Centre proposals utilised a slightly different gravity model methodology to distribute trips, with the distribution only extended over the B4265 / Ewenny Road site access junction (J5) and the Ewenny Roundabout junction (J3). The gravity model identified within this Technical Note however has been developed to provide a consistent methodology to distribute all Island Farm trips across the wider study network. As such there will be some minor flow discrepancies between the revised Tennis Centre proposals Transport Assessment and this Technical Note.

Individual Development Category Flows

The total flows through each assessed junction for each development category over the AM and PM peak hours are identified in **Table 3** and **Table 4** respectively.

Table 3: Total vehicles through each junction for each development category (AM Peak Hour)

Assessment Network Junction	2021 Baseline	2033 Baseline	Craig Y Parcau	Consented Island Farm Development	Revised Island Farm Development
J1 – Broadlands Roundabout	1,655	1,814	2	196	141
J2 – A48 Proposed Site Access	1,971	2,160	30	440	582
J3 – Ewenny Roundabout	2,761	3,030	30	517	579
J4 – B4265 / Technology Drive Junction	804	888	0	327	287
J5 – B4265 / Ewenny Road Junction	660	729	0	0	82
J6 – Picton Close Roundabout	2,290	2,511	11	343	215
J7 – Waterton Cross Roundabout	3,089	3,405	11	347	213
J8 – Coychurch Roundabout	3,942	4,357	8	300	148
J9 – Bocam Park Roundabout	3,518	3,900	6	287	105

Table 4: Total vehicles through each junction for each development category (PM Peak Hour)

Assessment Network Junction	2021 Baseline	2033 Baseline	Craig Y Parcau	Consented Island Farm Development	Revised Island Farm Development
J1 – Broadlands Roundabout	2,074	2,274	10	222	99
J2 – A48 Proposed Site Access	2,157	2,367	44	536	487
J3 – Ewenny Roundabout	2,805	3,081	44	509	395
J4 – B4265 / Technology Drive Junction	716	791	0	245	114
J5 – B4265 / Ewenny Road Junction	577	637	0	0	104
J6 – Picton Close Roundabout	2,349	2,583	19	311	166
J7 – Waterton Cross Roundabout	3,226	3,555	19	315	164
J8 – Coychurch Roundabout	3,811	4,217	14	272	118
J9 – Bocam Park Roundabout	3,407	3,777	9	254	79

Without Island Farm Development Scenario

A 2033 forecast year scenario has been created to represent traffic flows across the distribution network with no Island Farm development traffic (either from the consented development, or from the revised proposals). This scenario includes Craig Y Parcau distributed traffic.

Table 5 identifies the total traffic expected through each junction for this scenario, with a diagram showing these flows for the AM and PM peak hour periods contained at **Appendix B** (*Diagram Ref: 7A and 7B*).

Table 5: Total vehicles through each junction for the 2033 No Island Farm Development scenario

Assessment Network Junction	2033 Without Island Farm Development Scenario	
	AM Peak Hour	PM Peak Hour
J1 – Broadlands Roundabout	1,816	2,284
J2 – A48 Proposed Site Access	2,190	2,411
J3 – Ewenny Roundabout	3,060	3,125
J4 – B4265 / Technology Drive Junction	888	791
J5 – B4265 / Ewenny Road Junction	729	637
J6 – Picton Close Roundabout	2,522	2,602
J7 – Waterton Cross Roundabout	3,416	3,574
J8 – Coychurch Roundabout	4,365	4,231
J9 – Bocam Park Roundabout	3,906	3,786

Consented Island Farm Development Scenario

A 2033 forecast year scenario has been created to represent traffic flows across the distribution assessment network to include the Consented Island Farm flows. This scenario includes Craig Y Parcau distributed traffic.

Table 6 identifies the total traffic expected through each junction for this scenario, along with the increase that the consented Island Farm traffic has from the 2033 Without Island Farm scenario.

A diagram showing these flows for the AM and PM peak hour periods is also contained at **Appendix B** (*Diagram Ref: 8A and 8B*).

Table 6: Total vehicles through each assessment network junction for the 2033 With Island Farm Consented Development scenario

Assessment Network Junction	AM Peak Hour			PM Peak Hour		
	2033 With Consented Island Farm Dev	Change from 2033 Without Island Farm Dev Scenario	% Impact of Island Farm Flows on Junction	2033 With Consented Island Farm Dev	Change from 2033 Without Island Farm Dev Scenario	% Impact of Island Farm Flows on Junction
J1 – Broadlands Roundabout	2,012	+196	**+10.8%**	2,506	+222	**+9.7%**
J2 – A48 Proposed Site Access	2,630	+440	**+20.1%**	2,947	+536	**+22.2%**
J3 – Ewenny Roundabout	3,577	+517	**+16.9%**	3,634	+509	**+16.3%**
J4 – B4265 / Technology Drive Junction	1,215	+327	**+36.8%**	1,036	+245	**+31.0%**
J5 – B4265 / Ewenny Road Junction	729	0	**0.0%**	637	0	**0.0%**
J6 – Picton Close Roundabout	2,865	+343	**+13.6%**	2,913	+311	**+12.0%**
J7 – Waterton Cross Roundabout	3,763	+347	**+10.2%**	3,889	+315	**+8.8%**
J8 – Coychurch Roundabout	4,665	+300	**+6.9%**	4,503	+272	**+6.4%**
J9 – Bocam Park Roundabout	4,193	+287	**+7.3%**	4,040	+254	**+6.7%**

In transport planning terms, the consented scheme is considered committed and therefore the traffic associated with it is 'in theory' already on the public highway. **Table 6** identifies that outside of the site access junctions, the committed development would be expected to impact junctions in the distribution network by up to 16.9% in the AM peak hour (J4 – Ewenny Roundabout), and 16.3% in the PM peak hour (J4 – Ewenny Roundabout).

Revised Proposal Island Farm Development Scenario

A 2033 forecast year scenario has been created to represent traffic flows across the distribution assessment network to include the Revised Island Farm proposal flows. This scenario includes Craig Y Parcau distributed traffic.

Table 7 identifies the total traffic expected through each junction for this scenario, and the impact that the revised Island Farm traffic has compared to the 2033 Without Island Farm scenario.

A diagram showing these flows for the AM and PM peak hour periods is also contained at **Appendix B** (*Diagram Ref: 9A and 9B*).

Table 7: Total vehicles through each assessment network junction for the 2033 With Island Farm Revised Development scenario

Assessment Network Junction	AM Peak Hour			PM Peak Hour		
	2033 With Revised Island Farm Dev	Change from 2033 Without Island Farm Dev Scenario	% Impact of Island Farm Flows on Junction	2033 With Revised Island Farm Dev	Change from 2033 Without Island Farm Dev Scenario	% Impact of Island Farm Flows on Junction
J1 – Broadlands Roundabout	1,957	+141	**+7.8%**	2,383	+99	**+4.3%**
J2 – A48 Proposed Site Access	2,772	+582	**+26.6%**	2,898	+487	**+20.2%**
J3 – Ewenny Roundabout	3,639	+579	**+18.9%**	3,520	+395	**+12.6%**
J4 – B4265 / Technology Drive Junction	1,175	+287	**+32.3%**	905	+114	**+14.4%**
J5 – B4265 / Ewenny Road Junction	811	+82	**+11.2%**	741	+104	**+16.3%**
J6 – Picton Close Roundabout	2,737	+215	**+8.5%**	2,768	+166	**+6.4%**
J7 – Waterton Cross Roundabout	3,629	+213	**+6.2%**	3,738	+164	**+4.6%**
J8 – Coychurch Roundabout	4,513	+148	**+3.4%**	4,349	+118	**+2.8%**
J9 – Bocam Park Roundabout	4,011	+105	**+2.7%**	3,865	+79	**+2.1%**

Revised and Consented Island Farm Flows Impact Comparison

Table 7 identifies that outside of the site access junctions, the committed development would be expected to impact junctions in the distribution network by up to 18.9% in the AM peak hour (J4 – Ewenny Roundabout), and 12.6% in the PM peak hour (J4 – Ewenny Roundabout).

A comparison between the impact from the consented and revised Island Farm proposals is provided in **Table 8**.

Table 8: Comparison in impact between Revised and Consented Island Farm flows

Assessment Network Junction	AM Peak Hour		PM Peak Hour	
	Revised – Consented Flows (All Vehicles)	Revised – Consented % Impact on Junction Flows	Revised – Consented Flows (All Vehicles)	Revised – Consented % Impact on Junction Flows
J1 – Broadlands Roundabout	-55	-3.0%	-123	-5.4%
J2 – A48 Proposed Site Access	+142	+6.5%	-49	-2.0%
J3 – Ewenny Roundabout	+62	+2.0%	-114	-3.6%
J4 – B4265 / Technology Drive Junction	-40	-4.5%	-131	-16.6%
J5 – B4265 / Ewenny Road Junction	+82	+11.2%	+104	+16.3%
J6 – Picton Close Roundabout	-128	-5.1%	-145	-5.6%
J7 – Waterton Cross Roundabout	-134	-3.9%	-151	-4.2%
J8 – Coychurch Roundabout	-152	-3.5%	-154	-3.6%
J9 – Bocam Park Roundabout	-182	-4.7%	-175	-4.6%

Note: Green shading = Revised Flows > Consented Flows, Red shading = Consented Flows > Revised Flows

Table 8 identifies that during the AM peak hour period the revised Island Farm flows are greater than the consented Island Farm flows at J2, J3, and J5, but lower than the consented Island Farm flows at J1, J4, J6, J7, J8, and J9. During the PM peak hour period the revised Island Farm flows are only greater than the consented Island Farm flows at J5, and are lower than the consented Island Farm flows at all other 8 Junctions.

Overall, it can be seen that the revised Island Farm proposals will generally have a beneficial impact on traffic flows across the distribution network compared to the consented Island Farm proposals.

The impact of the increase in flows at J2 and J3 (during the AM peak) is discussed in the next section of this note. The increase in flows at J5 is purely because this is the access junction for the revised Tennis Centre proposals, and this junction was not proposed as a site access point within the consented scheme. It should be pointed out that the Tennis Centre proposals are to be delivered in advance of the wider Island Farm site, and there is currently a live application with its own Transport Assessment covering the traffic impact at this junction.

Junction Capacity Impact

The consented Island Farm scheme subjected each junction to a detailed capacity analysis. The results of the analysis narrowed the area of focus to the following three junctions, all of which were shown to be operating at capacity in certain development scenarios.

- **J1 - Broadlands Roundabout.**
- **J3 - Ewenny Roundabout.**
- **J6 - Picton Close Roundabout.**

J1 - Broadlands Roundabout

Broadlands Roundabout currently operates as a 3-arm roundabout between the A48 (east and west arms), and the B4622 (north arm). The Craig Y Parcau proposals would see a southern arm developed at the junction to act as the site access.

The Transport Assessment for the consented application showed that even in the 2009 base year scenarios with no Island Farm traffic, the junction was operating at or near capacity in the AM and PM peak hours. In all future assessment year scenarios (both with and without Island Farm traffic) the junction was modelled to be operating over capacity, without any mitigation in place.

The consented Island Farm scheme reviewed three mitigation options, as follows:

- **Option 1 -** Alterations to entry arm geometry to provide nil detriment to the junction.
- **Option 2-** Introduction of a dedicated left-turn lane from the northern (B4622) approach and entry modifications to the eastern (A48) approach. The acquisition of third party land beyond the existing highway boundary would be required to accommodate the dedicated left-turn lane.
- **Option 3 -** Construction of an enlarged roundabout incorporating a dedicated left-turn lane from the northern (B4622) approach. Utilising land in the applicant's control to the south of the A48; an enlarged roundabout could be accommodated which would both mitigate the existing capacity issues and provide additional capacity sufficient to accommodate the committed and proposed developments.

Of the above options, all were able to provide nil detriment or better.

Compared to the consented scheme, the distribution of the revised Island Farm development traffic (identified within this note) reduces total flows through this junction by 55 vehicles in the AM peak hour, and 123 vehicles in the PM peak hour. Although this would bring some capacity benefit to the junction, the junction was already operating at capacity in the base year, and with consideration of both background traffic growth and the Craig Y Parcau development, the junction will still likely require mitigation to operate within capacity during future forecast years.

This will be assessed as part of a supporting Transport Assessment for both the Island Farm and Craig Y Parcau developments, which will ideally include up to date baseline traffic flows as the basis for the assessment (Covid restrictions allowing).

J3 – Ewenny Roundabout

Ewenny Roundabout currently operates as a 4-arm signalised roundabout between the A48 (east and west arms), and the B4625 (north and south arms).

The Transport Assessment for the consented application showed that without mitigation, the junction was modelled to operate significantly above capacity during the forecast years (for both with and without Island Farm development scenarios), during both the AM and PM peak hours.

The consented scheme reviewed three mitigation options, all based on converting the junction to a signalised crossroads arrangement. All options resulted in a saturated, or near saturated junction.

A further assessment of the junction was undertaken within the Transport Assessment supporting the revised Tennis Centre proposals on the Island Farm site. This assessment identified that with the additional Tennis Centre traffic, the junction would be expected to operate well within capacity during the AM peak period forecast year, but would be operating at capacity during the PM peak period forecast year.

Compared to the consented scheme, the distribution of the total revised Island Farm development traffic (identified within this note) increases total flows through this junction by 62 vehicles in the AM peak hour, and reduces total flows through the junction by 114 vehicles in the PM peak hour. As such, with consideration of both background traffic growth, the Craig Y Parcau development, and the non-Tennis Centre traffic from Island Farm, it would still be expected that some mitigation would be expected at the junction.

An updated assessment of this junction and the mitigation options will be undertaken as part of a supporting Transport Assessment for the Island Farm development, which will ideally include up to date baseline traffic flows as the basis for the assessment (Covid restrictions allowing).

J6 – Picton Close Roundabout

Picton Close Roundabout currently operates as a 4-arm roundabout between the A48 (east and west arms), and Picton Close Retail Park area access roads (north and south arms).

Although operating within capacity during the base year scenarios, the Transport Assessment for the consented application showed that without mitigation, the junction was modelled to operate over capacity during the forecast years (for both with and without Island Farm development scenarios), during both the AM and PM peak hours.

The original Transport Assessment was unable to establish a mitigation scheme which achieved nil detriment without third party land. However, increased roundabout entry widths and flare lengths on the A48 and Picton Close approaches offset much of the development impact. An upgraded roundabout junction was anticipated to be the most likely outcome of a future mitigation proposal.

Conversion to a signalised crossroad arrangement was also an option which was shown to operate marginally above capacity but with the benefit of including controlled crossing stages.

Compared to the consented scheme, the distribution of the revised Island Farm development traffic (identified within this note) reduces total flows through this junction by 128 vehicles in the AM peak hour, and 145 vehicles in the PM peak hour. Although this would bring some capacity benefit to the junction, the junction was modelled to be operating over capacity in all forecast year scenarios (including those without the Island Farm development), and with consideration of background traffic growth, the junction will still likely require mitigation to operate within capacity during future forecast years. It would be hoped however that the reduction in flows with the revised proposals would make any signalised crossing arrangement operate more efficiently.

An updated assessment of this junction and the mitigation options will be undertaken as part of a supporting Transport Assessment for the Island Farm development, which will ideally include up to date baseline traffic flows as the basis for the assessment (Covid restrictions allowing).

Consented Site Access Junctions

The original Transport Assessment for the consented Island Farm proposals undertook capacity assessments at the A48 and Technology Drive proposed site access points (J2 and J4 respectively). These assessments identified that both junctions could operate within capacity for all development forecast years in both the AM and PM peak hours.

A48 Access

The A48 site access is proposed to be formed by a new signalised T-junction. Compared to the consented scheme, the distribution of the revised Island Farm development traffic (identified within this note) would increase total flows through this access junction by 142 vehicles in the AM peak hour, and a reduction of 49 vehicles in the PM peak hour. Although increasing traffic during the AM peak hour, the previous modelling identified some spare capacity to accommodate this extra traffic. The previous modelling work also identified that the junction would be operating closer to capacity during the PM peak hour forecast scenarios. The reduction of site trips during the PM peak hour would therefore be beneficial in improving capacity during this more critical period of operation.

An updated assessment of this will be undertaken as part of a supporting Transport Assessment for the Island Farm development, which will ideally include up to date baseline traffic flows as the basis for the assessment (Covid restrictions allowing).

B4265 / Technology Drive Access

The proposed Technology Drive site access would utilise the existing non-signalised T-junction with the B4265. Compared to the consented scheme, the distribution of the revised Island Farm development traffic (identified within this note) would decrease total flows through this access junction by 40 vehicles in the AM peak hour, and 131 vehicles in the PM peak hour. This will therefore only go to improve the operation of this junction (compared to the consented scheme).

Revised Tennis Centre Proposals Site Access

The Transport Assessment report prepared for the revised Tennis Centre proposals also included an appraisal of the B4265 / Ewenny Road junction which is proposed to provide access for this element of the

Island Farm site. The junction currently operates as a non-signalised T-junction. The revised tennis centre proposals would provide some upgrades to this junction.

Conclusion

The Island Farm site benefits from outline consent for a proposal including a number of sports facilities, major stadium, tennis centre and office space. Since being consented however, revised proposals have been developed for the Island Farm site. The revised Island Farm site (along with the neighbouring residential Craig Y Parcau development) is now being promoted in the emerging Bridgend County Borough Council (BCBC) replacement Local Development Plan (LDP) for residential-led development.

The expected trip generation and distribution from the consented and revised Island Farm proposals have been assessed through a series of Transport Strategic Appraisal reports and Transport Assessment reports for different units of the wider site. As requested by Bridgend County Borough Council, this Technical Note has been prepared to combine all assessment work undertaken so far, and identify how the traffic from these revised Island Farm proposals is expected to be distributed across the surrounding assessment network, and how they compare to the flows from the consented Island Farm proposals.

All trip generation work for the revised Island farm proposals has been undertaken on very much a worst-case sensitivity test, allowing a more direct comparison with the original consent. It should also be noted that all assessment work undertaken on the revised proposals has been undertaken during the Covid pandemic, meaning undertaking up to date traffic surveys at each assessment junction has not been possible. As agreed with BCBC however, the previous Island Farm consented scheme assessment work has been considered robust enough to use as the baseline for the work within this Technical Note.

The assessment has identified that with exception of the A48 proposed site access junction, and the Ewenny Road Roundabout in the AM peak hour, and the B4265 / Ewenny Road junction in both peak hours, the revised Island Farm proposals will result in lower traffic flows through all junctions across the assessment network over both the AM and PM peak hour periods, compared to the previous consented development proposals on the Island Farm Site. As the consented flows are technically already considered to be existing on the highway network, this revised scheme will provide traffic reduction improvements across the local highway network. It should also be noted that the increase in flows at the B4265 / Ewenny Road junction is purely because this is the proposed access junction for the revised Tennis Centre proposals, and this junction was not proposed as a site access point within the consented scheme. The

Tennis Centre proposals are to be delivered in advance of the wider Island Farm site, and there is currently a live application with its own TA covering the traffic impact at this junction.

Previous assessment work on the Island Farm site has identified that the Broadlands Roundabout, Ewenny Roundabout, and Picton Close Junction all show capacity issues in forecast year assessment scenarios both including and excluding the consented Island Farm proposals traffic. Although the revised Island Farm proposals in general bring traffic reductions across these junctions (from what was previously consented), with consideration of background traffic growth alone, these junctions will still likely require mitigation to operate within capacity during future forecast years. The reduction in flows as a result of the revised Island Farm proposals however, may mean that any mitigation measures implemented can potentially achieve greater capacity improvements at each junction.

The revised proposals at the Island Farm site include three separate vehicle access points onto the local highway network (compared to just two within the consented scheme). All three site access junctions are expected to operate within capacity under the revised Island Farm proposals.

An updated assessment at all three identified junctions, and the site access junctions will be undertaken as part of a future supporting Transport Assessment for the revised Island Farm development, which will ideally include up to date baseline traffic flows as the basis for the assessment (Covid restrictions allowing).

Appendix A

Email from Bridgend County Borough Council

From: Hywel Purchase <Hywel.Purchase@bridgend.gov.uk>
Sent: 03 February 2021 17:32
To: matthew.anderson@corun.uk.com
Cc: Richard Matthams <Richard.Matthams@bridgend.gov.uk>; Gareth Denning <Gareth.Denning@bridgend.gov.uk>; Robert Morgan <Rob.Morgan@bridgend.gov.uk>
Subject: RE: Island Farm

Hi Matthew,

Thanks very much for taking my call just now, and for the information you provided as per our meeting before Christmas and email trail below.

I understand you're tied up this week, but are you able to let me know what your availability is like for a meeting on Monday or Tuesday of next week please? We have availability between 12pm-2pm or 4pm-5pm on Monday, and between 3pm-5pm on Tuesday.

As discussed, there are two components we'd like to speak to you in more detail about, as follows:

Access
We have had an internal meeting this afternoon, where we are looking at how the three separate components that make up the Island Farm site (School, Tennis Centre, and wider site) should come together in terms of their proposed access arrangements onto the highway network.

A planning application is live now for the Tennis Centre element of the scheme, and we are aware the other elements will follow in the near future. For clarity, we're very interested in obtaining a stand-alone document that covers access arrangements for all elements of the three sites, and how they link in with one another.

At the moment, the access arrangements for each site aren't completely consistent with one another, and we'd be interested in a document that clearly demonstrates how each site links up. When it comes to reviewing one site we'll have a consistent access arrangement amongst the three sites – A strategic overview document.

Further analysis on network
Thanks for the additional calculations you provided following our meeting. For the purposes of making our emerging LDP as robust as possible, we are still of the view that we'd like to see the development traffic distributed over the highway network – the same junctions that were assessed as part of the consented scheme.

As you have justified that the baseline traffic growth hasn't differed that much between the comparison exercise you have done, I am of the view that we can use the data we already have to distribute over the network, up to 2033 – but we'll need to discuss and confirm this with our planners in the meeting next week. As you said over the phone, when it comes to submission of a planning application, fresh traffic surveys would be undertaken as part of this assessment where an up-to-date capacity analysis would be performed.

I look forward to hearing from you, and any queries in the meantime please let me know.

Kind regards,

Hywel

Hywel Purchase BSc(Hons) MSc
Swyddog Cynllunio a Pholisi Trafnidiaeth | Transport Planning & Policy Officer
Cyngor Bwrdeistref Sirol Pen-y-bont ar Ogwr | Bridgend County Borough Council
Cymunedau | Communities
Ffôn | Phone: 01656 642777
E-bost | Email**:** **Hywel.Purchase@bridgend.gov.uk**

Appendix B

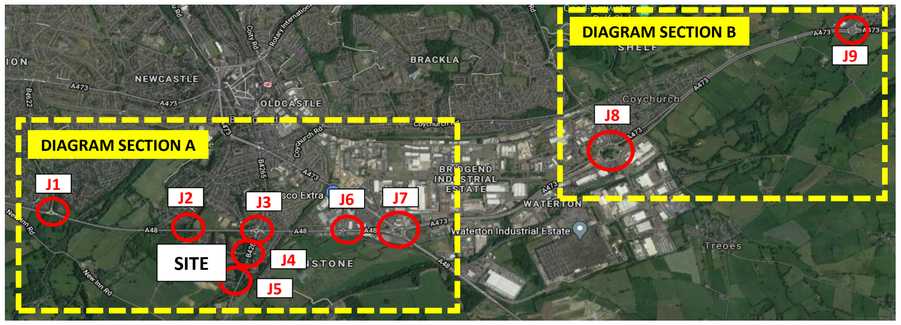
Distribution Network Flow Diagrams

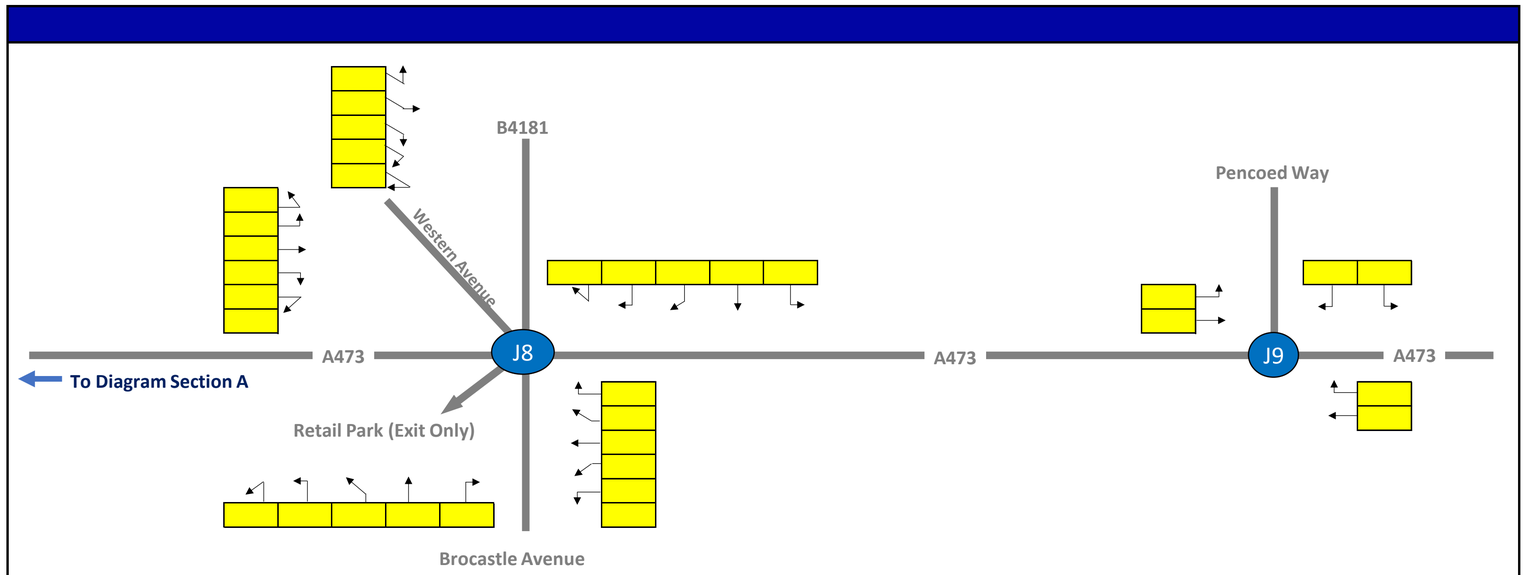
19-00637 Island Farm, Bridgend

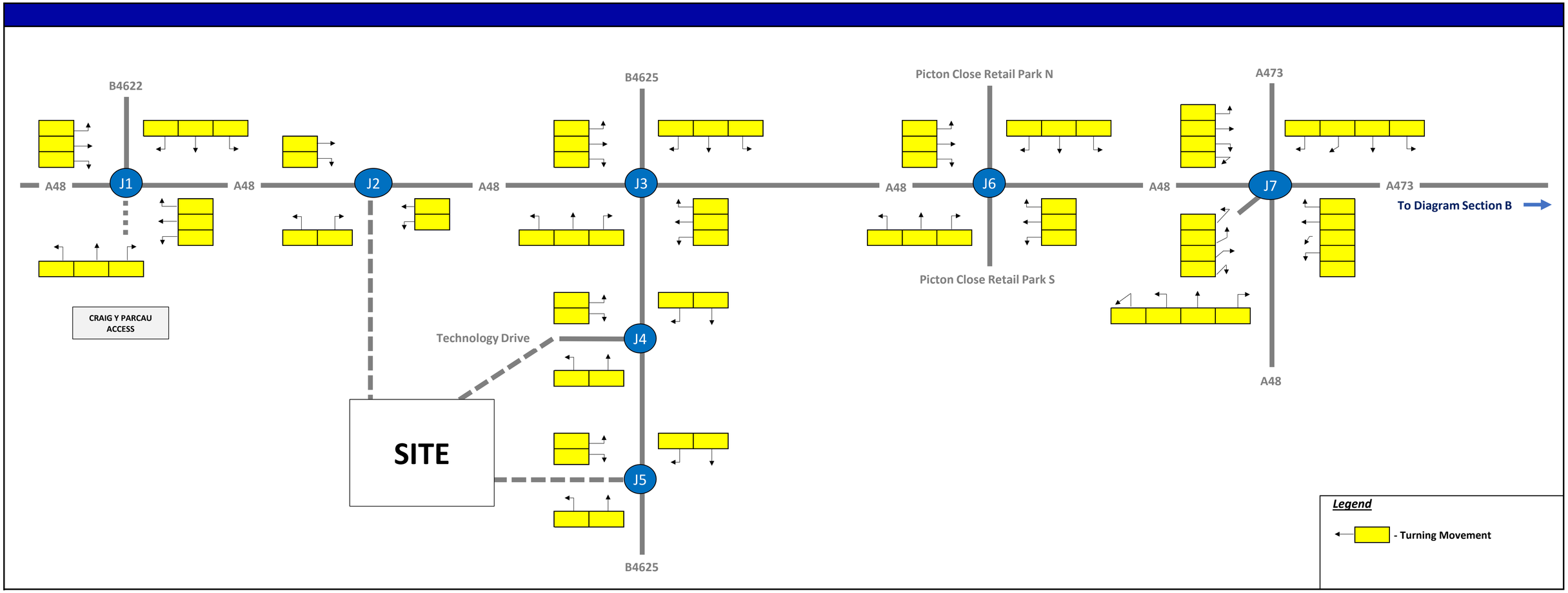
Network Diagram

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt







March 2021

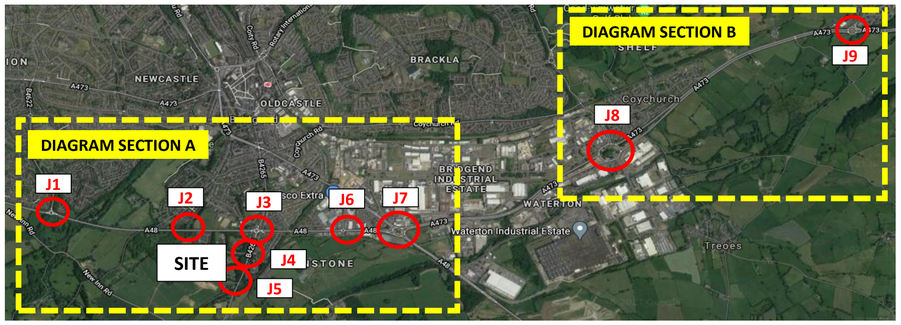
Diagram Ref No.1

19-00637 Island Farm, Bridgend

2021 Baseline Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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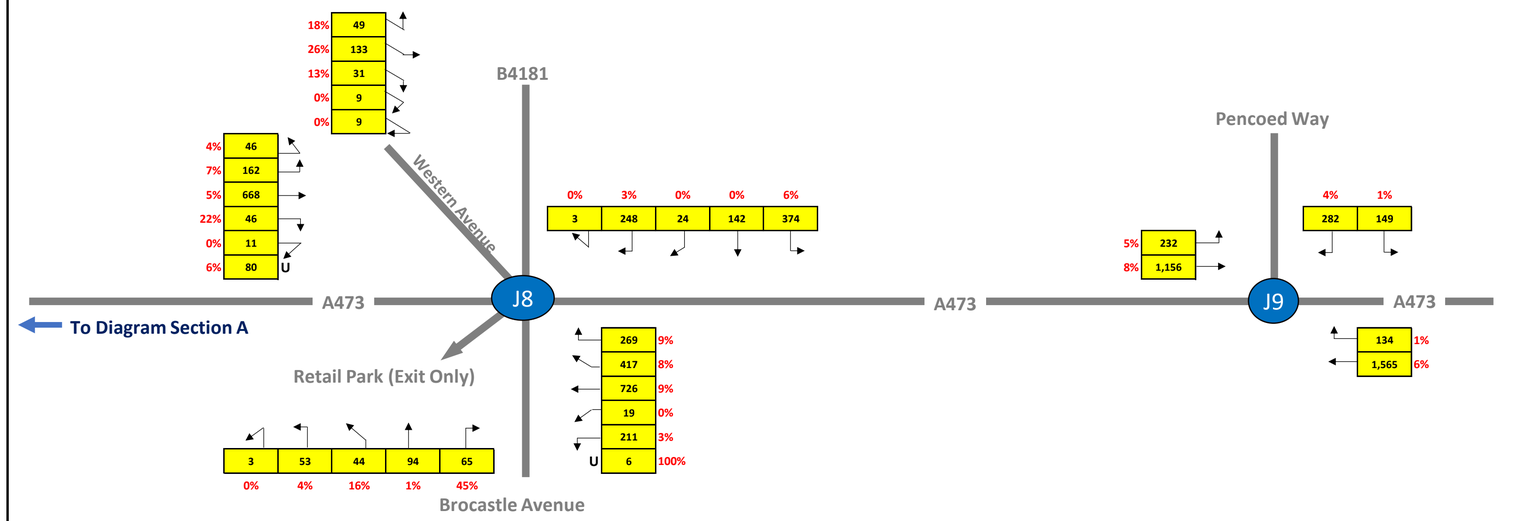

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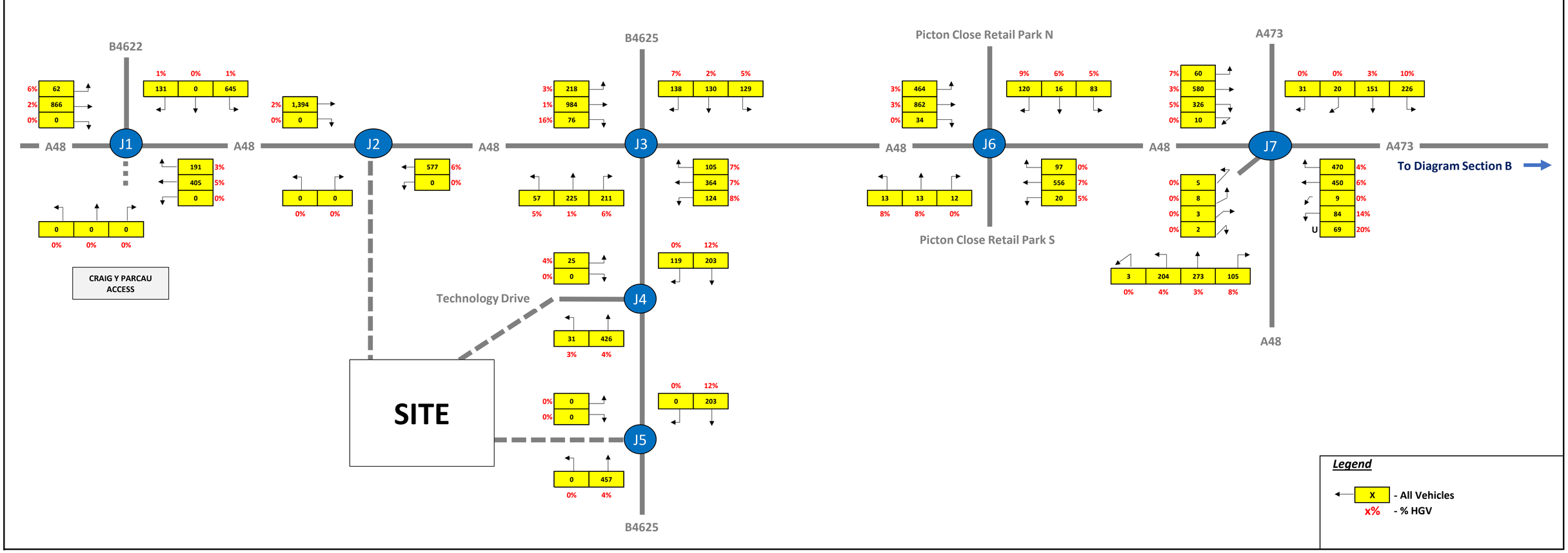


Legend

X - All Vehicles
x% - % HGV

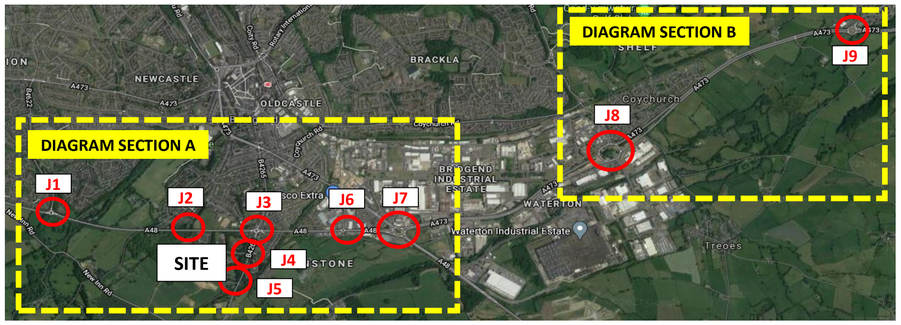
NOTE: Baseline flows based on the baseline flows + committed development flows from the 2009 Island Farm supporting Environmental Statement for the consented scheme (Appendix 6.1, Movement Assessment)

19-00637 Island Farm, Bridgend

2021 Baseline Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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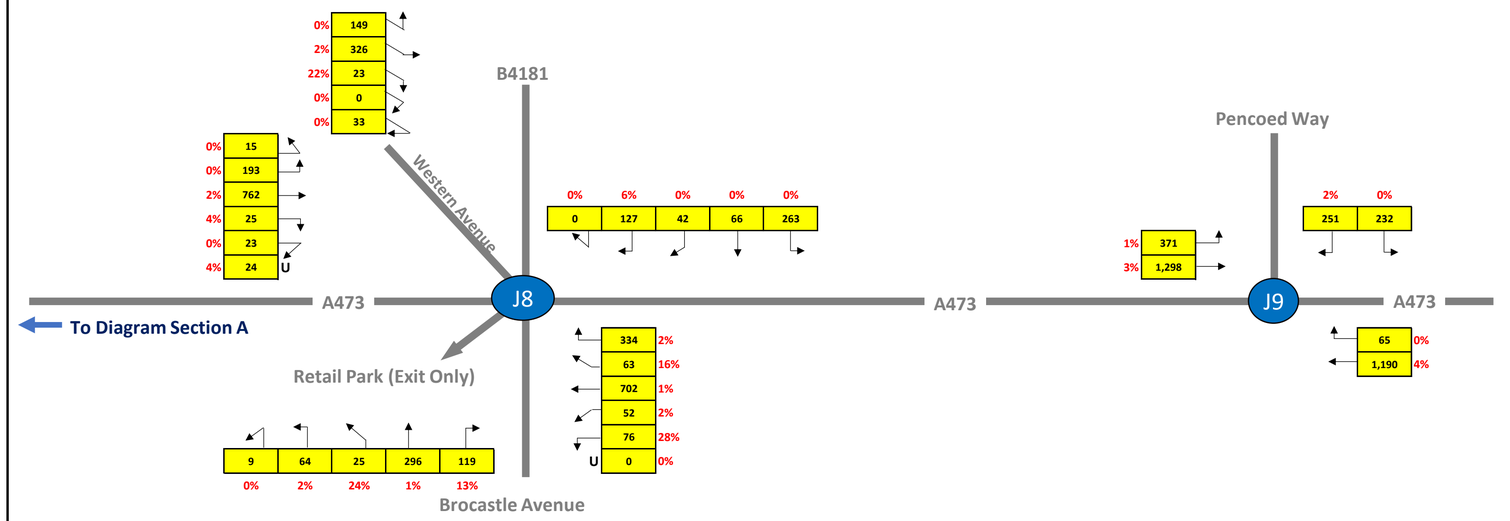

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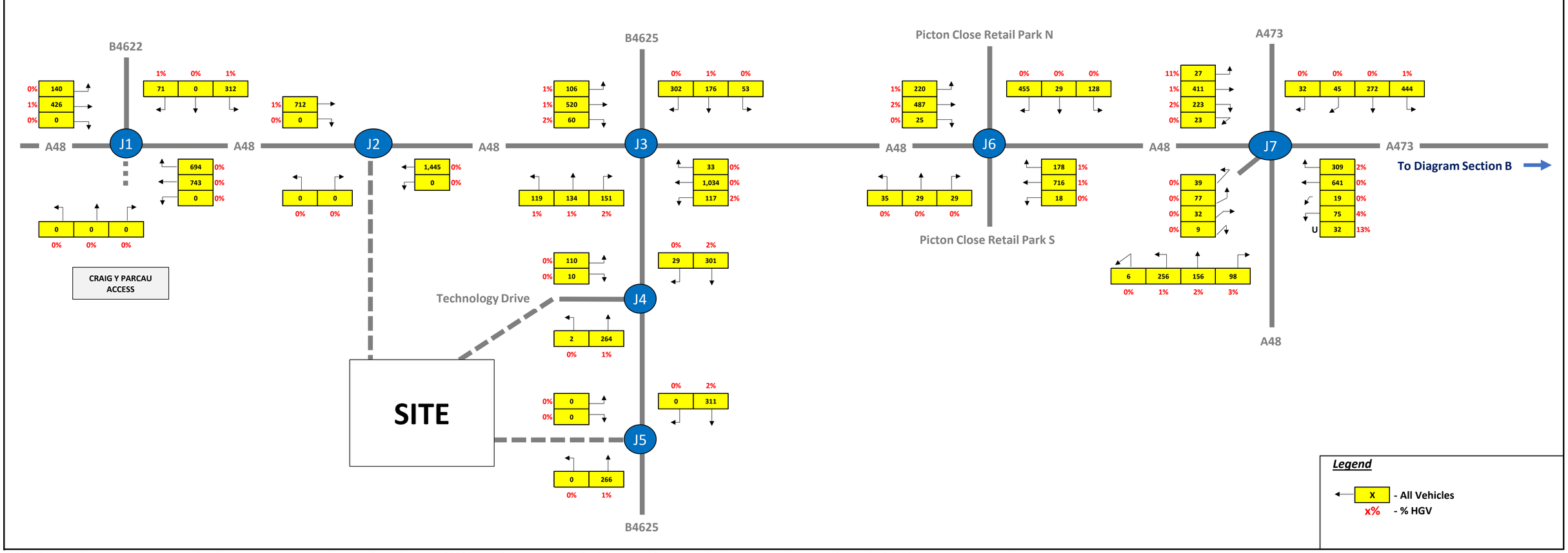


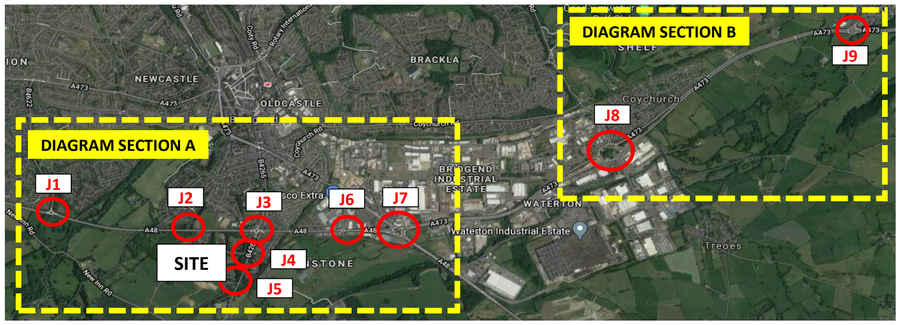
NOTE: Baseline flows based on the baseline flows + committed development flows from the 2009 Island Farm supporting Environmental Statement for the consented scheme (Appendix 6.1, Movement Assessment)

19-00637 Island Farm, Bridgend

2030 Baseline (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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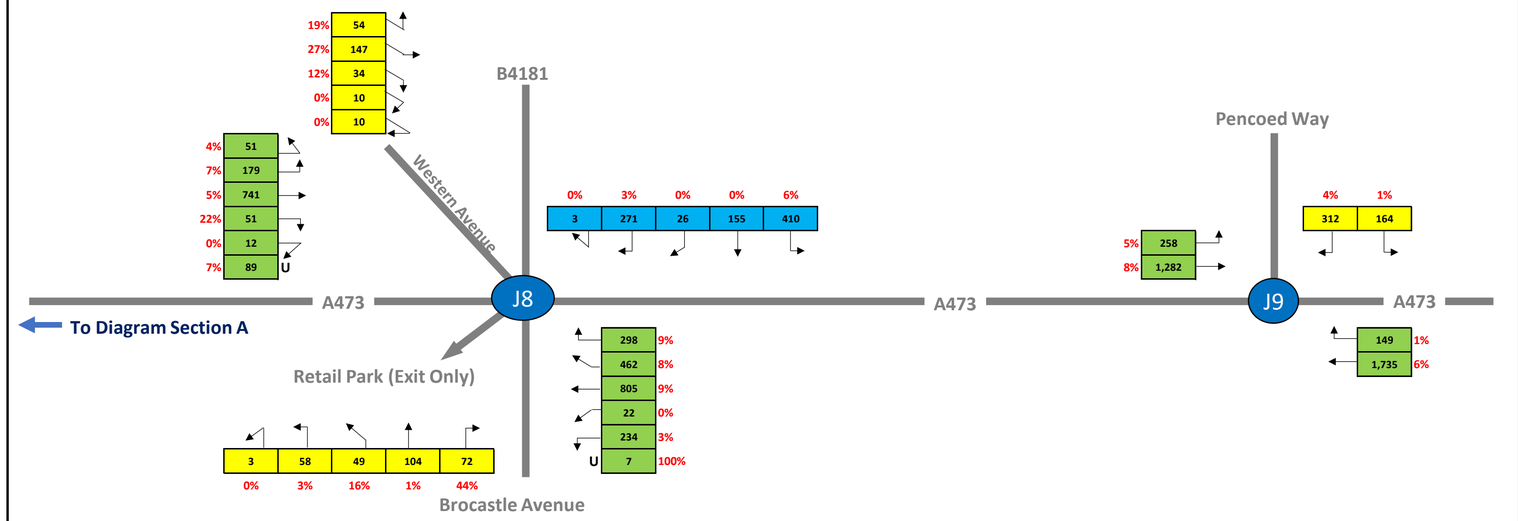

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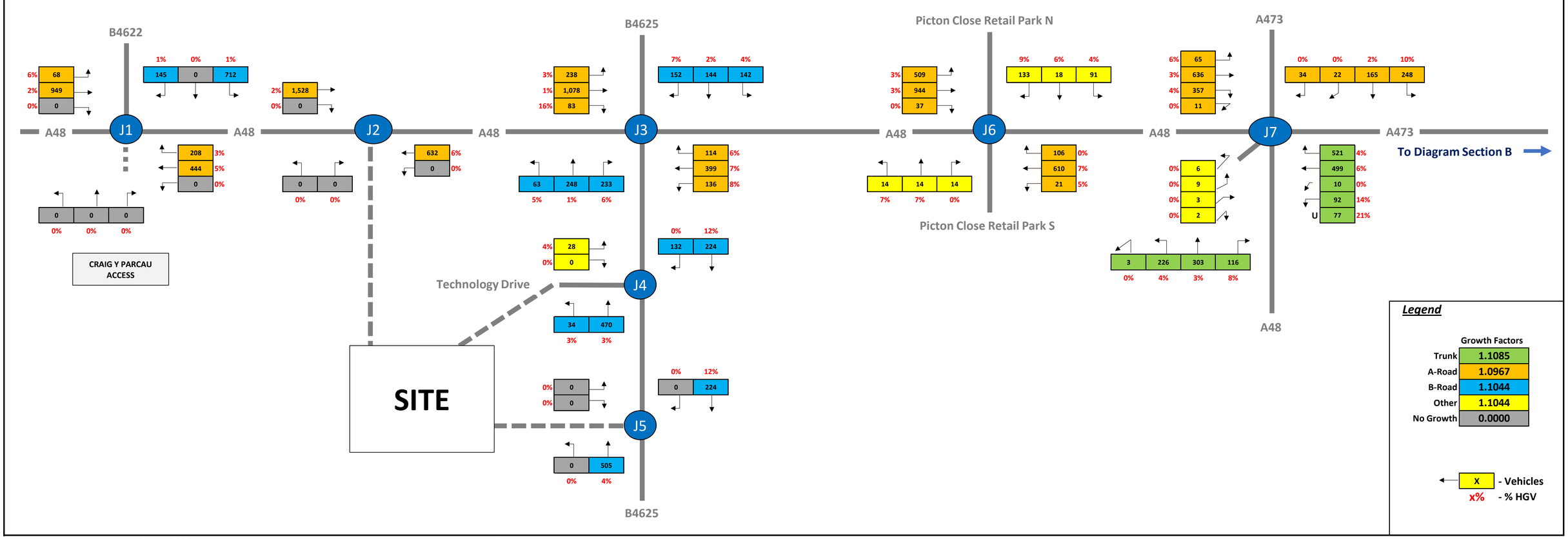


Legend

Growth Factors	
Trunk	1.1085
A-Road	1.0967
B-Road	1.1044
Other	1.1044
No Growth	0.0000

X - Vehicles
x% - % HGV

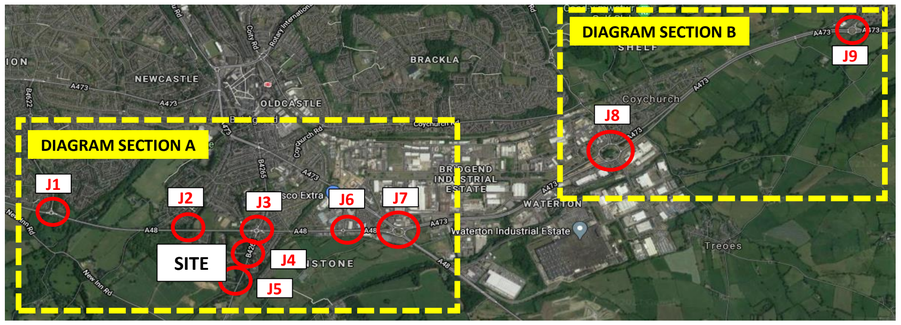
NOTE - Growth factors for 2021 to 2030 for Bridgend Area, using NTM traffic growth calculations (NTM AF15 Dataset)

19-00637 Island Farm, Bridgend

2030 Baseline (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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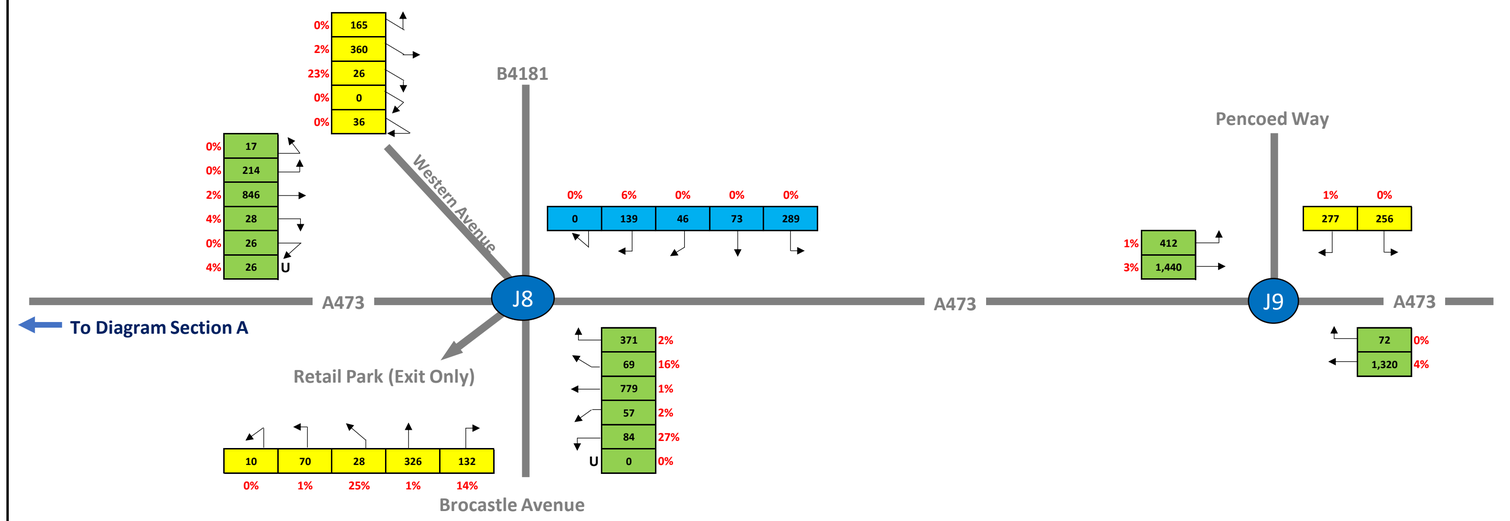


DIAGRAM SECTION A

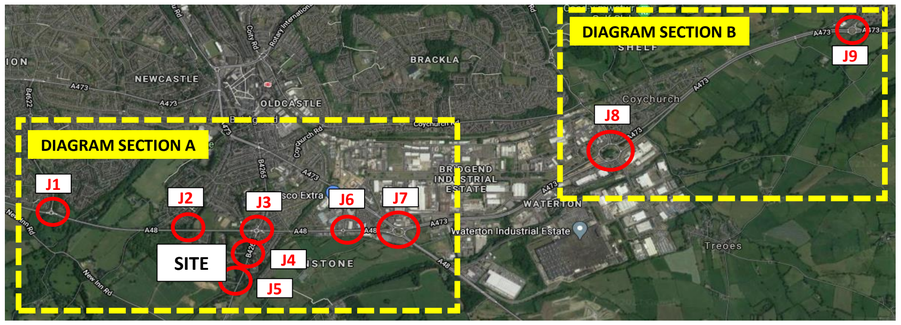
NOTE - Growth factors for 2021 to 2030 for Bridgend Area, using NTM traffic growth calculations (NTM AF15 Dataset)

19-00637 Island Farm, Bridgend

Craig Y Parcau Residential Development Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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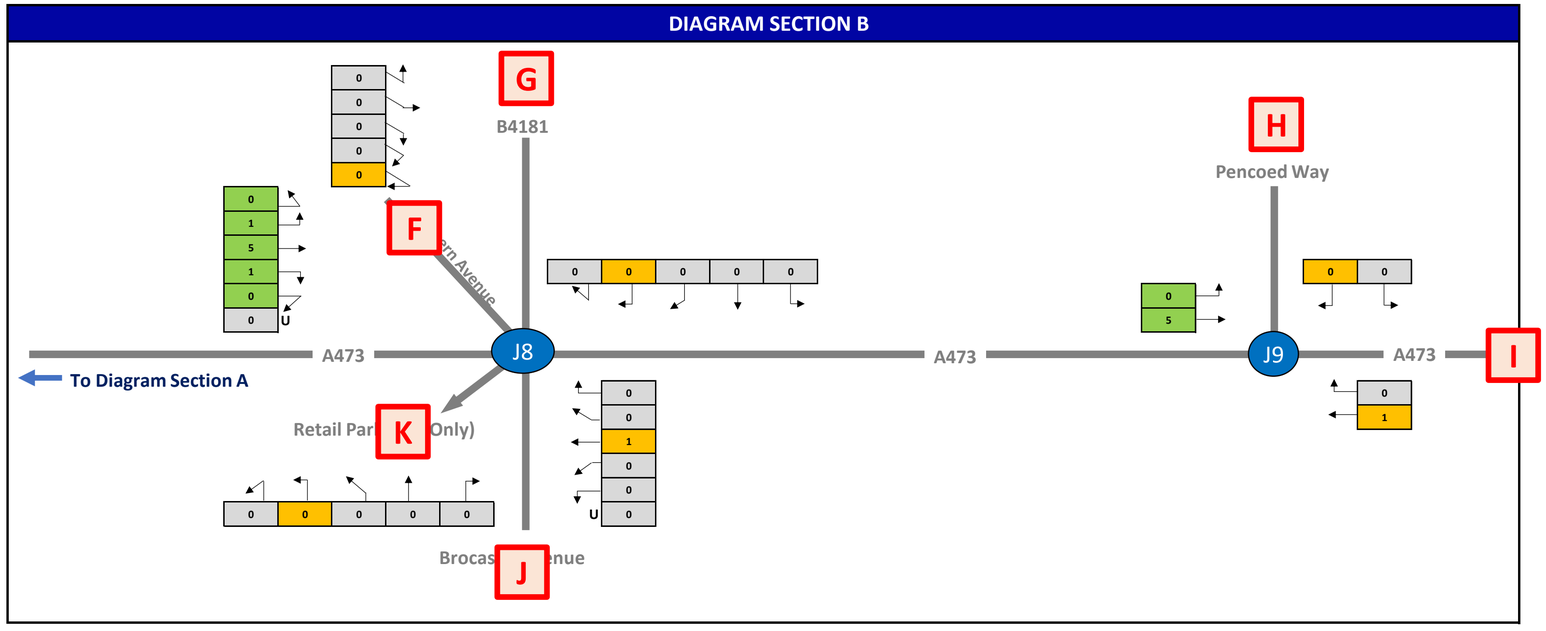
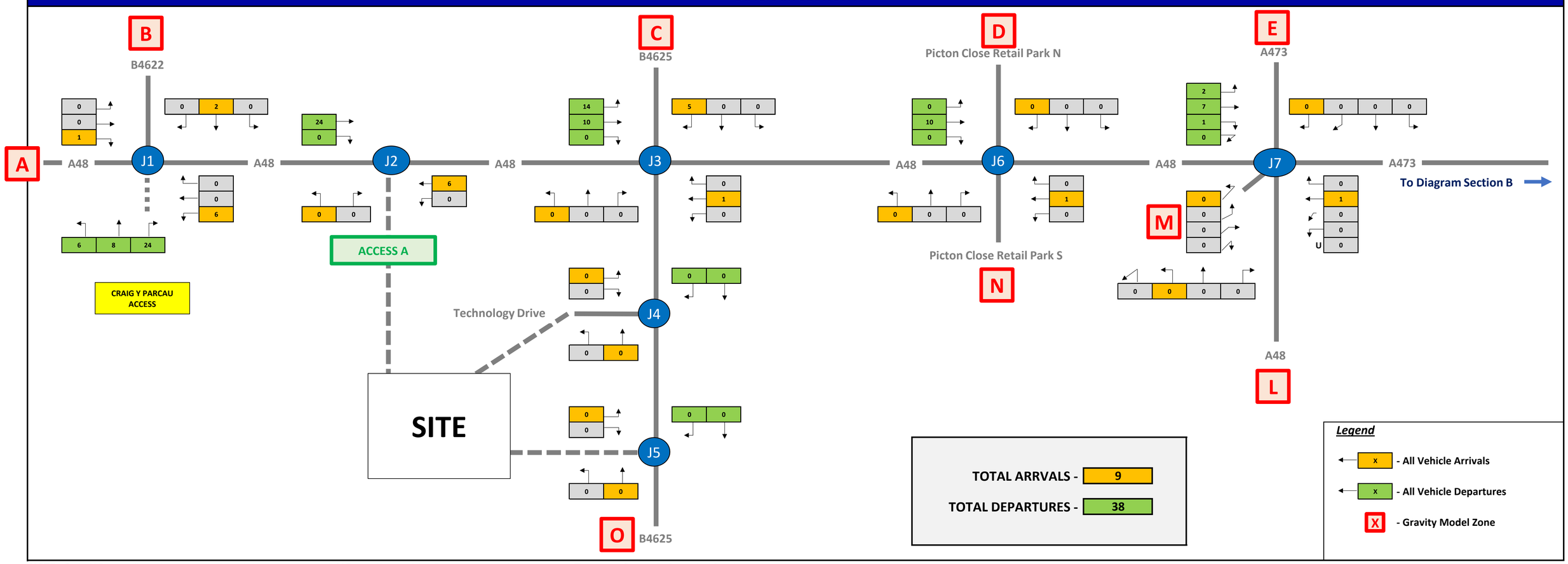


DIAGRAM SECTION A



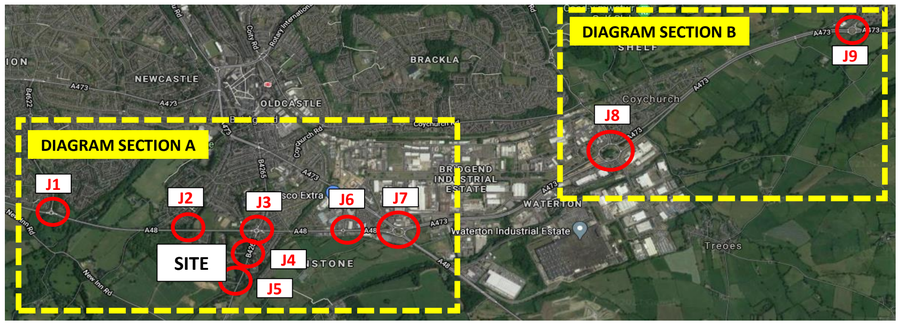
NOTE - Craig Y Parcau flows based on residential development of 115 dwellings, with trip rates as per the supporting Transport Strategic Appraisal for the proposal

19-00637 Island Farm, Bridgend

Craig Y Parcau Residential Development Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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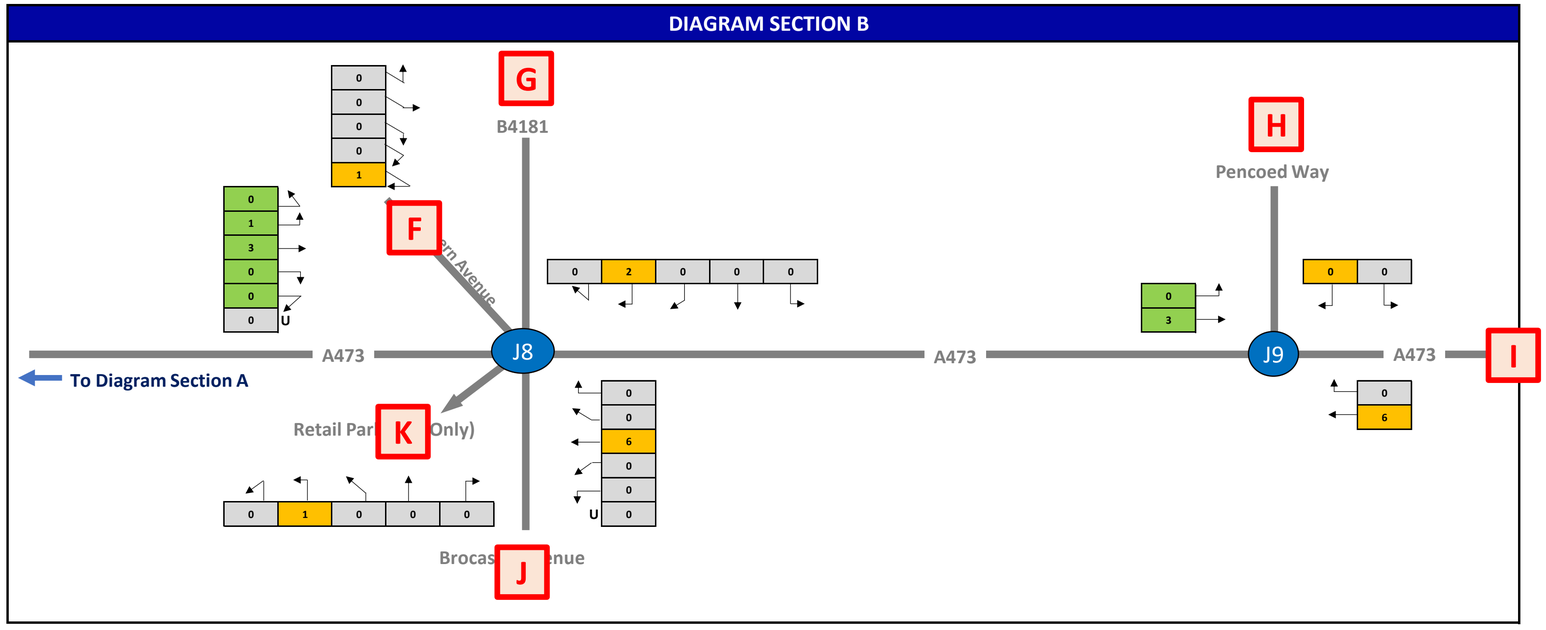

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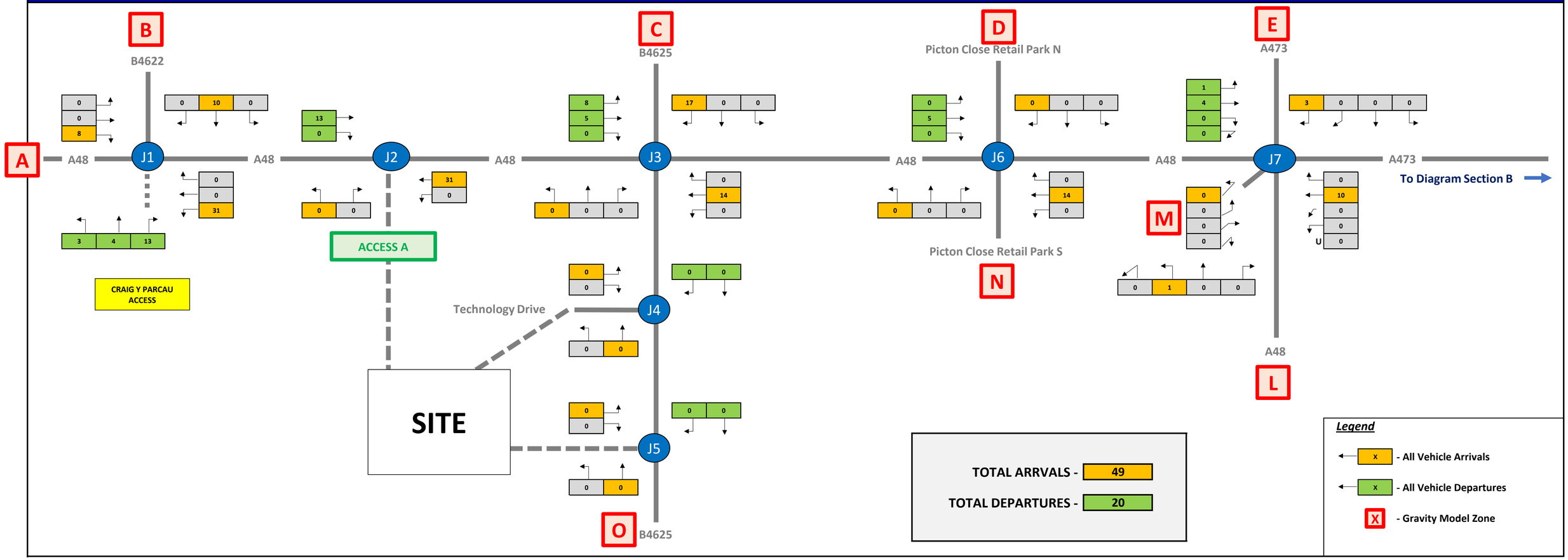


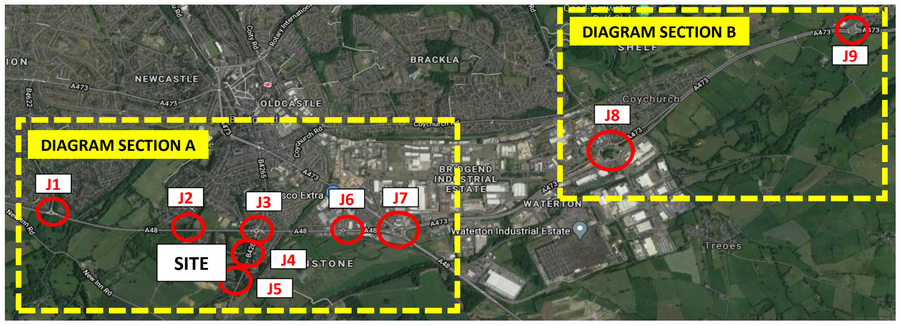
NOTE - Craig Y Parcau flows based on residential development of 115 dwellings, with trip rates as per the supporting Transport Strategic Appraisal for the proposal

19-00637 Island Farm, Bridgend

Island Farm Consented Development Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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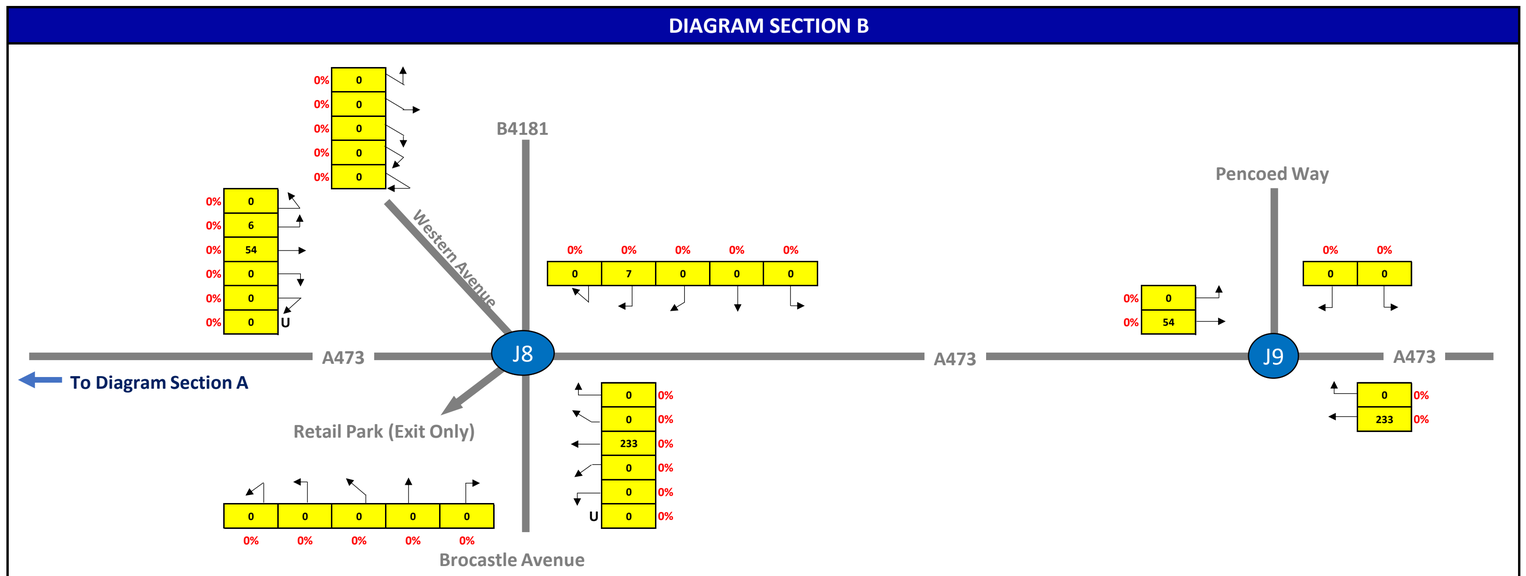

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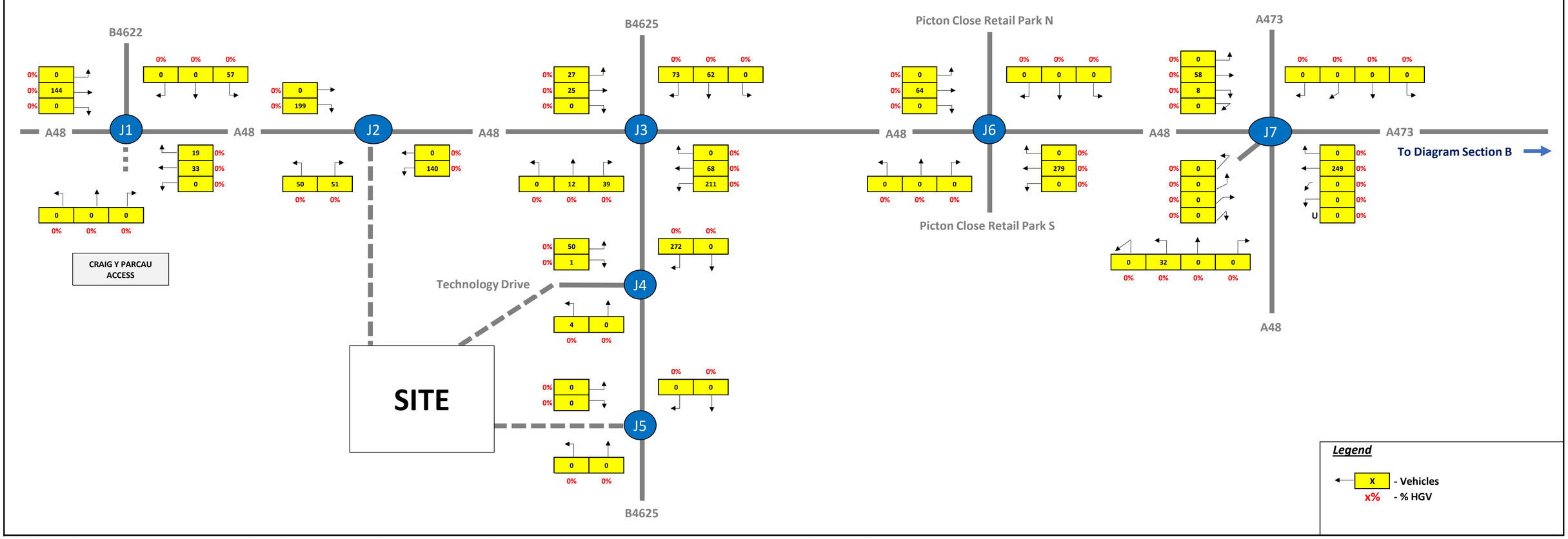


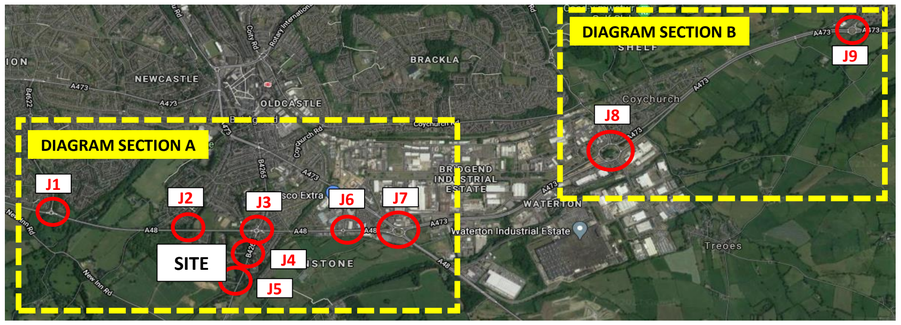
NOTE: Island Farm consented flows based on those identified within the 2009 Island Farm supporting Environmental Statement for the consented scheme (Appendix 6.1, Movement Assessment)

19-00637 Island Farm, Bridgend

Island Farm Consented Development Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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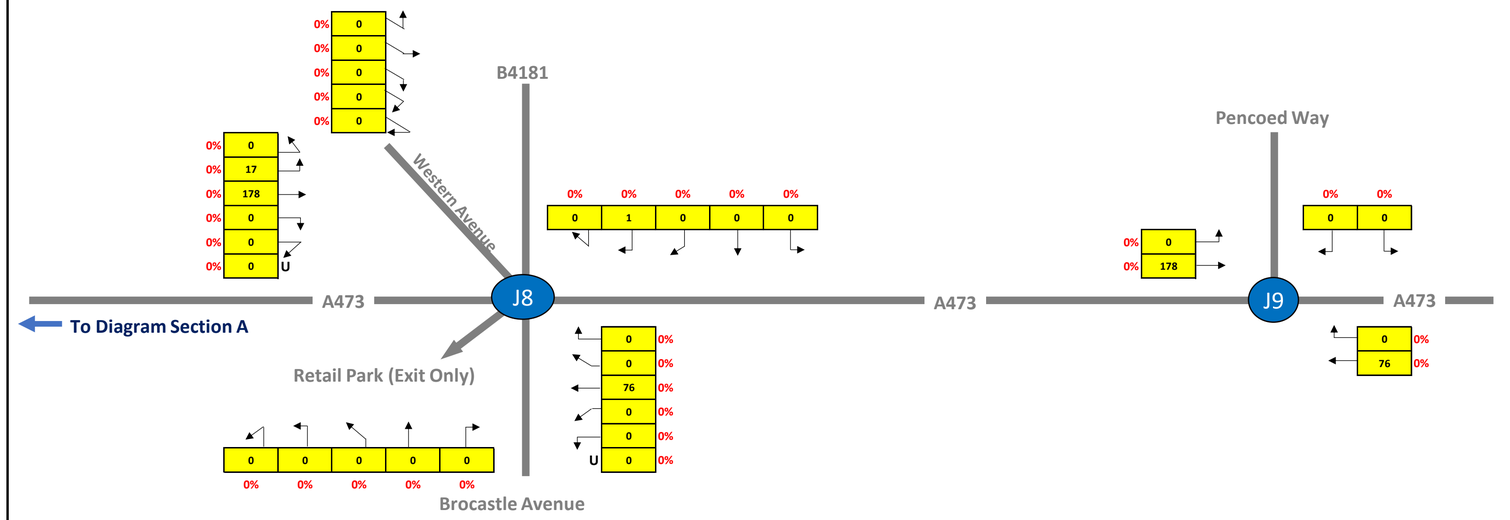

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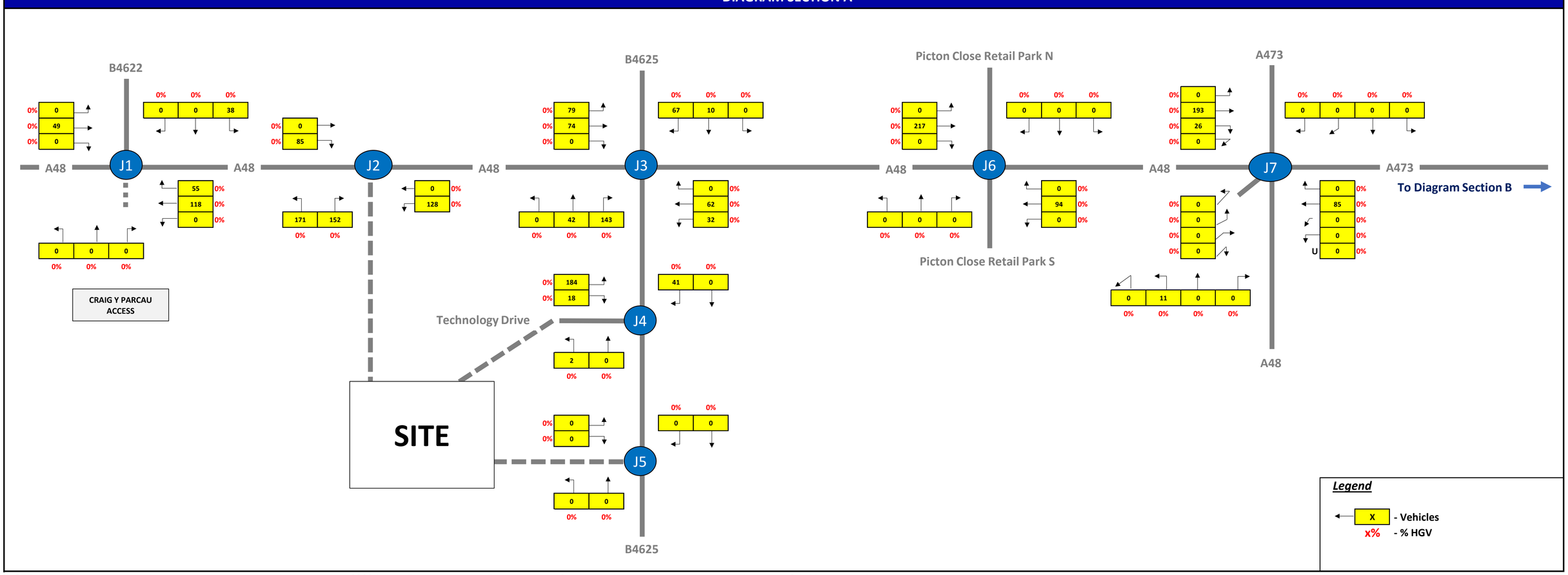


Legend

X - Vehicles
x% - % HGV

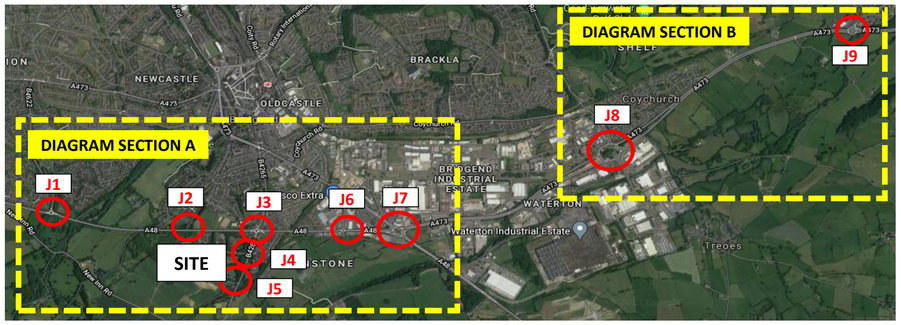
NOTE: Island Farm consented flows based on those identified within the 2009 Island Farm supporting Environmental Statement for the consented scheme (Appendix 6.1, Movement Assessment)

19-00637 Island Farm, Bridgend

Island Farm Revised Proposals, Access A Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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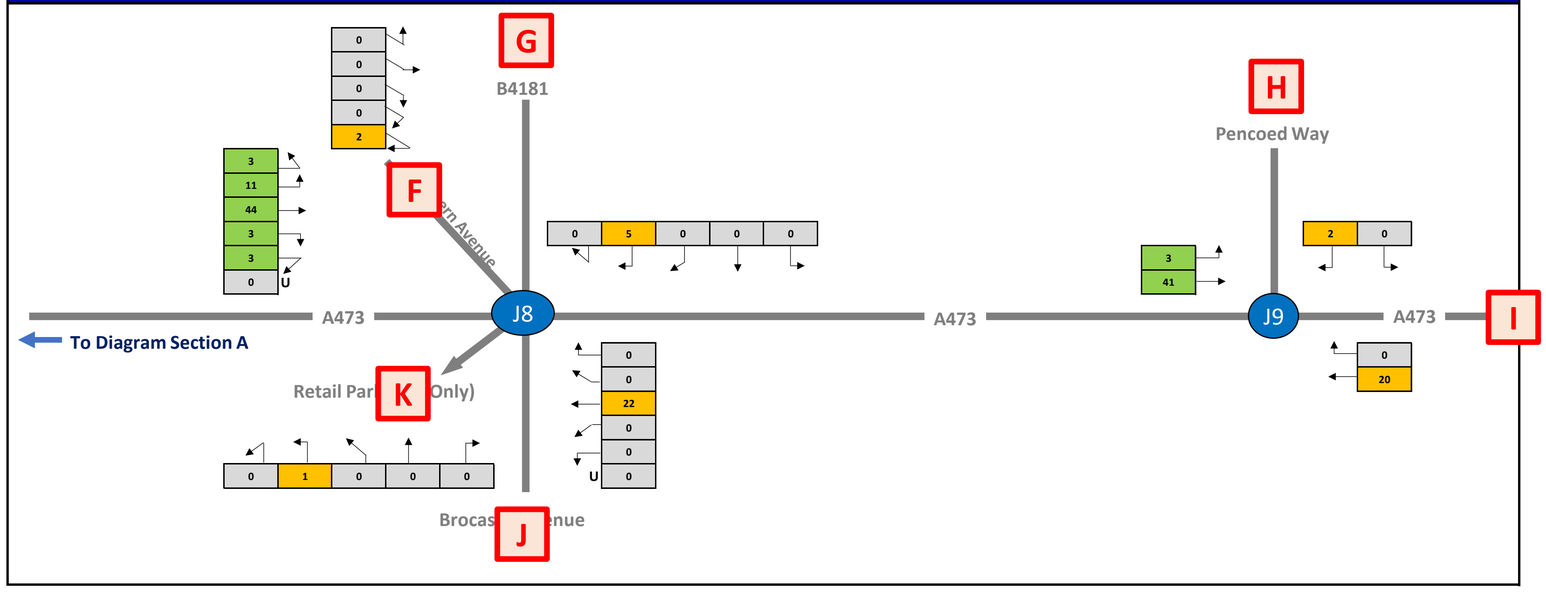

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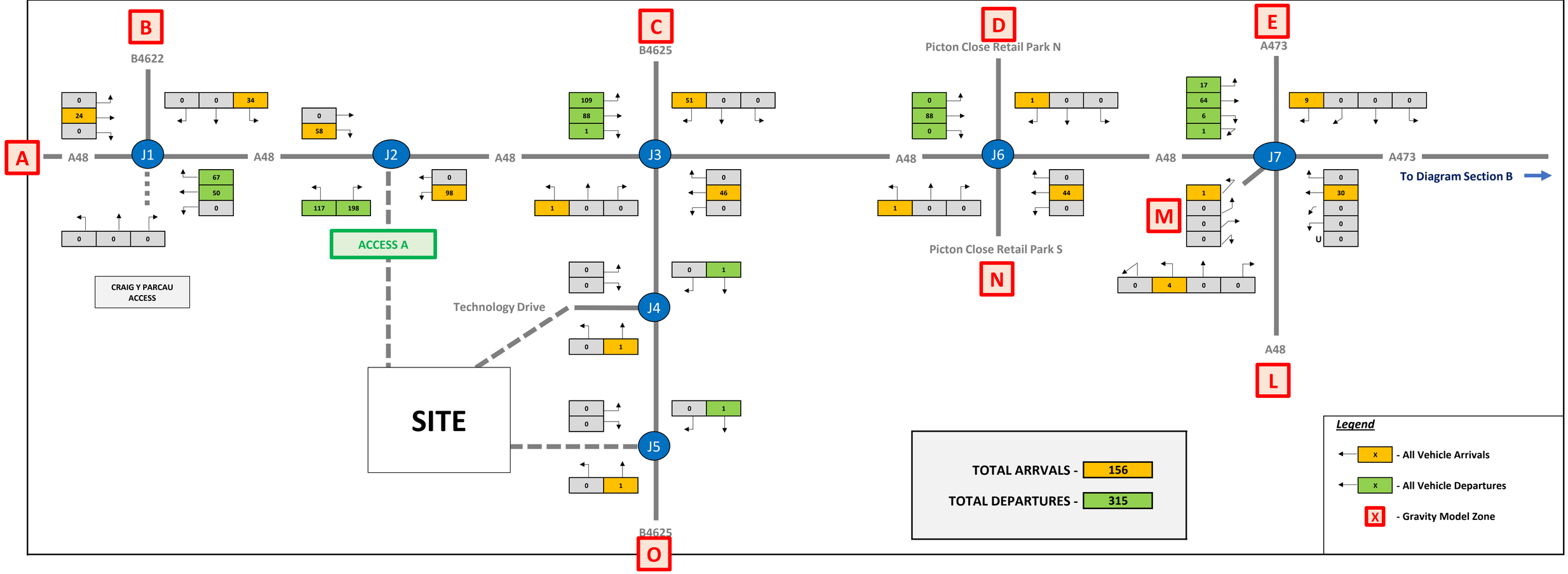


March 2021

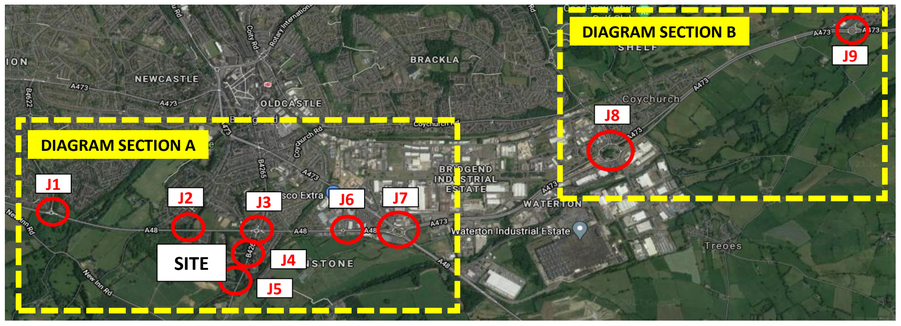
Diagram Ref No.6A

19-00637 Island Farm, Bridgend

Island Farm Revised Proposals, Access B Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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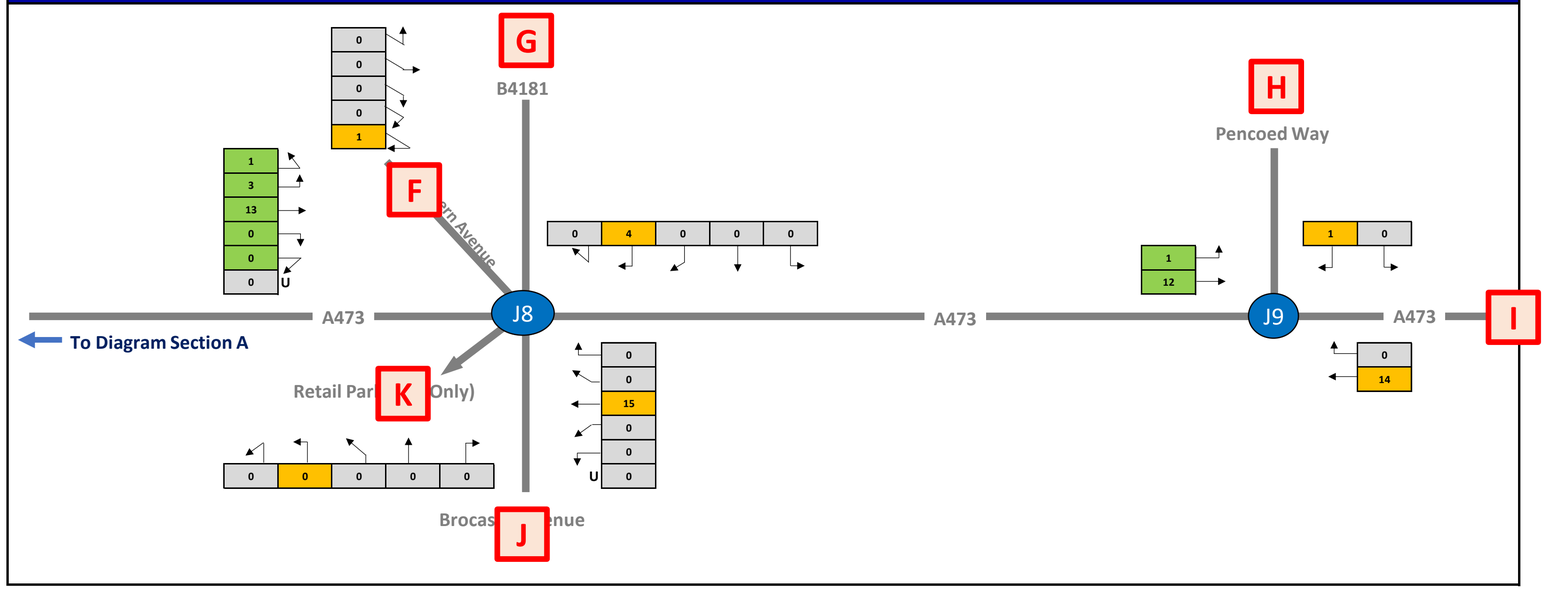

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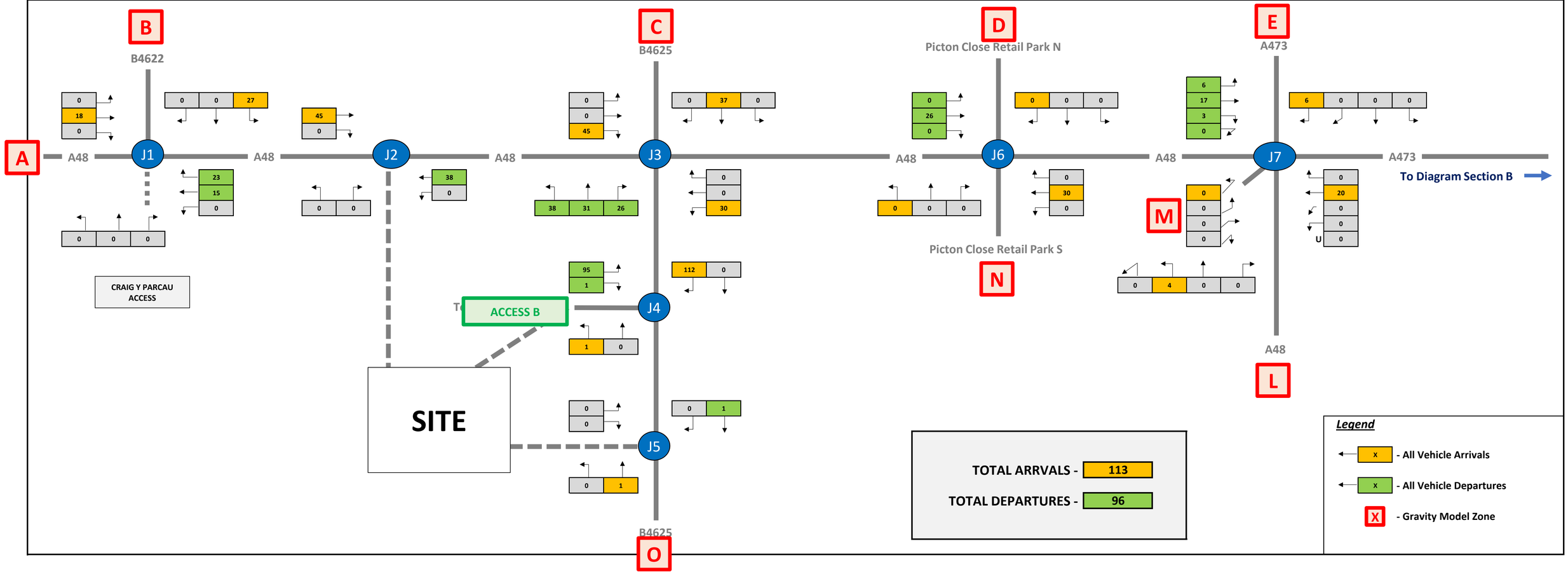


March 2021

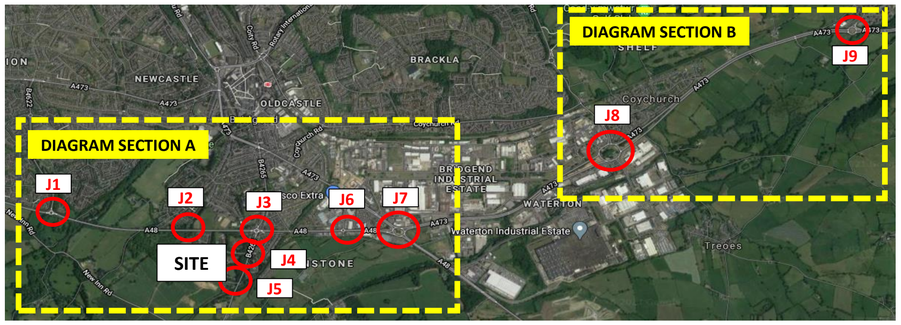
Diagram Ref No.6B

19-00637 Island Farm, Bridgend

Island Farm Revised Proposals, Access C Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt



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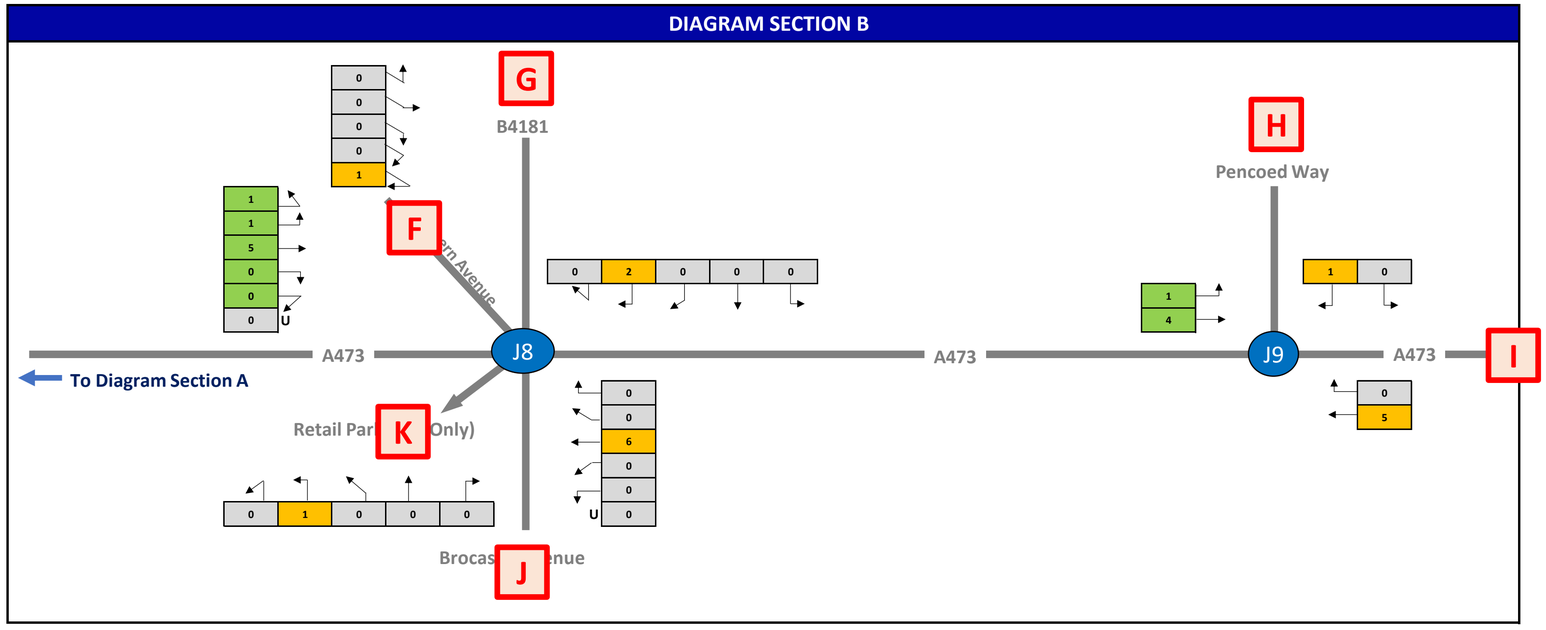
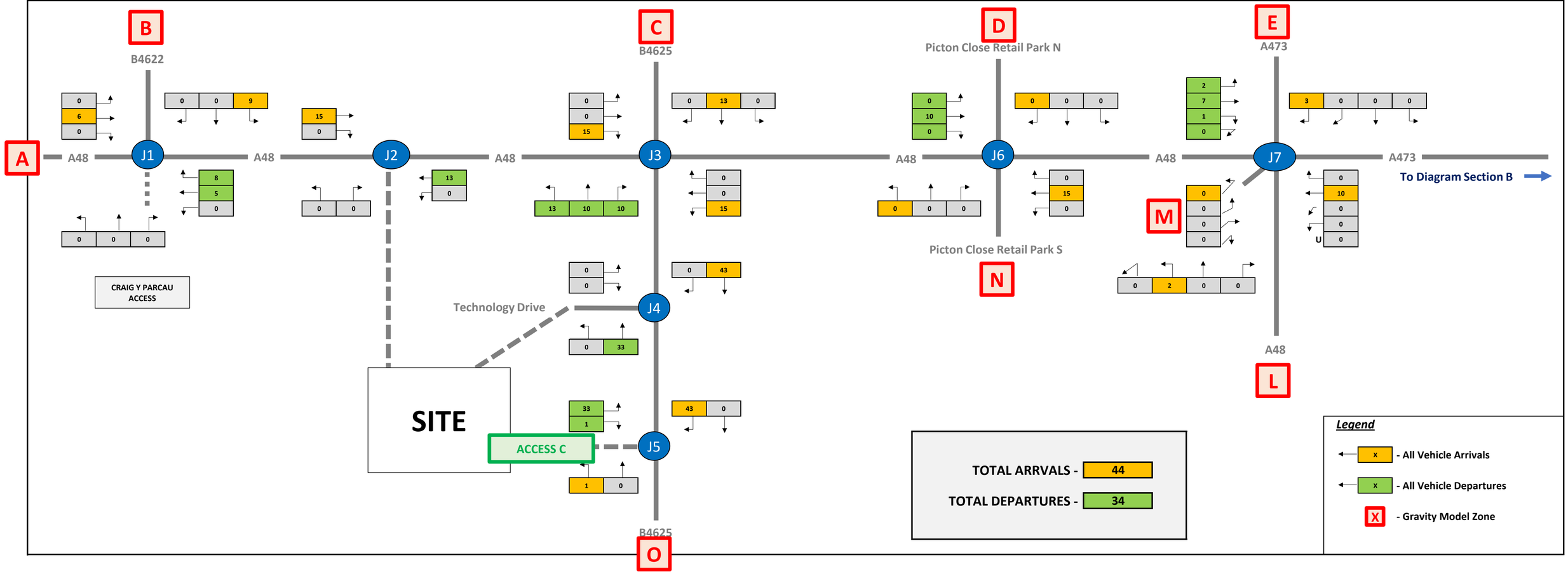


DIAGRAM SECTION A



19-00637 Island Farm, Bridgend

Island Farm Revised Proposals, All Site Access Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

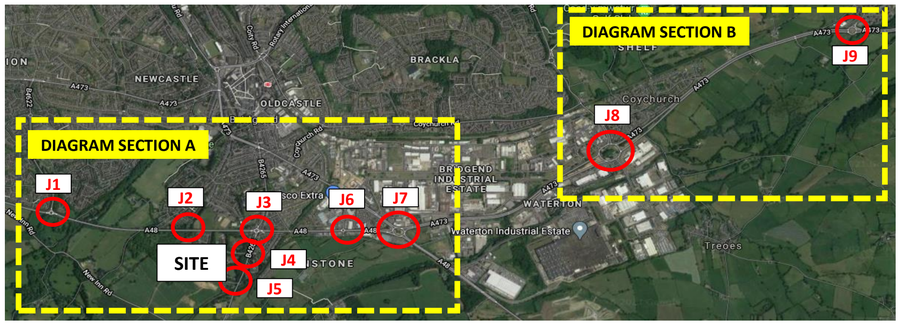


DIAGRAM SECTION B

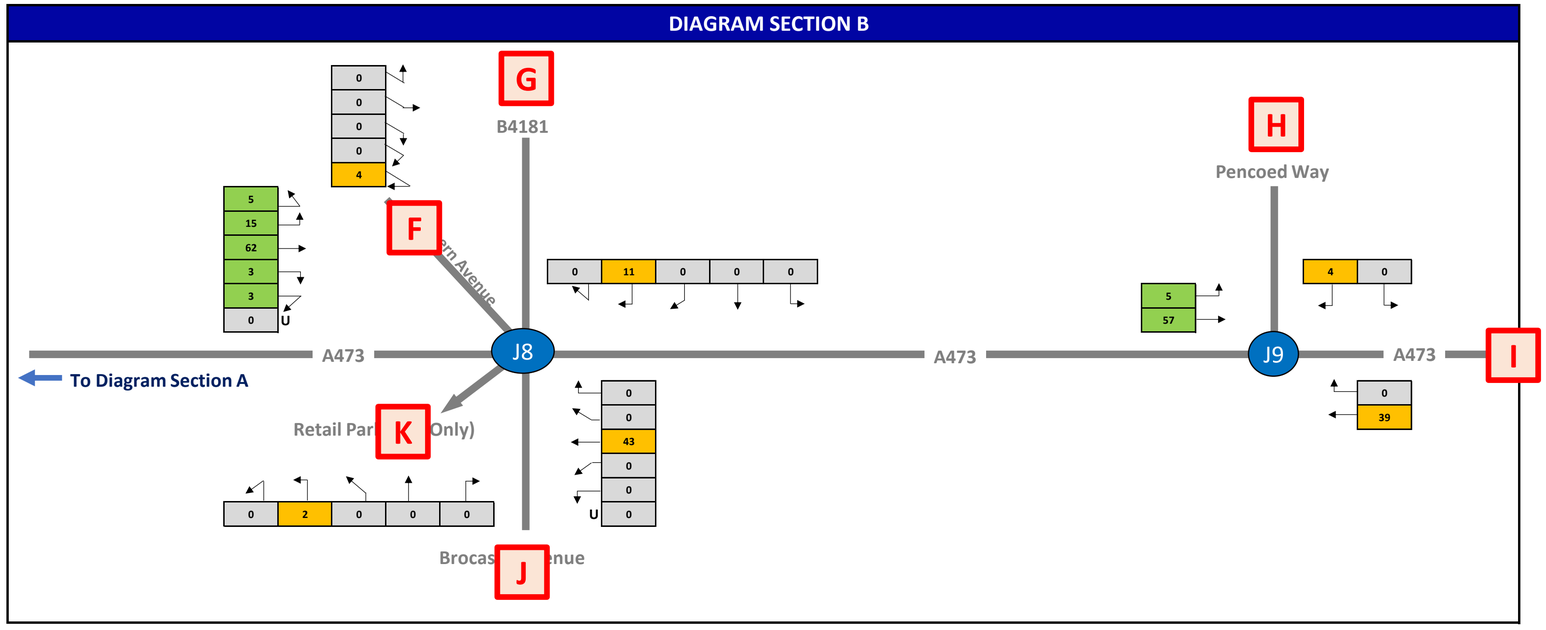
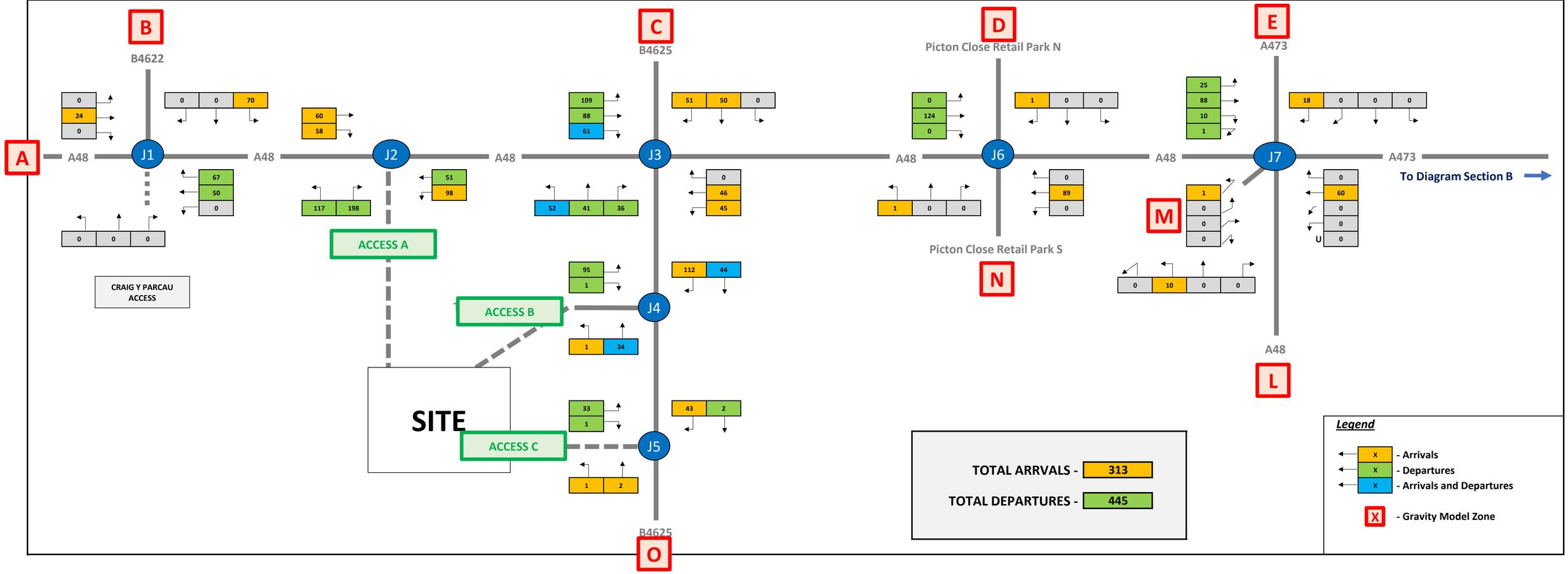


DIAGRAM SECTION A



March 2021

Diagram Ref No.6D

19-00637 Island Farm, Bridgend

Island Farm Revised Proposals, Access A Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

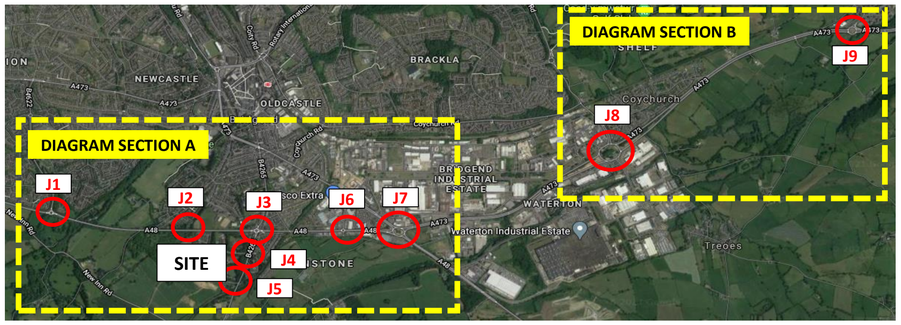


DIAGRAM SECTION B

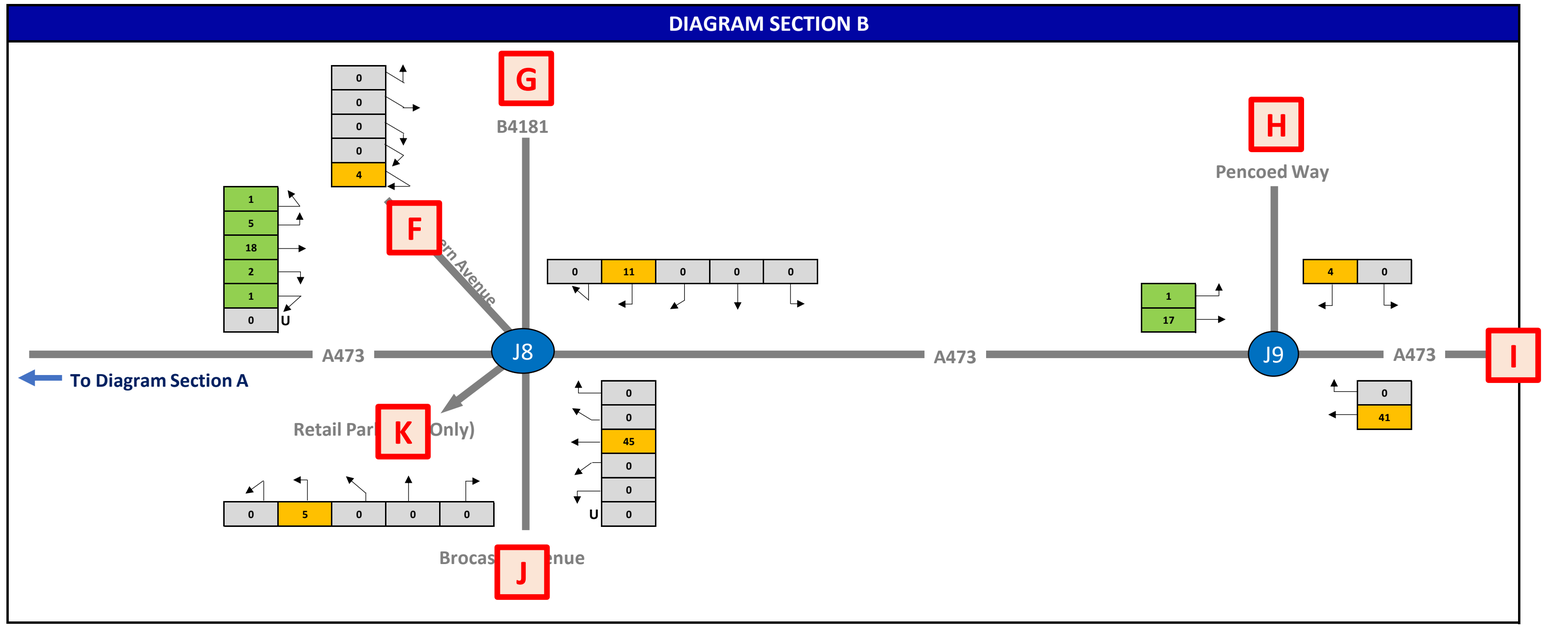
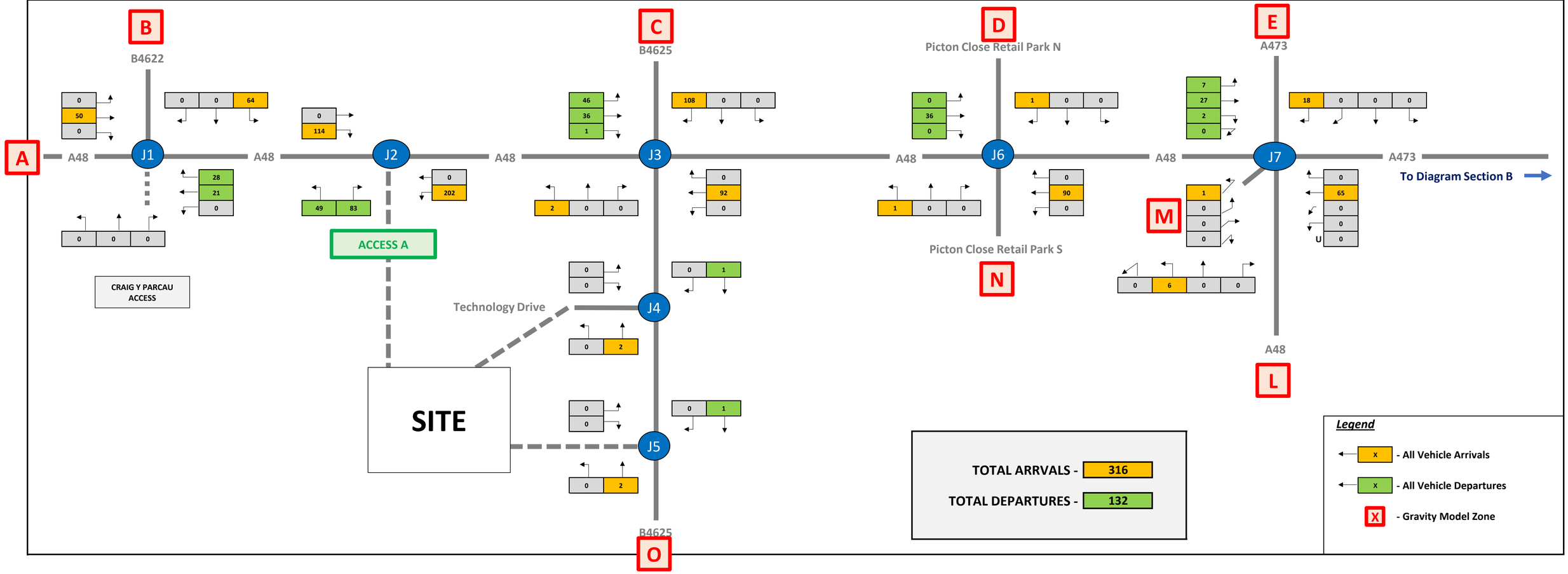


DIAGRAM SECTION A



March 2021

Diagram Ref No.6E

19-00637 Island Farm, Bridgend

Island Farm Revised Proposals, Access B Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

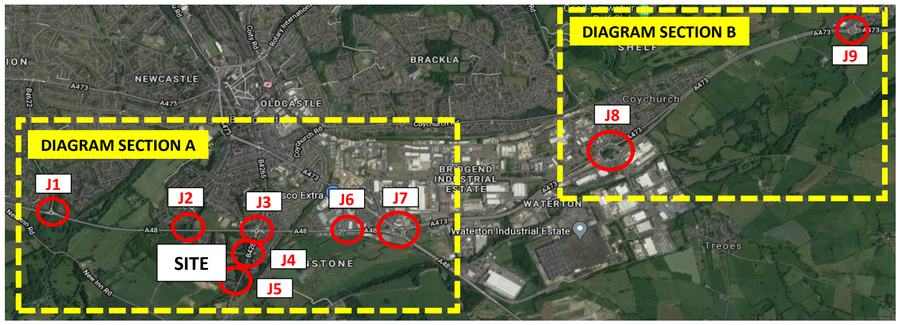


DIAGRAM SECTION B

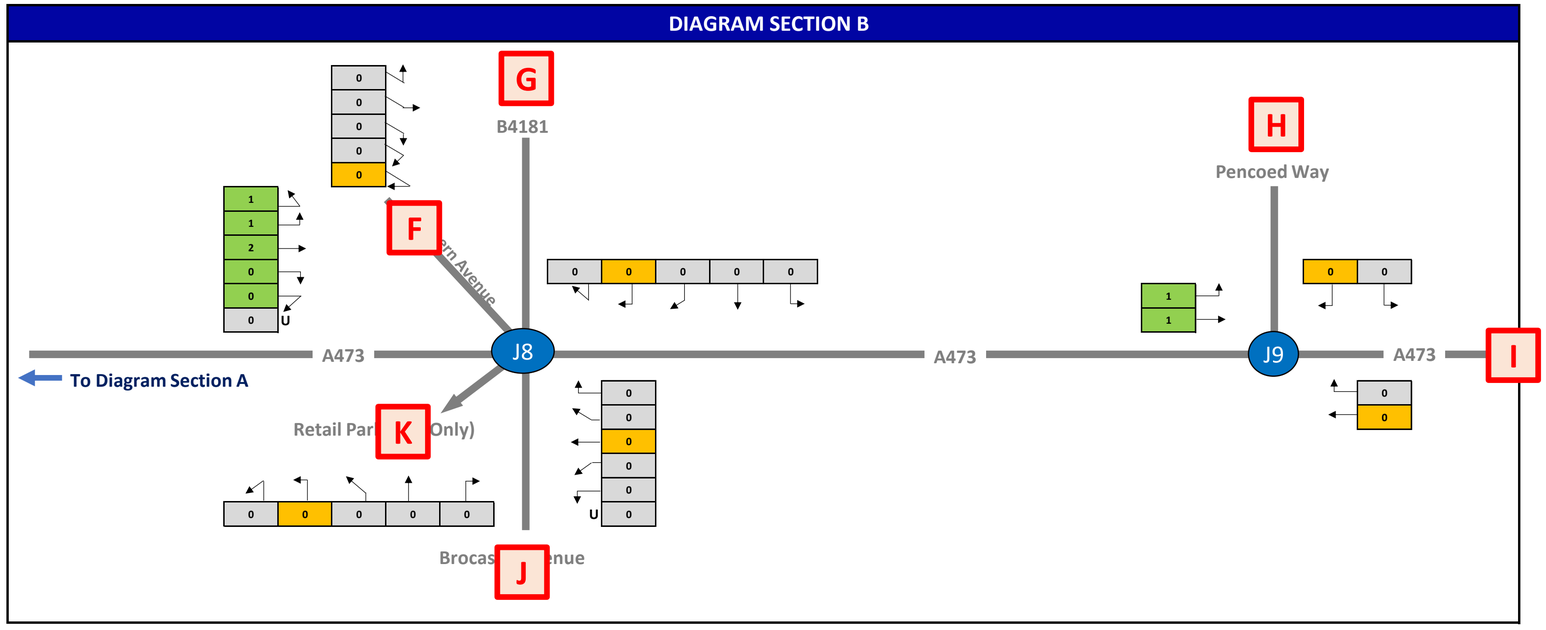
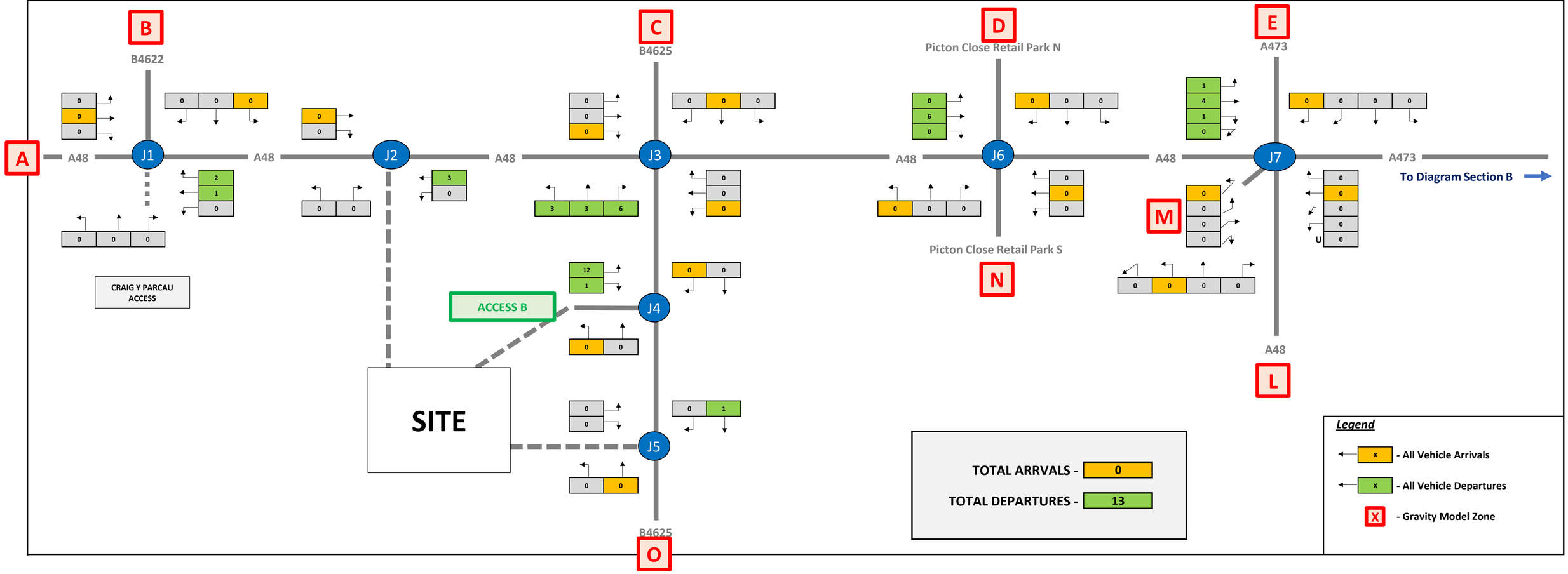


DIAGRAM SECTION A



March 2021

Diagram Ref No.6F

19-00637 Island Farm, Bridgend

Island Farm Revised Proposals, Access C Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

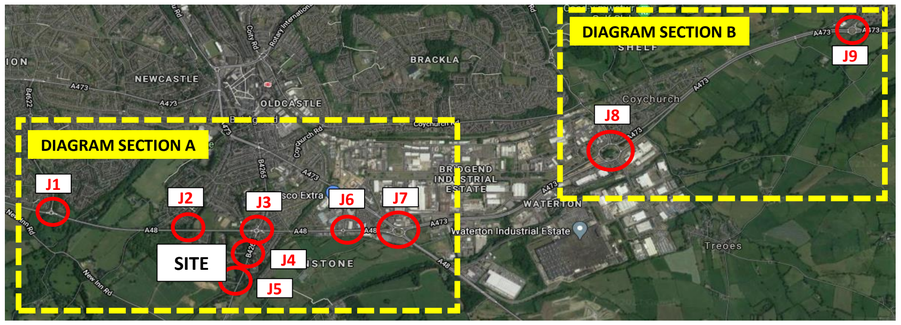


DIAGRAM SECTION B

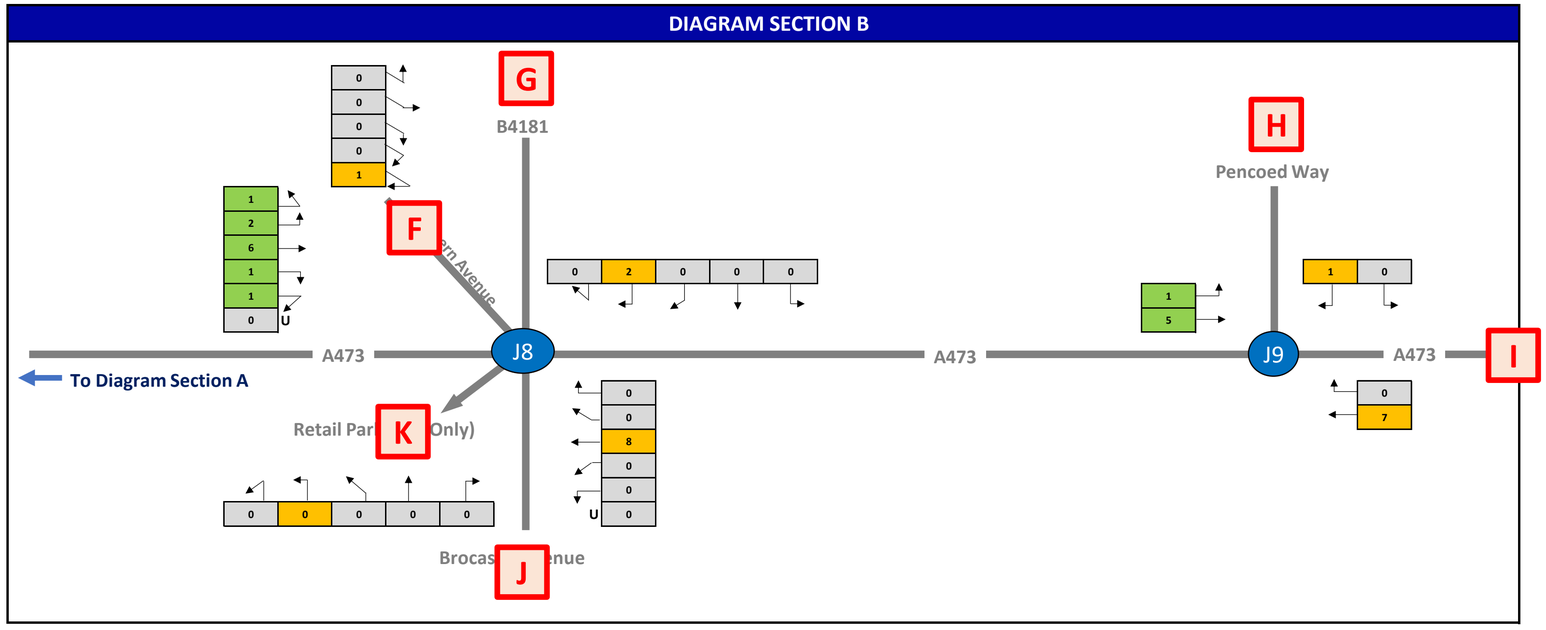
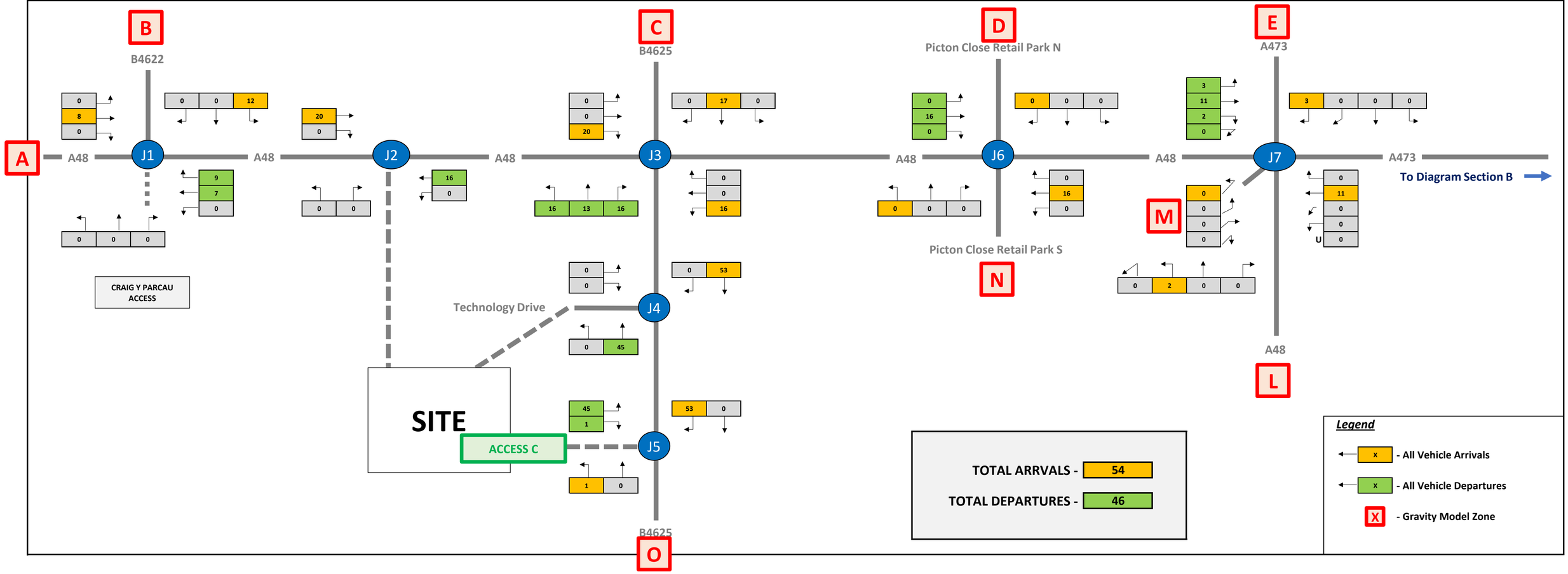


DIAGRAM SECTION A



19-00637 Island Farm, Bridgend

Island Farm Revised Proposals, All Site Access Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

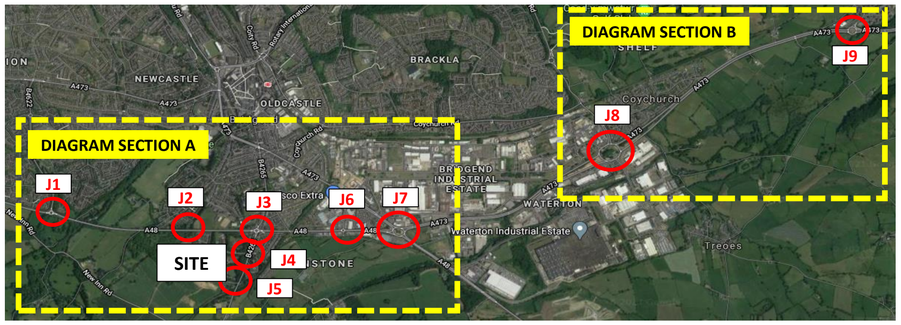


DIAGRAM SECTION B

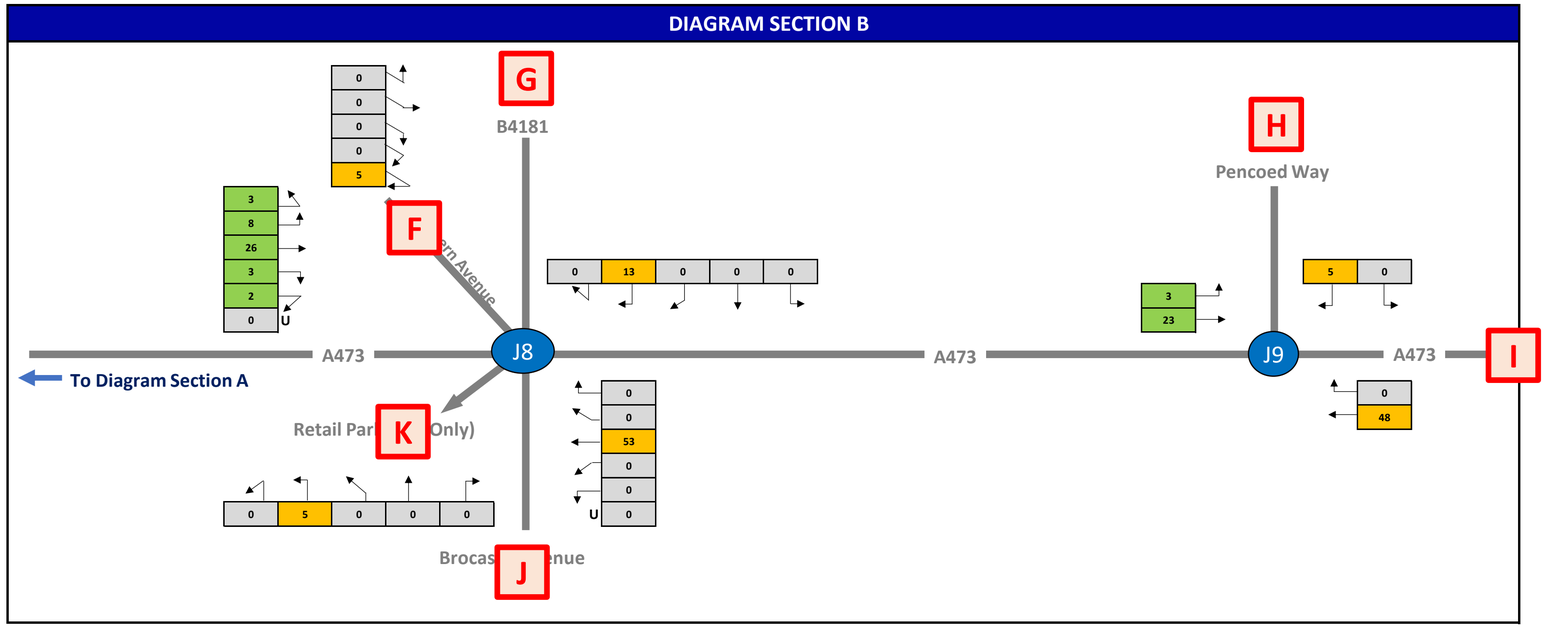
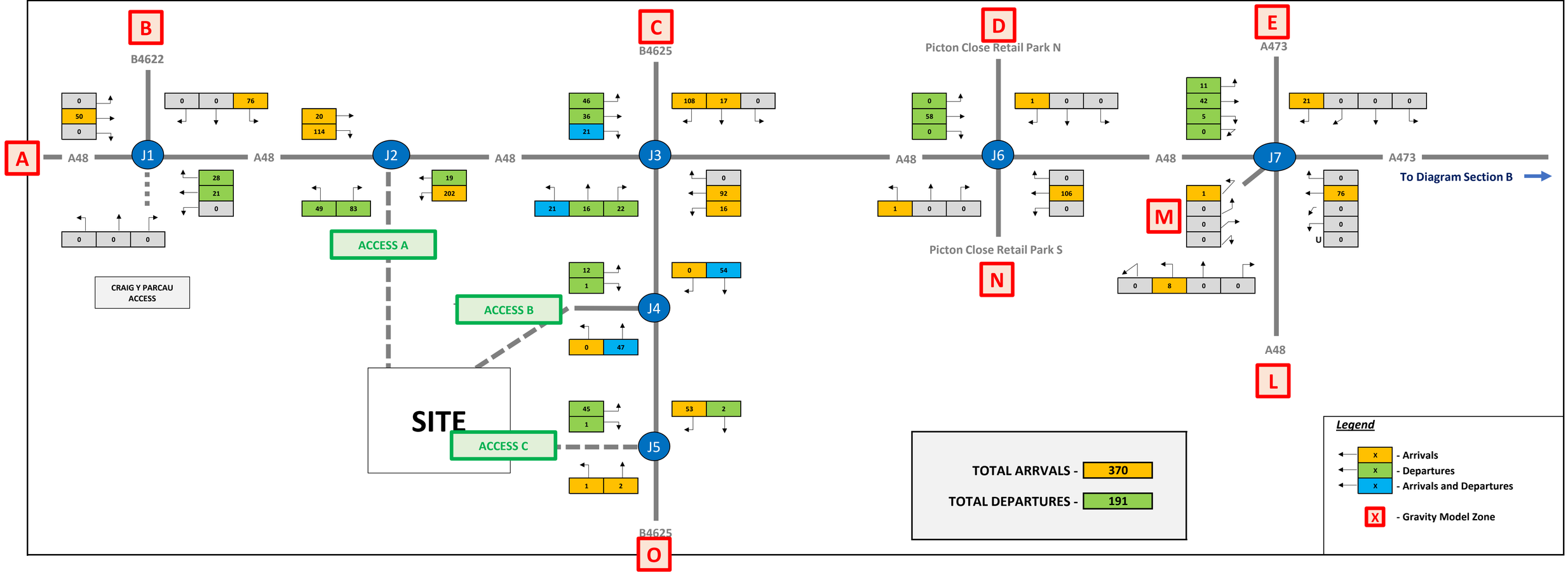


DIAGRAM SECTION A



19-00637 Island Farm, Bridgend

2033 Without Island Farm Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

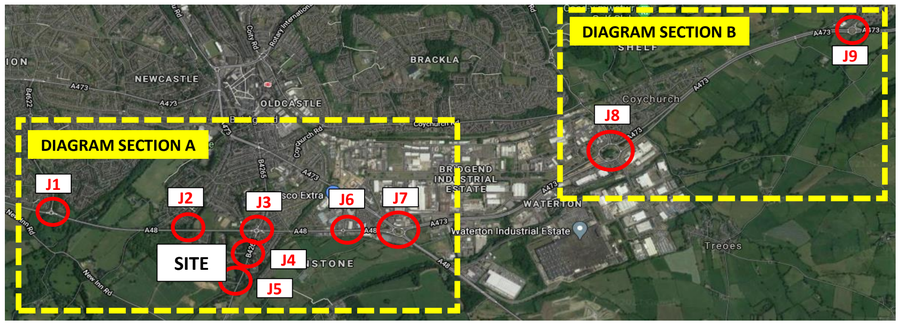


DIAGRAM SECTION B

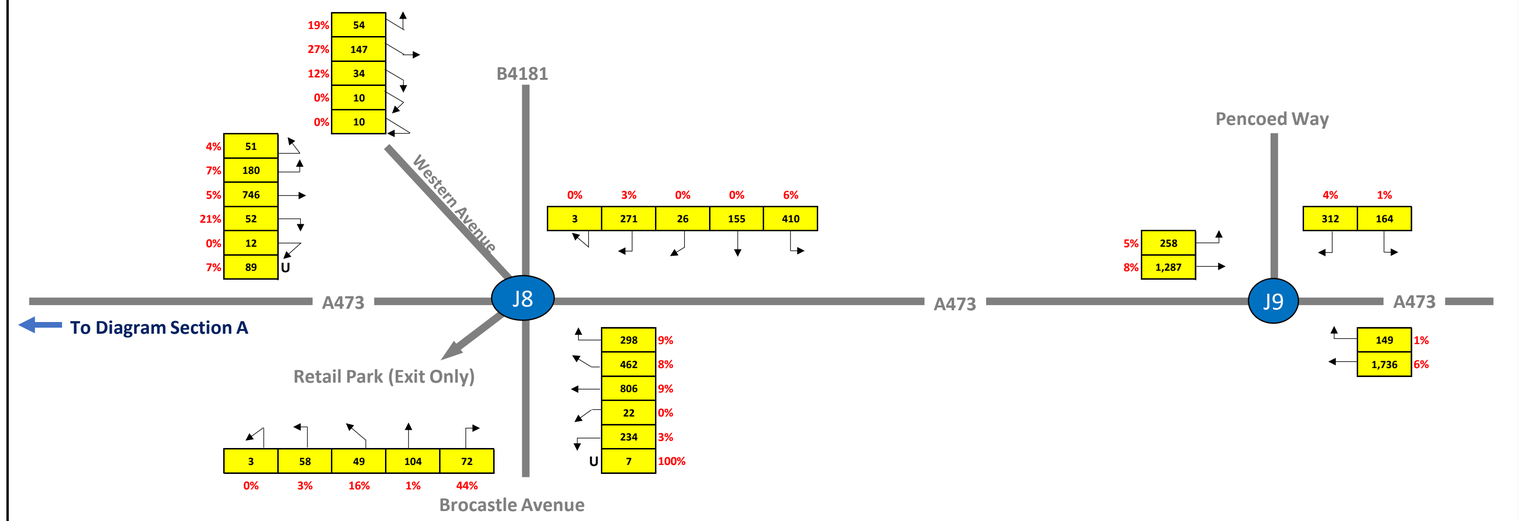
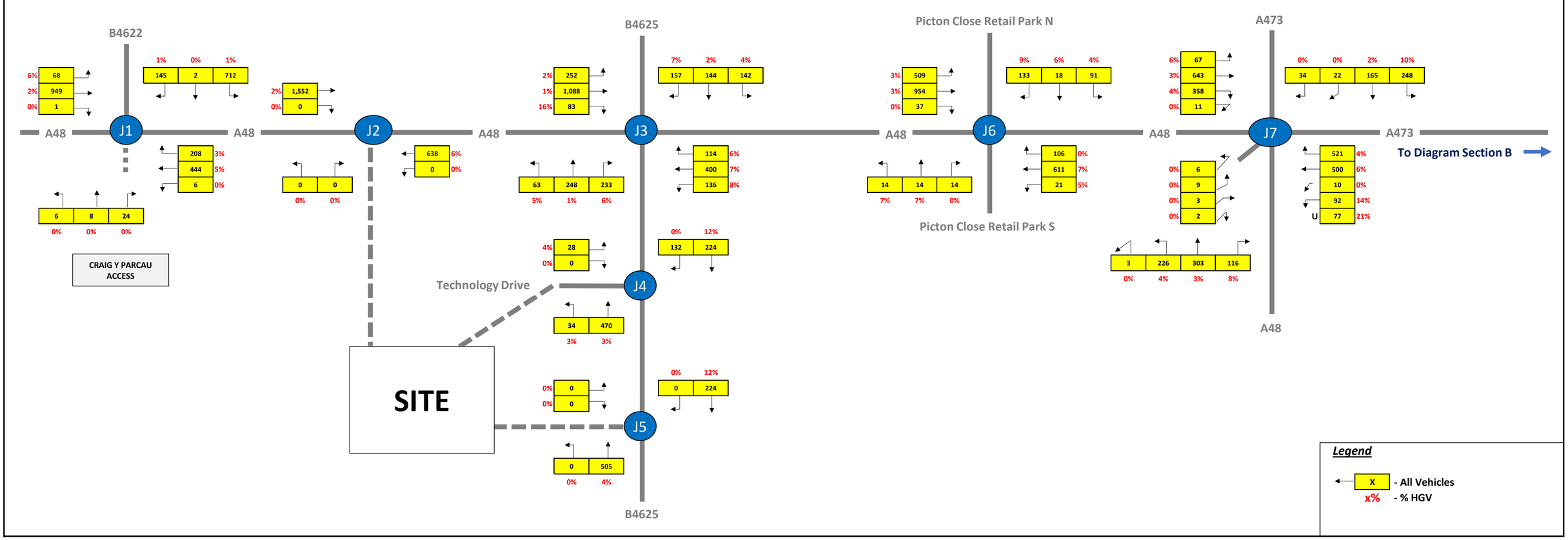


DIAGRAM SECTION A



Legend

X - All Vehicles
x% - % HGV

NOTE: Includes Craig Y Parcau Flows

19-00637 Island Farm, Bridgend

2033 Without Island Farm Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

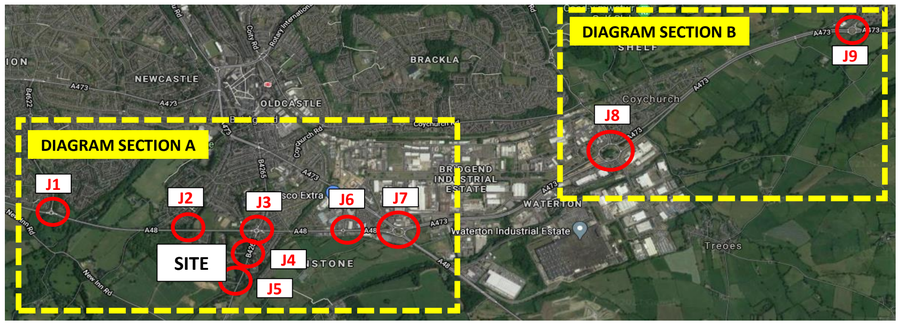


DIAGRAM SECTION B

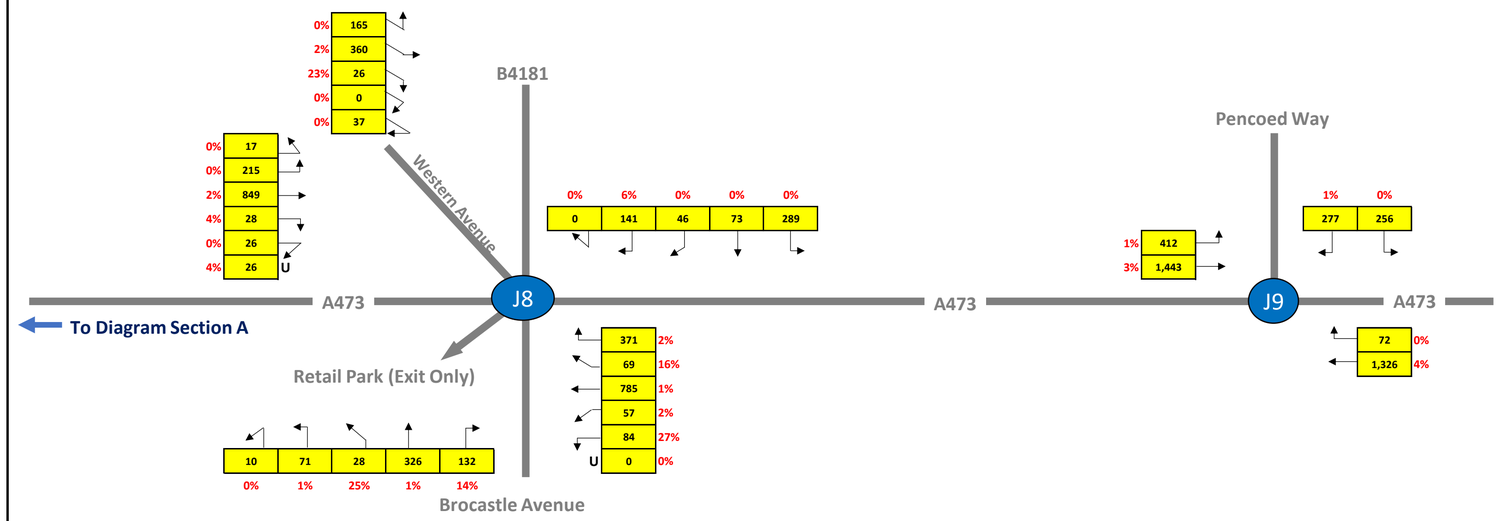
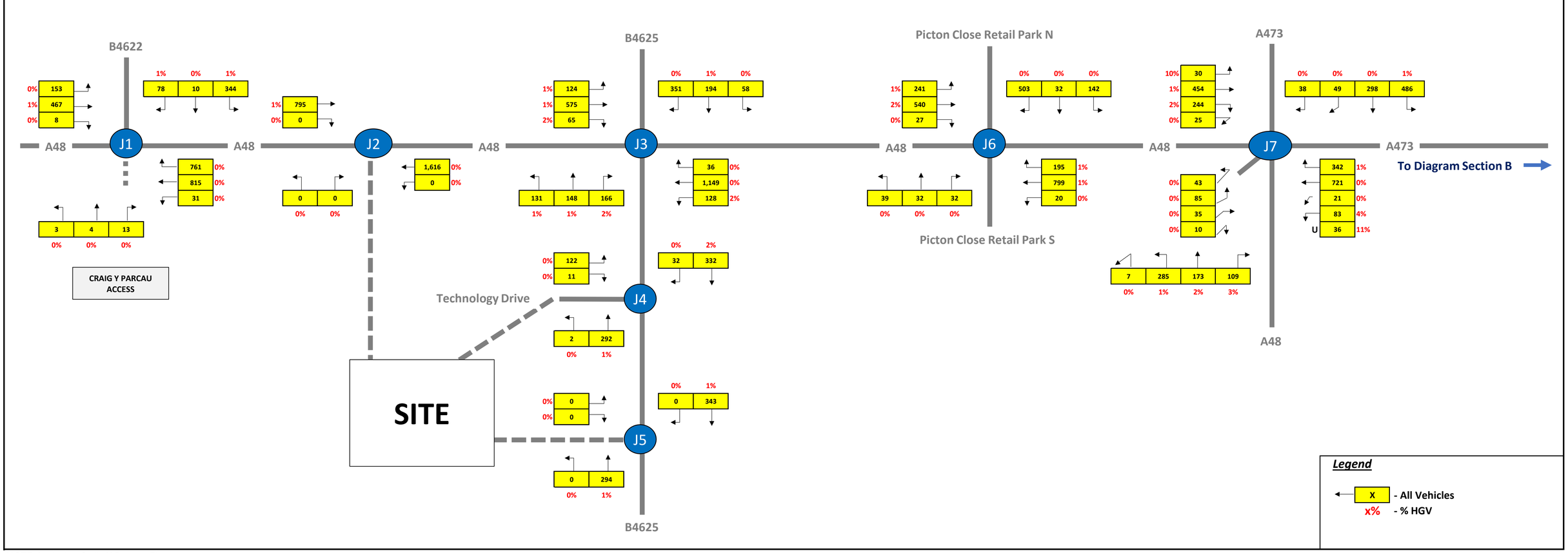


DIAGRAM SECTION A



Legend

X - All Vehicles
x% - % HGV

NOTE: Includes Craig Y Parcau Flows

19-00637 Island Farm, Bridgend

2033 With Consented Island Farm Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

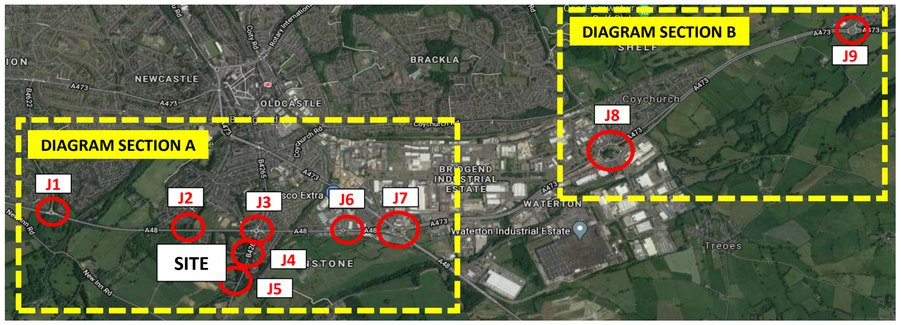


DIAGRAM SECTION B

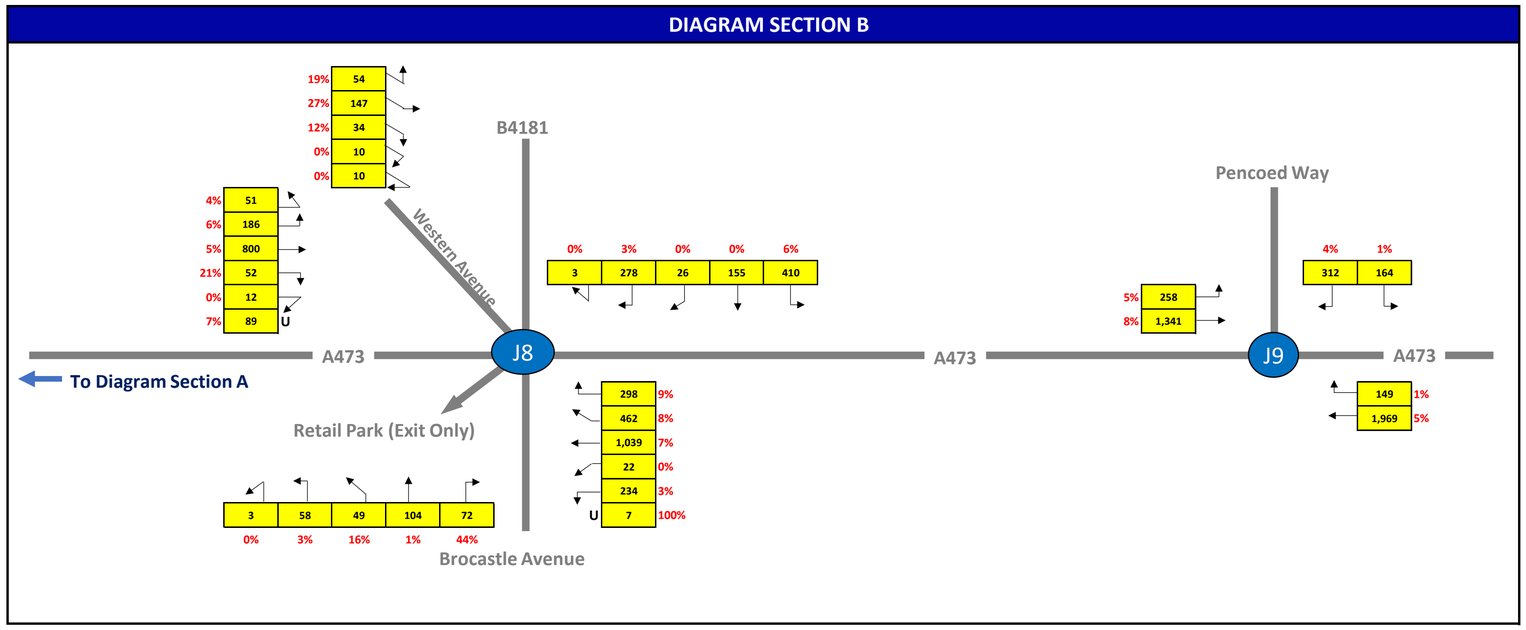
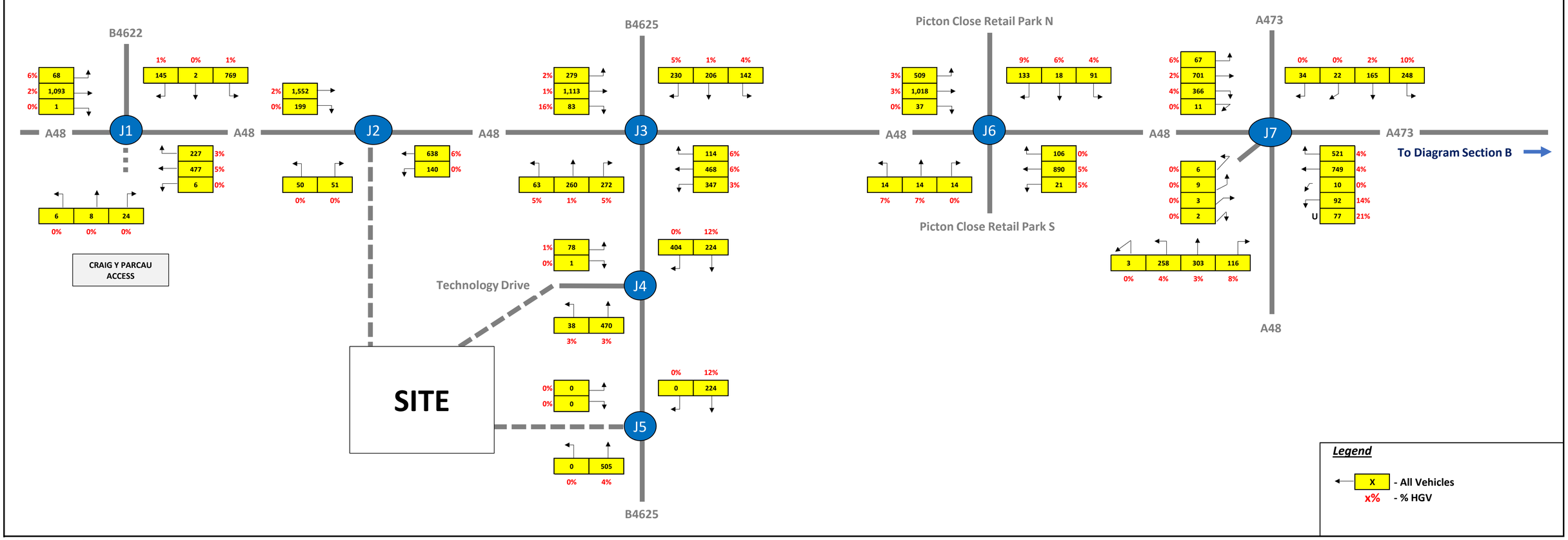


DIAGRAM SECTION A



Legend

X - All Vehicles
x% - % HGV

NOTE: Includes Craig Y Parcau Flows

19-00637 Island Farm, Bridgend

2033 With Consented Island Farm Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

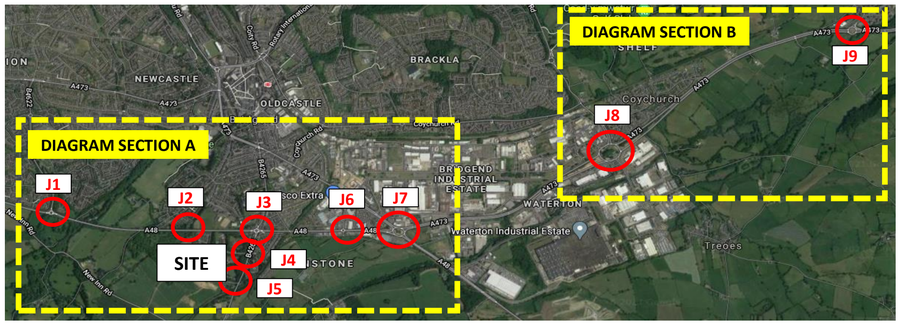


DIAGRAM SECTION B

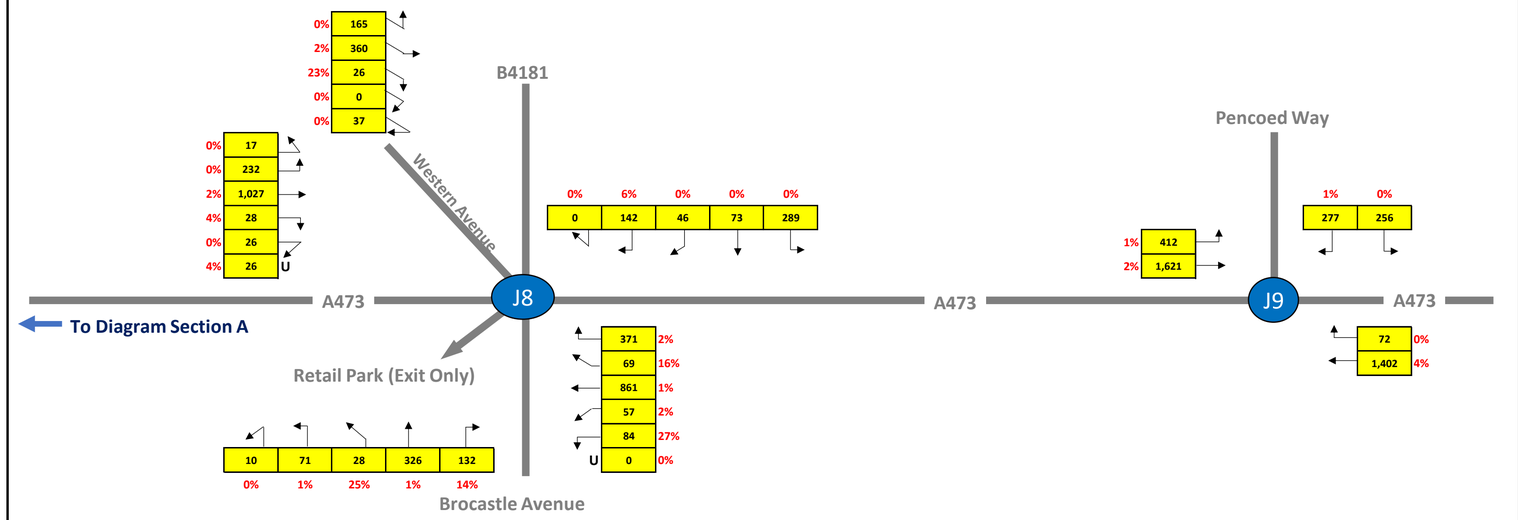
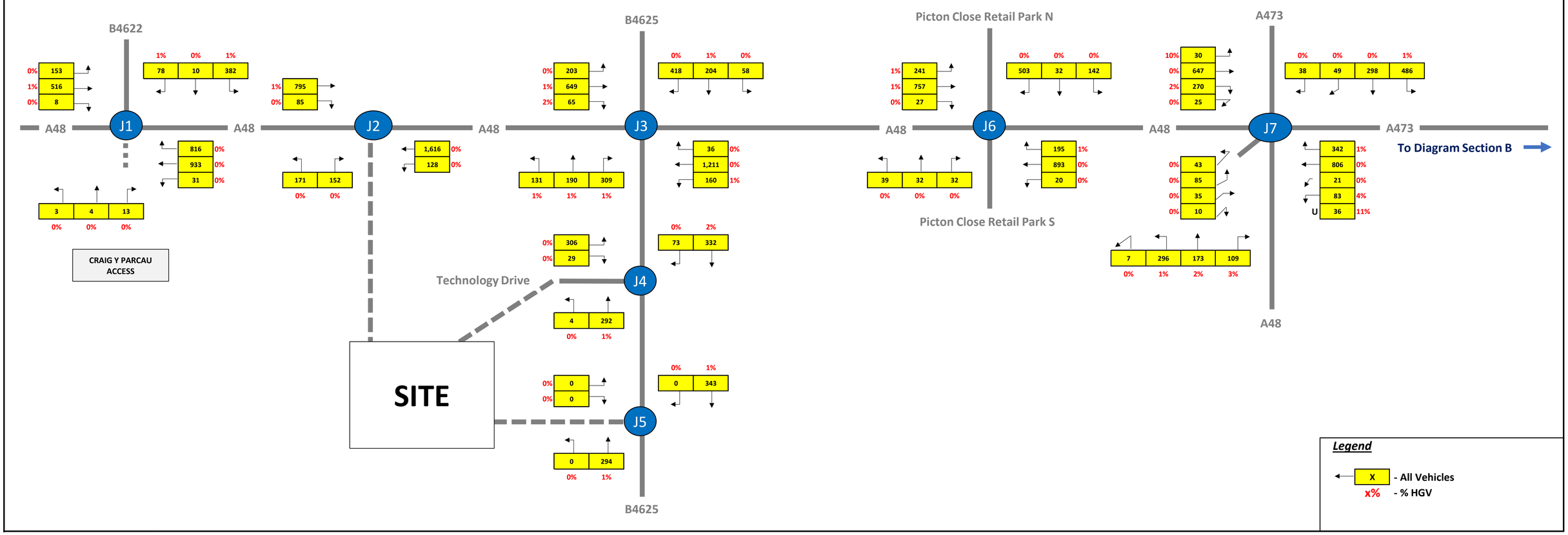


DIAGRAM SECTION A



Legend

X - All Vehicles
x% - % HGV

NOTE: Includes Craig Y Parcau Flows

19-00637 Island Farm, Bridgend

2033 With Revised Island Farm Flows (AM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

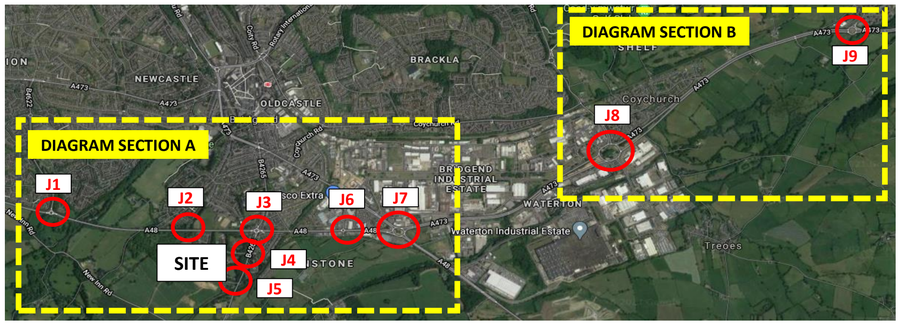


DIAGRAM SECTION B

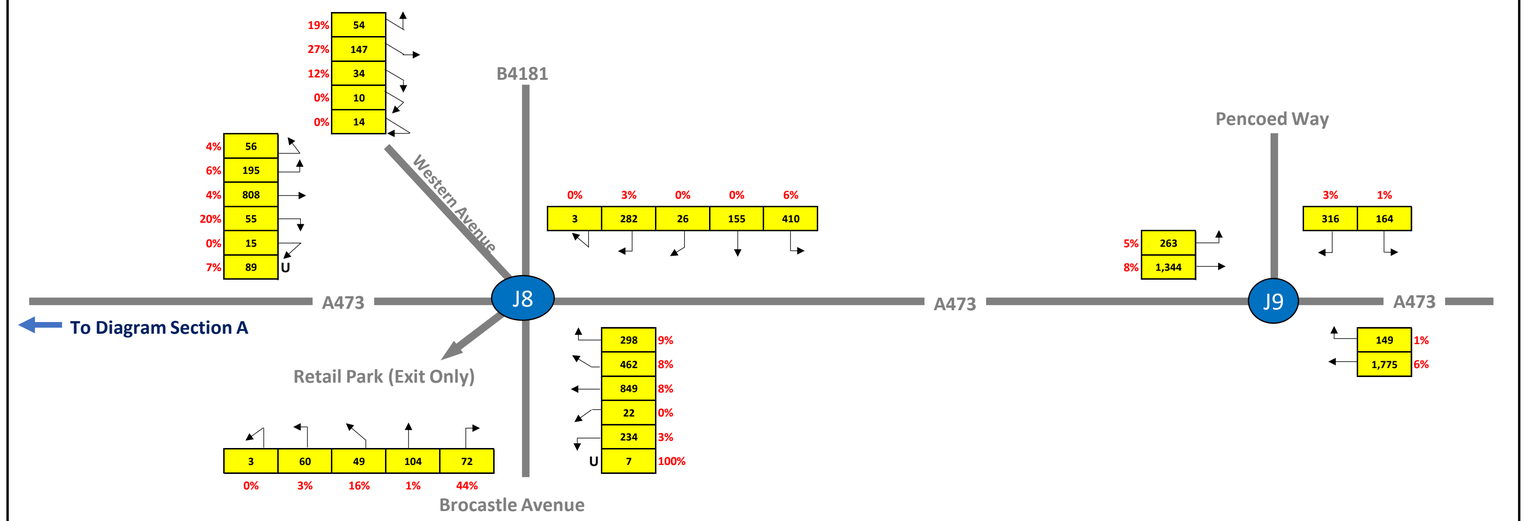
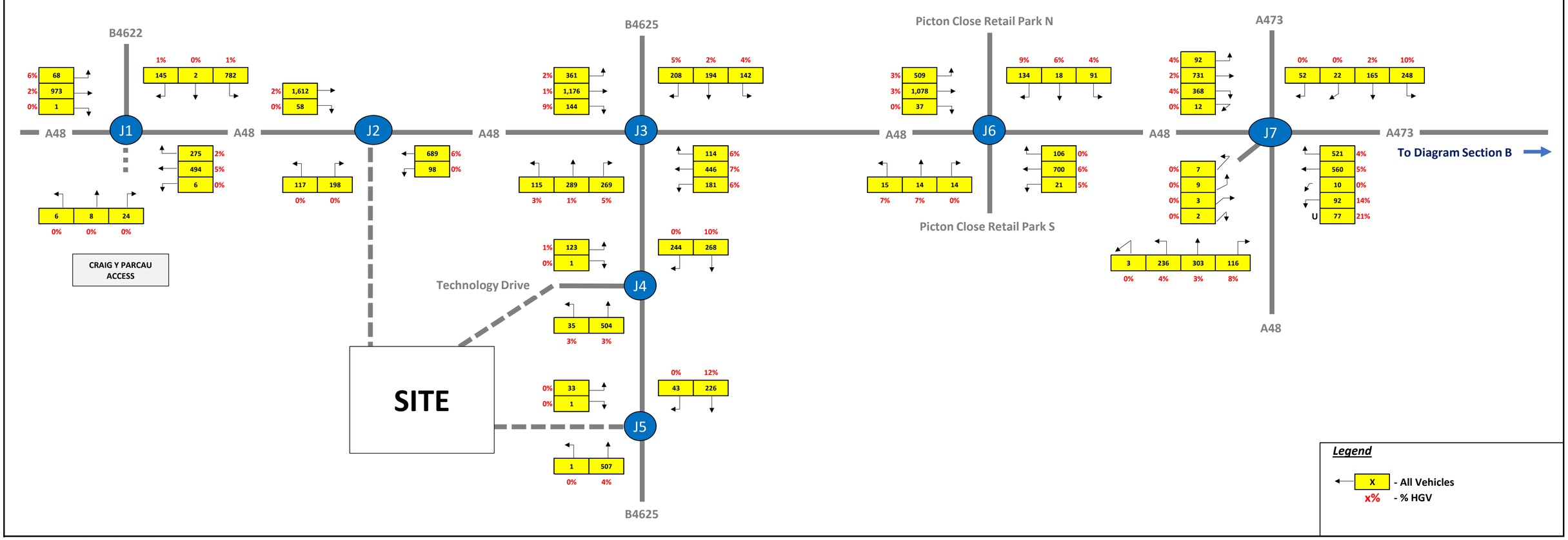


DIAGRAM SECTION A



Legend

X - All Vehicles
x% - % HGV

NOTE: Includes Craig Y Parcau Flows

19-00637 Island Farm, Bridgend

2033 With Revised Island Farm Flows (PM Peak Hour)

CORUN
Transport and Highway Engineering

J1: Broadlands Rbt
J2: A48 New Site Access
J3: Ewenny Rbt
J4: B4265 / Technology Drive Jct
J5: B4265 / Ewenny Rd Jct
J6: Picton Close Rbt
J7: Waterton Cross Rbt
J8: Coychurch Rbt
J9: Bocam Park Rbt

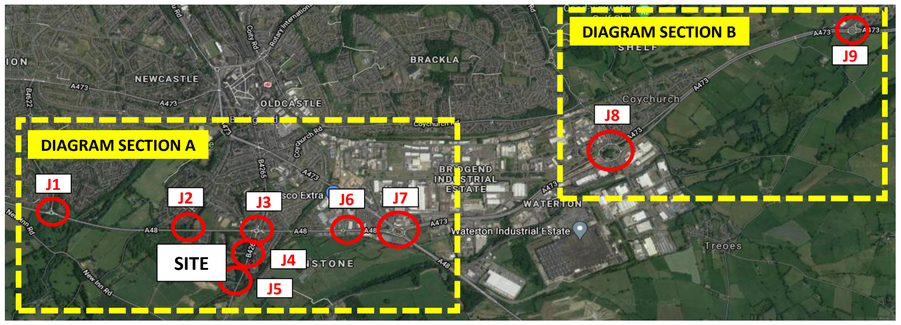


DIAGRAM SECTION B

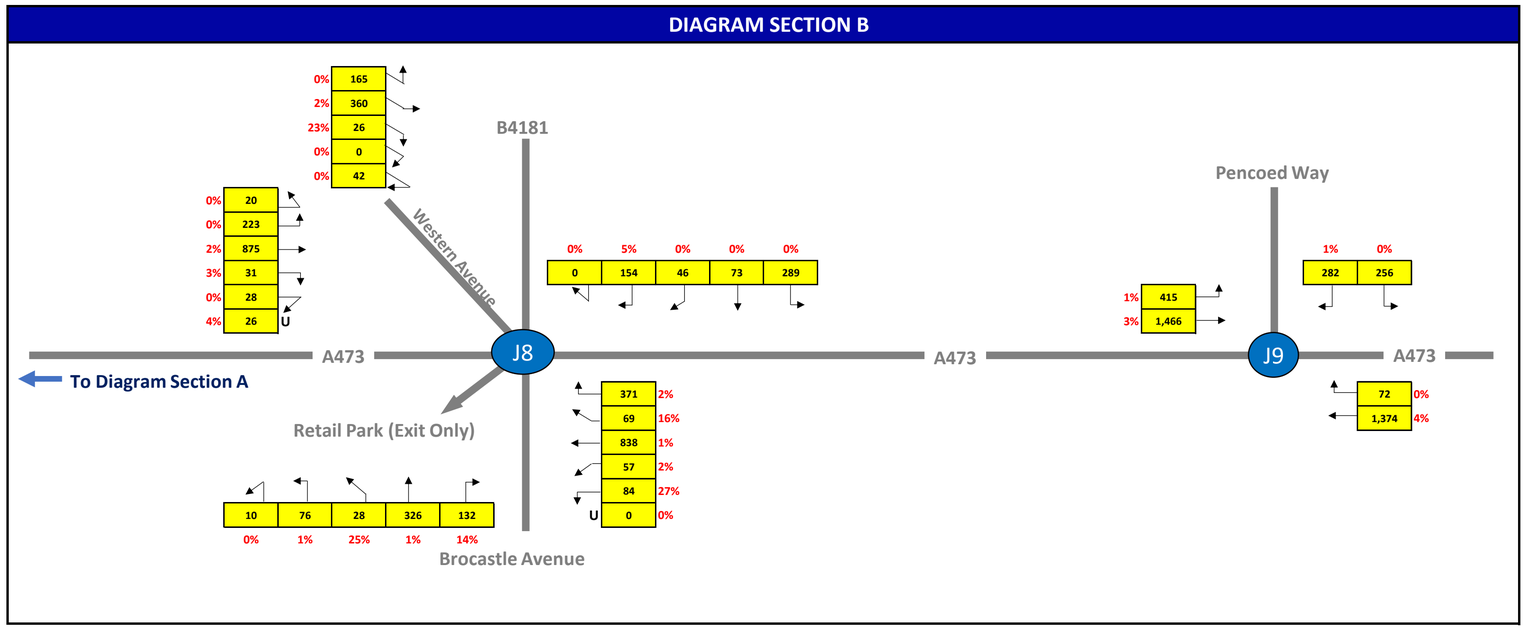
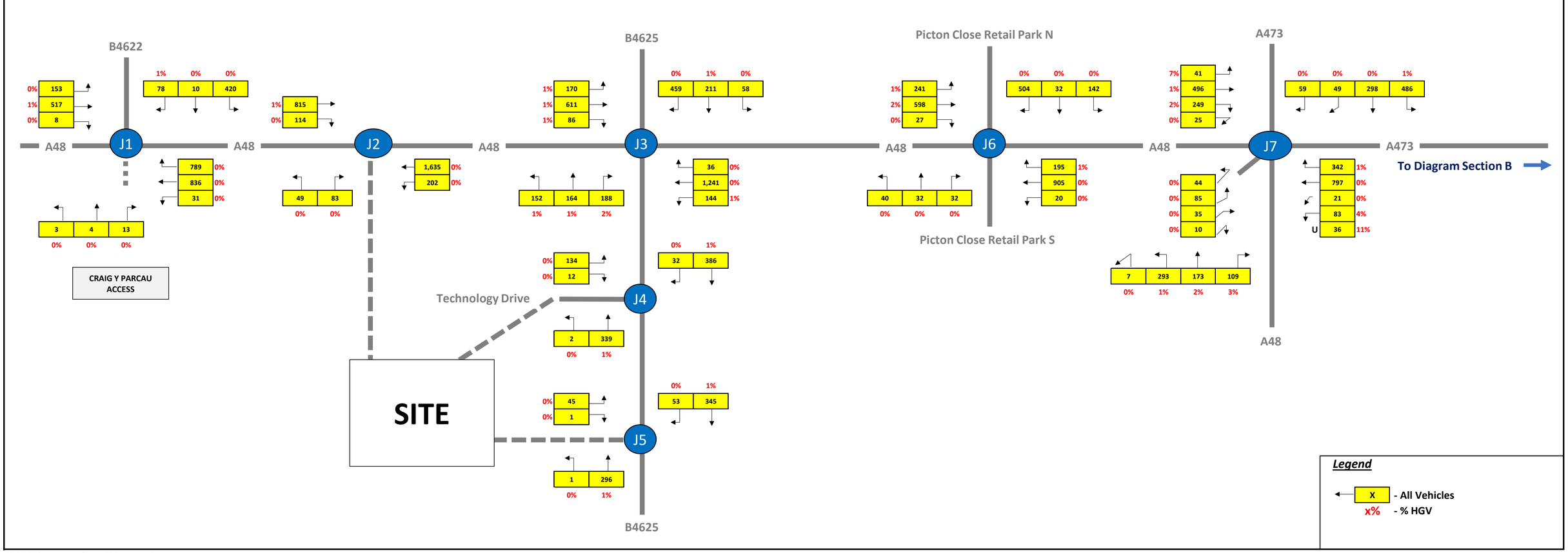


DIAGRAM SECTION A



Legend

X - All Vehicles
x% - % HGV

NOTE: Includes Craig Y Parcau Flows