

Transport Scoping Note – Project Dragon

Phoenix Wharf, Port Talbot

CT/220352/SN03 – 19 May 2023

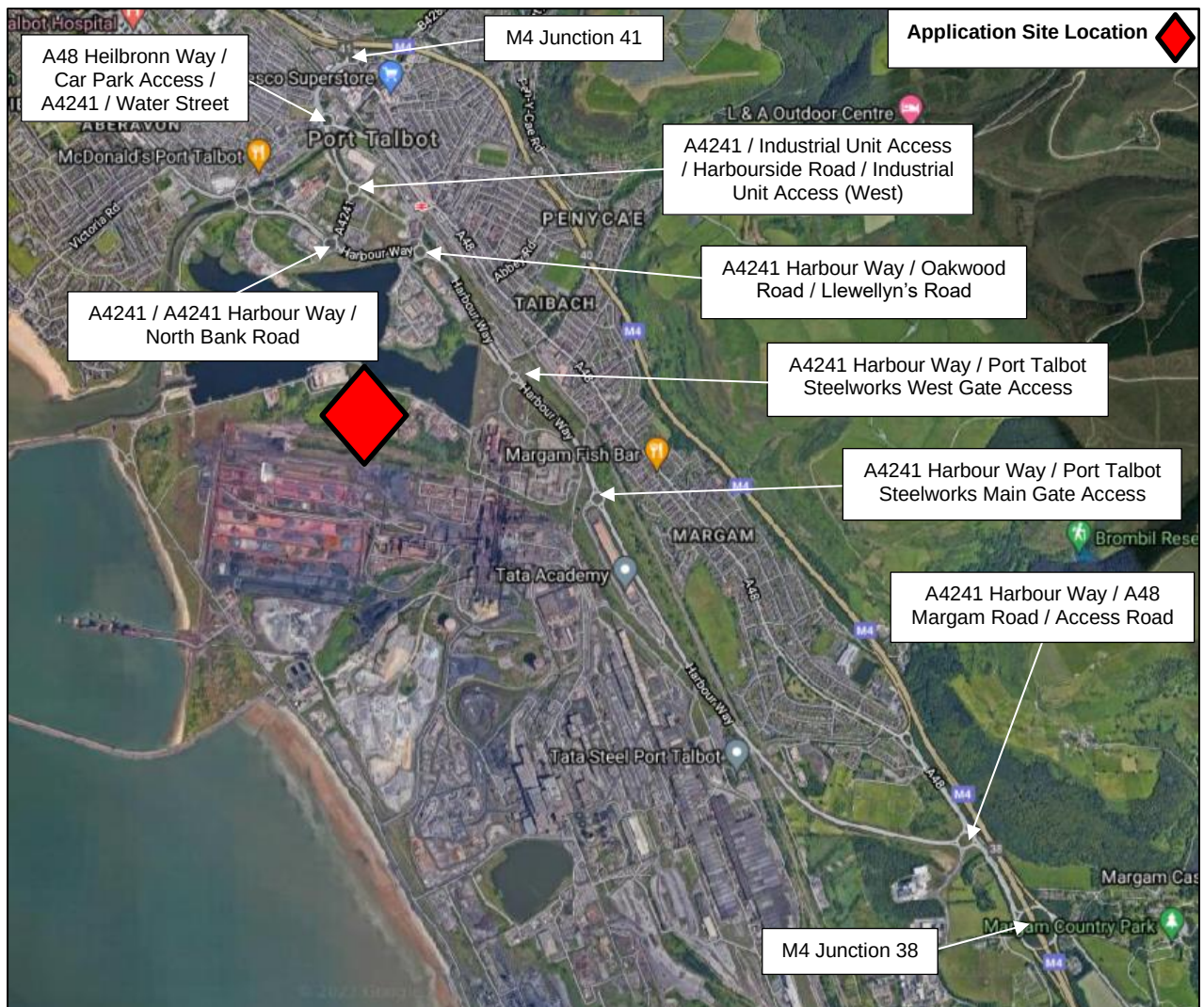
Introduction

- 1.1 SCP have been appointed to provide transport planning and engineering advice in support of a full planning application for the erection of a Sustainable Aviation Fuel (SAF) production facility on land to the south of Port Talbot docks.
- 1.2 This Scoping Note presents the suggested scope and methodology of the Transport Assessment (TA) to Neath Port Talbot Council (NPTC), as Local Highway Authority, and seeks to formally agree the scope of the TA required to support the impending planning application as well as inform the Transport Chapter of the Environmental Impact Assessment.

Site Location and Existing Conditions

- 1.3 The application site is located on land to the south of Port Talbot docks and west of the A4241 Harbour Way, approximately 1.4km south of Port Talbot Town Centre. The site is bounded by a private road, Hanson Cement Works and Port Talbot docks to the north, a private road and industrial works to the east, an unused section of railway line to the south and brownfield land and wider Associated British Ports operations to the west.
- 1.4 **Figure 1** below shows the site location in relation to the local highway network.

Figure 1 – Site Location / Local Highway Network



Transport Assessment Scope and Study Area

1.5 A preliminary TA study area has been identified which includes the key junctions on route to and from the M4, which are listed below and identified on **Figure 1** above:

- M4 Junction 41
- A48 Heilbronn Way / Car Park Access / A4241 / Water Street
- A4241 / Industrial Unit Access / Harbourside Road / Industrial Unit Access (West)
- A4241 / A4241 Harbour Way / North Bank Road
- A4241 Harbour Way / Oakwood Road / Llewellyn's Road
- A4241 Harbour Way / Port Talbot Steelworks West Gate Access

- A4241 Harbour Way / Port Talbot Steelworks Main Gate Access
- A4241 Harbour Way / A48 Margam Road / Access Road
- M4 Junction 38

Traffic Flow Data

- 1.6 In order to establish the existing traffic flow demand on the local highway network, manual classified turning count traffic flow surveys have been undertaken at all of the aforementioned junctions in the TA study area. The traffic surveys were undertaken on Thursday 30th June 2022, in a neutral traffic month, between 07:00 – 09:30 and 16:00 – 18:30.

Proposed Development

- 1.7 The development proposals consist of the erection of a SAF production facility on land to the south of Port Talbot docks.
- 1.8 The SAF production facility uses Alcohol to Jet Fuel (AtJ) technology. This will comprise several industrial components, buildings and associated infrastructure. The proposed plant will produce in excess of 100M litres per year of Alcohol to Jet Synthetic Paraffinic Kerosene (ATJ-SPK).
- 1.9 The applicant has confirmed that under normal operation the required ethanol (primary input production) will be imported by barge and all ATJ-SPK will be stored on-site and exported by barge, with all transport movements associated with loading / unloading kept off the local highway network.
- 1.10 Notwithstanding the above, the process to make ATJ-SPK also produces sustainable diesel which is proposed to be exported via road to surrounding local areas / businesses. Furthermore, the process also requires nitrogen, chemicals and catalyst, which will be delivered by road, and produces contaminated water, waste ethanol and spent catalyst which will be transported off-site by road, as detailed later.
- 1.11 The applicant anticipates a requirement for a total of 85 staff for the proposed development to operate which includes 6 remote technical support staff. The processing facility will be operational 24 hours per day with on-site staff working the following shifts:
- Day Support Staff: 9 staff working 08:00-17:00
 - Day Shift: 12 staff working 00:00-08:00
 - Evening Shift: 41 staff working 08:00-16:00
 - Night Shift: 17 staff working 16:00-00:00

Proposed Construction Phase

- 1.12 The applicant has confirmed that the proposed development will require circa 2.5 years to construct, inclusive of commissioning of the processing plant and overall facility, and is expected to be operational by May 2026.
- 1.13 Construction is proposed to take place during normal working hours Monday-Friday and a contractor has been brought on board who estimates 450 staff will be required on-site.

Access Strategy

- 1.14 The access strategy for the site is still being developed. However, vehicular access to the development site will be provided from the private road that fronts the northern site boundary, which connects to the local highway network at the A4241 Harbour Way / Port Talbot Steelworks West Gate access junction. This access road regularly accommodates large HGV's / commercial vehicles associated with the existing operations / uses surrounding the application site.
- 1.15 During the construction phase, land at Margam Wharf and adjacent to the project site is proposed to be used for temporary facilities, laydown and site establishment.
- 1.16 The access road within the site will be designed to accommodate the maximum size wide-load vehicle anticipated to enter the site during construction and the internal access roads will be provided to facilitate the operation of the site and designed to accommodate the movements of a 16.5m articulated HGV where required. Swept path analysis of the internal circulation routes and car parks will be provided within the TA.
- 1.17 A dockside ship loading rack is proposed to the north of the site to enable the transportation of ethanol and jet fuel.

Committed Developments

- 1.18 Based on our experience of working in the area, the following developments will be taken into account.
- P2021/1255 - Land off J38 of the M4, Margam - Full planning application of the development of a metal processing facility totalling 28,500sq.m of floorspace comprising a powder processing plant (17,377sq.m), warehouse and store (5,428 sq.m) office building (1,442 sq.m), amenity building (776 sq.m), laboratory (200 sq.m), services building (470 sq.m), substation (107 sq.m), phase 2 (2,700 sq.m), CCTV, storage tanks and plant, parking, servicing and roads and associated works.

- P2020/0601 - Tyn-y-caeau, Margam Road - Change of use from dwelling house and annex building into a mixed used development consisting of guest house accommodation consisting of 16 guest rooms, with associated bar, cafe and spa facilities, and truck stop with 21 HGV parking spaces. The proposal includes the demolition of an existing single storey rear extension, and the erection of a single-storey rear extension, together with widened site access, additional internal access roads, parking areas and associated works.

1.19 Details of any additional committed developments (i.e. those with extant planning permission) in the vicinity of the TA study area are requested from NPTC to allow them to be taken into account in the capacity assessments within the TA.

Trip Generation

1.20 Due to the very specific / bespoke nature of the development, a first principles approach based on information provided by the applicant/contractor has been adopted to estimate the level of traffic anticipated to be generated by the project during both the construction and operational phase.

Construction Phase

1.21 The following measures are proposed which will reduce the traffic impacts during the construction phase:-

- Off-site pre-construction / pre-fabrication will be utilised where possible
- Operational production plant will be delivered via barge
- Travel via minibus instead of personal vehicles will be incentivised and car sharing will also be encouraged
- Adaptation of working time to avoid peak hours, if necessary

1.22 Notwithstanding the above, the contractor has confirmed that approximately 102 daily HGV movements (204 two-way daily HGV movements) are anticipated to be generated during the peak months of construction associated with the following processes, although the TA will consider 120 daily HGV movements (240 two-way daily HGV movements) in order to allow for a robust assessment.

- Site preparation works including removal of soil and import of clean fill material
- Site establishment
- Delivery of construction equipment
- Delivery of materials

- Removal of waste

1.23 HGV movements will be spread across the day, although the contractor estimates up to 52 and 24 two-way HGV movements could be expected in the AM and PM peak hours respectively based on the robust figure of 240 two-way daily HGV movements.

1.24 In addition to the above and as detailed earlier, the contractor estimates 450 staff will be required on-site. In order to limit the traffic impacts during the construction phase and promote sustainable travel, the applicant/contractor has confirmed that car sharing and travel via minibus will be heavily encouraged with a summary of staff mobilisation provided in **Table 1** below.

Table 1 – Construction Workers Mobilisation

Category	Staff	Vehicle	% Occupancy	Staff/Vehicle	1-Way Vehicle
Managers	68	5-Seat Car	20%	1	68
Workforce	230	5-Seat Car	60%	3	90
	152	24-Seat Minibus	80%	20	8

1.25 Whilst a total of 166 one-way vehicle movements are estimated associated with construction workers, the TA will consider 200 (34 additional cars) one-way vehicle movements (400 two-way) in order to allow for a robust assessment.

1.26 **Table 2** below presents the anticipated temporal distribution of construction workers arriving and departing the site, based on the anticipated site opening time of 07:00 and proposed 10-hour construction worker shift pattern.

Table 2 – Construction Workers Temporal Distribution (Arrivals / Departures)

Staff Arrival and Departure Times	Arrive		Depart	
	06:00-07:00	75%	17:00-18:00	75%
	07:00-08:00	20%	18:00-19:00	20%
	08:00-09:00	5%	19:00-20:00	5%

1.27 The estimated construction workforce trip generation between the hours of 06:00 – 07:00 and 17:00 – 18:00 is summarised in **Table 3** below. It should be noted that the average network peak hours will be identified from the traffic survey data and the combined worst case network peak hours and construction traffic peak hours will be assessed as part of the TA to allow for a robust assessment.

Table 3 – Construction Workers Trip Generation Estimates

Workforce (PCU)	AM Arrivals	AM Departures	PM Arrivals	PM Departures
	153	0	0	153

- 1.28 The number of estimated HGV moments during the network peak hours has been converted to PCU, as summarised in **Table 4** below.

Table 4 – HGV Construction Trip Generation Estimates

HGV (PCU)	AM Arrivals	AM Departures	PM Arrivals	PM Departures
	52	52	24	24

- 1.29 The total trip generation estimates during the typical network peak hours associated with the proposed construction of the development is summarised in **Table 5** below.

Table 5 – Total Construction Trip Generation Estimates

Total (PCU)	AM Arrivals	AM Departures	PM Arrivals	PM Departures
	205	52	24	177

Operational Phase

- 1.30 As detailed earlier, the process to make ATJ-SPK produces sustainable diesel which is proposed to be exported via road to surrounding local areas / businesses. Furthermore, the process also requires nitrogen, chemicals and catalyst, which will be delivered by road, and produces contaminated water, waste ethanol and spent catalyst which will be transported off-site by road.
- 1.31 The applicant has confirmed the following in relation to tanker / HGV movements:
- Approximately 7 fuel tankers per week are expected, which may increase to 50 tankers per week depending on the operating mode, although this level of fuel export by truck would last no longer than 2 months.
 - The intent will be to utilize by-products within the plant as much as feasible. However, there may be reasons by-products need to go out as waste via truck, either on flatbed trucks with tote tanks or tanker truck. Between 0-4 HGV movements per week will be associated with the export of by-products.
 - During normal operation there are utility and process chemicals that will be needed to keep the facility operating properly. Some utility chemicals will be managed by the plant, others will be contracted out for chemical treatment and be shipped to the site under the guidance of the contracted organization. Between 6-12 HGV movements per week will be associated with the delivery of chemicals.

- There will also be requirements for routine delivery of equipment, spare parts, and other materials to support the continued operation, as well as shipment of materials out for servicing. Each of these could be on lighter delivery trucks or flatbed trucks with 1-2 trucks per day expected.
- 1.32 Having regard to the above and assuming all imports / exports take place Monday-Friday, the proposed development will generate between approximately 4-15 tanker / HGV movements per day (8-30 two-way tanker / HGV movements per day) in relation to road imports / exports.
- 1.33 The processing facility will be operational 24 hours per day, however, assuming the imports / exports all take place in the 12-hour period of 07:00 – 19:00, then the proposed development will only result in circa 1-3 additional two-way HGV movements in both the AM and PM highway peak hours.
- 1.34 SCP understand that NPTC have raised concerns over the internal HGV/tanker storage area within the site. The current proposals provide space for 3 HGVs to load jet fuel/diesel simultaneously and additional space for 3 HGVs to wait for the loading area as well as 6 HGV parking bays and a 2-space HGV layby. This level of storage is more than sufficient to accommodate the aforementioned level of HGV movements and has been designed to also provide adequate space in the event of shipping lane disruption, when circa 26 HGVs would be required per day (circa 1-2 per hour) for the first 2 days of disruption and then 13 HGVs per day (circa 0-1 per hour) thereafter, as detailed later. It is also worth noting that the internal site layout provides a network of primary roads which could accommodate waiting HGVs in the unlikely event that additional storage space is required.
- 1.35 In terms of staff, there will be a total of 85 staff including 6 remote technical support staff, as detailed earlier. Based on the proposed shift patterns detailed earlier, the applicant expects circa 50 staff to be on site at any one time during the day, although up to 62 staff could potentially be on site at any one time during shift change over periods. In addition to the normal operating team, there will be up to 5 additional contractors on site primarily during the day to support with routine maintenance and servicing of equipment. When considering the staff shift patterns detailed earlier and assuming all staff travel in private cars, circa 50 staff are anticipated to arrive between 07:00 and 08:00, with no other arrivals and only 12 departures in the AM peak period, between 08:00 and 09:00. There are not anticipated to be any arrivals in the PM peak period, although circa 41 departures are expected between 16:00 and 17:00 and 9 departures are expected between 17:00 and 18:00.

- 1.36 Having regard to the above, the additional traffic generated during the operational phase is not anticipated to result in a material impact on the operation of the local highway network in the peak hours, particularly when distributed on the local highway network and given that the above figures assume all staff travel in private cars, with no staff travelling via sustainable and active travel modes or car sharing, in order to allow for a robust assessment. Once distributed on the A4241 Harbour Way based on the distribution methodology described later in this Scoping Note, all junctions within the proposed TA study area with the exception of the A4241 Harbour Way / Port Talbot Steelworks West Gate Access, A4241 Harbour Way / Oakwood Road / Llewellyn's Road and A4241 / A4241 Harbour Way / North Bank Road junctions will result in significantly less than 30 two-way additional trips in both the AM and PM peak hours. On this basis, detailed capacity assessments of the operational phase are not proposed to be undertaken, particularly given that the A4241 Port Talbot Peripheral Distributor Road was designed to accommodate such growth.

Disruption / Maintenance

- 1.37 It should be noted that in the unlikely event of disruption in the shipping supply chain, ethanol and jet fuel will be transported via trucks. This operation would be a 24-hour operation which would occur with normal production rates for a maximum duration of 2 days, with 26 HGV movements per day anticipated (52 two-way HGV movements per day). If any shipping disruption continues beyond 2 days, the production will ramp down to 50% for a maximum duration of 2 weeks, with 13 HGV movements per day anticipated (26 two-way HGV movements). This traffic increase is not considered significant, particularly given that shipping lane disruption is unlikely and will only be temporary.
- 1.38 It should also be noted that on an annual basis it is expected that the plant will be shut down for a period of 2-4 weeks for major maintenance. During this time, the applicant anticipates 30 light vehicle movements (60 two-way vehicle movements) per day.

Trip Distribution

- 1.39 It is anticipated that 50% of construction workers will be sourced locally and 50% from elsewhere (lodging in the local area). On this basis, a gravity model based on a 60-minute drive time will be undertaken to identify a suitable distribution for construction workers.
- 1.40 In terms of HGV movements, it is proposed that all HGVs will be requested to route via the M4 Junction 38, and not through Port Talbot, through the implementation of a Construction Traffic Management Plan to reduce any potential impact in the vicinity of the town centre.

Traffic Assignment

- 1.41 The construction traffic trip generation estimates will be assigned to the network using the previously mentioned distribution methodologies.

Future Baseline Traffic Conditions

- 1.42 The construction phase will represent the worst case traffic impact of the scheme on the local highway network and as detailed earlier, no capacity assessments are proposed to be undertaken of the operational phase. As detailed earlier, the proposed development is anticipated to be constructed and operational by 2026. Therefore, a future year of 2026 is considered robust when assessing the construction traffic impact.
- 1.43 National Traffic Model (NTM) growth factors (modified by TEMPRO local growth factors) have been used to quantify the level of background traffic growth that could occur on the local network between the date of the traffic surveys and the future assessment year. This quantification is summarised in **Table 6** below.

Table 6 – Traffic Growth Factors

Period	AM Peak	PM Peak
2022 to 2026	1.0302	1.0294

- 1.44 Agreement on the assessment year / growth rates is sought from NPTC.

TA Structure

- 1.45 The proposed structure of the TA is set out below:-
- **Existing Conditions** – a detailed description will be provided of the site location, surrounding area, local highway network, existing traffic conditions and 5-year road safety record;
 - **Proposed Development** – a detailed description will be provided of the proposed development including the access strategy, servicing and car parking arrangements;
 - **Accessibility** – the location of the site with regard to the existing local sustainable transport infrastructure will be reviewed / assessed;
 - **Future Baseline Traffic Conditions** - the future baseline traffic conditions on the local highway network in relation to committed development traffic flows and traffic growth will be identified, in line with the approach detailed earlier in this note;

- **Trip Generation and Distribution** – estimates of the number of trips generated by the development along with their distribution and assignment will be provided, in line with the approach detailed earlier in this note; and
- **Highway Impact** – assessments of the construction phase will be undertaken of all the junctions within the TA study area, as shown on **Figure 1** earlier. As detailed earlier, the construction phase will represent the worst case traffic impact of the scheme on the local highway network and no capacity assessments are proposed to be undertaken of the operational phase.

1.46 SCP welcome NPTC's comments/acceptance of the proposed scope of the TA.