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Proposed Amendments to Annual Tonnage at Dublin Waste to Energy Facility, Pigeon House Road, Dublin

Environmental Impact Assessment Report
Volume 3: Appendices

Dublin Waste to Energy Limited

Project reference: PR-351653

February 2021

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Appendix 1: Introduction

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EIA Scoping Report 'Proposed Amendments to Annual Tonnage at Dublin Waste to Energy Facility, Pigeon House Road, Dublin' AECOM, August 2020

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Quality information

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1. Introduction

This report has been prepared by AECOM on behalf of Dublin Waste to Energy Limited (DWtE) to inform a proposed licence amendment to increase the permitted annual waste tonnage capacity of the DWtE Facility (the Facility) from 600,000 tonnes per annum to 690,000 tonnes per annum (an increase of 15%). The following sections of this report sets out the following:

- Context;
- Summary of the Proposal;
- Need for the Scheme;
- Capacity at the Facility;
- Environmental Operating Envelope;
- Environmental Impact Assessment (EIA) requirements; and
- Conclusions.

2. Context

An Bord Pleanála granted permission for the Facility on the 19th November 2007 under section 226 of the Planning and Development Act, 2000 (as amended) with 13 no. conditions attached. The planning conditions attached to the Board's grant of permission do not explicitly restrict the maximum capacity of the Facility to 600,000 tonnes per annum, the permission was granted "*in accordance with the plans and particulars lodged with the application"*.

In this regard, the annual intake of the Facility, as set out in the associated Environmental Impact Statement (EIS), assessed the potential impact of an annual capacity of 600,000 tonnes of non-hazardous waste. Regarding the capacity of the Facility, the Inspector stated:

> *"Having regard to the contents of the EIS, the submissions to the oral hearing and the report of the Inspector (Including expert reports) the Board considered that the design capacity of the facility, proposed to be reduced by the Inspector in relation to the assimilative capacity of the area (recommended Condition No. I), was justified with regard to the projected waste arisings, after prevention and recycling, and with regard to traffic Impacts. The Board further considered that any concerns with regard to air and water pollution were not such as to justify a reduction in the design capacity of the facility and detailed process design is best controlled through licensing. The Board therefore decided to approve the capacity as proposed and considered that any restriction that might be necessary would be more appropriately dealt with by the EPA through the licensing of the activity."*

The Facility was issued a Waste Licence from the Environmental Protection Agency (EPA) (reference W0232-01)[1] on the 1st December 2008 with a capacity limit of 600,000 tonnes per annum (tpa) and conditions which defined an environmental operational envelope for compliant operation, i.e. operational conditions and emissions limits for emissions to air, water and noise.

3. Summary of the Proposal

The proposal consists solely of an increase of 90,000 tonnes (15%) in the annual capacity of the Facility from 600,000 tpa to 690,000 tpa. No physical amendments to the consented operational facility are necessary to facilitate this capacity increase. Specifically:

- It can be achieved without any physical modifications to the existing buildings, plant or equipment which are currently in operation at the Facility;

[1] *From January 7th 2014 deemed to be an Industrial Emissions (IE) Licence granted under Part IV of the Environmental Protection Agency Act 1992 as amended.*

- The increase in waste tonnage throughput on an annual basis will require a revision to the IE licence (W0232-01) issued by the EPA. It is noted that during the licence revision process, the applicant will not be seeking any increase in concentration or mass flow of any emission to air or water, nor any change to current licence conditions;
- The proposal will not result in any additional traffic on the road network in excess of that assessed by An Bord Pleanála when consent was granted for the Facility. A summary of AECOM's Traffic and Transport Assessment of the proposed increase is included in Section 7.3 of this report.

4. Need for the Scheme

The Eastern Midlands Regional Waste Management Plan (EMRWMP) 2015-2021 provided an overview of the then current and planned thermal recovery capacity for residual waste and Table 16.7 of the Plan report is reproduced below.

Table 4-1 Active and Pending Capacity for the Thermal Recovery of Municipal Solid Waste (MSW)

Thermal Recovery Activity (Number of facilities)	Active (Tonnes)	Pending (Tonnes)	Total (Tonnes)	Intake (2013)
Waste-to-Energy (2)	220,000 (1)	600,000 (1)	820,000	206,000
Cement Kilns	215,000 (2)	127, 875 (1)	342, 875	140,000
Pyrolysis (1)	-	65,000 (1)	65,000	-
Total (6)	**435,000**	**792,875**	**1,227,875**	**346,000**

Source: Table 16.7, Eastern Midlands Regional Waste Management Plan (EMRWMP) 2015-2021

The Plan analysed the need for thermal recovery of residual municipal waste by making a number of assumptions with respect to Ireland improving its recycling rate from the then current 40% to 50% by 2020 and 60% by 2030. It also made several assumptions with regard to the phasing out of landfills as a repository for residual waste.

It was forecast that by 2020 municipal waste generation would grow to between 3.0 and 3.2 million tpa and that the national need for thermal recovery facilities would grow to between 1.5 and 1.6 million tpa compared to the then current and anticipated thermal recovery capacity of 1.23 million tpa. This analysis informed the adoption of EMRWMP Policy E15a:

> *'The waste plan supports the development of up to 300,000 tonnes of additional thermal recovery capacity for the treatment of non-hazardous wastes nationally to ensure there is adequate active and competitive treatment in the market and the State's self-sufficiency requirements for the recovery of municipal waste are met. This capacity is a national treatment need and is not specific to the region. The extent of capacity determined reflects the predicted needs of the residual waste market to 2030 at the time of preparing the waste plan. Authorisations above this threshold will only be granted if the applicant justifies and verifies the need for the capacity, and the authorities are satisfied it complies with national and regional waste policies and does not pose a risk to future recycling targets. All proposed sites for thermal recovery must comply with the environmental protection criteria set out in the plan*.'

Since 2015, the DWtE capacity (600,000 tpa) has come on line and some additional capacity at cement kilns has become available. AECOM understands that the "*pending*" Pyrolysis plant (65,000 tpa) has been fully licensed but and construction began in January 2020.

The 2019 '*Waste Treatment Capacity Analysis-Q4 2019 & Projections 2020-2022 Bulletin'* reported that 1,019, 367 million tonnes (Mt) of residual municipal solid waste (MSW) was thermally treated in Ireland between Q1-Q4 2019, which was below the anticipated target of 1,035,000 Mt[2] (WMPLA, 2020). At the time of writing, the current levels of thermal recovery are estimated to be between 1.7 and 1.8 million tpa thus far in 2020.

A summary of total residual waste processed in 2019 is outlined in Table 4-2, which shows that only 22% of MSW was directed to disposal, with 78% recovered (both in Ireland and abroad).

[2] Figure provided by the Operator, Indaver and the cement kilns.

Table 4-2 Summary of MSM processed in 2019-Tonnes

Treatment Option	Total	% of Total
Recovery	1,019,367	57%
Disposal (MSW only)	398, 133	22%
Export	370, 346[3]	21%
Total	1,787, 846	

Source: *Waste Treatment Capacity Analysis-Q4 2019 & Projections 2020-2022 Bulletin*

Disposal of residual municipal solid waste (MSW) is achieved by landfilling. There are currently three active landfills taking residual MSW in Ireland. The residual MSW competes with industrial bottom ash, C&D wastes and secondary MSW materials for scarce void space.

With regard to the export figure cited above, baled residual municipal waste is exported as Refused Derived Fuel (RDF) for thermal treatment, generally in continental Europe.

The same presentation provided a number of *Final Remarks* including a statement that, based on the analysis as provided in Table 4.1 above, Policy E15 RWMP (300,000 tpa of additional capacity) is still valid (November 2018).

Since 2015 there has also been a number of other potential thermal treatment routes not anticipated in the Plan, i.e:

- A number of the cement kilns have applied for increased use of alternative fuels and raw materials (including solid recovered fuel - SRF). In most cases SRF is identified as one of a number of potential alternative fuels and must be produced from municipal solid waste to a bespoke specification. Consequently, not all nominal capacity for thermal treatment (licensed and pending in the planning and/or IE licensing system) is or will be available for thermal treatment of residual waste. It has also been identified that during the initial restriction phase of the Covid 19 pandemic (12th March to 18th May 2020), volumes at direct thermal recovery facilities remained on target, while the use of solid recovered fuel from waste at cement kilns decreased and ultimately stopped (RWMO, 2020).
- In May 2018, Indaver Ringaskiddy was granted planning permission for a 240,000 tpa waste to energy plant (including up to 24,000 tpa hazardous waste). The decision to grant planning permission was subsequently subject to a judicial review. The duration of the judicial review process and its ultimate outcome are uncertain. The waste to energy plant has yet to apply for an IE licence. Consequently, the date this capacity will be available (if at all) is highly uncertain. Even though the planning permission is subject to review, it is noted that the need for the development was rigorously examined during the planning process. The planning inspector, having reviewed the European, national and regional policy contexts, examined the need for an additional thermal recovery need capacity of 300,000 tonnes for the treatment of non-hazardous wastes in the period 2020 – 2030. The inspector concluded[4]: "*In this context the need for this development is, I consider, established*".

In summary, there is a clearly defined national need established in 2015 and confirmed in 2019 for additional thermal treatment capacity.

The proposed 15% annual tonnage increase would enable the Facility to process an additional 90,000 tonnes annually more sustainably both in terms of national residual waste treatment and energy generation, than the current alternatives of landfill or the export of waste. This capacity is available immediately, subject to amendment of the IE Licence, without any requirement for additional plant or investment.

5. Capacity at the Facility

The current Waste Licence for the Facility states that the maximum tonnage to be accepted at the Facility shall not exceed 600,000 tpa. The Facility is currently seeking an increase of this maximum tonnage limit to 690,000 tpa (a 15% increase).

[3] The export capacity was 100% utilised at the end of Q4 2019 (WMPLA, 2020)
[4] *Inspector Report PA0045 January 27th 2017*

The key system in determining the throughput capacity is the boiler train, consisting of stoker, boiler and air pollution control (APC) equipment. The boiler train is designed to allow a certain range of waste throughput processing and heat release capabilities. The stoker is designed to combust the quantities of waste within certain waste quantity and heat release ranges. The boiler is designed to absorb the heat and create steam for heating or electricity generation purposes. The air pollution equipment is designed to remove pollutants from the volume of combustion gasses produced in the boiler/stoker in order to meet the emissions limits mandated by the IE Licence.

The original design heat release rate for each of the plant lines was 102.5 MWth. However, the as-built design basis as reported by technology provider (Hitachi Zosen) is up to 10% greater than the original design basis, i.e. up to a heat release rate of 112.7 MWth. This is not unusual as waste-to-energy plants are typically constructed with significant margin, in part due to the variability and onerous nature of the fuel. All the key equipment is sized to handle the higher heat release rate including the stoker, boiler, APC system, pumps and fans. In addition, the capacity of the turbine generator is sized such that it can fully accept the additional steam and produce the commensurate additional electrical energy from it.

A key parameter in waste throughput capacity of the stoker is the heating value of the waste expressed in MJ/kg or kJ/kg. Since the maximum heat release capability of the stoker is a fixed amount, the higher the heating value of waste, the lesser amount of waste that can be combusted and vice versa. A simplified example would be if a stoker was designed with maximum heat release of 100 MJ/hr, it could process 10 kg/hr if the heating value was 10 MJ/kg and 20 kg/hr if the heating value was 5 MJ/kg. It should also be noted that there are also limitations on the ranges of heating value and throughputs that can be accepted.

The original design basis of the stoker allowed a range of heating value of 7,000 kJ/kg to 15,000 kJ/kg. The throughput range was 20.5 to 41.0 tonnes per hour (tph). However, as the as-built plant is up to 10% oversized compared to the original design basis, up to 44 tph can be accommodated at the lower end of the calorific value range.

The nominal design basis was a capacity of 35 tph per line at an average waste calorific value of 10,540 kJ/kg. The as-built design basis would allow a capacity up to 38.5 tph at the same average calorific value.

Over the course of approximately one year of operations it has been observed that the heating value of the waste is approximately 9,600 kJ/kg and has ranged from 9,300 kJ/kg to 10,000 kJ/kg over that period. The lower average calorific value experienced at the Facility extends the maximum hourly capacity to approximately 41 tph which will comfortably facilitate an increase in the maximum annual capacity of 90,000 tonnes in annual throughout.

Regardless of a stated annual capacity and whether increased from 600,000 tpa to 690,000 tpa, the actual day to day and month to month capacity of the Facility will be determined by:

- The calorific value of the waste which is variable on a day to day and month to month basis;
- The availability of each of the DWtE incineration lines as a result of planned and unplanned outages over any given time period;
- The physical limitation of the plant (maximum heat release rate) as well as strictly operating well within the environmental performance envelope defined by the sites IE licence, i.e. compliance with all operating conditions and ELVs.

With respect to the final bullet point above, it is noted that DWtE will not be seeking any change or variation to the operating conditions or emission limit value (ELV) in the current IE licence to accommodate the proposed increase in annual capacity.

In summary, as a result of variations in the annual average calorific value of the waste, the increase in nominal annual throughput can be achieved without the addition or modification of any plant at the Facility nor any requirement to change any operational limit value or ELV.

6. Environmental Impact Assessment Requirements

EIA is the process for anticipating the effects (both positive and negative) from a proposed development or project on various environmental receptors. If the anticipated effects are unacceptable, design measures or other relevant mitigation measures can be implemented to reduce or avoid those effects. The Environmental Impact Assessment Report (EIAR) is the document which records the details of the assessments undertaken to identify possible effects of a proposed project on the receiving environment.

An EIAR is defined by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 246 of 2018) as:

> "…*a report of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of the Environmental Impact Assessment Directive*".

EIA requirements derive from Council Directive 85/337/EEC (as amended by Directives 97/11/EC, 2003/35/EC and 2009/31/EC) and as codified and replaced by Directive 2011/92/EU of the European Parliament and the Council on the assessment of the effects of certain public and private projects on the environment. Amending EIA Directive 2014/52/EU (the "2014 Directive") constitutes an update of the preceding Directive 2011/1192/EU.

The 2014 Directive was transposed into Irish law on September 1st 2018 in the form of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

The first step in the EIA process is 'Screening' which determines if an EIA is required, and usually commences at the project design stage. If it is determined that an EIA is required, the next step is to 'Scope' the content of the EIA. Scoping identifies the key project specific issues that are likely to be impacted during the EIA and outlines possible alternative approaches where required.

Following on from scoping, an EIAR is prepared as part of the EIA process, which includes a baseline assessment to determine the status of the existing environment, impact prediction and evaluation, and determining appropriate mitigation measures, including monitoring and reinstatement.

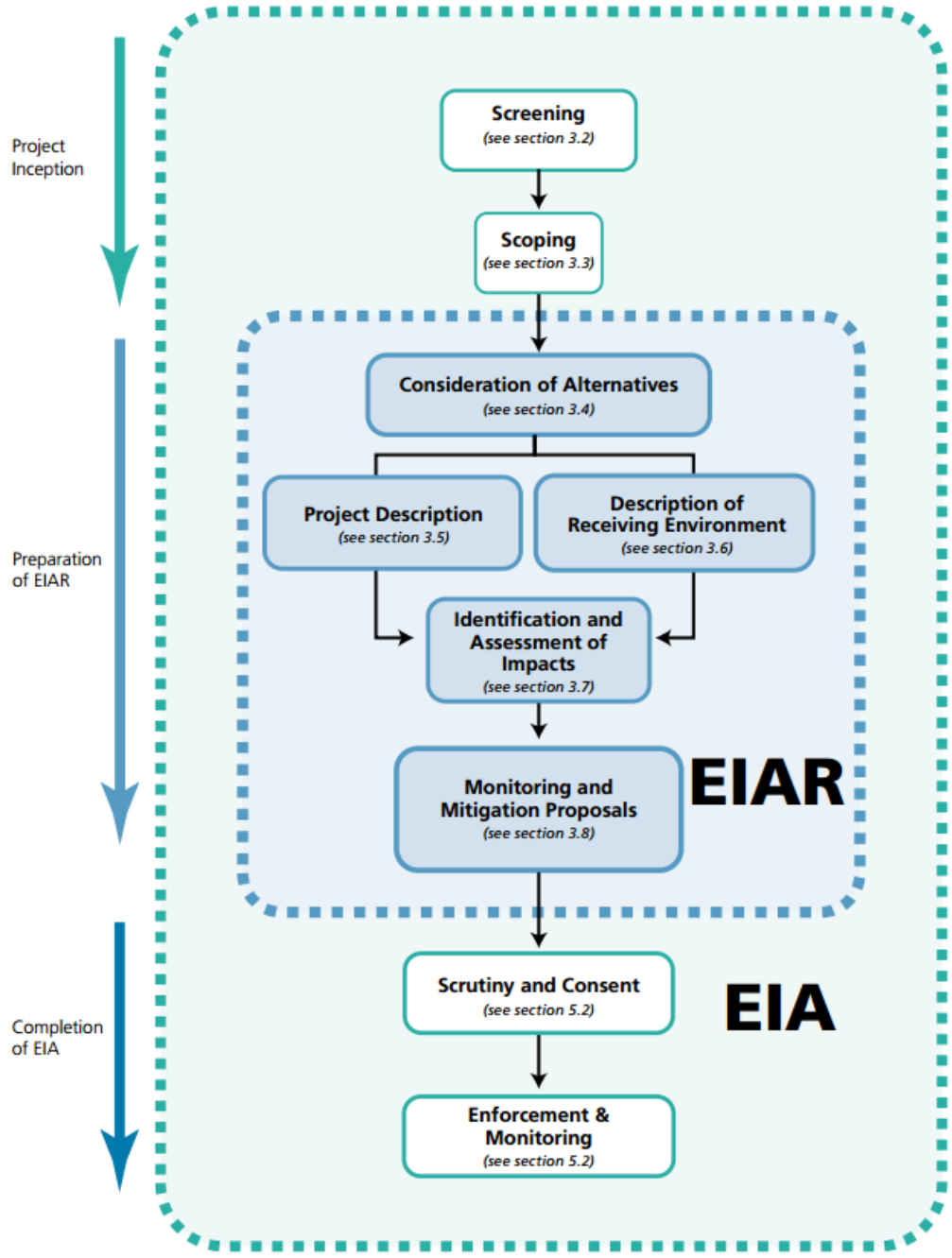

Figure 6-1 The EIAR process (EPA EIAR Draft Guidelines, 2017)

6.1 Screening

The proposed increase to the Facility's intake meets the threshold for a mandatory EIA.

Part 10 of the Planning and Development Regulations, 2001 (as amended) states:

> *10. Waste disposal installations for the incineration or chemical treatment as defined in Annex IIA to Directive 75/442/EEC under heading D9, of non-hazardous waste with a capacity exceeding 100 tonnes per day.*
>
> *22. Any change to or extension of projects listed in this Annex where such a change or extension in itself meets the thresholds, if any, set out in this Annex.*

Court of Justice of the EU (CJEU) rulings have indicated that the concept of waste disposal within the EIA Directive must include all operations leading to either waste disposal or recovery. Therefore, any facility generating electricity from waste or combustible materials and biomass from waste with a capacity exceeding 100 tonnes per day falls within the scope of Class 10 of the regulations and requires a mandatory EIA.

The proposed 90,000 tpa increase in capacity exceeds the 100 tonnes/day threshold.

6.2 EIA Scoping

The EIAR will be prepared according to the EPA's '*Guidelines on the information to be contained in Environmental Impact Statements*' (EPA, 2002), and as evolved in the EPA's draft "*Guidelines on the information to be contained in Environmental Impact Assessment Reports*" (EPA, 2017).

The following environmental chapters outlined in Table 6-1 are scoped out of the EIAR; however, information on the existing baseline environment will be provided for all environmental topics, based on information provided by DWtE.

Table 6-1 Chapters Scoped Out

Chapter	Reason(s) for Scoping Out
Land and Soils	The proposed 15% increase in the Facility's annual capacity does not require any physical infrastructure to facilitate its implementation. Similarly, no increase above any emission limit value as currently established by the IE licence is sought. It does not therefore have the potential for significant effect on land and soils above that assessed and consented based on the original EIS and planning application process. As such, this chapter has been scoped out.
Water	The proposed 15% increase in the Facility's annual capacity does not require any physical infrastructure to facilitate its implementation. Similarly, no increase above any emission limit value as currently established by the IE licence is sought. It does not therefore have the potential for significant effect on water above that assessed and consented based on the original EIS and planning application process. As such, this chapter has been scoped out.
Biodiversity	The proposed 15% increase in the Facility's annual capacity does not require any physical infrastructure to facilitate its implementation. Similarly, no increase above any emission limit value as currently established by the IE licence is sought. It does not therefore have the potential for significant effect on biodiversity above that assessed and consented based on the original EIS and planning application process. As such, this chapter has been scoped out. An Appropriate Assessment (AA) Screening has been prepared for the proposed 15% increase which concluded that that there is no likelihood that the 15% increase will have significant effects on European sites.
The Landscape	The proposed 15% increase in the Facility's annual capacity does not require any physical infrastructure to facilitate its implementation Similarly, no increase above any emission limit value as currently established by the IE licence is sought. It does not therefore not have the potential for significant effect on the landscape above that assessed and consented based on the original EIS and planning application process. As such, this chapter has been scoped out.
Cultural Heritage	The proposed 15% increase in the Facility's annual capacity does not require any physical infrastructure to facilitate its implementation. Similarly, no increase above any emission limit value as currently established by the IE licence is sought. It does not therefore have the potential for significant effect on cultural heritage above that assessed and consented based on the original EIS and planning application process. As such, this chapter has been scoped out.
Material Assets	The proposed 15% increase in the Facility's annual capacity does not require any physical infrastructure to facilitate its implementation. It does not therefore have the potential for significant effect on material assets above that assessed and consented based on the original EIS and planning application process. As such, this chapter has been scoped out.

The EIAR contains the chapters outlined in Table 6-2 Technical chapters where environmental assessments have been deemed unnecessary are highlighted in grey.

Table 6-2 Proposed EIAR Contents

Volume	Content	
Volume 1	Non-Technical Summary	
Volume 2	Chapter 1	Introduction
	Chapter 2	Project Description
	Chapter 3	Waste Management

Volume	Content	
	Chapter 4	Alternatives
	Chapter 5	Population and Human Health
	Chapter 6	Land and Soils (baseline provided only)
	Chapter 7	Water (baseline provided only)
	Chapter 8	Biodiversity (baseline provided only)
	Chapter 9	Air Quality
	Chapter 10	Climate
	Chapter 11	Noise and Vibration (baseline provided only)
	Chapter 12	Landscape and Visual (baseline provided only)
	Chapter 13	Cultural Heritage (baseline provided only)
	Chapter 14	Traffic and Transport
	Chapter 15	Material Assets (baseline provided only)
	Chapter 16	Major Accidents and Disasters
	Chapter 17	Interactions
Volume 3	Appendices	*Various appendices to accompany the technical assessment chapters*

7. Environmental Considerations

The Facility has full planning permission and is operating under an IE Licence. The proposed increase in capacity of the Facility from 600,000 tpa to 690,000 tpa requires no physical changes to the operational Facility and all operations will continue to be in accordance with limit values assessed in the EIS submitted for the planning application in 2006/2007, and with the conditions imposed by the existing IE Licence issued by the EPA in 2008.

The following sections of this report sets out the selected environmental considerations associated with the proposed 15% increase in the Facility's annual capacity.

7.1 Population & Human Health

This section provides a summary analysis of the contents of the Impacts on Human Beings chapter of the original EIS for the Facility and the An Bord Pleanála Inspector's report.

7.1.1 Original EIS Impacts on Human Beings Chapter (2006)

The EIS submitted with the parent permission for the Facility contained an "*Impact on Human Beings*" Chapter which outlined the potential socio-economic, community and health impacts from the Facility. This chapter included the following:

- literature and policy review;
- baseline;
- outline of potential impacts (including health and safety); and
- mitigation measures.

A clear methodology was provided with this chapter, which set out the approach that was taken to assess impacts. A detailed health impact assessment (HIA) was not undertaken, however there was a research-orientated appraisal of health policy and this was used as the basis for determining whether there would be any material health impacts resulting from the development.

7.1.2 An Bord Pleanála Inspector's Report (2007)

The An Bord Pleanála Inspector's report[4] reviewed the assessment and methodology. The Inspector reviewed the *Impacts on Human Beings* Chapter of the EIS taking into account the literature that was reviewed and also noted the potential implications of the proposed scheme of the Facility on human health. The Inspector acknowledged

that properly equipped and operated waste to energy facilities would not pose a threat to human health. The Inspector also noted that results from modelling carried out as part of the EIS for the Facility indicated that there would not be a significant impact from dioxin or furan uptake.

The Board accepted that it was appropriate to report health risks from air emissions in the Air Quality chapter in line with recognised international and national standards. The Inspector concluded that the residual risk to human health was very low and considered to be negligible.

The opinions provided at the oral hearing from external consultants, including Dr Dan Murphy, concluded that there would be no significant health impacts resulting from the scheme. The Inspector concluded from their review of the assessment and methodology, as well as expert opinions from medical professionals, that:

"*there would be no scientific basis for refusing approval for the proposed waste to energy Facility…on the basis of the plant having an adverse effect on the health of people*".

7.1.3 Population and Human Health Impact Assessment (2020)

An updated Population and Human Health chapter will be included in the 2020 EIAR, which will detail the findings of the assessment of the likely significant effects on population and human health as a result of the proposed increase in the annual intake of waste at the Facility.

The assessment will focus on identifying potential impacts to:

- Amenity and local communities (effects on amenity uses of a site or of other areas in the vicinity);
- Employment; and
- Human health and well-being (to consider the impact on the health and wellbeing of the communities).

7.2 Air Quality & Climate

The proposed increase in operational capacity will not exceed the environmental parameters as catered for in the EIS or in the current IE Licence for the Facility.

During Q4 2017 and at times in 2018, the Facility ran at waste throughput capacities in excess of 40 tonnes/hour/line while still maintaining:

- Flue gas volumetric flow well below the licence limit of 275,000 Nm^3/hr; (average less than 240,000 Nm^3/hr)
- Pollutant concentrations for NO_2 (Nitrogen Dioxide), SO_2 (Sulphur Dioxide), dust, HCl (Hydrogen Chloride), and HF (Hydrogen Fluoride) significantly lower in concentration than the ELVs defined in the IE licence;
- Concentrations of heavy metals and dioxins up to 2 to 3 orders of magnitude lower than the ELVs;
- All temperature, residence time and excess oxygen levels defined in the licence or otherwise indicative of excellent combustion conditions;
- Electrical generation output from the heat recovery boiler and associated steam turbine;
- Alignment with the climate impacts as described and defined in the 2007 EIS.

The performance has been documented by the continuous emissions monitoring systems on site and external contractor's reporting directly to the EPA.

AECOM previously modelled the emissions to air from the main Facility itself in 2018. The environmental performance with respect to emissions to air is described in more detail in the Air Quality Assessment in Appendix A. An updated Air Quality impact assessment will be included in the 2020 EIAR and will focus on:

- Predicted impacts from the increase in road traffic associated with the waste to energy plant; and
- Predicted impacts of the road traffic incorporated with predicted impacts from the increase of annual capacity from the plant itself from Appendix A report for NO_2, PM_{10}, $PM_{2.5}$ and NO_x..

A climate impact assessment will be undertaken for the 2020 EIAR. In line with Institute of Environmental Management and Assessment (IEMA) guidance, consideration will be given to the following aspects of climate change assessment:

- Lifecycle greenhouse gas (GHG) impact assessment – the impact of GHG emissions arising from the Scheme on the climate during the lifecycle stages within the scope of the assessment.

7.3 Traffic & Transport

A Traffic and Transport Assessment (TTA) was prepared to assess the potential impacts of the 15% increase of the Facility's annual capacity. The following sections provide a summary of the key findings of this TTA. Please refer to Appendix B for a full copy of the TTA.

The existing TTA will be updated for the 2020 EIAR.

7.3.1 Existing Situation

The Facility became operational in summer 2017. The Facility currently operates 24 hours a day, seven days a week. However, the Facility is licensed to only accept Waste Delivery Vehicles (WDVs) Monday to Saturday from 08:00 AM to 22:00 PM (excluding bank holidays when no waste can be accepted).

7.3.2 Existing Traffic Conditions

To inform the TTA, traffic count surveys were undertaken at relevant key selected junctions and links surrounding the Facility. Junction Turning Counts and Queue Lengths were measured at seven key junctions within the road network on Tuesday the 4th of April 2017. The junctions surveyed are as follows:

- South Lotts Road / Ringsend Road / Bridge Street Junction;
- The Point Roundabout Junction (R131 / R801);
- R131 / Pigeon House Road / Sean Moore Road Roundabout Junction;
- Beach Road / Cranfield Place / Sean Moore Road Signal Controlled Junction;
- Sean Moore Road / Church Avenue / Beach Road Controlled Junction;
- Irishtown Road / Londonbridge Road / Church Avenue Signal Controlled Junction; and
- South Bank Road / Whitebank Road Priority Junction.

Further traffic count surveys were undertaken, when the Facility was fully operational, at the site's access junction and Sean Moore Roundabout on Tuesday 2nd of October 2018. These are as follows:

- Pigeon House Road / Waste to energy Waste Delivery Vehicle Access;
- Shellybanks Road / Waste to Energy Staff Access; and
- R131 / Pigeon House Road / Sean Moore Road Roundabout Junction.

7.3.3 Existing Waste Delivery Trip Generation

Under its extant IE Licence, the Facility is permitted to treat up to 600,000 tpa of waste. The planning approval from An Bord Pleanála[5] was based on the assessed strategy set out by the original EIS i.e. access for a total of 121 WDVs per day (242 combined trips[6] arriving and departing the Facility per day).

As part of the TTA, an assessment has been undertaken, based on a period of 10 months of on-site delivery records from DWtE. This assessment showed that, on average, the Facility has accepted delivery of 52,722 tonnes of waste per month[7] during this period. The Facility has accepted this monthly quantum with an average trip generation rate of 95 WDV trips per day (190 combined trips entering and exiting the Facility per day).

[5] Condition 4 of the original permission reads Waste deliveries to the facility shall be in accordance with the strategy proposed and elaborated on by Dublin City Council at the oral hearing. Deliveries of waste (and return trips), except from the central area as indicated on slides/drawings submitted at the oral hearing, shall be via the M50 and the Dublin Port Tunnel. Conditions requiring compliance with this transport strategy shall be incorporated into relevant permits granted to waste collectors.
[6] A combined trip is counted as the sum of the arrival and the departure trips from the Facility.
[7] 600,000 tonnes per annum is an annual calendar average. Although 52,722 tonnes of waste per month exceeds this limit, the counts were taken from three months of 2017 and seven months of 2018.

7.3.4 Assessment of Existing WDVs

The assessment of WDVs showed that their average carrying capacity was greater than assessed in the original EIS. The increased carrying capacity WDVs means that there are less WDV trips generated by the Facility.

There are two types of WDVs that access the Facility; these are Refuse Collection Vehicles (RCVs) and Bulk Transfer Vehicles (BTVs). RCVs are typically rigid trucks with between three and four axles[8] and have an average carrying capacity of 8.8 tonnes. BTVs are typically five-axle articulated vehicles with an average carrying capacity of 25.7 tonnes, i.e. BTVs can carry up to three times the loading capacity of RCVs.

The assessment of the waste delivery trips shows that there is a greater percentage of BTVs generated by the Facility than forecasted in the original EIS. BTVs make up 80% of the WDV arrivals rather than 59% as forecasted in the original EIS. Furthermore, the average carrying capacity of the actual BTVs used (25.7 tonnes) is greater than the carrying capacity of BTVs assumed in the original EIS (20 tonnes).

As there is a higher proportion of BTVs generated by the Facility, and they also carry an increased average tonnage per WDV, there are less WDV trips generated by the Facility than what was forecasted in the original EIS to deliver the same overall tonnage of waste.

7.3.5 Existing Waste Delivery Trip Distribution

An assessment of the WDV Trip Distribution demonstrates that all BTVs arrive and depart via the R131 (East Link Bridge). The majority of the RCVs also arrive and depart via the R131 (East Link), with a small proportion of RCVs recorded using the Sean Moore Road.

7.3.6 Proposed Waste Delivery Trip Generation

The Facility proposes to increase its intake to 690,000 tpa of waste, a 15% increase. On average, the proposal will enable the Facility to deal with 57,500 tonnes of waste per month.

During three out of the ten months assessed in the TTA, the Facility surpassed, or came close to, the 57, 500 tonne monthly benchmark associated with the proposed 690,000 tonnes per year waste capacity. These months were December 2017 (59,624 tonnes), January 2018 (62,013 tonnes) and May 2018 (57,360 tonnes), with an average of 59,666 tonnes of waste per month.

Therefore, these three months, where tonnage accepted was at its highest, have been used to assess the traffic impact associated with DWtE's proposal to accept 690,000 tonnes of waste per year as the upper end scenario. The assessment based on these three months shows that, on average, the Facility accepted this proposed monthly level of waste at a trip generation rate of 105 WDVs per day (210 combined trips entering and exiting the Facility per day).

This trip generation rate demonstrates that the Facility can accommodate the forecast traffic generated by the proposed 690,000 tonnes of waste per year (57,500 tonnes of waste per month) within the limits assessed in the original EIS strategy, and consented by An Bord Pleanála; 121 WDVs trips per day (242 combined trips arriving and departing the Facility per day) to the Facility.

7.3.7 Other Trip Generators

Separate assessments have been undertaken on other development trip generators including Residual Waste Vehicles (RWVs), Service Vehicles, and Staff Vehicles to assess the total trip generation during the AM and PM peaks for the existing and proposed scenarios.

7.3.8 Traffic Impact Assessment Summary

The TTA concludes that the traffic generated as a result of the proposed increase of the Facility's waste tonnage capacity from 600,000 to 690,000 tpa can be accommodated within the limits assessed in the original EIS (121 WDVs per day / 242 WDV combined trips per day) and consented by An Bord Pleanála as part of the Facility's extant planning permission.

The TTA also demonstrates that the additional traffic to the Facility will have a negligible impact upon the existing road network during the opening year and future year scenarios. An assessment of the combined impacts of the WDVs, RWVs, Service Vehicles and Staff Vehicles during the AM and PM peak shows that the proposed increase

[8] *RCVs also include a small percentage of skip trucks and Roll On/Off Hook Loading Trucks (ROROs)*

will have a negligible impact on the external road network. The total traffic to and from the Facility (i.e. total traffic generated by an annual intake of 690,000 tpa) is forecast to be less than 5% of the existing traffic flow on the local road network, in particular the R131 and the local road junctions in Irishtown and Ringsend.

7.4 Waste Management

The Waste Management chapter of the 2020 EIAR will evaluate the proposed increase in throughput of the Facility in regard to:

- Description of the regulatory and policy context for waste management in Ireland as it applies to the use of energy-from-waste as one part of a sustainable waste management system;
- Discussion of the current methods of managing waste in Dublin and Ireland as a whole, and how the Proposed Development will fit into this system; and
- Description of the residual wastes that would be generated by the construction and operation of the Proposed Development and how they would be managed.

7.5 Major Accidents and Disasters

The Major Accidents and Disasters (MA&D) chapter of the 2020 EIAR will detail the findings of the assessment of the potential MA&D associated with a proposed 15% increase in the throughput of the waste feed material at the Facility.

The assessment will undertake a review and update the existing risk assessments carried out in 2006 to support the original planning application, and a risk assessment produced at the commencement of operation; which is contained within the site Emergency Response Procedure (ERP).

7.6 Water & Noise

The Facility's IE Licence limits the flow of cooling water emitted to a daily maximum of 570,000 m^3 and a maximum hourly discharge rate of 14,040 m^3. The IE Licence for the Facility and its subsequent Technical Amendments also has the below limits in relation to emissions to water:

- The temperature rise relative to intake must be less than 9 ^oC; and
- No temperature value, calculated as an hourly average, shall exceed the emission limit value by more than 0.5^oC.

Recent data outlined within the Facility's Annual Environmental Reports (AERs) has shown that the Facility operates well within these limits. The proposed 15% annual tonnage increase will not result in any exceedance of the limits set out in the IE Licence and subsequent technical amendments.

Similarly, with regard to compliance with the noise limits, all monitoring data has indicated 100% compliance with the day-time and night-time limit values. The increase to 690,000 tpa will not result in any change to the noise environment.

As outlined in Section 6.2, it was concluded that a detailed water and noise and vibration impact assessment were not required for the 2020 EIAR.

7.7 Flue Gas Treatment Residues and Bottom Ash

The disposal method of flue gas treatment residues (FGTRs) and bottom ash was described in Chapter 10 "Residues and Consumables" of the original EIS. The original EIS anticipated the solid residues arising from the Facility to be:

Table 7-1 Estimated residue quantity and type (based on % mass input by weight)

Ash Type	Approx % mass input by weight of waste	Tonnes/annum (wet condition)
Bottom Ash	20%	120,000
Boiler Ash	0.5%	3,000
Flue Gas Treatment Residues	4%	24,000

Ash Type	Approx % mass input by weight of waste	Tonnes/annum (wet condition)
Total		**147,000**

Source: DWtE 2006 EIS Chapter 10, Table 10.1 (ABP Reference EF2022)

The quantities of FGTRs and bottom ash were estimated in Chapter 10 of the original EIS.

Since commissioning, incinerator bottom ash arisings have been running at a lower percentage of incoming waste than anticipated at 17.3% or a total of 104,000 tpa. The increase to 690,000 tpa of waste will result in bottom ash of approximately 120,000 tpa, i.e. the same amount as anticipated in 2006.

The generation rate for boiler ash and flue gas treatment residue combined is similar to that predicted in 2006. The increase in waste capacity to 690,000 tpa will result is a slight increase in the combined tonnage to an estimated 30,000 tpa.

8. Conclusions

AECOM has concluded that current regional and national waste policy identifies and supports the need for additional thermal recycling capacity in Ireland as outlined in Section 4 of this report. This is confirmed by the estimated 370, 346 tonnes of MSW exported in 2019.

AECOM has reviewed the original and as-built design basis for the waste to energy plant and concluded that an annual capacity of 690,000 tonnes can be accommodated at the Facility subject to the limitations in actual capacity that is defined by the waste calorific value. The 690,000 tpa capacity can be accommodated well within the environmental performance envelope as defined by the site's IE Licence.

The proposed increase to the Facility's intake does meet the threshold for a mandatory EIA. However, a number environmental chapters are scoped out, which are outlined in Table 6-1. Details on the existing baseline environment will be provided for all environmental topics.

AECOM has reviewed actual environmental performance in 2017 and 2018 and concluded that emissions from the Facility are well below the IE Licence limits in terms of both concentrations and mass-flows. It is anticipated that the higher annual capacity will be accommodated at the Facility without any significant environmental impact. No variation or amendment to the IE Licence ELVs or flue gas flow rates will be required

AECOM has updated the air quality impact assessment for the Facility to include for the impact on air quality of road traffic directly associated with the operation of the waste to energy facility. The updated assessment concluded that the impacts were either *not significant* or *imperceptible*. AECOM will update the air quality impact assessment for the 2020 EIAR and assess predicted impacts from the increase in road traffic associated with the waste to energy plant, as well as road traffic incorporated with predicted impacts from the increase of annual capacity from the plant itself from.

AECOM has completed a revised TTA based on traffic count data both before and after the commencement of commercial operation. The assessment concluded that road traffic directly associated with the Facility is less than assessed in the 2006 EIA and represents a small proportion of the traffic on the local road network. The increase to 690,000 tpa can be accommodated within the level of traffic assessed in 2006 and without significant impact on the local road network. The existing TTA will be updated for the 2020 EIAR.

Appendix A Air Quality Impact Assessment

AECOM Imagine it. Delivered.

Dublin Waste to Energy Facility

Air Report

Dublin Waste to Energy Limited

07 December 2018

Quality information

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Revision History

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1. Introduction

1.1 Dublin Waste to Energy (DWtE) is proposing an increase in the annual capacity of the waste to energy plant at Pigeon House Road, Poolbeg from the current 600,000 tonnes per annum (tpa) to 690,000 tpa.

1.2 AECOM is currently preparing a series of reports commenting on the technical capacity of the facility, overall environmental performance and implications of the increase (including traffic impacts) as well as the licensing/permitting status of the facility.

1.3 This report focuses on impacts on air quality with a particular emphasis on:

- The receiving environment and predicted impacts as described in the original environmental impact assessment completed in 2006;
- Emissions to air from the facility since commissioning in 2017;
- The receiving environment in 2018 and an updated air quality impact assessment (including traffic impacts).

2. The Receiving Environment and Predicted Impacts 2006

Reported Background Air Quality

2.1 Background data was sourced from a baseline survey undertaken between July 2003 and December 2005. The survey included the monitoring of the following pollutants:

- Oxides of nitrogen (NO_X);
- Nitrogen dioxide (NO_2);
- Particulate matter (PM_{10});
- Fine particulate matter ($PM_{2.5}$);
- Benzene (C_6H_6);
- Sulphur dioxide (SO_2);
- Heavy metals (Antimony (Sb), Arsenic (As), Cadmium (Cd), Cobalt (Co), Chromium (Cr), Copper (CU), Mercury (Hg), Manganese (Mn), Nickel (Ni), Lead (Pb), Thallium (Tl) and Vanadium (V));
- Hydrogen Chloride (HCl);
- Hydrogen Fluoride (HF); and
- Polychlorinated dibenzodioxins (PCDDs) / Polychlorinated dibenzofurans (PCDFs).

2.2 Some of the listed pollutants were monitored using a continuous analyser at a location on the Irish Glass Bottle Co. Ltd., Ringsend, Dublin 4. NO_2 and SO_2 were also measured passively at four other locations in close proximity to the DWtE plant site, at Irishtown Nature Park, Sean Moore Park, Sandymount Green, Ringsend Park, and further afield, at Belgrove Road, in Clontarf, and on Bull Island.

2.3 This data is provided in Table 2.1, as it was summarised in the 2006 EIAR. The data indicated that none of the pollutants monitored exceeded the air quality Limit Values during the survey. It also indicated that concentrations of NO_2, PM_{10} and $PM_{2.5}$ were elevated at the monitoring site/s situated at the roadside locations (Irish Glass Bottle site), and that concentrations of SO_2 were elevated at the monitoring site situated close to the Port and nearby industry (Irishtown Nature Reserve).

Table 2-1: Monitored Background Air Quality Survey Data, as reported in the 2006 EIAR

Pollutant	Monitoring Info	Averaging Period	Average Concentration	Limit Value[1]
NO_2	Continuous analyser between July 2003 and August 2005 (continuous)	Annual	30.5 µg/m^3	40 µg/m^3
		99.8th percentile of 1 hour values	101.0 µg/m^3	200 µg/m^3
	Diffusion tube measurements between July 2003 and August 2005 (24 monthly results)	Annual	16.0 µg/m^3 to 30.6 µg/m^3	40 µg/m^3
PM_{10}	Continuous analyser between July 2003 and August 2005 (three hundred and fourteen (314) 24 hour samples)	Annual	34.0	40 µg/m^3
		90th percentile of 24 hour values	57.0 µg/m^3	
$PM_{2.5}$	Continuous analyser between September 2003 and October 2005 (sixty (60) 24 hour samples)	Annual	11.0 µg/m^3	25 µg/m^3
SO_2	Diffusion tubes between July 2003 and August 2005 (24 monthly results)	Annual	4.8 µg/m^3	20 µg/m^3
	Diffusion tubes between January 2004 and March 2005 (2 monthly results only)	Annual	4.7 µg/m^3 to 11.7 µg/m^3	
C_6H_6	Diffusion tubes between July 2003 and August 2005 (16 weekly results)	Annual	2.0	5 µg/m^3
HCl	Nylon Membrane Filter analysis between August 2003 and August 2005 (16 weekly results)	Annual	0.18	20 µg/m^3
HF	Nylon Membrane Filter analysis between August 2003 and August 2005 (16 weekly results)	Annual	0.01	0.3 µg/m^3
Hg	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.001	1 µg/m^3
Cd	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.001	0.005 µg/m^3
As	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.001	0.006 µg/m^3
V	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.005	5 µg/m^3
Ni	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.006	0.02 µg/m^3

1. Statutory limits for NO_x, NO_2, PM_{10}, SO_2, derived environmental assessment levels (EALs) for other parameters.

Reported Predicted Impacts

2.4 The results of the dispersion modelling assessment to inform the 2006 EIAR are summarised in Table 2.2, which are based on the impact from maximum operation at the location of maximum impact. The results reported in the 2006 EIAR refers to the inclusion of the cumulative and site traffic contributions within the background (ambient) concentrations reported.

2.5 Table 2.2 provides the relevant Environmental Assessment Levels (EALs) for each pollutant (including statutory air quality standards, where applicable), the background concentration (intended to represent existing conditions), the Process Contribution (the impact of emissions associated with the DWtE site's stack emissions) and the Predicted Environmental Concentration (the Process Contribution added to the background concentration), as well as the proportion of the Process Contribution and Predicted Environmental Concentration to the relevant EAL.

2.6 The predicted results suggested that impacts would generally be acceptable, and that there would be no exceedances of the EALs considered.

Table 2-2: Predicted Air Quality Values, as reported in the 2006 EIAR

Pollutant	Averaging Period	Environmental Assessment Level (µg/m^3 unless stated)	Background/ Ambient Concentration (µg/m^3)	Process Contribution (PC) (µg/m^3 unless stated)	PC % of EAL	Predicted Environmental Concentration (PEC) (µg/m^3 unless stated)	PEC % of EAL
NO_2	1-Hour	200	55.2	39.1	20	94.3	47
	Annual	40	27.6	3.3	8	30.9	77
NO_x	Annual	30	19.8	3.7	12	23.5	78
SO_2	1-hr	350	28.0	19.3	6	47.3	14
	24-hr	125	14.0	7.1	6	21.1	17
	Annual	20	14.0	0.9	5	14.9	75
PM_{10}	24-hr	50	30.0	0.6	1	30.6	61
	Annual	40	30.0	0.2	1	30.2	76
$PM_{2.5}$	Annual	25	10.5	0.2	1	10.7	43
CO	8-hr	10,000	120.0	51.0	1	171.0	1.2
TOC	Annual	5	1.7	0.2	5	1.9	38
HF	1-hr	3	2.0×10^{-02}	0.3	9	0.3	9
	Annual	0.3	1.0×10^{-02}	2.0×10^{-2}	7	3.0×10^{-02}	10
Dioxins	N/A	N/A	5.5×10^{-05}	2.3×10^{-6}	N/A	5.9×10^{-05}	N/A
PAHs	Annual	1,000	180.0	2.3×10^{-2}	<1	180.0	18
Hg	Annual	1	1.0×10^{-03}	1.1×10^{-3}	<1	2.1×10^{-03}	0
Cd	Annual	5.0×10^{-03}	1.0×10^{-03}	1.1×10^{-3}	22	2.1×10^{-03}	42
As	Annual	6.0×10^{-03}	1.0×10^{-03}	4.0×10^{-4}	7	1.4×10^{-03}	23
V	Max 1-Hour	1	1.0×10^{-02}	8.0×10^{-3}	1	1.8×10^{-02}	2

3. DWtEL, Commissioning and Operation 2017/2018

3.1 The DWtE plant was commissioning in the summer of 2017 (two incineration lines) and commenced commercial acceptance of waste in September 2017 (dates to be confirmed).

3.2 Emissions to air through the main stack has been constantly monitored since commissioning by means of a permanently installed continuous emission monitoring (CEM) system and quarterly independent testing by a stack gas testing company.

3.3 The CEMs systems (one for each line) continuously monitors flue gas flow, NO_x, SO_2, particulate, HCl, and Total Organic Carbon (as C). The CEM systems were designed, commissioned and calibrated in accordance with *IS EN 14181 Stationary source emissions. Quality Assurance of automated measuring systems.*

3.4 The independent quarterly testing has been completed by Exova Catalyst a UKAS ISO/IEC 17205 accredited testing laboratory. The parameters tested included all the parameters measured by the CEMs system as well as Hg, Cd & Tl, other heavy metals, hydrogen fluoride, and dioxins & furans.

3.5 AECOM has reviewed the independent test data for five sets of quarterly tests and this data is summarised in Tables 3.1 and 3.2 below. Table 3.1 contains a summary of the actual data while Table 3.2 details the average for each parameter over the series of tests, the relevant Emission Limit Value (ELV) as defined in the site IED Licence issued by the EPA, the actual average mass flow of the pollutant as released to atmosphere, the licensed mass flow (ELV multiplied by the maximum permitted flue gas flow rate) and indicative percentages of the ELV and mass flow represented by the average data.

3.6 The data indicates that emissions to air from the DWtE facility are generally running at less than 10% of the licence limits with respect to the concentration ELVs and mass flows. The mass flow of dioxins & furans is less than 1% of the licence limit while the mass flow of HCl is less than 0.5% of the limit value.

3.7 The only exception to the statement in the paragraph above is with respect to NO_2 which is averaging 70% of the ELV and 58% of the mass flow limit, values still well below relevant limit values.

3.8 AECOM has also reviewed the 2018 CEM data which consists of validated 30-minute average values for flue gas flow, NO_x, SO_2, particulate, HCl, and Total Organic Carbon (as C). This data is continuous and contains over 200,000 data-points per incineration line and is consistent with the data generated in the quarterly reports. The CEM data indicates no exceedance of any 30 minute or daily average values and long-term average results well within the minimum and maximums described in Table 3.1 above.

3.9 The ELVs in the sites IED licence are transcribed from Chapter IV and Annex VI of the IED directive 2010. The ELVs are consistent with BAT as defined in the relevant Reference Document on the Best Available Techniques for Waste Incineration (August 2006). It is noted that a revised reference document on best available techniques is currently being finalised by the European IPPC Bureau and this will ultimately lead to revised and binding BAT conclusions and BATAELs. AECOM has reviewed the draft BATAELs (reference 2017) and the performance of both lines of the DWtE plant and concluded that the plant is currently operating not only well within the ELVs as provided in the current licence but also well within the 2017 draft BATAELs.

3.10 The data indicates a waste to energy plant operating within its design envelope with regard to capacity and also generating emission to air well below those anticipated and modelled in 2006 as part of the air quality impact assessment.

Table 3-1: Independent Emissions Data from 2017 and 208 Quarterly Tests

Parameter	Units	20-21st September 2017		4th-8th December 2017			8th-19th January 2018		30th April- 4th May 2018		17th - 26th Sept 2018	
		Result		Result			Result		Result		Result	
	Line	1	2	1	2	2	1	2	1	2	1	2
Total Particulate Matter	mg/m³	1.35	0.83	-	-	-	0.434	1.25	0.48	0.948	0.095	0.31
Hydrogen Chloride	mg/m³	0.03	0.072	-	-	-	<0.018	<0.017	<0.018	<0.015	0.02	<0.019
Cadmium & Thallium	mg/m³	< 0.00071	<0.00056	0.00067	0.00065	0.00068	<0.00063	<0.00066	0.00068	<0.00065	<0.00081	<0.001
Heavy Metals	mg/m³	0.159	0.13	0.052	0.105	0.040	0.019	0.020	0.03526	0.023	0.0114	0.0181
Mercury	mg/m³	< 0.00030	0.00091	0.00292	0.00056	0.00124	0.00056	0.00056	<0.00027	0.00084	0.00048	0.00073
Dioxins & Furans (NATO I-TEQ)	ng/m³	0.0035	0.00022	0.00235	0.00016	0.00016	0.00063	0.00060	0.00169	0.00080	0.00082	0.00124
Hydrogen Fluoride	mg/m³	< 0.036	0.042	0.092	0.051	0.051	<0.040	0.074	<0.049	<0.05	<0.038	0.09
Sulphur Dioxide	mg/m³	0.062	0.068	-	-	-	3.59	2.95	0.37	0.36	0.84	0.41
Total VOCs (as Carbon)	mg/m³	2	0.29	-	-	-	0.342	1.350	0.28	0.30	0.26	0.26
Oxides of Nitrogen (as NO_2)	mg/m³	103.2	106.7	-	-	-	150.6	156.7	139.2	173.20	117.74	163.03
Carbon Monoxide	mg/m³	1.82	0.23	-	-	-	11.11	15.03	6.29	5.30	2.75	14.80
Volumetric Flow Rate (REF)	Nm³/hr	211,623	236,824	226,647	240,009	234,447	227,461	223,451	229,496	232,687	245,802	240,015

Table 3-2: Average Emission Test Results

Parameter	Average mg/m^3	ELV mg/m^3	% of ELV %	Licenced Mass Flow kg/hr	Actual Mass Flow kg/hr	% of Licensed Mass Flow %
Total Particulate Matter	0.71213	10	7.1	2.75	0.164984	6
Hydrogen Chloride	0.051	10	0.51	2.75	0.011816	0.43
Cadmium & Thallium	0.00067	0.05	1.34	0.01375	0.000155	1.13
Heavy Metals	0.05571	0.5	11.14	0.1375	0.012906	9.39
Mercury	0.00098	0.05	1.96	0.01375	0.000227	1.65
Dioxins & Furans (NATO I-TEQ)	0.00111 (ng/m^3)	0.1 (ng/m^3)	1.11	0.0275 (g/hr)	0.000256 (g/hr)	0.93
Hydrogen Fluoride	0.062	1	6.2	0.275	0.014364	5.22
Sulphur Dioxide	1.08125	50	2.16	13.75	0.250502	1.82
Total VOCs (as Carbon)	0.68886	10	6.89	2.75	0.159593	5.8
Oxides of Nitrogen (as NO_2)	138.796	200	69.4	55	32.15609	58.5
Carbon Monoxide	7.16625	100	7.17	27.5	1.660265	6.04
Volumetric Flow Rate (REF)	231,678	275,000	84.25	n/a	n/a	n/a

4. Receiving Environment 2018

Existing Air Quality

4.1 Since the completion of the EIAR in 2006, monitoring of NO_2, NO_X, SO_2 and PM_{10} has been undertaken for several periods at the Dublin City Council Recycling Centre, Sean Moore Road, Ringsend, Dublin 4, using a continuous analyser. This data is summarised in Table 4-1. The equivalent data gathered at the Glass Bottle site in 2003 - 2005 is also provided again for comparison. Both the Glass Bottle site and Sean Moore Road site monitoring location could be described a roadside, in that they are both located adjacent to Sean Moore Road (R131) and the concentrations measured directly influenced by the vehicles emissions form road traffic movements on that road.

Table 4-1: EPA Pollutant Monitoring Data, gathered at the Glass Bottle Factory (2003 – 2005) and Sean Moore Road (2009 – 2011, 2017 and 2018)

Pollutant	Averaging Period	Air Quality Limit Value	Years					
			2003 – 2005[1]	2009	2010	2011	2017	2018
NO_2 µg/m^3	1-Hour (99.8th percentile)	200	101.0	(6)[2]	(1)[2]	(0)[2]	99.5	87.9
	Annual	40	30.5	27.7	30.4	28.1	27.3	21.9
NO_x µg/m^3	Annual	30	N/A	56.6	58.0	50.0	49.7	54.3
SO_2 µg/m^3	1-hr (99.7th percentile)	350	N/A	N/A	17.3	N/A	24.7	N/A
	24-hr (99.2nd percentile)	125	N/A	N/A	12.9	N/A	17.4	N/A
	Annual	20	4.8	5.7	3.5	2.5	4.3	N/A
PM_{10} µg/m^3	24-hr (90.4th percentile)	50	57.0	(6)[3]	(16)[3]	(6)[3]	21	30.5
	Annual	40	34.0	17.7	23.0	17.8	13.4	13.3

[1] As reported in Table 2.1, [2] Number of exceedances of the 1 hour mean NO_2 air quality standard, [3] Number of exceedance of the 24 hour PM_{10} air quality standard.

4.2 There is no real variation in the trend of monitoring data gathered at the Sean Moore Road site, between 2009 and 2018, other than the dip in annual mean NO_2 concentrations in 2018. The NO_X, NO_2 and SO_2 data gathered at the Sean Moore Road site from 2009 to 2017 is also fairly consistent with those pollutant data gathered at the Glass Bottle site from 2003 to 2005, albeit generally slightly lower. However, annual mean and 1 hour mean PM_{10} concentrations monitored at the Sean Moore Road site are markedly lower than those monitored at the Glass Bottle site.

4.3 Any suggestion of a reduction in pollutants associated with road traffic emissions (NO_X, NO_2, PM_{10} and $PM_{2.5}$) can potentially be attributed to improvements in vehicles emissions technology that has occurred over the years, and the evolution of that technology into the local vehicle fleet. However, the effect of such improvements on concentrations of NO_X, NO_2, PM_{10} and $PM_{2.5}$ is partially offset by the year on year increase in vehicle movements on the local road network, due to general growth and vehicle movements associated with nearby developments.

4.4 The 2006 EIA also noted a number of other industrial point sources (especially for NO_x) in the general vicinity of the Poolbeg peninsula i.e.:

- Synergen Power Limited operates a 750 MWth gas-fired power station on Pigeon House Road. The site environmental licence was revised in 2012 and again by technical amendment in 2015 to bring it into line with the ELVs for large combustion plant in the Industrial Emissions Directive;
- The ESB operates Poolbeg Power Station. The 510 MWe thermal power station closed in 2010. The 470 MWe CCGT plant was subject to licence review in 2012 and again in 2015 to ensure conformity with the ELVs in the IED.
- North Wall Generating Station consisted of two gas turbine generators with a combined 272 MWe. One of the turbines ceased operation in 2010 with the other continuing as a limited-hours peaking plant. Since 2016, the operational hours of this plant have been further limited and final closure is anticipated by 2023.

4.5 Consequently, there has been a significant reduction in point source emissions of NOx since 2006 as a result of plant closures and reduced ELVs as plants are updated to bring them into line with the IED.

4.6 The monitoring data reported in Table 2-1 and Table 4-1, as well as the reported 2006 EIAR impacts summarised in Table 2-2, were influenced by local meteorology. Figure 4-1 provides a set of windroses based on wind speed and wind direction data gathered at Dublin Airport (2015 -2017). The updated windroses (which are similar to those used in the 2006 report) demonstrate that the predominant wind direction is blowing from west to east, although the wind does blow from all directions on occasions throughout the year. Therefore, maximum annual mean impacts from the DWtE stacks are likely to occur to the east of the site, in Dublin Bay, rather than at any of the sensitive receptors located to the north, south or west of the site. Because winds still blow from other directions over the course of the year, this assumption is unlikely to apply to maximum short term mean impacts.

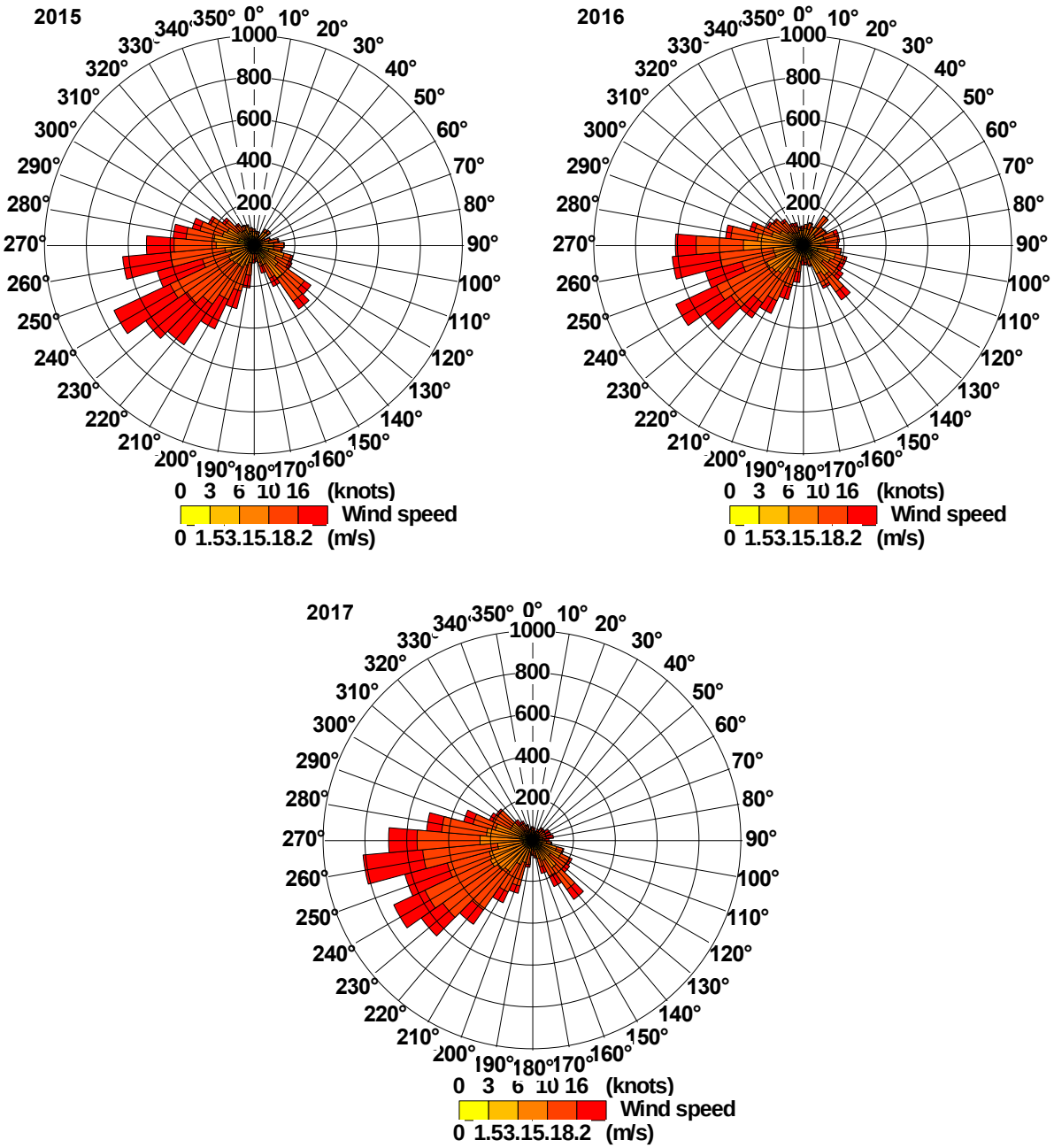

Figure 4-1: Dublin Airport Windrose Plots (2015 – 2017)

4.7 There are a number of human health sensitive receptor located in the vicinity of the Waste to Energy site that could be impacted by emissions to air from the site's stacks and from the site's associated vehicle movements on the public road network. Selected human health sensitive receptors are shown in Figure 4-2 and include residential properties at Ringsend. In addition to the human health sensitive receptors, there are also a number of ecologically sensitive receptors nearby, which form part of the EU's Natura 2000 Network, that could be impacted by emissions to air from the Waste to Energy site's stacks. Selected locations that represent these ecological receptors are also shown on Figure 4-2.

Figure 4-2: Air Quality Sensitive Receptor

5. Updated Air Quality Impact

Updated Dispersion Model Results

5.1 The assessment of impacts associated with the operation of the DWtE site has been revisited. The contribution of the Facility's stack emissions to pollutant concentrations have been quantified, at their currently permitted levels (maximum ELVs and maximum flue gas flow rate), at the worst affected offsite location. These results are provided in Table 5-1. It is noted that the ELVs set by the IED Licence for As differ to the Emission Limits included in the assessment that accompanied the 2006 EIAR (i.e. 0.2 mg/m^3 in the licence and 0.5 mg/m^3 included in the 2006 EIA).

5.2 The results suggest that the licenced impacts are less than 10% of the relevant EALs for the majority of pollutants and averaging periods, with little risk of any exceedance of the EALs considered for the protection of human health. The largest impacts concern hourly mean NO_2 and annual mean As, although the Predicted Environmental Concentrations for both pollutants remain well below their relevant EALs.

Table 5-1: Predicted Air Quality Values, Point of Maximum Offsite Impact (Stack Emissions Only)

Pollutant	Averaging Period	Environmental Assessment Level (µg/m^3 unless stated)	Background/ Ambient Concentration (µg/m^3)	Process Contribution (PC) (µg/m^3 unless stated)	PC % of EAL	Predicted Environmental Concentration (PEC) (µg/m^3 unless stated)	PEC % of EAL
NO_2	1-Hour(1)	200	45.2(2)	40.3	20	85.5	43
	Annual	40	22.6(2)	1.3	3	23.9	60
SO_2	1-hr(1)	350	9.6(3)	9.9	3	19.5	6
	24-hr(1)	125	9.6(3)	2.8	2	12.4	10
PM_{10}	24-hr(1)	50	26.2(2)	0.3	1	26.5	53
	Annual	40	13.1(2)	0.1	<1	13.2	33
$PM_{2.5}$	Annual	25	9.5(2)	0.1	<1	9.6	38
CO	8-hr(1)	10000	2000.0(2)	17.0	<1	2017.0	20
TOC	Annual	5	2.0(3)	0.1	1	2.1	41
HCl	1-hr	100	0.5(3)	1.0	1	1.5	1.5
HF	1-hr(1)	3	2.0x10^{-2}(3)	0.2	6	0.2	7
	Annual	0.3	1.0x10^{-2}(3)	1.0x10^{-2}	3	2.0x10^{-2}	7
Dioxins	N/A	N/A	5.6x10^{-8}(3)	6.6x10^{-7}	N/A	7.2x1^{-7}	N/A
Hg	Annual	1	1.0x10^{-3}(3)	3.3x10^{-4}	<1	1.3x10^{-3}	<1
Cd	Annual	5.0x10^{-3}	1.0x10^{-3}(3)	3.3x10^{-4}	7	1.3x10^{-3}	27
As	Annual	6.0x10^{-3}	1.0x10^{-3}(3)v	1.3x10^{-3}	22	2.3x10^{-3}	29
V	Max 1-Hour(1)	1	1.0x10^{-2}(3)	4.9x10^{-2}	5	0.1	7

(1) Short term Background Contributions are double the long-term contributions, (2) Background sourced from Environmental Protection Agency Monitoring undertaken at background locations in Zone A, in 2016, (3) Background sourced from 2006 EIAR.

5.3 Table 5-2 presents updated impacts at nearby ecologically sensitive receptors for the pollutants of ecological concern (NO_X and SO_2). The updated results also include consideration of Ammonia (NH_3), which was not included in the 2006 EIAR.

5.4 Table 5-2 suggests that impacts at the worst impact ecologically sensitive location are relatively minor (<5%), but does show that annual mean concentrations of NO_X exceed the air quality Limit Value for this pollutant, because of elevated background/ambient conditions, which are already in exceedance.

Table 5-2: Predicted Air Quality Values, Worst Case Ecological Impacts (Stack Emissions Only)

Pollutant	Averaging Period	Environmental Assessment Level ($\mu g/m^3$)	Background/ Ambient Concentration ($\mu g/m^3$)	Process Contribution (PC) ($\mu g/m^3$)	PC % of EAL	Predicted Environmental Concentration (PEC) ($\mu g/m^3$)	PEC % of EAL
NO_X	Annual	20	37.2[(2)]	1.3	4	38.5	128
NH_3	Annual	3	1.7[(3)]	0.1	3	1.8	60
SO_2	Annual	20	4.8[(4)]	0.3	2	5.1	26

[(1)] NH_3 EAL based on the standard set by the UK Environment Agency assumed [(2)] Background sourced from Environmental Protection Agency Monitoring undertaken at background locations in Zone A, in 2016, [(3)] Background sourced from Environmental Protection Agency Research (Ambient Atmospheric Ammonia in Ireland, 2013-2014), [(4)] Background sourced from 2006 EIAR.

5.5 The impact (Process Contribution) reported in Table 5-1 and Table 5-2 are based on the ELVs as set by the existing IED Licence for the site.

5.6 The concentrations reported in Table 5-1 and 5-2 are also considered to be conservative, in that stack monitoring undertaken at the site reported in Section 3 above suggests that actual emission concentrations and mass flows are markedly less than those described in the IED Licence. The monitored emission concentration of HCl, for example, accounts for less than 1% of the licenced emission concentration for that pollutant. The monitored emissions concentrations for PM_{10}, Cd, Hg, HF, SO_2, TOC, CO and Dioxins and Furans account for less than 10% of the relevant licenced emission concentrations. The monitored emission concentration for heavy metals accounts for 13% of its licenced emission concentration and the monitored emission concentration of NO_X accounts for 69% of its licenced emission concentration. Stack monitoring suggests that the volumetric flow rate is also lower than licenced, accounting for 83% of that value.

5.7 The combined impact of the DWtE stack emissions (at Licenced ELVs) and road traffic emissions (see separate Traffic Impact assessment report) have also been quantified, at sensitive receptors located adjacent to the nearby public road network, focusing on locations adjacent to the R131 Sean Moore Road/Pigeon House Road roundabout. These results ae provided in Table 5-3 for the key pollutants associated with road traffic emissions (NO_2, PM_{10} and $PM_{2.5}$).

5.8 Table 5-3 demonstrates that total pollutant concentrations (Predicted Environmental Concentrations) predicted at these receptors close to the R131 Sean Moore Road/Pigeon House Road roundabout, are consistent with the measurement data gathered at the Ringsend continuous analyser over recent years. It shows that other than the background contribution, the contribution from emissions associated with baseline traffic flows have the greatest effect on concentrations, with the impact (Process Contribution) having a minor effect, particularly the contribution associated with the Facility's operational vehicle movements.

Table 5-3: Predicted Air Quality Values, Key Receptor Locations (Stack and Road Traffic Emissions)

Pollutant	Averaging Period	Environmental Assessment Level (µg/m^3)	Actual Total Pollutant Concentration (µg/m^3)	Baseline Road Traffic Emissions Contribution (µg/m3)[4],[5]	% of Baseline Road Traffic Emissions to Actual Total Concentrations	Operational Road Traffic Emissions Contribution (µg/m^3)[4],[5]	% of Operational Road Traffic Emissions to Actual Total Concentrations	Stacks Emissions Contribution (µg/m^3)[6]	% of Stack Emissions to Actual Total Concentrations
Receptor R1: Residential Property on Leukos Road (Ringsend)									
NO_2	1-Hour	200	96.1[1]	12.8	13.3	0.2	0.2	37.4	38.9
	Annual	40	27.7[1]	6.4	23.1	0.1	0.4	0.7	2.5
PM_{10}	24-hr	50	36.2[1]	4.2	11.6	<0.1	0.1	0.1	0.3
	Annual	40	19.9[1]	2.1	10.6	<0.1	0.1	<0.1	0.2
$PM_{2.5}$	Annual	25	9.5[2]	0.6	6.3	<0.1	0.1	<0.1	0.3
Receptor R3: Residential Property Pigeon House Road (Ringsend)									
NO_2	1-Hour	200	96.1[1]	13.2	13.7	0.6	0.6	40.3	41.9
	Annual	40	27.7[1]	6.8	24.5	0.3	1.0	0.7	2.5
PM_{10}	24-hr	50	36.2[1]	4.2	11.6	0.1	0.2	0.1	0.3
	Annual	40	19.9[1]	2.1	10.6	<0.1	0.2	<0.1	0.2
$PM_{2.5}$	Annual	25	9.5[2]	0.6	6.3	<0.1	0.2	<0.1	0.4
Receptor R7: Proposed Residential Property on South Bank Road									
NO_2	1-Hour[1]	200	94.5[3]	11.2	11.9	1.8	1.9	36.3	38.4
	Annual	40	29.6[3]	5.6	18.9	0.9	3.0	0.5	1.7
PM_{10}	24-hr[1]	50	29.9[3]	3.4	11.4	0.2	0.7	0.1	0.3
	Annual	40	14.9[3]	1.7	11.4	0.1	0.7	<0.1	0.2
$PM_{2.5}$	Annual	25	10.0[3]	0.4	4.0	0.1	1.0	<0.1	0.3

[1] Average annual mean concentration monitored at the Ringsend continuous analyser between 2009 and 2018, which includes the contribution of emissions associated with the Facility and local traffic, [2] Background concentration reported by the EPA for Zone A in 2016, [3] Background concentration reported by the EPA for Zone A in 2016, plus the modelled contribution of DWtE road traffic and stack emissions, [4] Short term road traffic emissions contribution are double the long term contribution, [5] Predicted using ADMS Roads, based on baseline traffic data projected from recent traffic counts and 2017 meteorological data from Dublin Airport, [6] Predicted using ADMS 5, based on emissions data provided in the Waste Licence, 2013-2017 meteorological data from Dublin Airport and the conservative assumption that all NO_X is released is converted to NO_2.

6. Conclusions

6.1 AECOM has reviewed emissions data from the DWtE facility for 2017 and 2018 and concluded that emissions to air are well below the ELVs in the sites IED Licence. The data indicates a waste to energy plant operating well within its design envelope with regard to capacity and also generating emission to air well below those anticipated and modelled in 2006 as part of the air quality impact assessment.

6.2 AECOM has remodelled emissions to air from the DWtE facility using updated meteorological data and the latest version of the relevant dispersion modelling software, including using ADMs Roads to include the impact of general and site-specific traffic on local air quality. The model also assumed "worst-case" emissions at the licensed ELVs and mass flows rather than actual mass-flows.

6.3 The modelling results with respect to emissions to air from the DWtE stacks indicate that the worst-case direct air quality impact is ***not significant*** with the process contribution for most parameters less than 5% of the relevant EAL. The predicted levels for some of the metals (Cd, As and V) are higher. However, emission monitoring indicates emissions of these metals are very low and considerably below the relevant ELVs. Consequently, the metals impacts can again be considered to be ***not significant*** or ***imperceptible***. The worst-case NO_2 process contribution is approximately 20% of the 1-hour average EAL.

6.4 Modelling also included consideration of traffic impacts for NO_2, PM_{10} and $PM_{2.5}$ at sensitive receptors near Sean Moore Road. This analysis concluded that the air quality impacts of site specific traffic (waste delivery and service vehicles) is ***not significant***.

Appendix B Traffic and Transport Assessment

Dublin Waste to Energy Facility

Traffic and Transport Assessment

Dublin Waste to Energy Limited

November 2018

Quality information

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Glossary of Terms

AADT – Annual Average Daily Traffic

BTV – Bulk Transfer Vehicle

DCC – Dublin City Council

DWtE – Dublin Waste to Energy Facility

FGTR - Flue Gas Treatment Residues

HGV – Heavy Goods Vehicle

LGV – Light Goods Vehicle

PCU – Passenger Car Unit

RCV – Refuse Collection Vehicle

RWV - Residual Waste Vehicle

TTA – Traffic and Transport Assessment

WDV – Waste Delivery Vehicle

WtE - Waste to Energy Facility

Executive Summary

Introduction

This Traffic and Transport Assessment (TTA) has been prepared by AECOM to accompany an application being submitted by Dublin Waste to Energy Limited (DWtE Limited), which operates the existing Waste to Energy (WtE) facility (herein referred to as the Facility) on Pigeon House Road, Poolbeg, Dublin 4. The application proposes to increase waste tonnage treatment at the Facility from 600,000 tonnes to 690,000 tonnes per year.

Existing Situation

The Facility is located on Pigeon House Road, Poolbeg, Dublin 4. The Facility comprises a thermal treatment plant that has a licence to treat up to 600,000 tonnes of non-hazardous municipal waste per year[1]. The Facility's site is approximately 5.5 hectares and is bounded to the north by Pigeon House Road, to the south-east by Irishtown Nature Park, to the east by a sewage treatment plant and to the west by Shellybanks Road.

The Facility became operational in summer 2017. The current operational hours for the Facility are 24 hours a day, seven days a week. However, the Facility has a licence to only accept Waste Delivery Vehicles (WDVs) Monday to Saturday from 08:00 to 22:00.

Waste is transferred to the Facility by WDVs. There are two types of WDVs; Refuse Collection Vehicle (RCVs) and Bulk Transfer Vehicles (BTVs). RCVs are typically three-axle rigid trucks, while BTVs are typically five-axle articulated vehicles.

Other vehicle types that may access the site include: Residual Waste Vehicles (RWVs); services vehicles; and staff and visitor vehicles. RWVs, which are typically three-axle rigid trucks, access the Facility to collect residual solid waste residues, which are brought to off-site locations. Service vehicles include cars, Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs). Staff and visitor vehicles include cars, taxis, LGVs and bicycles.

Extant Planning Permission

Under its extant licence from the Environmental Protection Agency (EPA), the Facility is permitted to treat up to 600,000 tonnes of waste per year. Under its planning approval from An Bord Pleanála[2], a maximum of 121 WDVs per day (242 combined trips[3] arriving and departing the Facility per day) are permitted to access the Facility.

Existing WDV Trip Generation

To inform this TTA, 10 months of on-site delivery records, from October 2017 to July 2018, were provided by DWtE Limited. These records provided detailed information including:

- Total daily tonnes;
- Total daily number of vehicles; and
- Average tonnes per vehicle.

This data has been further subdivided by vehicle type, that is, RCVs and BTVs.

An assessment has been undertaken, based on the on-site delivery records provided by DWtE Limited, on the average monthly tonnage and the average daily WDVs trips. This assessment shows that, on average, within the measured timeframe across the 10 month period, that the Facility has accepted delivery of 52,722 tonnes of

[1] http://www.epa.ie/licences/lic_eDMS/090151b2806783b6.pdf

[2] Condition 4 of the original permission reads *Waste deliveries to the facility shall be in accordance with the strategy proposed and elaborated on by Dublin City Council at the oral hearing. Deliveries of waste (and return trips), except from the central area as indicated on slides/drawings submitted at the oral hearing, shall be via the M50 and the Dublin Port Tunnel. Conditions requiring compliance with this transport strategy shall be incorporated into relevant permits granted to waste collectors.*

[3] A combined trip is counted as the sum of the arrival and the departure trips from the Facility.

waste per month[4]. The Facility has accepted this level of monthly waste at an average trip generation rate of 95 WDV trips per day (190 combined trips entering and exiting the Facility per day), based on the 10 months of on-site delivery records.

Existing Traffic Conditions

To inform this TTA, traffic count surveys were undertaken at relevant key selected junctions and links surrounding the Facility. Junction Turning Counts and Queue Lengths were measured at seven key junctions within the road network on Tuesday, 4 April 2017. These locations are as follows:

- South Lotts Road/Ringsend Road/Bridge Street Junction;
- The Point Roundabout Junction (R131/R801);
- R131/Pigeon House Road/Sean Moore Road Roundabout Junction;
- Beach Road/Cranfield Place/Sean Moore Road Signal Controlled Junction;
- Sean Moore Road/Church Avenue/Beach Road Signal Controlled Junction;
- Irishtown Road/Londonbridge Road/Church Avenue Signal Controlled Junction; and
- South Bank Road/White Bank Road Priority Junction.

Further traffic count surveys were undertaken, when the Facility was fully operational, at the site access junction and Sean Moore Roundabout on Tuesday, 2 October 2018. These locations are as follows:

- Pigeon House Road / Waste to Energy Waste Delivery Vehicle Access;
- Shellybanks Road / Waste to Energy Staff Access; and
- R131/Pigeon House Road/Sean Moore Road Roundabout Junction.

Existing Waste Delivery Trip Distribution

An assessment of the WDV Trip Distribution demonstrates that all BTVs arrive and depart the Facility via the R131 (East Link Bridge). The majority of the RCVs also arrive and depart via the R131 (East Link Bridge), with a small proportion of RCVs recorded using the Sean Moore Road.

Assessment of Existing Waste Delivery Vehicles

An assessment of WDVs showed that their average carrying capacity was greater than forecasted in the original application[5]. Their larger carrying capacity results in less WDV trips generated by the Facility.

An assessment of the WDV delivery tonnage showed that RCVs have an average carrying capacity of 8.8 tonnes, while BTVs have an average carrying capacity of 25.7 tonnes. It is evident that BTVs can carry up to three times the loading capacity of RCVs.

An assessment of the waste delivery trips showed that there is a greater percentage of BTVs generated by the Facility than forecasted in the original application. BTVs make up 80% of the WDVs arrivals rather than 59%, as forecasted in the original application. Furthermore, the average carrying capacity of BTVs (25.7 tonnes) is greater than the carrying capacity of BTVs assumed in the original application (20 tonnes).

Given the higher proportion of BTVs generated by the Facility, and the increased average tonnage per WDV, there are less WDV trips generated by the Facility than was forecasted in the original application to deliver the same overall tonnage of waste.

Proposed Development

The proposal involves an increase of the Facility's waste tonnage treatment from 600,000 tonnes to 690,000 tonnes per year.

[4] The EPA licence permits the Facility to treat up to 600,000 tonnes of waste a year. This total is for a calendar year, while the on-site delivery records is based over two calendar years, 2017 and 2018. The Facility has not, and will not, exceed its extant licence of 600,000 tonnes per year in 2018.

[5] The original application was lodged in 2007; An Bord Pleanála Planning reference No PL29S EF2022 http://www.pleanala.ie/casenum/EF2022.htm?_sm_au_=iVVFw5Tv44ntM755. A TIA and the Traffic Chapter of the EIS was prepared as part of the original application which addressed the traffic impacts of the Facility on the surrounding road network.

Proposed Waste Delivery Trip Generation

The Facility proposes to increase its intake of waste per year to 690,000 tonnes. This represents an increase of 90,000 tonnes of waste per year compared to its extant approved licence. On average, the proposal will enable the Facility to manage 57,500 tonnes of waste per month.

There were three of the ten months assessed, were the Facility surpassed, or came close to, the 57,500 tonnes monthly benchmark associated with the proposed 690,000 tonnes per year waste capacity. These months were December 2017 (59,624 tonnes), January 2018 (62,013 tonnes) and May 2018 (57,360 tonnes), with an average of 59,666 tonnes of waste per month[6].

Therefore, these three months, where tonnage accepted was highest during the 10 month period, have been used to assess the traffic impact for the Facility's proposal to accept 690,000 tonnes of waste per year as the upper end scenario. An assessment based on these three months showed that, on average, the Facility accepted this proposed level of waste at a trip generation rate of 105 WDVs per day (210 combined trips entering and exiting the Facility per day).

This trip generation rate is within the permitted 121 WDVs per day (242 combined trips arriving and departing the Facility per day) to the Facility and, therefore, demonstrates that the Facility can accommodate the forecast traffic generated by the proposed 690,000 tonnes of waste per year (57,500 tonnes of waste per month), within the limits assessed in the original EIS and consented by An Bord Pleanála.

Other Trip Generators

Separate assessments have been undertaken on other trip generators at the Facility, including Residual Waste Vehicles (RWVs), services vehicles, and staff and visitor vehicles, to assess the total trip generation during the AM and PM peak hours for the existing and proposed scenarios. These assessments were based on 2018 traffic surveys undertaken at the Facility's site access.

Traffic Impact Assessment Conclusions

This TTA concludes that traffic generated as a result of the proposed increase of the Facility's waste tonnage treatment from 600,000 tonnes to 690,000 tonnes per year, is within its existing permitted number of WDVs, as conditioned in the extant planning approval.

This TTA demonstrates that the forecasted traffic to the Facility will have a negligible impact on the existing road network within the study area during the opening year and future year scenarios during the AM and PM peak times.

AM and PM peak Facility traffic is forecasted to be less than 5% of the existing AM and PM network traffic, in particular on the R131 (East Link Bridge) and the local road junctions in Irishtown and Ringsend (Sean Moore Road). While the Facility has a larger traffic impact on the junctions on the South Bank Road and Pigeon House Road, the traffic analysis demonstrates that the existing junctions will continue to operate well within capacity limits during the opening year and future year scenarios.

[6] The EPA licence permits the Facility to treat up to 600,000 per year. However, there will be fluctuations in waste supply, with some months larger than others as was seen over December 2017, January 2018 and May 2018. The Facility has not, and will not exceed its extant licence of 600,000 tonnes per calendar year.

1. Introduction

1.1 Background

This Traffic and Transport Assessment (TTA) has been undertaken for an application being submitted by Dublin Waste to Energy (DWtE) Limited, which operates the existing Waste to Energy (WtE) facility (herein referred to as the Facility) on Pigeon House Road, Poolbeg, Dublin 4. The application proposes to increase waste tonnage treatment at the Facility from 600,000 tonnes to 690,000 tonnes per year. The location of the existing site is shown below in Figure 1.1.

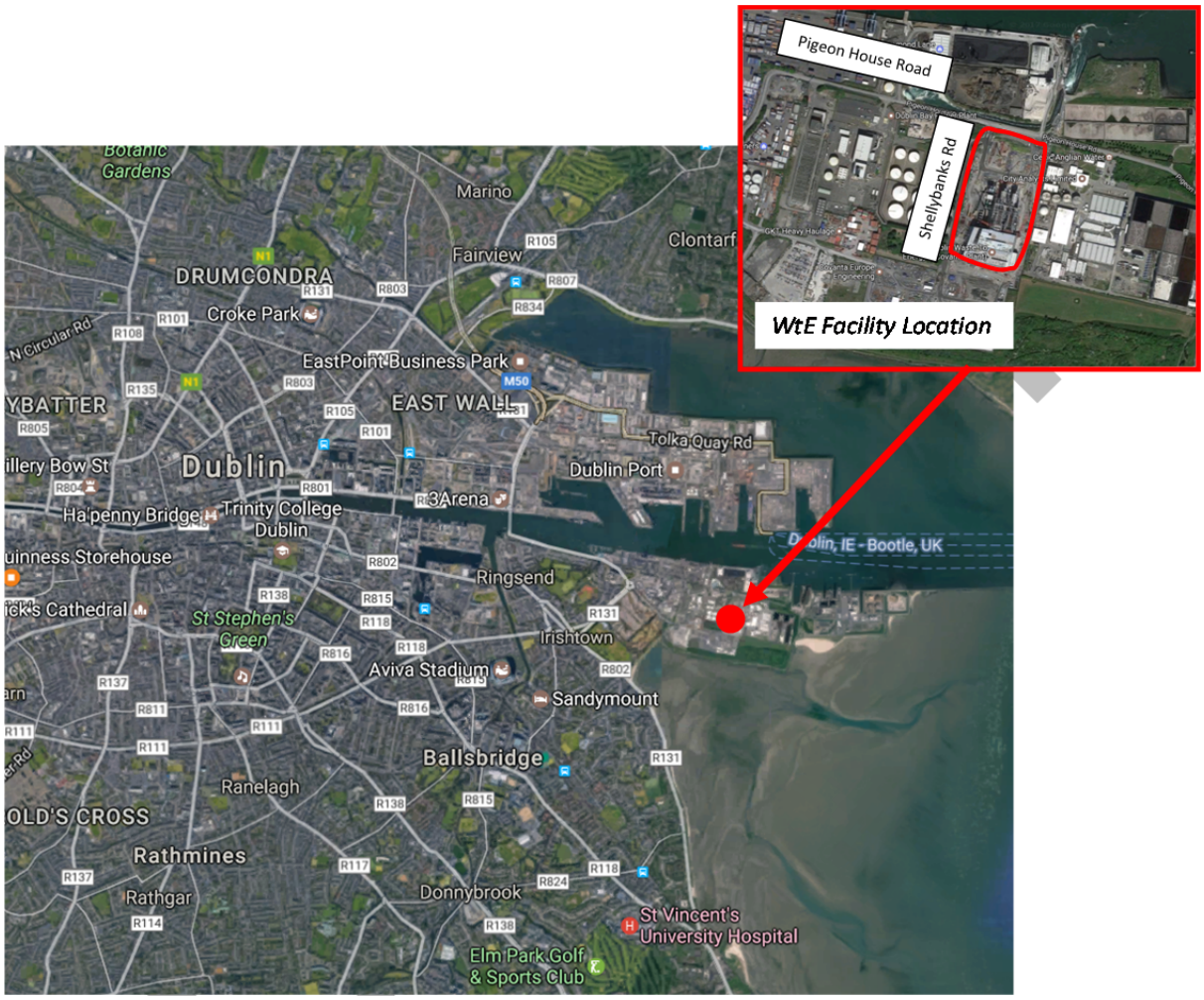


Figure 1.1: Site Location (*Source: Google Maps*)

To complete this report, reference should be made to the following documents and surveys:

- Dublin City Development Plan 2016-2022 (Dublin City Council);
- TII Traffic and Transport Assessment Guidelines 2014 (Transport Infrastructure Ireland);
- Data of Trip Generation of Waste Delivery Vehicles from October 2017 to July 2018 (source DWtE);
- 2017 Traffic Counts commissioned on the surrounding road network;
- 2018 Traffic Counts commissioned at the Facility access and Sean Moore Road Roundabout;
- Dublin Waste to Energy Facility, Traffic Impact Assessment (ILTP, 2006); and
- Dublin Waste to Energy Facility, Environmental Impact Statement, Chapter 7 - Traffic, (RPS Consulting Engineers).

1.2 Objectives

The objective of this report is to undertake a review of the existing WDV trip generation rate to the Facility to assess the trip generation rate associated with the proposed 15% increase in annual waste treatment capacity from 600,000 tonnes to 690,000 tonnes.

This TTA has been specifically undertaken to assess whether current situation and the impact of an increase in capacity to 690,000 is within the boundaries defined by the planning permission issued by An Bord Pleanála (ABP) are met. Condition 4 of the original permission reads:

Waste deliveries to the facility shall be in accordance with the strategy proposed and elaborated on by Dublin City Council at the oral hearing. Deliveries of waste (and return trips), except from the central area as indicated on slides/drawings submitted at the oral hearing, shall be via the M50 and the Dublin Port Tunnel. Conditions requiring compliance with this transport strategy shall be incorporated into relevant permits granted to waste collectors.

The strategy proposed, referred to in the ABP condition above, was set out in the original TTA and Traffic and Transportation chapter of the Environmental Impact Statement (EIS) and included for a daily trip generation rate of 121 daily Waste Delivery Vehicles (WDVs) (including both direct and transfer station deliveries). This total excludes other deliveries to the Facility i.e. residue waste removal, service or employee trips.

Another objective of this report is to examine the traffic impact of the proposal on the local area road network. The net change in traffic on the network due to additional traffic has been calculated and its influence on the local road network has been investigated.

1.3 Methodology

The methodology for this report is as follows:

- Assess the current traffic levels on the local road network surrounding the Facility;
- Determine the average trip generation rate of WDVs to and from the Facility;
- Determine the trip generation rate of WDVs to and from the Facility based on the increased annual waste treatment capacity of 690,000 tonnes; and
- Assess the traffic impact of the proposed increased annual waste treatment capacity of 690,000 tonnes in the AM and PM local road network.

1.4 Report Structure

Following the introduction, this report has been prepared under the following sections:

- Chapter 3 – Existing Situation. This chapter describes the existing environment surrounding the Facility, including existing traffic conditions.
- Chapter 4 – Existing Waste to Energy Facility. This chapter provides a description of the existing Waste to Energy facility, the existing Waste Delivery Vehicles trip generation and distribution, and other trip generators such as RWVs, service vehicles, staff and visitor vehicles.
- Chapter 5 – Proposed Development. This chapter describes the increase in trip generation rate due to the increase in waste tonnage.
- Chapter 6 – Development Traffic Impact. This chapter summarises the traffic impact on the surrounding road network due to the Facility.
- Chapter 6 – Summary/Conclusions – This chapter provides a summary of the report.

2. Existing Situation

2.1 Introduction

This chapter includes an assessment of existing conditions for the area surrounding the Facility, a review of the surrounding road network in terms of in terms of traffic flows and queues. An assessment has been made on the current public transport facilities, walking and cycling facilities, and collision history.

2.2 Existing Road Network

The WtE facility is located in Poolbeg, Dublin 4 and is accessed from the South Bank Road and Pigeon House Road junction. The map in Figure 2.1 illustrates the location of the WtE facility and the existing road network in close proximity to the Facility as well as the existing access into the site.

Figure 2.1: Existing Network Surrounding the Waste to Energy Facility (Source: Google Earth)

2.2.1 R131 Regional Road

The R131 is a regional road that is approximately 5km in length. It begins in Drumcondra and continues in a south east direction down through East Wall Road and the East Link Toll Bridge and terminates at the Sean Moore Road/Beach Road junction. The R131 in the vicinity of the Facility is wide and has a toll located along it. There is a footpath on one side of the road; two sides travelling over the bridge. This footpath is narrow in places but is in good condition. See photos in Figure 2.2 below.

Figure 2.2: R131 Regional Road

2.2.2 Pigeon House Road

Pigeon House Road is a single carriageway road approximately 6m in width. The road on approach to the Waste to Energy site has a footpath on both sides. This footpath is narrow in places. There are no pedestrian crossing facilities along the road. There are no cycle facilities in place along the road. See photos in Figure 2.3.

Figure 2.3: Pigeon House Road

2.2.3 South Bank Road / White Bank Road

The South Bank Road and the White Bank Road are wide distributor roads that provide access for employees and Heavy Goods Vehicles (HGV) vehicles into and out of the Poolbeg Peninsula. As shown in the photos in Figure 2.4, footpath provision along the road is narrow behind existing concrete blocks.

Figure 2.4: South Bank Road and White Bank Road

2.2.4 Sean Moore Road

The Sean Moore Road is a wide single lane two-way operating road. There are footpaths on both sides of the road; these are wide and in good condition, as illustrated in Figure 2.5.

Figure 2.5: Sean Moore Road

2.3 Existing Traffic Data

To inform this TTA, traffic count surveys were undertaken at relevant key selected junctions and links surrounding the Facility. The following surveys were conducted:

- Junction Turning Count (JTC) Surveys
- Queue Length Surveys
- Automatic Traffic Count (ATC) Surveys

These surveys were conducted on Tuesday 04th April 2017 during a weekday when schools were in operation. The Facility was nearing completion at the time, undertaking its final fit out. Therefore, the April 2017 traffic counts exclude any Facility trips. The counts were carried out for a 24 hour time period. These are detailed below and illustrated in the map in Figure 2.6.

Figure 2.6: Traffic Survey Locations

2.3.1 Junction Turning Counts/Queue Length Survey Locations

Junction Turning Counts and Queue Lengths were measured at seven key junctions within the road network on Tuesday, 4 April 2017. These locations are as follows:

1. South Lotts Road/Ringsend Road/Bridge Street Junction;
2. R131/R801 Roundabout Junction;
3. R131/Pigeon House Road/Sean Moore Road Roundabout Junction;
4. Beach Road/Cranfield Place/Sean Moore Road Signal Controlled Junction;
5. Sean Moore Road/Church Avenue/Beach Road Signal Controlled Junction;
6. Irishtown Road/Londonbridge Road/Church Avenue Signal Controlled Junction; and,
7. South Bank Road/Whitebank Road Priority Junction.

Shown in Figure 2.7 and Figure 2.8 below are the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak 2017 base year turning count flows at the seven key junctions on the road network. Flows are shown in Passenger Car Units (PCUs)[7].

[7] *Passenger Car Unit (PCU) is a metric used in Transportation Engineering to assess traffic-flow rate on a road. It is essentially the impact that a mode of transport has on traffic variables (such as headway, speed, density) compared to a single car.*

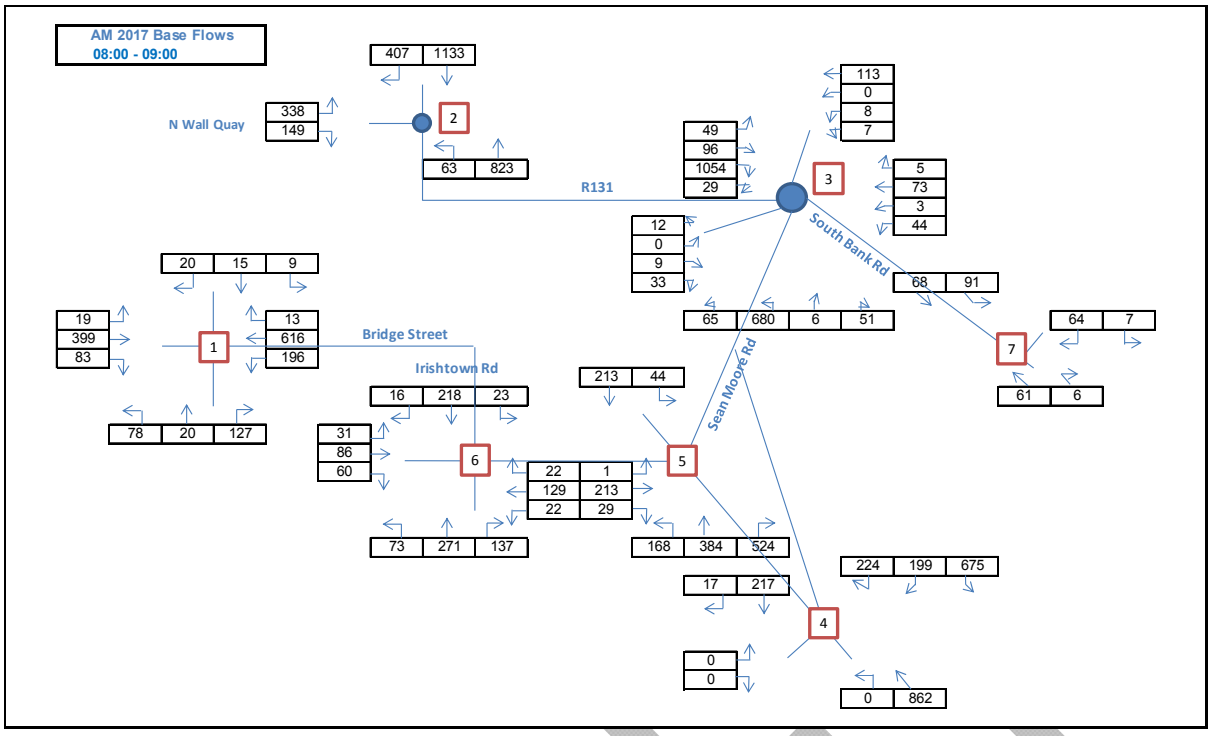


Figure 2.7: AM 2017 Traffic Flow Diagram

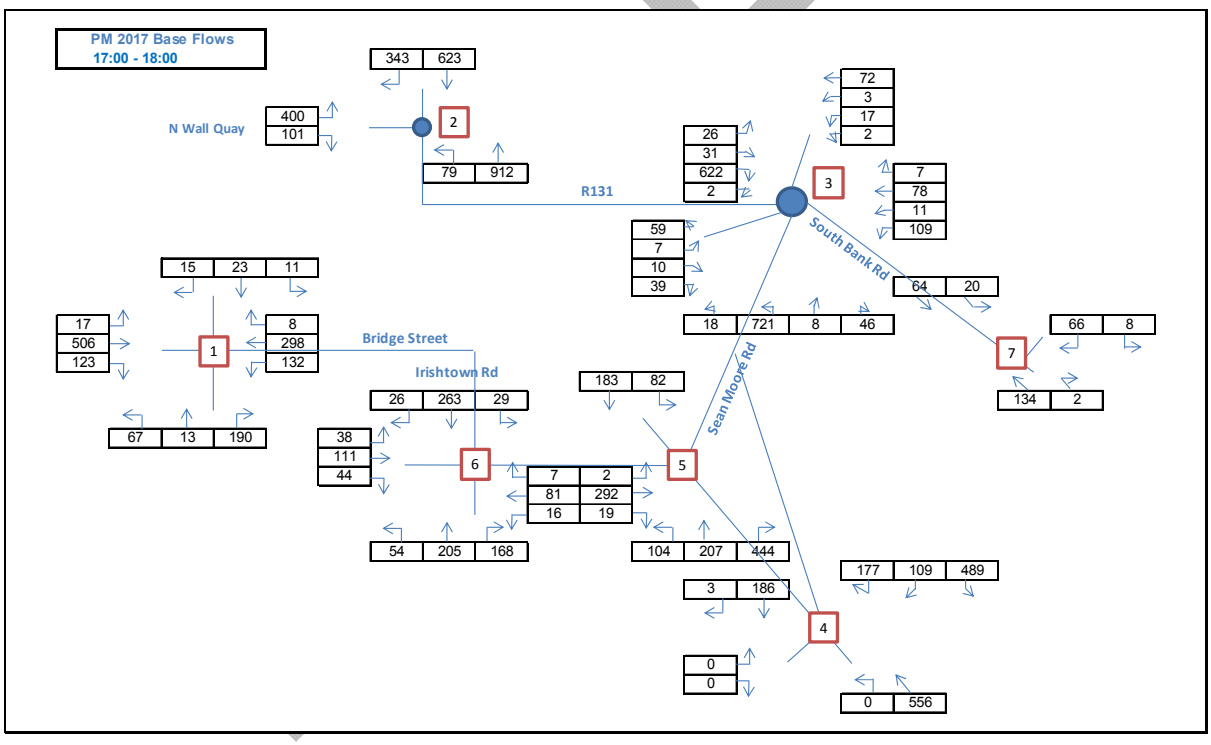


Figure 2.8: PM 2017 Traffic Flow Diagram

In the AM peak hour, the highest traffic flow movement is from East Wall Road travelling south over the East Link Bridge with 1,133 PCUs. This traffic flow then approaches the R131/Sean Moore Road roundabout where the majority of this flow, 1,054 PCUs, turns right onto Sean Moore Road travelling southbound to the Sean Moore Road/Beach Road junction where it distributes further.

In the PM peak hour, the highest traffic flow movement is travelling northbound from the East Link Bridge to East Wall Road with 912 PCUs. The majority of this traffic, 721 PCUs, is coming from Sean Moore Road.

2.3.2 Queue Lengths

Shown in Figure 2.9 below are the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak 2017 base year maximum queue lengths at the seven key junctions on the road network.

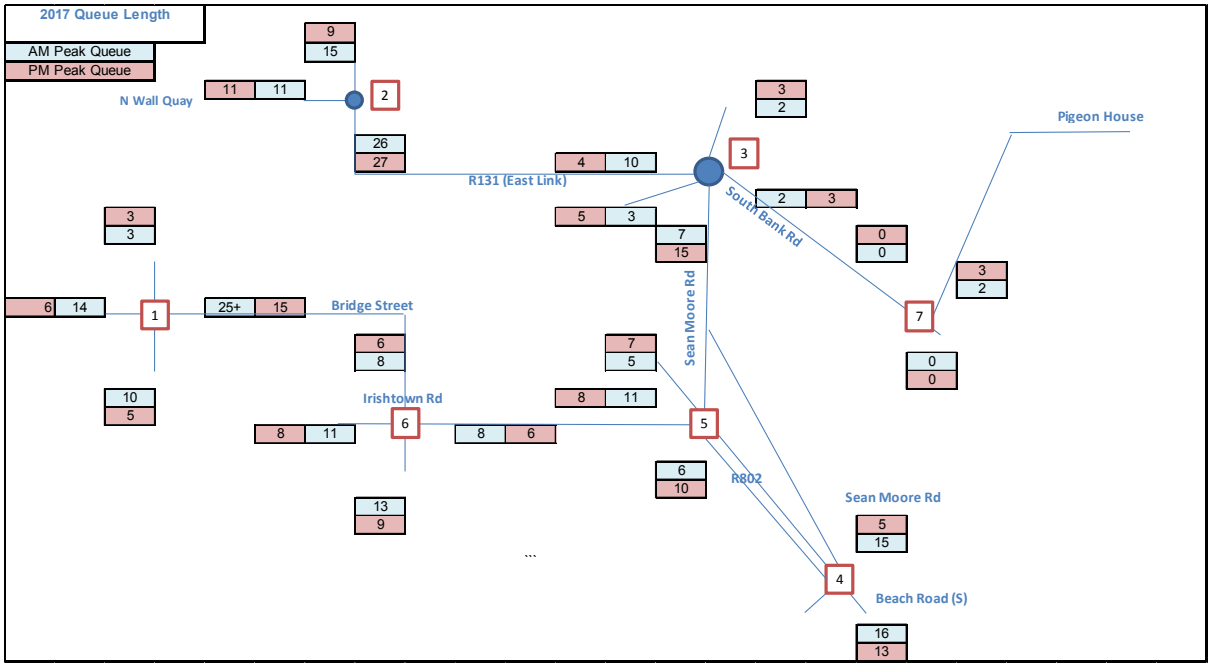


Figure 2.9: 2017 AM & PM Peak Max Queue Lengths

In the AM peak hour, the highest queue is at the Point Roundabout queuing south over the East Link Bridge with a queue of 26 vehicles. The queue lengths on the R131/Sean Moore Road are moderate with a maximum queue of 10 vehicles on the R131 East Link arm of the junction.

In the AM peak hour, the highest queue is again at the Point Roundabout travelling south over the East Link Bridge with a queue of 27 vehicles. The queue lengths on the R131/Sean Moore Road are moderate with a maximum queue of 15 vehicles on the Sean Moore Road arm of the junction.

2.3.3 Automatic Traffic Counts

Automatic Traffic Counts[8] were undertaken at five locations within the study area, with weekday counts undertaken from Monday 3rd April to Friday 7th April, these are detailed as follows and illustrated in Figure 2.1 above, depicted A through E inclusive:

A. East Wall Road;

B. R131 – West of JTC Site 3;

C. Sean Moore Road – South of JTC Site 3;

D. Beach Road – South of JTC Site 4; and,

E. Irishtown Road.

Shown below in Figure 3.10 is the Weekday AADT[9] for the five sites surveyed in total vehicles.

[8] Automatic Traffic Counts are data loggers with rubber tubes installed on the road carriageway which allow the accurate count of vehicle flow and speed.
[9] AADT – Annual Average Daily Traffic. The total volume passing a point or segment of a road for one year, divided by the number of days in the year.

Figure 2.10: AADT for ATC Sites (Total Vehicles)

Results show that Site A, East Wall Road, has the highest AADT with over 30,000 two-way vehicle flow over a 5 day average period. The lowest AADT recording is at Site E, Irishtown Road, which has an AADT of 14,169 vehicle flow over a 5 day average period.

Shown below in Figure 2.11 is the localised AADT recorded at the Sean Moore Road north arm and the South Bank Road arm. The South Bank arm provides localised access to and from the Poolbeg Peninsula, which includes the Facility. The Sean Moore Road north arm provides access to the Dublin Port.

Figure 2.11: AADT for local access roads

The AADT along both local roads is low in comparison to the traffic flows along the main roads. The AADT for Sean Moore Road north is 1,628 two-way vehicle flow with HGV vehicles accounting for 62% of this traffic. The AADT for South Bank Road is 4,178 two-way vehicle flow with HGV vehicles accounting for 52% of this traffic.

2.3.4 2018 Traffic Surveys

Junction Turning Counts and video surveys were undertaken at the Facility site access junctions and Sean Moore Road on Tuesday, 2 October 2018. These are set out in Figure 2.12 and are as follows:

- (i) Pigeon House Road / Waste to Energy Waste Delivery Vehicle Access;
- (ii) Shellybanks Road / Waste to Energy Staff Access; and
- (iii) R131/Pigeon House Road/Sean Moore Road Roundabout Junction.

Figure 2.12: AADT for local access roads

The 2018 traffic surveys were undertaken when the Facility was fully operational. It provided detailed information on the following;

- A hourly breakdown of the trips generated by the Facility;
- Size of the WDVs;
- Trip Distribution of the WDVs;
- Existing Trip Generation rate of service vehicles, in particular the AM and PM peaks; and
- Existing Trip Generation rate of staff and visitor vehicles, in particular the AM and PM peaks.

The type and size of WDVs accessing the Facility is set out in more detail in Section 3.5. WDV trip distribution is set out in Section 3.7. Residual Waste Vehicles (RWVs), service vehicles, and existing staff and visitor trip generation rate is set out in Section 3.6. An assessment of the traffic impact of the Facility is set out in Section 5.

2.4 Pedestrian / Cycle Facilities

There are footpaths in place along South Bank Road and Pigeon House Road leading up to the facility. The condition of the paths vary over the length of the road and are narrow in places.

Footpath provision on Sean Moore Road is good. There are footpaths on both sides of the road which are wide and in good condition. A footpath is provided along the R131 over the majority of its length. There is no footpath on this road for a section of approximately 160m from the roundabout with Sean Moore Road, travelling west. Pedestrians have to traverse Sean Moore Road and Pigeon House Road, where it then joins the R131. There is a footpath for the remainder of the R131 on one side of the road. This is a very busy road with a toll and bridge. The footpath is narrow the length of the road.

There are no cycle facilities on the road network in the vicinity of the Facility.

2.5 Public Transport

2.5.1 Bus Services

Table 2.1 below outlines the Dublin Bus services that facilitate the Ringsend area as well as the route and frequency of these services.

Table 2.1: Dublin Bus Services facilitating Ringsend

Service No	Route	Mon – Fri Frequency	Saturday Frequency
1	Santry towards Sandymount	20 mins	30 mins
47	Poolbeg to Belarmine	30 mins	30 mins

2.5.2 Rail Services

The LUAS red line is located just over two kilometres from the Waste to Energy facility. This line serves from the 3 Arena out to Dublin West, through locations such as Smithfield, Rialto, Inchicore, Drimnagh, Tallaght and City West.

The closest DART/Train station is Lansdowne Road. It is located approximately 2.5km from the Facility. This rail line serves north and south of Dublin.

The distance to walk to/from these stations would take approximately 20 – 25 minutes.

2.6 Road Safety History

The RSA online database has been reviewed in order to identify the collision history on the road network in the vicinity of the Facility. Collision data between the years 2005 – 2014 is displayed in the map in Figure 2.13.

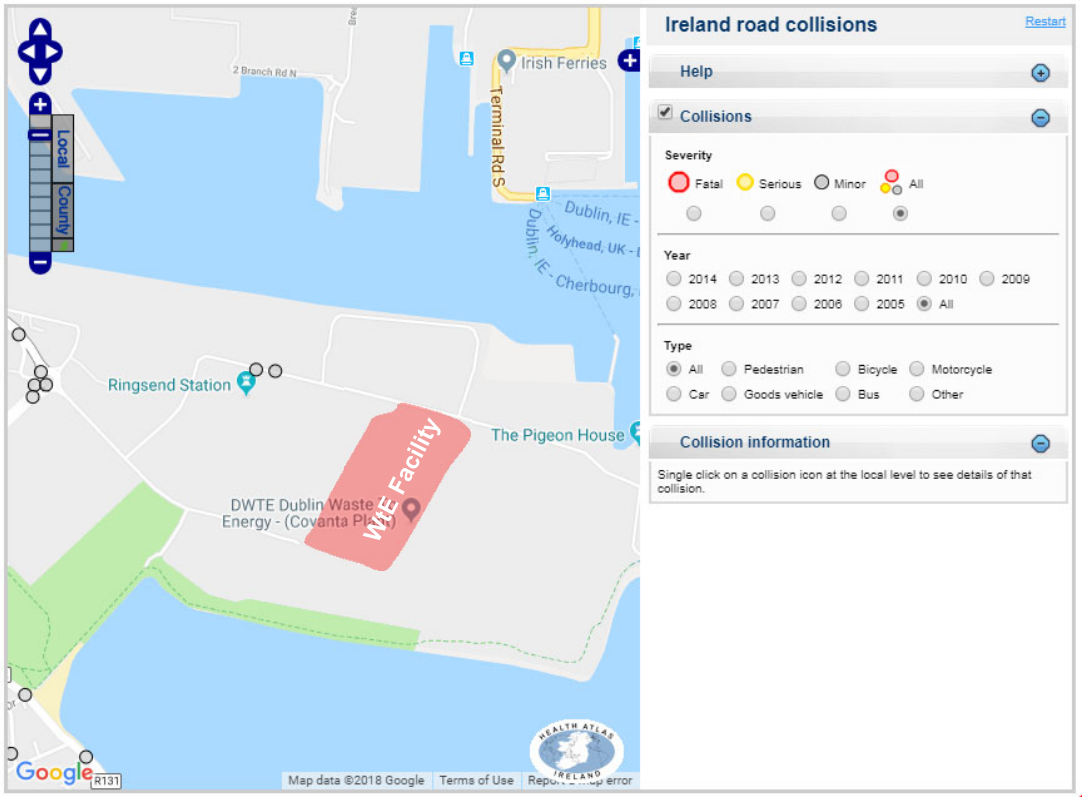


Figure 2.13: Road Collison Data (Source: RSA.ie)

There have been two collisions on the Pigeon House Road that are approximately 400m west of the facility. Both of these have been minor in nature. The first collision occurred in 2005 and involved a car and pedestrian. The second collision occurred in 2007 and involved a goods vehicle.

3. Existing Waste to Energy Facility

3.1 WTE Facility Operations Overview

The Facility became operational in summer 2017. The current operational hours for the Facility are 24 hours a day, seven days a week. However, the facility has a licence to only accept WDVs Monday to Saturday from 08:00 to 22:00.

Waste is transferred to the Facility by WDVs. There are two types of WDVs; Refuse Collection Vehicle (RCVs) and Bulk Transfer Vehicles (BTVs). RCVs are typically three-axle rigid trucks, while BTVs are typically five-axle articulated vehicles.

Other vehicle types that may access the site include: Residual Waste Vehicles (RWVs); services vehicles; and staff and visitor vehicles. RWVs, which are typically three-axle rigid trucks, access the Facility to collect residual solid waste residues, which are brought to off-site locations. Service vehicles include cars, Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs). Staff and visitor vehicles include cars, taxis, LGVs and bicycles.

3.2 Existing Access to the Site

The Facility is accessed via South Bank Road and Pigeon House Road. There are currently two accesses into the site. One access is located off Shellybanks Road, which provides access for staff and visitors to the Facility. The second access is via Pigeon House Road. The service access provides for all WDVs, RWVs and service vehicles to the Facility. This is illustrated in Figure 3.1 below.

There are currently 35 parking spaces available for staff parking.

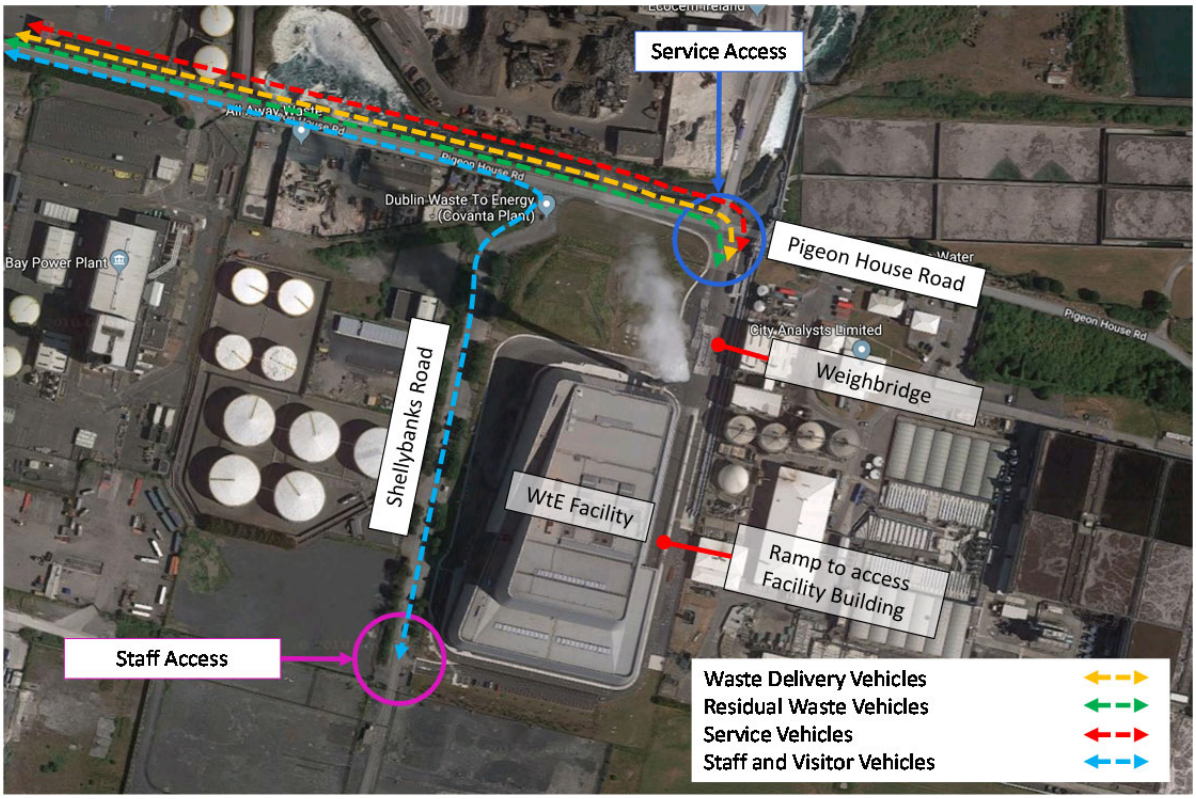


Figure 3.1: Existing Access into the WTE Facility

Figure 3.2 shows the existing service access to the site. The first photo shows the existing access on Pigeon House Road, while the second photo shows WDVs waiting at the weighbridge and the ramp to access the Facility building. All vehicles entering and exiting the facility are recorded and weighed to determine the number of vehicles and tonnage of waste or residual waste entering and exiting the Facility.

Figure 3.2: Service Access

3.3 Approved Waste Delivery Vehicle Trip Generation

Table 3.1 below illustrates an outline of the EPA licence and ABP conditions for the Facility. Under its extant licence from the Environmental Protection Agency (EPA), the Facility is permitted to treat up to 600,000 tonnes of waste per year. Under its planning approval from An Bord Pleanála[10], a maximum of 121 WDVs per day (242 combined trips[11] arriving and departing the Facility per day) are permitted to access the Facility.

Table 3.1: WTE Licence and Planning Permission Overview

Item	Description
1. Current Intake Volume	600,000 Tonnes per year
2. Opening Days	312 days annually (site is closed for waste deliveries on Sundays)
3. WDV Trips	121 WDVs per day (242 combined trips arriving and departing the Facility per day)
4. Routing	Condition 4 of Planning Permission: Waste deliveries to the facility shall be in accordance with the strategy proposed and elaborated on by Dublin City Council at the oral hearing. Deliveries of waste (and return trips), except from the central area as indicated on slides/drawings submitted at the oral hearing, shall be via the M50 and the Dublin Port Tunnel. Conditions requiring compliance with this transport strategy shall be incorporated into relevant permits granted to waste collectors.

Table 3.2 also illustrates the strategy to deal with waste delivery generation rate to the Facility from the original planning permission.

Table 3.2: Permitted Waste Delivery Trip Generation Strategy

	Daily Total (07:00 – 22:00)		Average Per Hour	
	Vehicles	**PCUs[12]**	**Vehicle**	**PCUs**
Arrival	121	363	9	27

[10] Condition 4 of the original permission reads *Waste deliveries to the facility shall be in accordance with the strategy proposed and elaborated on by Dublin City Council at the oral hearing. Deliveries of waste (and return trips), except from the central area as indicated on slides/drawings submitted at the oral hearing, shall be via the M50 and the Dublin Port Tunnel. Conditions requiring compliance with this transport strategy shall be incorporated into relevant permits granted to waste collectors.*

[11] A combined trip is counted as the sum of the arrival and the departure trips from the Facility.
[12] *A PCU conversion factor of 3 was applied to a HGV in the original assessment in line with the DTO's (now NTA) Model assumptions.*

Departure	121	363	9	27
Total	**242**	**726**	**18**	**54**

3.4 Existing Trips Generators

There are a variety of trip generators that come to the Facility. The trip generators have been broken down into a number of categories:

- Waste Delivery Vehicles (WDVs);
- Residual Waste Vehicles (RWVs);
- Service vehicles; and
- Staff and visitor vehicles.

WDVs are the largest proportion of trips to the Facility.

3.5 Existing Waste Delivery Trip Generation

As part of this TTA, an assessment has been undertaken, based on on-site delivery records provided by DWtE Limited for traffic and waste tonnage received at the Facility over a ten-month period from October 2017 to July 2018. These records provided detailed information including;

- Total daily tonnes;
- Total daily number of vehicles; and
- Average tonnes per vehicle.

This data has been further subdivided by vehicle type, that is RCVs and BTVs. The daily record of WDVs trips for this period is provided in Appendix A.

Table 3.3 below, illustrates a monthly summary of this assessment, including the monthly tonnage of waste received by the Facility, the recorded number of WDVs, the number of days the Facility was operational, the daily average of WDVs and their trips (sum total of the arrivals and departures). The three months with the highest waste tonnage delivery are highlighted in blue, as these are assessed in further detail in Section 4.

Table 3.3: Overview of Waste Delivery Vehicle Trips (October 2017 to July 2018)

	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	June - 18	July-18
Monthly Tonnage	55,910	55,543	59,624	62,013	36,727	45,616	53,309	57,360	52,003	49,118
Monthly No. WDVs	2,462	2,485	2,628	2,695	1,696	1,987	2,329	2,619	2,372	2,267
Days Operational	25	25	24	26	24	25	24	26	25	24
Daily Average WDVs	98	99	110	104	71	79	97	101	95	94
Daily Trips (movements to and from site)	197	199	219	207	141	159	194	201	190	189

The summary results of the assessment, based on the 10 months of on-site delivery records provided from DWtE Limited, are provided in Table 3.4 below.

Table 3.4: Current Average Waste Delivery

Item	Statistic
Average Monthly Tonnage (Oct 17 – July 18)	52,722 tonnes
Average Monthly WDVs	2,354
Average Number of Operational Monthly Days	25
Average Tonnes Per Day	2,117
Average WDVs Per Day	95
Average Tonnes Per WDVs	22
Average Daily Trips (combined arriving and departing the site)	190

The existing monthly delivery of waste is catered for by an average of 95 WDVs per day (190 combined trips arriving and departing the site per day), as set out in Table 3.5.

Table 3.5: Current Average Daily WDV

	Daily Total (07:00 – 22:00)		Average Per Hour	
	Vehicles	**PCUs**	**Vehicle**	**PCUs**
Arrival	95	285	7	21
Departure	95	285	7	21
Total	**190**	**570**	**14**	**42**

Therefore, the WDVs trip generation rate is significantly less than the 121 WDVs per day as conditioned in the original planning approval. Sections 3.5.1 to 3.5.4 outline the reasons for the lower trip generation rate of WDVs than was originally anticipated, including a comparison of the average tonnage per WDV, and the proportion of RCVs and BTVs, compared to the original planning application.

3.5.1 Waste Delivery Vehicles

Waste Deliveries to the Facility are brought by either Refuse Collection Vehicles (RCVs) or Bulk Transfer Vehicles (BTVs). RCVs come directly from their collection routes in Dublin City Centre to the Facility. An example of a RCV accessing the Facility is shown in Figure 3.3 below.

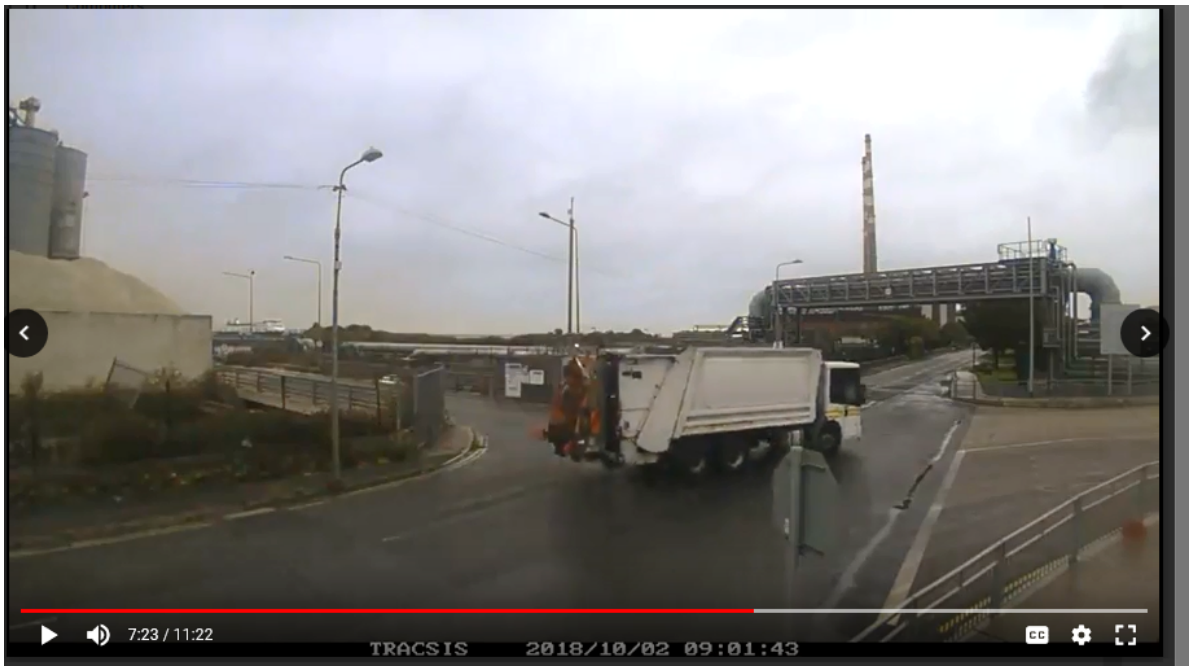


Figure 3.3: Typical Refuse Collection Vehicle accessing the Facility.

A BTV is typically a 5 axles or greater Articulated Vehicle. These vehicles are conditioned to travel via to and from the Facility the Dublin Port Tunnel. An example of a typical BTV accessing the Facility is shown in Figure 3.4 below.

Figure 3.4: Typical Bulk Transfer Vehicle accessing the Facility.

3.5.2 Waste Delivery Vehicle Capacity

An assessment was undertaken on the carrying capacity of RCVs and BTVs, based on the 10-month on-site delivery records provided by DWtE Limited. From this analysis it was calculated that on average RCVs have a carrying capacity of 8.8 tonnes, while BTVs have an average carrying capacity of 25.7 tonnes, as is shown in Table 3.6 below. Therefore, BTVs have nearly three times the average carrying capacity of RCVs.

The daily record of WDV trips and tonnage are provided in Appendix A.

Table 3.6: Average Carrying Capacity of RCVs and Bulk Transfer Vehicle

Waste Delivery Vehicle	Average Carrying Capacity (Tonnes)
Refuse Collection Vehicle (RCV)	8.8
Bulk Transfer Vehicle (BTV)	25.7

3.5.3 Existing Waste Delivery Trip Generation

An assessment was undertaken on the number of RCVs and BTVs accessing the Facility based on the 10 month on-site delivery records provided by DWtE Limited. A higher percentage of BTVs access the Facility compared to RCVs, as is shown in Table 3.7 below.

The daily record of WDV trips and the breakdown between RCVs and BTVs is provided in Appendix A.

Table 3.7: Existing Proportional Split of RCVs and BTVs

Waste Delivery Vehicle	Average Daily Waste Delivery Trips	
	Number of Vehicles	Percentage of WDVs
Refuse Collection Vehicle (RCV)	19	20%
Bulk Transfer Vehicle (BTV)	76	80%
Total	**95**	**100%**

3.5.4 Comparison to Original Application

A review of the original EIS states that the "*total daily number of RCVs that is expected to deliver directly to the Dublin WtE facility is estimated to be 50*". This would imply that the assumption made in the original application was that the remaining WDVs were BTVs i.e. a total of 71 BTVs. Furthermore, the original traffic assessment was conducted on the basis that waste deliveries would arrive in BTVs in loads of 20 tonnes per vehicle, and the remaining from the central Dublin area in Refuse Collection Vehicles (RCVs) carrying an average of 10 tonnes.

Table 3.8, shows the average number and the percentage of each type of WDV accessing the Facility as forecast in the original planning application. It was forecast that 121 WDV would be able to deliver approximately 1,920 tonnes per day.

Table 3.9 shows the average number, and the percentage, of each type of WDV accessing the Facility based on the 10 month on-site delivery records provided by DWtE Limited. It shows that there is a higher proportion of BTVs generated by the Facility than was initially assumed in the original application. Given the higher proportion of BTVs generated by the Facility, and the increased average tonnage per WDV, there are less WDV trips generated by the Facility than was forecasted in the original application to deliver the same overall tonnage of waste. Table 3.9 shows that on average 95 WDV deliver approximately, 2,120.40 tonnes per day.

Table 3.8: Original TTA / EIS Assumptions

	Average Daily Waste Delivery Vehicles			
	Number	**Percentage**	**Tonnage**	**Total Tonnes**
Refuse Collection Vehicle (RCV)	50	41%	10	500
Bulk Transfer Vehicle (BTV)	71	59%	20	1,420
Total	**121**	**100%**		**1,920**

Table 3.9: Existing Proportional Split of RCVs and BTVs

	Average Daily Waste Delivery Vehicles			
	Number	**Percentage**	**Tonnage**	**Total Tonnes**
Refuse Collection Vehicle (RCV)	19	20%	8.8	167.20
Bulk Transfer Vehicle (BTV)	76	80%	25.7	1953.20
Total	**95**	**100%**		**2,120.40**

3.6 Other Trip Generators

While WDVs generate the majority of the trips to the Facility, there are other trip generators that come to the Facility, as set out in the following sections.

3.6.1 Residual Waste Vehicles

Solid waste residues are transported from the Facility by RWVs to off-site locations. The Facility must dispose of two types of waste residue from the Facility's activities, namely, Flue Gas Treatment Residues (FGTR) and Bottom Ash. FGTR is brought to the north quays via the East Link Bridge, while Bottom Ash is transported to a docking location on the south docks, as illustrated in Figure 3.4.

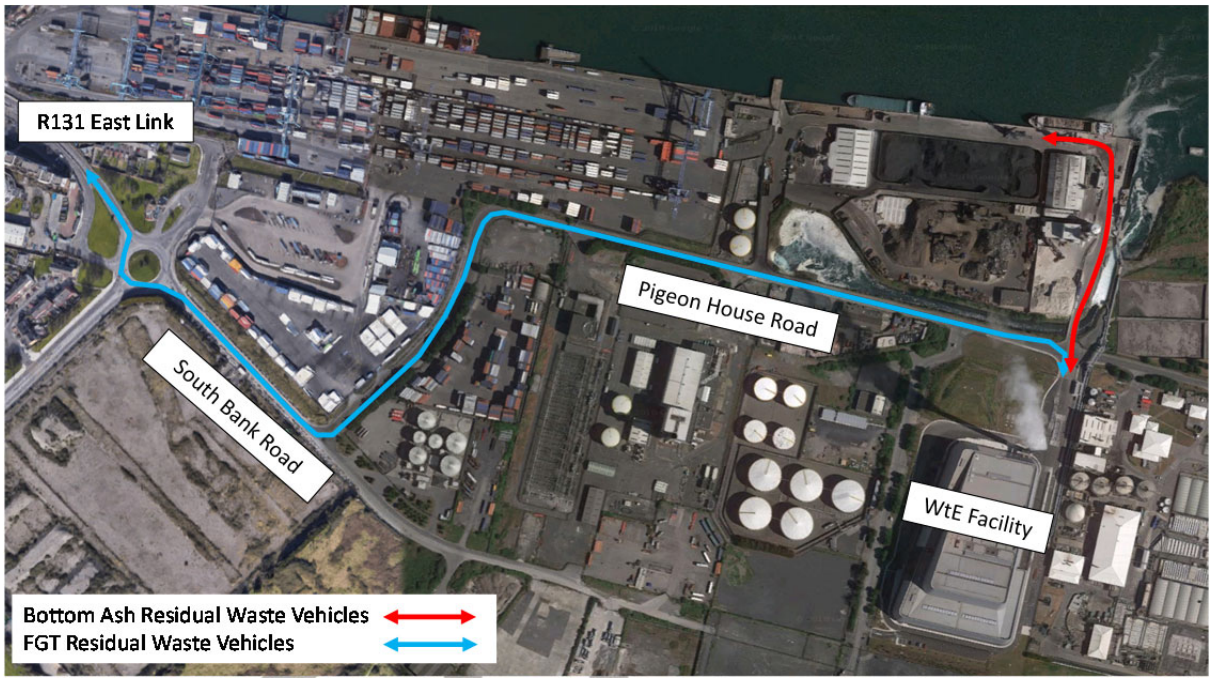


Figure 3.4: Residual Waste Removal Routes

3.6.1.1 FGT Residual Waste Vehicles

FGTRs are trucked in sealed containers to an off-site storage area on the North Quays where it awaits shipping. Currently, the trucks needed to perform these waste removal activities are specifically brought on site for this purpose. The route from the Facility for the FGTR removal uses the East Link Bridge to the North Quays. Therefore, FGTR removal will impact on the external road network.

As part of this TTA, an assessment has been undertaken, based on ten months of on-site FGTR RWVs records from DWtE Limited. The monthly record of RWVs trips for this period is provided in Appendix B.

This assessment shows that, there is a trip generation rate of four RWV trips per day (eight combined trips arriving and departing the site per day). A worst-case assessment has been assumed by applying the RWV trips during the peak traffic periods, i.e. two RWVs arriving and departing during the AM Peak and two RWVs arriving and departing during the AM and PM peak, as set out in Table 3.10 below.

Table 3.10: Current Daily Average FGT Residual Waste Vehicles

Vehicle Type	Daily Total (07:00 – 22:00)				AM Peak (08:00 – 09:00)				PM Peak (17:00 – 18:00)			
	Arrivals		Departures		Arrivals		Departures		Arrivals		Departures	
	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU
HGV[13]	4	12	4	12	2	6	2	6	2	6	2	6

[13] A Heavy Goods Vehicle has a PCU factor of 3.

3.6.1.2 Bottom Ash Residual Waste Vehicles

The Facility produces approximately 2,500 tonnes of Bottom Ash per week. Currently, five trucks are brought specifically on site to remove the Bottom Ash from the Facility over a 24 hours period. The Bottom Ash residue is trucked to a docking location opposite the Pigeon House service access approximately 300 metres from the Facility, from where the Bottom Ash is shipped abroad. Therefore, the Bottom Ash removal process does not impact on the wider road network (i.e. the R131 regional road or wider road network). The only impact will be bringing the trucks on site to undertake this operation. The

Figure 3.5: Bottom Ash RWVs to and from the South Docks at the Service Site Access

As part of this TTA, an assessment has been undertaken, based on ten months of on-site Bottom Ash RWVs records from DWtE Limited. The monthly record of RWVs trips for this period is provided in Appendix B

This assessment shows that, the Facility undertakes this operation, on average, six times per month. With five trucks brought on site, six times per month, this equates to approximately one RWV a day. A worst-case assessment has been assumed by applying the RWV trips during the peak traffic periods i.e all the RWVs arriving during the AM peak, and all the RWVs departing during the PM peak, as set out in Table 3.11 below.

Table 3.11: Average Bottom Ash Waste Residual Waste Vehicles[14]

Vehicle Type	12 Hours				AM Peak (08:00 – 09:00)[15]				PM Peak (17:00 – 18:00)[16]			
	Arrivals		Departures		Arrivals		Departures		Arrivals		Departures	
	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU
HGV	5	15	5	15	5	15	0	0	0	0	5	15

3.6.2 Service Vehicles

A 12-hour traffic survey was undertaken at the existing service entrance on the Pigeon House Road in October 2018. A full breakdown of the vehicles, arriving and departing the staff access is provided in Appendix C.

WDVs access the Facility through this junction. However, a traffic survey was undertaken at this junction to establish the number of other vehicles that are generated by the Facility. These vehicles have been counted as service vehicles, distinguishing them from WDVs, RWVs, staff and visitor vehicles.

From the traffic survey, the total number of vehicles entering the service access has been established, with a summary provided in Table 3.12 below. The 12 hour survey shows, there were a combination of cars, Light Goods Vehicles (LGVs), and HGVs accessing the site via the service access. There were a total of 55 PCUs

[14] Five RWVs are brought on site 6 times a month
[15] It has been assumed that all the five RWVs arrive to the site during the AM peak hour for a worst case assessment
[16] It has been assumed that all the five RWVs depart the site during the PM peak hour for a worst case assessment

arrivals and 37 PCUs departures from the service access. A summary of the vehicles, arriving and departing the service access is provided in Table 3.12 below.

Table 3.12: Service Access (12 Hour Survey)

Vehicle Type	12 Hours (07:00-19:00)				AM Peak (08:00 – 09:00)				PM Peak (17:00 – 18:00)			
	Arrivals		Departures		Arrivals		Departures		Arrivals		Departures	
	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU
Car/LGV[17]	22	22	16	16	3	3	3	3	2	2	1	1
HGV	11	33	7	21	0	0	0	0	0	0	1	3
Total	33	55	23	37	3	3	3	3	2	2	2	4

3.6.3 Existing Staff Vehicle Trip Generation

A 12 hour traffic survey was undertaken at the existing staff entrance on the Shellybanks Road in October 2018. A full breakdown of the vehicles, arriving and departing the staff access is provided in Appendix D.

From this survey, the total number of vehicles entering the staff access has been established, with a summary provided in Table 3.13 below. The 12 hour survey shows in total there was a total of 28 arrivals and 34 departures from the staff access. Of the 28 arrivals, there were 23 trips by car, one taxi, and one LGV and three by bike. Of the 34 departures, there were 29 by car, 1 taxi, and one LGV and three by bike.

Table 3.13: Staff Access (12 Hour Survey)

Vehicle Type	12 Hours (07:00-19:00)				AM Peak (08:00 – 09:00)				PM Peak (17:00 – 18:00)			
	Arrivals		Departures		Arrivals		Departures		Arrivals		Departures	
	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU
Cycle	3	1.8	3	1.8	0	0	0	0	0	0	1	0.6
Car/LGV	25	5	31	31	2	2	3	3	0	0	5	5
HGV	0	0	0	0	0	0	0	0	0	0	0	0
Total	**28**	**26.8**	**34**	**31**	**2**	**2**	**3**	**3**	**0**	**0**	**6**	**5.6**

[17] A car and Light Goods Vehicle has a PCU factor of 1.

3.7 Existing Waste Delivery Vehicle Trip Distribution

An assessment was undertaken on the routing of WDVs to and from the Facility. This was undertaken by recording the movements of WDVs to and from the site access and the Sean Moore Roundabout from the 2018 traffic surveys. The screenshots below in Figures 3.6 and 3.7 show the same BTV arriving at the Sean Moore Roundabout and at the site access. Through this method all the WDVs arriving and departing the Facility during the survey period were monitored with their arrival and departure routes recorded.

Figure 3.6: Bulk Transfer Vehicle accessing from the R131 onto the Sean Moore Roundabout

Figure 3.7: Bulk Transfer Vehicle accessing the site from Pigeon House Road

A breakdown of all the WDVs arriving through the Sean Moore Roundabout are presented in Table 3.9 below. The majority of WDVs that accessed the Facility did so via the R131 (East Link Bridge). Only 37% of RCVs that accessed the Facility did so via the Sean Moore Road. All BTVs were recorded arriving via on the R131 East Link.

Table 3.9: Trip Distribution Current Waste Delivery Vehicle Arrivals

	Waste Delivery Vehicles	
Arrivals from	**RCVs**	**Bulk Transfer Vehicle**
R131 (East Link)	63%	100%
Sean Moore Road	37%	0%
Total	**100%**	**100%**

A breakdown of all the WDVs departing through the Sean Moore Roundabout are presented in Table 3.10 below. The majority of WDVs departing the Facility do so via the R131 (East Link). Only 18% of RCVs that departed the Facility did so via the Sean Moore Road during the 12 hour survey. All BTVs were recorded departing via the R131 East Link.

Table 3.10: Trip Distribution Current Waste Delivery Vehicle Departures

	Waste Delivery Vehicles	
Departure to	**RCVs**	**Bulk Transfer Vehicle**
R131 (East Link)	82%	100%
Sean Moore Road	18%	0%
Total	**100%**	**100%**

4. Proposed Development

4.1 Proposal

The Facility proposes to increase its intake of waste per year to 690,000 tonnes. This represents an increase of 90,000 tonnes of waste per year compared to its extant approved licence. On average, the proposal will enable the Facility to manage 57,500 tonnes of waste per month (i.e. 690,000 tonnes / 12 months is equivalent to 57,500 tonnes per month). The following presents findings from on-site delivery records provided by DWtE Limited to illustrate the waste tonnage and WDVs numbers at the Facility from October 2017 to July 2018.

4.2 Trip Generation at Proposed Waste Delivery Volumes

Figure 4.1 illustrates the monthly waste tonnage that the Facility accepted between October 2017 and July 2018 and shows that on average the Facility accepted 52,722 tonnes of waste per month.

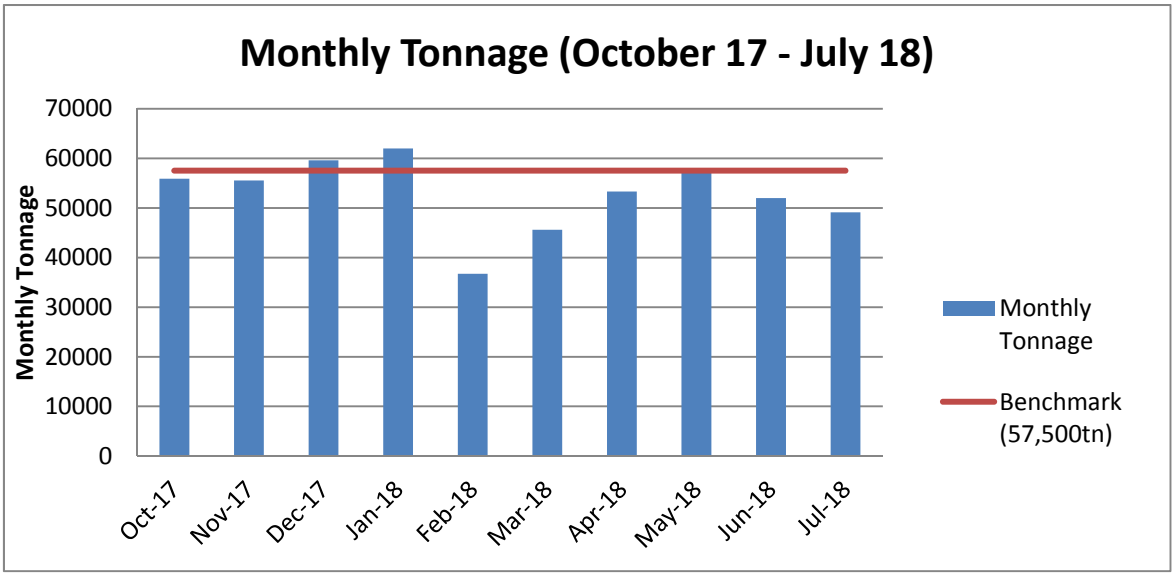


Figure 4.1: Operational Monthly Tonnage

Figure 4.2 shows the WDV trips associated with the Facility across the 10 operational months and demonstrates that on average there are 95 WDV generated daily (190 combined trips arriving and departing the Facility); and that at no point does the trip generation rate exceed the permitted 121 WDV trips per day (242 combined trips arriving and departing the facility) to the Facility daily.

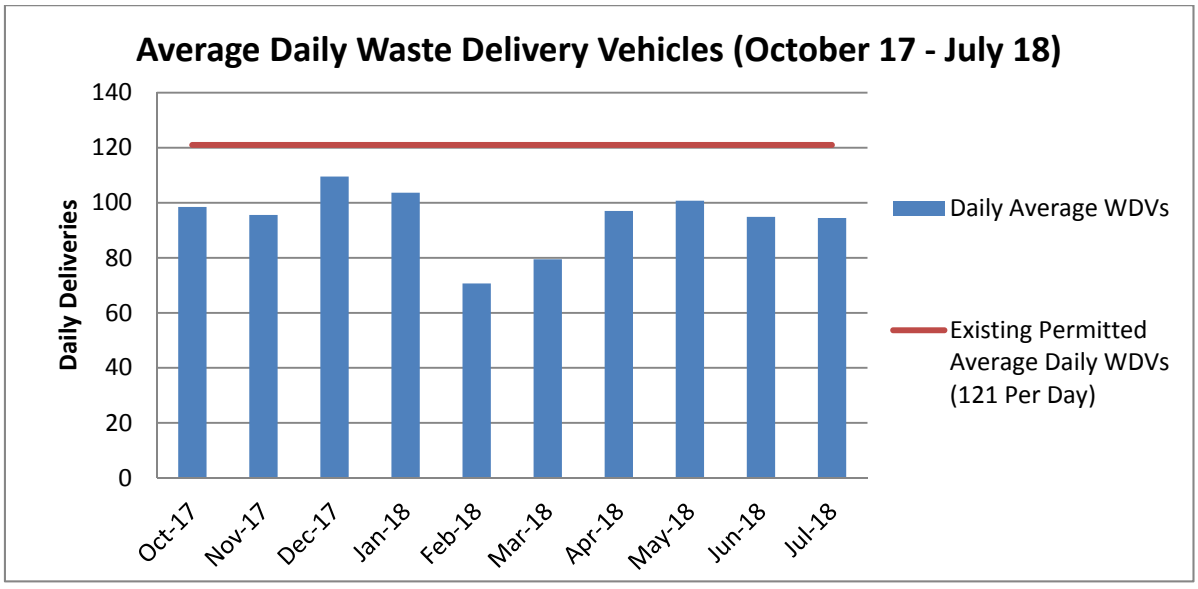


Figure 4.2: Operational Average Daily Waste Delivery Vehicles

There were three out of the ten months assessed, were the Facility surpassed, or came close to, the 57,500 tonne monthly benchmark associated with the proposed 690,000 tonne per year waste capacity. These months were December 2017 (59,624 tonnes), January 2018 (62,013 tonnes) and May 2018 (57,360 tonnes), with an average of 59,666 tonnes of waste per month. Therefore, these three months, where tonnage accepted was highest, have been used to assess the traffic impact for the Facility's proposal to accept 690,000 tonnes of waste per year as the upper end scenario.

Table 5.1 summarises the assessment of these three highest months and indicates that on average the waste delivered was 59,666 tonnes per month (2,166 tonnes greater than the 57,500 tonne monthly benchmark associated with the proposal). On average, the Facility accepted this level of waste at a trip generation rate of 105 WDVs per day (210 combined trips arriving and departing the Facility per day).

Table 4.1: Combined December 17, January 18 and May 18 Monthly Average

Item	Statistic	Unit
Average Monthly Tonnage	59,666 tonnes	Tonnes
Average Monthly WDVs	2,647	Number
Average Number of Operational Monthly Days	25	Number
Average Tonnes Per Day	2,355	Tonnes
Average WDVs Per Day	105	Number
Average Tonnes Per WDV	22	Tonnes
Average Daily Trips (combined arriving and departing the site)	210	Number

Therefore, the upper end scenario trip generation rate associated with the proposal to increase the Facility's waste tonnage capacity from 600,000 tonnes to 690,000 tonnes per year is 105 WDV trips per day (210 combined trips arriving and departing the site per day), as set out in Table 4.2.

Table 4.2: Proposed Average Daily WDV

	Daily Total (07:00 – 22:00)		Average Per Hour	
	Vehicles	**PCUs**	**Vehicle**	**PCUs**
Arrival	105	315	7	21
Departure	105	315	7	21
Total	**210**	**630**	**14**	**42**

The 105 WDVs (210 combined trips arriving and departing the Facility per day) trip generation rate is within the permitted 121 WDVs per day (242 combined trips arriving and departing the Facility per day) to the Facility and, therefore, demonstrates that the Facility can accommodate the proposed 57,500 tonnes of waste per month, 690,000 tonnes of waste per year, within its extant licence.

An assessment of WDVs shows that their average carrying capacity was greater than forecasted in the original application. Their larger carrying capacity means that there are less WDV trips generated by the Facility than was forecasted in the original application to deliver the same overall tonnage of waste.

4.3 Other Trip Generators

4.3.1 Proposed Residual Waste Vehicles

To assess the trip generation rate associated with the proposed 15% increase in annual waste treatment capacity from 600,000 tonnes to 690,000 tonnes, it is assumed that there will be an associated increase of 15% in waste residue treatment requirements from the Facility.

As set out in Section 3.6.1, FGTR residues are trucked in sealed containers to a site off on the North Quays where it awaits shipping. Currently, an average of four RWVs per day (eight combined trips arriving and departing the site per day) are required to transport this waste to the North Quay. Therefore, with an increase of 15% of waste deliveries, it is forecast that there will be a 15% increase in RWVs, i.e. FGT residual waste will increase from four to five loads per day with the 15% increase in waste delivery. A worst-case assessment has been assumed by applying the RWV trips during the peak traffic periods, i.e. three RWVs arriving and departing during the AM Peak and two RWVs arriving and departing during the AM and PM peak, as set out in Table 4.3 below and outlined in Appendix B.

Table 4.3: Proposed Daily Average FGTR Residual Waste Vehicles

Vehicle Type	Daily Total (07:00 – 22:00)				AM Peak (08:00 – 09:00)				PM Peak (17:00 – 18:00)			
	Arrivals		Departures		Arrivals		Departures		Arrivals		Departures	
	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU
HGV	5	15	5	15	3	9	3	9	2	6	2	6

As set out in Section 3.7.1, five trucks are brought specifically on site to remove the Bottom Ash from the Facility to a docking location approximately 300 metres north of the site access, on the south docks from where it is shipped abroad. The Facility currently undertakes this operation six times per month.

Therefore, with an increase of 15% of waste deliveries, it is forecast that there will be a 15% increase in the frequency of this operation, i.e. Bottom Ash residual waste removal will increase from 6 days to 7 days a month.

Therefore, with five trucks brought on site, seven times per month, this equates to approximately one Bottom Ash RWV per day. A worst-case assessment has been assumed by applying the RWV trips during the peak traffic periods i.e all the RWVs arriving during the AM peak, and all the RWVs departing during the PM peak, as set out in Table 4.4 below and outlined in Appendix B.

Table 4.4: Proposed Daily Average Bottom Ash Waste Residual Vehicles

Vehicle Type	12 Hours				AM Peak (08:00 – 09:00)[18]				PM Peak (17:00 – 18:00)[19]			
	Arrivals		Departures		Arrivals		Departures		Arrivals		Departures	
	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU	Vehs	PCU
HGV	5	15	5	15	5	15	0	0	0	0	5	15

4.3.2 Service Vehicles

There will be no additional service vehicles generated by the Facility as a result of the increase of the Facility's waste tonnage capacity from 600,000 tonnes to 690,000 tonnes per year. The trip generation rate by the Facility will remain the same as was counted in the 2018 traffic surveys, and set out in Table 3.12.

[18] It has been assumed that all the five HGVs arrive to the site during the AM peak hour for a worst case assessment
[19] It has been assumed that all the five HGVs depart the site during the PM peak hour for a worst case assessment

4.3.3 Staff Vehicle Trip Generation

There will be no additional staff or visitor vehicles generated by the Facility due to the increase of the Facility's waste tonnage capacity from 600,000 tonnes to 690,000 tonnes per year. The trip generation rate by the Facility will remain the same as was counted in the 2018 traffic surveys, and set out in Table 3.13.

4.4 Total Proposed Trip Generators

The TII Guidelines for Traffic and Transport Assessments states the following;

"*The assessment will need to identify the development trip impacts during the peak periods for the local network*".

Therefore, an assessment has been made on the total combined AM and PM Facility trip generation, based on the previous sections, is set out in Table 4.5 below. The full trip generation for all the Facility's trips is provided in Appendix E.

Table 4.5: Forecast AM and PM Trip Generation

Vehicle Type	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	Arrivals (PCUs)	Departures (PCUs)	Arrivals (PCUs)	Departures (PCUs)
WDV (HGV)	21	21	21	21
FGTR RWV (HGV)	9	9	6	6
Bottom Ash RWV (HGV)	15	0	0	15
Service Vehicles (HGV)	0	0	0	3
Service Vehicles (LGV)	3	3	2	1
Staff (LGV)	2	3	0	6
Total	**50**	**36**	**29**	**52**

It can be seen from above that the total number of vehicle movements generated by the Facility will be 50 arrivals and 36 departures in the AM peak hour (two-way total of 86 PCU movements), and 29 arrivals and 52 departures in the PM peak hour (two-way total of 81 PCU movements).

4.5 Trip Distribution

The WDV trips generated by the Facility have been distributed as set out in Section 3.7. All other trips by the Facility have been distributed on the surrounding road network using the existing proportional turning splits on the surrounding road network.

The traffic generated by the Facility in the AM and PM peak hour is shown in the traffic flow diagrams provided in Appendix F and Appendix G, respectively.

4.6 Traffic Growth

NRA PAG Unit 5.5 (published by TII) sets out growth rates for forecasting future year traffic. It is noted that in respect of Dublin City, the growth during the period 2006-2025 is set at 0.2% per year for medium growth, staying at 0.2% per year from 2026 onwards (LV rates used).

The assessment years used for this transport assessment are as follows:

- 2019 Opening Year
- 2024 Future Year
- 2034 Horizon Year

Application of the above growth rates results in 0.4% growth from 2017 to 2019, 1.4% total growth from 2017 to 2024, and 3.4% growth from 2017 to 2034.

5. Development Traffic Impact

5.1 Vehicular Percentage Impact of Development

The TII Guidelines for Transport Assessments state that the thresholds for junction analysis in Transport Assessments are as follows:

- "*Traffic to and from the development exceeds 10% of the existing two-way traffic flow on the adjoining highway.*"
- *"Traffic to and from the development exceeds 5% of the existing two-way traffic flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations".*

The new primary trips associated with the Facility have been reviewed against the 2017 base flows (undertaken prior to the Facility opening) on the local road network, and the resulting percentage impact is shown in Table 5.1 below.

Table 5.1: Percentage Impacts

Junction	Traffic Flows	AM Peak (08:00 – 09:00)	PM Peak (17:00 – 18:00)
1 South Lotts Road/Ringsend Road/Bridge Street Junction	Base Flows at Junction	1593	1404
	Development	0	0
	% Impact	**0%**	**0%**
2 R131/R801 Roundabout Junction	Base Flows at Junction	2913	2456
	Development	84	78
	% Impact	**2.9%**	**3.2%**
3 R131/Pigeon House Road/Sean Moore Road Roundabout Junction	Base Flows at Junction	2,337	1,884
	Development	86	81
	% Impact	**3.7%**	**4.3%**
4 Beach Road/Cranfield Place/Sean Moore Road Junction	Base Flows at Junction	2194	1519
	Development	2	3
	% Impact	**0.1%**	**0.2%**
5. Sean Moore Road/Church Avenue/Beach Road Junction	Base Flows at Junction	1318	1,067
	Development	0	0
	% Impact	**0%**	**0%**
6. Irishtown Road/Londonbridge Road/Church Avenue Junction	Base Flows at Junction	1086	1042
	Development	0	3
	% Impact	**0%**	**0.9%**
7. South Bank Road/Whitebank Road Junction	Base Flows at Junction	297	294
	Development	86	81
	% Impact	**28.9%**	**27.4%**

Table 5.1 demonstrates that the increase in traffic volumes at all junctions, except for the South Bank Road / Whitebank Road junction, during the peak hours are below the 5% threshold and therefore no further analysis of the junction is required on the basis of TII's assessment guidelines.

The Facility's traffic impact upon the South Bank Road / White Bank Road junction is above 5% during the PM peak scenario. Therefore this junction was subsequently assessed in greater detail.

5.2 Scenario Testing

This section presents the impact analysis to identify the potential effects of the proposal upon the operation of the South Bank Road / Whitebank Road junction.

It is proposed to perform traffic analysis for the weekday morning and evening peak hour periods. Analysis has been undertaken for the following scenarios:

- 2019 Opening Year: Without and With Proposed Development;
- 2024 Opening Year (+ 5 years): Without and With Proposed Development; and
- 2034 Opening Year (+ 15 years): Without and With Proposed Development.

5.3 South Bank Road / Whitebank Road junction

The impact of the proposal on the existing 3-arm T-junction is analysed below in Table 5.2.

The industry standard junction modelling package Junctions 9 was used to model the existing priority junction (PICADY). The results of the analysis package are expressed in terms of Ratio of Flow to Capacity (RFC) and Queue Lengths (vehicles). An RFC value of 0.85 is generally regarded as the practical limit for approach roads at a junction. Junctions operating below this threshold should operate efficiently and within capacity.

Table 5.2: Impact on T-junction (South Bank Road / White Bank Road)

Assessment Year	Peak Period	Junction Arm and Link	With + Development	
			RFC	MMQ
2019 (Opening Year)	Weekday AM Peak Hour	White Bank Road (Left Turn Lane)	0.012	0.0
		White Bank Road (Right Turn Lane)	0.188	0.2
		South Bank Road (Right Turn)	0.012	0.0
	Weekday PM Peak Hour	White Bank Road (Left Turn Lane)	0.014	0.0
		White Bank Road (Right Turn Lane)	0.228	0.3
		South Bank Road (Right Turn)	0.004	0.0
2024 (Opening Year + 5)	Weekday AM Peak Hour	White Bank Road (Left Turn Lane)	0.012	0.0
		White Bank Road (Right Turn Lane)	0.188	0.2
		South Bank Road (Right Turn)	0.012	0.0
	Weekday PM Peak Hour	White Bank Road (Left Turn Lane)	0.014	0.0
		White Bank Road (Right Turn Lane)	0.230	0.3
		South Bank Road (Right Turn)	0.004	0.0
2034 (Opening Year + 15)	Weekday AM Peak Hour	White Bank Road (Left Turn Lane)	0.014	0.0
		White Bank Road (Right Turn Lane)	0.193	0.2
		South Bank Road (Right Turn)	0.012	0.0
	Weekday PM Peak Hour	White Bank Road (Left Turn Lane)	0.014	0.0
		White Bank Road (Right Turn Lane)	0.232	0.3
		South Bank Road (Right Turn)	0.004	0.0

The results of the analysis demonstrate that the existing junction will continue to operate well within capacity during the with development scenario for the opening year and the future horizon years.

5.4 Summary

The Facility is anticipated to generate 86 and 81 pcu trips respectively during the morning (08:00 – 09:00) and evening (17:00 – 18:00) peak hour periods respectively. Please refer to Appendix F and G for the full traffic analysis outputs. The results of the impact analysis demonstrate:

- The proposed trips will have a negligible impact upon the South Bank Road/Whitebank Road Priority junction,

- The junctions are anticipated to operate well within capacity during the opening year (2019) and future year scenarios (2024 and 2034) when the Facility trips are applied to the base conditions.

This TTA demonstrates that the forecasted traffic to the Facility will have an insignificant impact on the existing road network within the study area during the opening year and future year scenarios during the AM and PM peak times.

AM and PM peak development traffic is forecasted to be less than 5% of the existing AM and PM network traffic, in particular on the R131 (East Link Bridge) and the local road junctions in Irishtown and Ringsend (Sean Moore Road). While the Facility has a larger traffic impact on the junctions on the South Bank Road and Pigeon House Road, the traffic analysis demonstrates that the existing junctions will continue to operate well within capacity limits during the opening year and future year scenarios.

6. Summary/Conclusions

6.1 Summary

This TTA has been prepared by AECOM to accompany an application being submitted by DWtE Limited, which operates the existing Facility on Pigeon House Road, Poolbeg, Dublin 4. The application proposes to increase waste tonnage treatment at the Facility from 600,000 tonnes to 690,000 tonnes per year.

The Facility became operational in summer 2017. The current operational hours for the Facility are 24 hours a day, seven days a week. However, the Facility has a licence to only accept WDVs Monday to Saturday from 08:00 to 22:00.

Under its extant licence from the EPA, the Facility is permitted to treat up to 600,000 tonnes of waste per year. Under its planning approval from An Bord Pleanála, a maximum of 121 WDVs per day (242 combined trips arriving and departing the Facility per day) are permitted to access the Facility.

An assessment has been undertaken, based on the on-site delivery records provided by DWtE Limited, on the average monthly tonnage and the average daily WDVs trips. This assessment shows that, on average, within the measured timeframe across the 10 month period, that the Facility has accepted delivery of 52,722 tonnes of waste per month**.** The Facility has accepted this level of monthly waste at an average trip generation rate of 95 WDV trips per day (190 combined trips entering and exiting the Facility per day), based on the 10 months of on-site delivery records.

An assessment of WDVs showed that their average carrying capacity was greater than forecasted in the original application. Their larger carrying capacity results in less WDV trips generated by the Facility.

An assessment showed that, on average, the Facility is forecast to accept 690,000 tonnes of waste at a trip generation rate of 105 WDVs per day (210 combined trips entering and exiting the Facility per day).

This trip generation rate is within the permitted 121 WDVs per day (242 combined trips arriving and departing the Facility per day) to the Facility and, therefore, demonstrates that the Facility can accommodate the forecast traffic generated by the proposed 690,000 tonnes of waste per year (57,500 tonnes of waste per month), within the limits assessed in the original EIS and consented by An Bord Pleanála.

Separate assessments have been undertaken on other trip generators at the Facility, including RWVs, services vehicles, and staff and visitor vehicles, to assess the total trip generation during the AM and PM peak hours for the existing and proposed scenarios.

6.2 Traffic Impact Assessment Conclusions

This TTA concludes that traffic generated as a result of the proposed increase of the Facility's waste tonnage treatment from 600,000 tonnes to 690,000 tonnes per year, is within its existing permitted number of WDVs, as conditioned in the extant planning approval.

This TTA demonstrates that the forecasted traffic to the Facility will have a negligible impact on the existing road network within the study area during the opening year and future year scenarios during the AM and PM peak times.

AM and PM peak Facility traffic is forecasted to be less than 5% of the existing AM and PM network traffic, in particular on the R131 (East Link Bridge) and the local road junctions in Irishtown and Ringsend (Sean Moore Road). While the Facility has a larger traffic impact on the junctions on the South Bank Road and Pigeon House Road, the traffic analysis demonstrates that the existing junctions will continue to operate well within capacity limits during the opening year and future year scenarios.

Appendix A Waste Delivery Vehicles

Existing Waste Delivery Vehicles										
	Date	Total Daily Tonnes	No.Vehicles	Tonnes /vehicle	No. RCV's etc	RCV Total Tonnes	Tonne/ RCV's	No.BTV	BTV Tonnes	Tonne/ BTV
October 2017	02/10/2017	1978.6	84	23.55	11	96.28	8.8	73	1882.3	25.8
	03/10/2017	2686.02	113	23.77	13	114.2	8.8	100	2571.8	25.7
	04/10/2017	2703.98	118	22.92	17	147.6	8.7	101	2556.4	25.3
	05/10/2017	2575.86	110	23.42	11	96.1	8.7	99	2479.8	25.0
	06/10/2017	2743.44	123	22.30	18	151.64	8.4	105	2591.8	24.7
	07/10/2017	813.4	38	21.41	6	51.36	8.6	32	762.0	23.8
	08/10/2017	2213.16	100	22.13	18	160.08	8.9	82	2053.1	25.0
	10/10/2017	2488.16	110	22.62	18	169.74	9.4	92	2318.4	25.2
	11/10/2017	2415.7	109	22.16	19	178.04	9.4	90	2237.7	24.9
	12/10/2017	2112.16	92	22.96	15	132.96	8.9	77	1979.2	25.7
	13/10/2017	2126.32	97	21.92	19	163.12	8.6	78	1963.2	25.2
	14/10/2017	655.22	33	19.86	8	47.74	6.0	25	607.5	24.3
	16/10/2017	680.98	35	19.46	11	92.46	8.4	24	588.5	24.5
	17/10/2017	2723.54	120	22.70	17	115.22	6.8	103	2608.3	25.3
	18/10/2017	2547.56	114	22.35	20	147.08	7.4	94	2400.5	25.5
	19/10/2017	2635.74	112	23.53	10	91.92	9.2	102	2543.8	24.9
	20/10/2017	2640.08	115	22.96	18	158.24	8.8	97	2481.8	25.6
	21/10/2017	1169.44	50	23.39	6	53.64	8.9	44	1115.8	25.4
	23/10/2017	2715.32	116	23.41	15	147	9.8	101	2568.3	25.4
	24/10/2017	3167.04	138	22.95	19	188.42	9.9	119	2978.6	25.0
	25/10/2017	2689.6	120	22.41	24	200.8	8.4	96	2488.8	25.9
	26/10/2017	2473.52	112	22.09	18	157.5	8.8	94	2316.0	24.6
	27/10/2017	2581.34	114	22.64	17	152.88	9.0	97	2428.5	25.0
	28/10/2017	1126.18	53	21.25	10	88.94	8.9	43	1037.2	24.1
	31/10/2017	3247.84	136	23.88	16	142.16	8.9	120	3105.7	25.9
November 2017	01/11/2017	3060.7	131	23.36	22	205.9	9.4	109	2854.8	26.2
	02/11/2017	2645.6	113	23.41	13	144.7	11.1	100	2500.9	25.0
	03/11/2017	2583.5	114	22.66	20	161.1	8.1	94	2422.4	25.8
	04/11/2017	1019.9	44	23.18	6	64.3	10.7	38	955.7	25.1
	06/11/2017	2108.9	94	22.43	16	151.6	9.5	78	1957.3	25.1
	07/11/2017	2658.4	122	21.79	23	207.2	9.0	99	2451.3	24.8
	08/11/2017	2570.8	118	21.79	25	234.3	9.4	93	2336.4	25.1
	09/11/2017	2399.1	109	22.01	18	179.5	10.0	91	2219.7	24.4
	10/11/2017	2225.9	103	21.61	21	184.6	8.8	82	2041.3	24.9
	11/11/2017	524.5	25	20.98	5	53.5	10.7	20	471.0	23.5
	13/11/2017	2369.4	105	22.57	17	157.6	9.3	88	2211.8	25.1
	14/11/2017	2389.4	106	22.54	18	156.6	8.7	88	2232.8	25.4
	15/11/2017	2348.9	106	22.16	23	206.0	9.0	83	2143.0	25.8
	16/11/2017	2143.9	98	21.88	17	157.9	9.3	81	1986.0	24.5
	17/11/2017	2248.8	102	22.05	20	170.1	8.5	82	2078.8	25.4
	18/11/2017	612.4	31	19.75	7	67.5	9.6	24	544.9	22.7
	20/11/2017	2171.3	99	21.93	20	180.6	9.0	79	1990.7	25.2
	21/11/2017	2235.7	100	22.36	19	188.9	9.9	81	2046.8	25.3
	22/11/2017	2002.8	88	22.76	16	159.6	10.0	72	1843.1	25.6
	23/11/2017	2171.0	96	22.61	16	144.4	9.0	80	2026.5	25.3
	24/11/2017	2412.3	110	21.93	23	191.3	8.3	87	2221.0	25.5
	25/11/2017	940.6	42	22.39	5	45.9	9.2	37	894.7	24.2
	27/11/2017	2366.4	104	22.75	20	179.8	9.0	84	2186.6	26.0
	28/11/2017	2637.1	114	23.13	16	156.2	9.8	98	2480.9	25.3
	29/11/2017	2457.0	111	22.14	21	202.3	9.6	90	2254.7	25.1
	30/11/2017	2238.8	100	22.39	18	198.9	11.0	82	2039.9	24.9
December 2017	01/12/2017	2456.02	112	21.93	20	165.0	8.3	92	2291.0	24.9
	02/12/2017	601.4	29	20.74	6	59.6	9.9	23	541.8	23.6
	04/12/2017	2485.26	113	21.99	21	191.3	9.1	92	2294.0	24.9
	05/12/2017	2752.66	122	22.56	19	198.1	10.4	103	2554.6	24.8
	06/12/2017	2608.22	118	22.10	23	208.5	9.1	95	2399.7	25.3
	07/12/2017	2793.86	119	23.48	17	181.9	10.7	102	2611.9	25.6
	08/12/2017	2690.26	120	22.42	19	158.0	8.3	101	2532.2	25.1
	09/12/2017	879.12	38	23.13	6	63.6	10.6	32	815.5	25.5
	11/12/2017	2966.74	132	22.48	22	200.7	9.1	110	2766.0	25.1
	12/12/2017	3087.44	131	23.57	16	170.9	10.7	115	2916.6	25.4
	13/12/2017	3317.82	146	22.72	23	224.7	9.8	123	3093.1	25.1
	14/12/2017	2756.24	122	22.59	18	202.4	11.2	104	2553.8	24.6
	15/12/2017	2518.62	117	21.53	20	147.9	7.4	97	2370.8	24.4
	16/12/2017	586.12	28	20.93	6	57.1	9.5	22	529.0	24.0
	18/12/2017	3093.74	136	22.75	26	236.6	9.1	110	2857.2	26.0
	19/12/2017	3021.02	133	22.71	22	221.8	10.1	111	2799.2	25.2
	20/12/2017	3156.76	137	23.04	22	210.5	9.6	115	2946.3	25.6
	21/12/2017	3194.5	136	23.49	18	198.2	11.0	118	2996.3	25.4
	22/12/2017	2957.1	132	22.40	23	230.7	10.0	109	2726.4	25.0
	23/12/2017	2296.32	100	22.96	15	130.2	8.7	85	2166.1	25.5
	27/12/2017	2938.16	129	22.78	25	206.4	8.3	104	2731.8	26.3
	28/12/2017	2482.58	106	23.42	18	202.5	11.2	88	2280.1	25.9
	29/12/2017	2420.06	104	23.27	16	129.2	8.1	88	2290.9	26.0
	30/12/2017	1564.12	68	23.00	15	181.8	12.1	53	1382.3	26.1
January 2018	02/01/2018	3123	129	24.21	18	171.72	9.54	111	2948.16	26.56
	03/01/2018	2709	116	23.35	21	202.293	9.63	95	2506.1	26.38
	04/01/2018	2738	116	23.60	17	193.12	11.36	99	2545.29	25.71
	05/01/2018	2758	117	23.57	20	234.8	11.74	97	2522.97	26.01
	06/01/2018	1060	47	22.56	11	122.32	11.12	36	938.16	26.06
	08/01/2018	2673	115	23.24	19	192.28	10.12	96	2481.6	25.85
	09/01/2018	2435	105	23.19	17	183.09	10.77	88	2251.92	25.59
	10/01/2018	2837	124	22.88	21	217.14	10.34	103	2619.29	25.43
	11/01/2018	2959	128	23.12	22	237.38	10.79	106	2723.67	25.70
	12/01/2018	2517	105	23.97	14	150.64	10.76	91	2366	26.00
	13/01/2018	901	38	23.71	4	39.04	9.76	34	861.9	25.35
	15/01/2018	2820	118	23.90	17	163.098	9.59	101	2657.815	26.32
	16/01/2018	2728	121	22.55	20	197.4	9.87	101	2531.06	25.06
	17/01/2018	2534	114	22.23	23	222.18	9.66	91	2312.31	25.41
	18/01/2018	2467	109	22.63	19	189.62	9.98	90	2286	25.40
	19/01/2018	2466	115	21.44	26	233.48	8.98	89	2232.12	25.08
	20/01/2018	885	40	22.13	7	46.83	6.69	33	840.51	25.47
	22/01/2018	2409	104	23.16	18	171.522	9.53	86	2238.58	26.03
	23/01/2018	2824	120	23.53	21	206.43	9.83	99	2607.66	26.34
	24/01/2018	2770	122	22.70	24	241.2	10.05	98	2452.94	25.03
	25/01/2018	2745	122	22.50	26	258.44	9.94	96	2466.24	25.69
	26/01/2018	2635	116	22.72	21	159.39	7.59	95	2449.1	25.78
	27/01/2018	874	38	23.01	5	38.3	7.66	33	826.32	25.04
	29/01/2018	2532	110	23.02	22	212.52	9.66	88	2319.68	26.36
	30/01/2018	2415	105	23.00	20	179.6	8.98	85	2183.65	25.69
	31/01/2018	2200	101	21.78	23	220.34	9.58	78	1979.64	25.38

February 2018	02/01/2018	2178	97	22.45	17	156.57	9.21	80	2021.6	25.27
	02/02/2018	2138	102	20.96	28	233.24	8.33	74	1904.76	25.74
	02/03/2018	512	23	22.26	4	34.16	8.54	19	478.04	25.16
	02/05/2018	2129	97	21.95	22	178.86	8.13	75	1950.75	26.01
	02/06/2018	2307	101	22.84	19	186.77	9.83	82	2122.98	25.89
	02/07/2018	2188.7	102	21.46	26	221.78	8.53	76	1966.88	25.88
	02/08/2018	1883.1	87	21.64	22	204.38	9.29	65	1678.95	25.83
	02/09/2018	2328.4	105	22.18	20	167.8	8.39	85	2186.2	25.72
	02/10/2018	593.4	25	23.74	4	32.6	8.15	21	560.7	26.7
	02/12/2018	1909.2	88	21.70	22	185.46	8.43	66	1723.92	26.12
	13/2/2018	1838.5	79	23.27	17	177.82	10.46	62	1652.3	26.65
	14/2/2018	1378.6	67	20.58	22	202.62	9.21	45	1176.3	26.14
	15/2/2018	1332.3	59	22.58	13	117.65	9.05	46	1186.8	25.80
	16/2/2018	1184.7	61	19.42	23	216.43	9.41	38	988	26.00
	17/2/2018	421	21	20.05	6	46.5	7.75	15	374.55	24.97
	19/2/2018	1686.4	80	21.08	23	196.65	8.55	57	1489.581	26.133
	20/2/2018	2040.5	86	23.73	16	181.92	11.37	70	1858.78	26.554
	21/2/2018	1749	83	21.07	27	291.06	10.78	56	1458.8	26.05
	22/2/2018	1599.9	72	22.22	18	198.18	11.01	54	1401.84	25.96
	23/2/2018	934.76	46	20.32	16	125.856	7.866	30	808.8	26.96
	24/2/2018	204	14	14.57	8	58.48	7.31	6	145.56	24.26
	26/02/18	1953.1	90	21.70	21	176.19	8.39	69	1774.68	25.72
	27/02/18	1610.95	75	21.48	21	208.74	9.94	54	1402.38	25.97
	28/02/18	626.8	36	17.41	12	51.48	4.29	24	575.28	23.97
March 2018	03/01/2018	142.04	7	20.29	2	12.54	6.27	5	129.5	25.9
	03/03/2018	163.56	6	27.26	0	0	0	6	163.56	27.26
	05/03/2018	2549	111	22.96	21	198.66	9.46	90	2350.8	26.12
	06/03/2018	2448	106	23.09	19	206.72	10.88	87	2241.99	25.77
	07/03/2018	2219	96	23.11	19	177.27	9.33	77	2042.04	26.52
	08/03/2018	2053	88	23.33	18	191.52	10.64	70	1860.6	26.58
	09/03/2018	1391	65	21.40	17	129.71	7.63	48	1256.16	26.17
	10/03/2018	348.9	18	19.38	6	45.66	7.61	12	303.24	25.27
	12/03/2018	1938	84	23.07	20	205.4	10.27	64	1732.48	27.07
	13/03/2018	2017	89	22.66	21	188.16	8.96	68	1828.52	26.89
	14/03/2018	2064	92	22.43	20	155	7.75	72	1909.44	26.52
	15/03/2018	1953	82	23.82	11	92.62	8.42	71	1860.91	26.21
	16/03/2018	2055	97	21.19	22	169.4	7.7	75	1911	25.48
	17/03/2018	761	31	24.55	6	54.24	9.04	25	707.5	28.30
	20/03/2018	2968	124	23.94	21	207.27	9.87	103	2758.34	26.78
	21/03/2018	3240	136	23.82	22	186.12	8.46	114	3055.2	26.8
	22/03/2018	2784.7	116	24.01	15	153.15	10.21	101	2639.13	26.13
	23/03/2018	2232.96	97	23.02	16	128.48	8.03	81	2104.38	25.98
	24/03/2018	356.8	15	23.79	2	15.34	7.67	13	341.51	26.27
	26/03/2018	2548.5	113	22.55	26	230.36	8.86	87	2318.55	26.65
	27/03/2018	2317.1	100	23.17	21	207.9	9.9	79	2109.3	26.7
	28/03/2018	2314.6	105	22.04	22	196.24	8.92	83	2118.16	25.52
	29/03/2018	2029.6	88	23.06	16	156.96	9.81	72	1872	26.00
	30/03/2018	2011.2	91	22.10	22	200.64	9.12	69	1810.56	26.24
	31/03/2018	710	30	23.67	4	25.52	6.38	26	685.1	26.35
April 2018	03/04/2018	3196.5	134	23.85	26	241.28	9.28	108	2954.88	27.36
	04/04/2018	2552.7	109	23.42	20	177.6	8.88	89	2375.41	26.69
	05/04/2018	2603.0	110	23.66	17	167.62	9.86	93	2435.67	26.19
	06/04/2018	2112.8	97	21.78	23	193.43	8.41	74	1902.54	25.71
	07/04/2018	1065.0	42	25.36	3	22.53	7.51	39	1042.08	26.72
	09/04/2018	2781.2	121	22.99	27	237.33	8.79	94	2543.64	27.06
	10/04/2018	2347.2	98	23.95	16	158.56	9.91	82	2188.58	26.69
	11/04/2018	2450.9	106	23.12	19	193.8	10.2	87	2256.78	25.94
	12/04/2018	2192.2	97	22.60	19	178.22	9.38	78	2013.96	25.82
	13/04/2018	2302.1	104	22.14	26	229.58	8.83	78	2081.82	26.69
	14/04/2018	576.96	26	22.19	4	28.56	7.14	22	548.46	24.93
	16/04/2018	2576.3	113	22.80	23	215.05	9.35	90	2360.7	26.23
	17/04/2018	2704.4	113	23.93	21	216.09	10.29	92	2489.52	27.06
	18/04/2018	2758	121	22.79	24	207.36	8.64	97	2551.1	26.30
	19/04/2018	2395.9	107	22.39	25	252.5	10.1	82	2143.48	26.14
	20/04/2018	2359.98	105	22.48	22	178.64	8.12	83	2181.24	26.28
	21/04/2018	607.5	26	23.37	4	37.36	9.34	22	570.24	25.92
	23/04/2018	2853.2	128	22.29	30	241.2	8.04	98	2603.86	26.57
	24/04/2018	2482.6	105	23.64	18	181.44	10.08	87	2301.15	26.45
	25/04/2018	2433.9	111	21.93	28	272.16	9.72	83	2161.32	26.04
	26/04/2018	2181.4	96	22.72	20	201.6	10.08	76	1979.8	26.05
	27/04/2018	2292.8	103	22.26	25	221.75	8.87	78	2071.68	26.56
	28/04/2018	622.3	31	20.07	9	58.68	6.52	22	563.64	25.62
	30/04/2018	2860.6	126	22.70	27	249.48	9.24	99	2611.62	26.38
May 2018	01/05/2018	3023.6	137	22.07	30	249.9	8.33	107	2774.51	25.93
	02/05/2018	2575.6	115	22.40	28	276.92	9.89	87	2295.93	26.39
	03/05/2018	2514.6	110	22.86	23	235.98	10.26	87	2277.66	26.18
	04/05/2018	2311.7	106	21.81	26	210.34	8.09	80	2103.2	26.29
	05/05/2018	758.7	37	20.51	11	75.46	6.86	26	683.28	26.28
	08/05/2018	2925.5	126	23.22	26	219.96	8.46	100	2706	27.06
	09/05/2018	2549.8	117	21.79	30	238.2	7.94	87	2311.59	26.57
	10/05/2018	2186.5	101	21.65	25	199.25	7.97	76	1987.4	26.15
	11/05/2018	2435.8	115	21.18	31	254.51	8.21	84	2180.64	25.96
	12/05/2018	823.4	34	24.22	5	46.2	9.24	29	777.2	26.8
	14/05/2018	2580.2	115	22.44	38	317.3	8.35	77	2028.95	26.35
	15/05/2018	2425.2	107	22.67	21	166.53	7.93	86	2257.5	26.25
	16/05/2018	2612.1	116	22.52	26	218.66	8.41	90	2366.1	26.29
	17/05/2018	2712.0	121	22.41	26	250.38	9.63	95	2461.45	25.91
	18/05/2018	2148.0	95	22.61	21	184.17	8.77	74	1963.96	26.54
	19/05/2018	707.6	36	19.65	12	70.32	5.86	24	637.2	26.55
	21/05/2018	2559.5	120	21.33	31	221.65	7.15	89	2338.03	26.27
	22/05/2018	2219.2	106	20.94	29	205.03	7.07	77	2014.32	26.16
	23/05/2018	2379.9	109	21.83	26	245.7	9.45	83	2132.27	25.69
	24/05/2018	2407.7	110	21.89	25	222.75	8.91	85	2185.35	25.71
	25/05/2018	1969.9	92	21.41	25	229	9.16	67	1739.99	25.97
	26/05/2018	751.6	36	20.88	8	47.36	5.92	28	704.2	25.15
	28/05/2018	2478.7	113	21.94	28	231	8.25	85	2248.25	26.45
	29/05/2018	2277.7	110	20.71	30	209.4	6.98	80	2068	25.85
	30/05/2018	2460.0	121	20.33	34	262.82	7.73	87	2197.62	25.26
	31/05/2018	2566.0	114	22.51	29	260.13	8.97	85	2204.9	25.94

June 2018	01/06/2018	2507.9	112	22.39	25	213.5	8.54	87	2294.19	26.37
	02/06/2018	1088.1	48	22.67	12	114.48	9.54	36	973.44	27.04
	05/06/2018	3288.9	143	23.00	32	258.56	8.08	111	3030.3	27.3
	06/06/2018	2547.9	116	21.96	27	244.08	9.04	89	2321.12	26.08
	07/06/2018	2637.8	112	23.55	15	167.4	11.16	97	2470.59	25.47
	08/06/2018	2104.8	105	20.05	30	201.9	6.73	75	1902.75	25.37
	09/06/2018	635.7	27	23.54	5	43.75	8.75	22	591.8	26.9
	11/06/2018	2803.6	123	22.79	22	210.1	9.55	101	2592.67	25.67
	12/06/2018	2586.4	115	22.49	26	201.24	7.74	89	2367.4	26.60
	13/06/2018	2641.7	116	22.77	21	199.71	9.51	95	2442.45	25.71
	14/06/2018	2502.3	109	22.96	22	222.64	10.12	87	2279.4	26.2
	15/06/2018	2236.0	100	22.36	17	151.98	8.94	83	2084.13	25.11
	16/06/2018	772.5	32	24.14	4	22.96	5.74	28	749.28	26.76
	18/06/2018	2374.6	112	21.20	26	220.48	8.48	86	2154.3	25.05
	19/06/2018	2569.2	121	21.23	28	185.64	6.63	93	2383.59	25.63
	20/06/2018	2559.7	122	20.98	38	268.66	7.07	84	2143.68	25.52
	21/06/2018	2116.5	97	21.82	19	168.91	8.89	78	1947.66	24.97
	22/06/2018	2128.6	102	20.87	27	233.55	8.65	75	1895.25	25.27
	23/06/2018	840.0	38	22.10	6	53.76	8.96	32	786.24	24.57
	25/06/2018	2773.7	125	22.19	28	241.64	8.63	97	2530.73	26.09
	26/06/2018	2482.5	110	22.57	22	192.28	8.74	88	2290.64	26.03
	27/06/2018	2338.3	113	20.69	31	230.64	7.44	82	2107.4	25.7
	28/06/2018	2028.5	97	20.91	26	203.84	7.84	71	1825.41	25.71
	29/06/2018	1352.7	70	19.32	26	211.12	8.12	44	1141.36	25.94
	30/06/2018	84.7	7	12.10	7	63.07	9.01	0	0	30.56
July 2018	02/07/2018	2231.3	104	21.45	25	221.5	8.86	79	2009.76	25.44
	03/07/2018	2519.1	110	22.90	20	192.6	9.63	90	2326.5	25.85
	04/07/2018	2495.1	116	21.51	28	227.36	8.12	88	2267.76	25.77
	05/07/2018	2101.9	97	21.67	21	160.02	7.62	76	1954.72	25.72
	06/07/2018	2283.5	107	21.34	29	245.92	8.48	78	2037.36	26.12
	07/07/2018	795.7	36	22.10	7	58.73	8.39	29	736.89	25.41
	09/07/2018	2520.3	116	21.73	24	176.16	7.34	92	2344.16	25.48
	10/07/2018	2422.9	116	20.89	27	166.86	6.18	89	2256.15	25.35
	11/07/2018	2454.3	123	19.95	38	247	6.5	85	2206.6	25.96
	12/07/2018	2506.3	114	21.99	23	193.43	8.41	91	2313.22	25.42
	13/07/2018	2317.1	103	22.50	16	137.44	8.59	87	2179.35	25.05
	17/07/2018	2744.5	130	21.11	28	143.36	5.12	102	2601	25.50
	18/07/2018	2371.6	109	21.76	21	172.2	8.20	88	2200	25.00
	19/07/2018	2355.8	108	21.81	21	120.54	5.74	87	2235.03	25.69
	20/07/2018	2460.7	112	21.97	22	180.18	8.19	90	2280.6	25.34
	21/07/2018	1173.6	47	24.97	2	12.46	6.23	45	1165.5	25.90
	23/07/2018	2659.9	120	22.17	25	205.25	8.21	95	2437.7	25.66
	24/07/2018	2546.6	110	23.15	16	119.84	7.49	94	2426.14	25.81
	25/07/2018	1872	91	20.57	23	145.13	6.31	68	1727.2	25.4
	26/07/2018	1495.56	75	19.94	21	126.21	6.01	54	1369.44	25.36
	27/07/2018	1573.6	75	20.98	19	152.95	8.05	56	1430.24	25.54
	28/07/2018	425.4	19	22.39	3	25.41	8.47	16	400	25.00
	30/07/2018	1543.28	71	21.74	19	162.07	8.53	52	1381.12	26.56
	31/07/2018	1247.96	58	21.52	14	91.56	6.54	44	1156.32	26.28
10 month period		**Total Daily Tonnes**	**No.Vehicles**	**Tonnes /vehicle**	**No. RCV's etc**	**RCV Total Tonnes**	**Tonne/ RCV's**	**No.BTV**	**BTV Tonnes**	**Tonne/ BTV**
	Average	**2117**	**95**	**22.26**	**19**	**167**	**8.8**	**76**	**1948**	**25.7**
	Total	**527224**	**23540**	**5544**	**4701**	**41564**	**2195**	**18839**	**484979**	**6410**
3 months period (Dec, Jan & May)		**Total Daily Tonnes**	**No.Vehicles**	**Tonnes /vehicle**	**No. RCV's etc**	**RCV Total Tonnes**	**Tonne/ RCV's**	**No.BTV**	**BTV Tonnes**	**Tonne/ BTV**
	Average	**2355**	**105**	**22.47**	**20**	**187**	**9.2**	**84**	**2161**	**25.7**
	Total	**178997**	**7942**	**1707**	**1556**	**14211**	**700**	**6386**	**164241**	**1954**

Future Predicted WDV Trip Generation

Waste Delivery Vehicles - 24 Hours

	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	105	315	105	315	210	630
Total	**105**	**315**	**105**	**315**	**210**	**630**

Waste Delivery Vehicles - AM Peak*

	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	7	21	7	21	14	42
Total	**7**	**21**	**7**	**21**	**14**	**42**

***Based on a 14 hours day and even arrival and departure distribution - 105 (vehs/day) / 14 hours = 7 Vehs/Hr**

Waste Delivery Vehicles - PM Peak*

	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	7	21	7	21	14	42
Total	**7**	**21**	**7**	**21**	**14**	**42**

***Based on a 14 hours day and even arrival and departure distribution - 105 (vehs/day) / 14 hours = 7 Vehs/Hr**

Appendix B Residual Waste Vehicles

Existing Bottom Ash Movements							
	Loads per month	Tonnes per month	Tonnes per load	No. Days*	Average Loads per Day	Tonnes per day	Vehicle Movements per day**
Oct-17	481	7387.0	15.4	6	80.2	1231.2	160.3
Nov-17	505	8036.06	15.9	4	126.3	2009.0	252.5
Dec-17	581	9373.4	16.1	6	96.8	1562.2	193.7
Jan-18	754	13078.3	17.3	8	94.3	1634.8	188.5
Feb-18	468	8265.34	17.7	5	93.6	1653.1	187.2
Mar-18	194	3445.28	17.8	2	97.0	1722.6	194.0
Apr-18	782	13688.68	17.5	10	78.2	1368.9	156.4
May-18	394	7010.76	17.8	4	98.5	1752.7	197.0
Jun-18	601	10606.78	17.6	7	85.9	1515.3	171.7
Jul-18	365	6628.5	18.2	4	91.3	1657.1	182.5
Total	5125	87520.1	-	56	-	-	-
Average	512.5	8752.0	17.1	5.6	91.5	1562.9	183.0

*On average the 5 trucks for the Bottom Ash arrive 6 days in a month. 30

** These movements only impact on the site access as the Trucks that take the bottom Ash to the South Quay do so via the Site Access Only

Predicted Future Bottom Ash Trip Generation

With the 15% additional waste the 5 Trucks brought on site to remove the waste to the South quays will have to arrive more frequently.

The calculation below shows that it is predicted that the Bottom Ash Trucks will arrive 7 days a month with the 15% increase in Waste Deliverys.

Future Trip Generation = 6 days * 1.15 = 7 days with 5 Trucks

Residual Waste Vehicles (Bottom Ash Movements) - 24 Hours						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	5	15	5	15	10	30
Total	**5**	**15**	**5**	**15**	**10**	**30**

Residual Waste Vehicles (Bottom Ash Movements) - AM Peak*						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
AM (08:00 - 09:00)	5	15	0	0	5	15
Total	**5**	**15**	**0**	**0**	**5**	**15**

***Assumes that all 5 Bottom Ash Trucks arrive during the AM Peak as a worst case scenario.**

Residual Waste Vehicles (Bottom Ash Movements) - PM Peak*						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
PM (17:00 - 18:00)	0	0	5	15	5	15
Total	**0**	**0**	**5**	**15**	**5**	**15**

***Assumes that all 5 Bottom Ash Trucks depart during the PM Peak as a worst case scenario.**

Existing FGT Movements							
	Loads per month	Tonnes per month	Tonnes per load	No. Days	Average Loads per Day*	Tonnes per day	Vehicle Movements per day
Oct-17	80	1912.1	23.9	20	4.0	95.6	8.0
Nov-17	104	2454.4	23.6	22	4.7	111.6	9.5
Dec-17	103	2433.9	23.6	25	4.1	97.4	8.2
Jan-18	108	2397.2	22.2	23	4.7	104.2	9.4
Feb-18	76	1760.48	23.2	21	3.6	83.8	7.2
Mar-18	88	1966.92	22.4	22	4.0	89.4	8.0
Apr-18	92	2397.16	26.1	21	4.4	114.2	8.8
May-18	107	2761.92	25.8	26	4.1	106.2	8.2
Jun-18	85	2230.4	26.2	21	4.0	106.2	8.1
Jul-18	92	2405.98	26.2	22	4.2	109.4	8.4
Total	935	22720.5	-	223	-	-	-
Average	93.5	2272.0	24.3	22.3	4.2	101.9	8.4

*The existing average daily loads is 4.2 vehicles

Predicted Future FGT Movements

With the 15% additional waste brought to site, the average loads of FGT residual waste will increase by 15%.

The calculation below shows that the FGT Residual Waste will increase from 4 to 5 loads per day with the 15% increase in Waste Delivery

Future Trip Generation = 4.2 Loads * 1.15 = 4.83 loads per day

Residual Waste Vehicles (Flue Gas Treatment) - 24 Hours						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	5	15	5	15	10	30
Total	**5**	**15**	**5**	**15**	**10**	**30**

Residual Waste Vehicles (Flue Gas Treatment) - AM Peak*						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
AM (08:00 - 09:00)	1	3	1	3	2	6
Total	**1**	**3**	**1**	**3**	**2**	**6**

*Assumes that 1 of the 5 Flue Gas Treatment vehicles arrives and departs during the AM Peak

Residual Waste Vehicles (Flue Gas Treatment) - PM Peak*						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
PM (17:00 - 18:00)	1	3	1	3	2	6
Total	**1**	**3**	**1**	**3**	**2**	**6**

*Assumes that 1 of the 5 Flue Gas Treatment vehicles arrives and departs during the AM Peak

Appendix C Services Vehicles

Existing Service Access Summary

Arrivals (Vehicles)						
Hour Ending	RCV	BTV	Car/LGV	OGV1	OGV2	Total
8am	0	1	2	0	0	3
9am	1	8	3	0	0	12
10am	4	11	0	1	0	16
11am	0	11	2	0	0	13
12	4	7	0	0	0	11
1pm	3	4	1	0	1	9
2pm	0	10	2	0	0	12
3pm	4	5	4	4	0	17
4pm	6	8	1	0	2	17
5pm	0	9	3	0	3	15
6pm	0	7	2	0	0	9
7pm	0	6	2	0	0	8
Total	22	87	22	5	6	142

Note: Total number of RCVs and BTVs observed via video analysis

Arrivals (PCUs)						
Hour Ending	RCV	BTV	Car/LGV	OGV1	OGV2	Total
8am	0	3	2	0	0	5
9am	3	24	3	0	0	30
10am	12	33	0	3	0	48
11am	0	33	2	0	0	35
12	12	21	0	0	0	33
1pm	9	12	1	0	3	25
2pm	0	30	2	0	0	32
3pm	12	15	4	12	0	43
4pm	18	24	1	0	6	49
5pm	0	27	3	0	9	39
6pm	0	21	2	0	0	23
7pm	0	18	2	0	0	20
Total	66	261	22	15	18	382

Note: Total number of RCVs and BTVs observed via video analysis

Departures (Vehicles)						
Hour Ending	RCV	BTV	Car/LGV	OGV1	OGV2	Total
8am	0	1	1	0	0	2
9am	1	7	3	0	0	11
10am	2	5	0	1	0	8
11am	2	13	1	0	0	16
12	3	10	0	0	0	13
1pm	3	4	3	0	0	10
2pm	0	11	0	0	0	11
3pm	4	7	3	2	0	16
4pm	6	6	3	1	2	18
5pm	0	5	1	0	0	6
6pm	0	11	1	0	1	13
7pm	0	7	0	0	0	7
Total	21	87	16	4	3	131

Note: Total number of RCVs and BTVs observed via video analysis

Departures (PCUs)						
Hour Ending	RCV	BTV	Car/LGV	OGV1	OGV2	Total
8am	0	3	1	0	0	4
9am	3	21	3	0	0	27
10am	6	15	0	3	0	24
11am	6	39	1	0	0	46
12	9	30	0	0	0	39
1pm	9	12	3	0	0	24
2pm	0	33	0	0	0	33
3pm	12	21	3	6	0	42
4pm	18	18	3	3	6	48
5pm	0	15	1	0	0	16
6pm	0	33	1	0	3	37
7pm	0	21	0	0	0	21
Total	63	261	16	12	9	361

Note: Total number of RCVs and BTVs observed via video analysis

Predicted Future Service Access Trip Rates

There will be no additional service trips to the development due to the increase in Waste Delivery Trips. These will remain the same as was counted in the 2018 traffic surveys

Service Vehicles (Cars & LGV) - 12 Hours						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
LGV	22	22	16	16	38	38
Total	**22**	**22**	**16**	**16**	**38**	**38**

Service Vehicles (HGV) - 12 Hours						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	11	33	7	21	18	54
Total	**11**	**33**	**7**	**21**	**18**	**54**

Service Vehicles (Cars & LGV) - AM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
LGV	3	3	3	3	6	6
Total	**3**	**3**	**3**	**3**	**6**	**6**

Service Vehicles (HGV) - AM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**

Service Vehicles (Cars & LGV) - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
LGV	2	2	1	1	3	3
Total	**2**	**2**	**1**	**1**	**3**	**3**

Service Vehicles (HGV) - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	0	0	1	3	1	3
Total	**0**	**0**	**1**	**3**	**1**	**3**

2018 Traffic Surveys Existing Service Access Arrivals									
	Arrivals								
	Destination : Arm C Waste to Energy Access								Total
	PC	MC	Car	Taxi	LGV	OGV1	OGV2	PSV	
07:00	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0
07:30	0	0	1	0	0	0	0	0	1
07:45	0	0	1	0	0	0	1	0	2
1 Hr	0	0	2	0	0	0	1	0	3
08:00	0	0	1	0	2	0	4	0	7
08:15	0	0	0	0	0	1	3	0	4
08:30	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	1	0	1
1 Hr	0	0	1	0	2	1	8	0	12
09:00	0	0	0	0	0	2	0	0	2
09:15	0	0	0	0	0	1	2	0	3
09:30	0	0	0	0	0	0	3	0	3
09:45	0	0	0	0	0	2	6	0	8
1 Hr	0	0	0	0	0	5	11	0	16
10:00	0	0	0	0	1	0	3	0	4
10:15	0	0	0	0	0	0	1	0	1
10:30	0	0	0	0	0	0	5	0	5
10:45	0	0	0	0	1	0	2	0	3
1 Hr	0	0	0	0	2	0	11	0	13
11:00	0	0	0	0	0	0	2	0	2
11:15	0	0	0	0	0	0	1	0	1
11:30	0	0	0	0	0	4	2	0	6
11:45	0	0	0	0	0	0	2	0	2
1 Hr	0	0	0	0	0	4	7	0	11
12:00	0	0	0	0	1	0	0	0	1
12:15	0	0	0	0	0	2	1	0	3
12:30	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	1	4	0	5
1 Hr	0	0	0	0	1	3	5	0	9
13:00	0	0	0	0	2	0	4	0	6
13:15	0	0	0	0	0	0	2	0	2
13:30	0	0	0	0	0	0	1	0	1
13:45	0	0	0	0	0	0	4	0	4
1 Hr	0	0	0	0	2	0	11	0	13
14:00	0	0	0	0	0	2	1	0	3
14:15	0	0	0	0	1	4	1	0	6
14:30	0	0	0	0	1	2	0	0	3
14:45	0	0	0	0	2	0	2	0	4
1 Hr	0	0	0	0	4	8	4	0	16
15:00	0	0	0	0	0	3	2	0	5
15:15	0	0	0	0	0	1	1	0	2
15:30	0	0	1	0	0	2	3	0	6
15:45	0	0	0	0	0	0	4	0	4
1 Hr	0	0	1	0	0	6	10	0	17
16:00	1	0	0	0	0	0	1	0	2
16:15	0	0	0	0	1	0	5	0	6
16:30	0	0	0	0	0	0	1	0	1
16:45	0	0	0	0	1	0	5	0	6
1 Hr	1	0	0	0	2	0	12	0	15
17:00	0	0	0	0	0	0	2	0	2
17:15	1	0	0	0	0	0	2	0	3
17:30	0	0	0	0	0	0	2	0	2
17:45	0	0	0	0	1	0	1	0	2
1 Hr	1	0	0	0	1	0	7	0	9
18:00	0	0	0	0	0	0	1	0	1
18:15	0	0	0	0	1	0	1	0	2
18:30	0	0	0	0	1	0	2	0	3
18:45	0	0	0	0	0	0	2	0	2
1 Hr	0	0	0	0	2	0	6	0	8
Total	2	0	4	0	16	27	93	0	142

2018 Traffic Surveys Existing Service Access Departures									
	Departures								
	Origin :		Arm C	Waste to Energy Access					Total
	PC	MC	Car	Taxi	LGV	OGV1	OGV2	PSV	
07:00	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	1	0	1
07:45	0	0	1	0	0	0	0	0	1
1 Hr	0	0	1	0	0	0	1	0	2
08:00	0	0	0	0	1	0	0	0	1
08:15	0	0	1	0	0	1	5	0	7
08:30	0	0	0	0	1	0	2	0	3
08:45	0	0	0	0	0	0	0	0	0
1 Hr	0	0	1	0	2	1	7	0	11
09:00	0	0	0	0	0	1	2	0	3
09:15	0	0	0	0	0	2	0	0	2
09:30	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	3	0	3
1 Hr	0	0	0	0	0	3	5	0	8
10:00	0	0	0	0	0	1	1	0	2
10:15	0	0	0	0	0	1	6	0	7
10:30	0	0	0	0	0	0	2	0	2
10:45	0	0	0	0	1	0	4	0	5
1 Hr	0	0	0	0	1	2	13	0	16
11:00	0	0	0	0	0	0	1	0	1
11:15	0	0	0	0	0	0	3	0	3
11:30	0	0	0	0	0	0	3	0	3
11:45	0	0	0	0	0	3	3	0	6
1 Hr	0	0	0	0	0	3	10	0	13
12:00	0	0	0	0	0	1	2	0	3
12:15	0	0	0	0	2	1	1	0	4
12:30	0	0	0	0	0	1	1	0	2
12:45	0	0	0	0	1	0	0	0	1
1 Hr	0	0	0	0	3	3	4	0	10
13:00	0	0	0	0	0	0	1	0	1
13:15	0	0	0	0	0	0	6	0	6
13:30	0	0	0	0	0	0	1	0	1
13:45	0	0	0	0	0	0	3	0	3
1 Hr	0	0	0	0	0	0	11	0	11
14:00	0	0	0	0	0	2	1	0	3
14:15	0	0	0	0	1	1	3	0	5
14:30	0	0	0	0	1	3	0	0	4
14:45	0	0	0	0	1	0	3	0	4
1 Hr	0	0	0	0	3	6	7	0	16
15:00	0	0	0	0	0	0	2	0	2
15:15	0	0	1	0	1	4	3	0	9
15:30	0	0	0	0	1	1	0	0	2
15:45	0	0	0	0	0	2	3	0	5
1 Hr	0	0	1	0	2	7	8	0	18
16:00	0	0	1	0	0	0	3	0	4
16:15	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	1	0	1
16:45	0	0	0	0	0	0	1	0	1
1 Hr	0	0	1	0	0	0	5	0	6
17:00	0	0	0	0	0	0	4	0	4
17:15	0	0	0	0	0	0	1	0	1
17:30	0	0	0	0	0	0	4	0	4
17:45	0	0	1	0	0	0	3	0	4
1 Hr	0	0	1	0	0	0	12	0	13
18:00	0	0	0	0	0	0	1	0	1
18:15	0	0	0	0	0	0	2	0	2
18:30	0	0	0	0	0	0	1	0	1
18:45	0	0	0	0	0	0	3	0	3
1 Hr	0	0	0	0	0	0	7	0	7
Total	0	0	5	0	11	25	90	0	131

Appendix D Staff / Visitor Vehicles

Existing Staff / Visitor Access Summary

Arrivals (Vehicles)								
Hour Ending	Car	Taxi	LGV	MC	PC	OGV1	OGV2	Total
8am	6	1	0	0	1	0	0	**8**
9am	2	0	0	0	0	0	0	**2**
10am	4	0	0	0	0	0	0	**4**
11am	1	0	0	0	0	0	0	**1**
12	0	0	0	0	0	0	0	**0**
1pm	1	0	0	0	0	0	0	**1**
2pm	2	0	0	0	0	0	0	**2**
3pm	2	0	1	0	1	0	0	**4**
4pm	0	0	0	0	0	0	0	**0**
5pm	0	0	0	0	0	0	0	**0**
6pm	0	0	0	0	0	0	0	**0**
7pm	5	0	0	0	1	0	0	**6**
Total	23	1	1	0	3	0	0	**28**

Arrivals (PCUs)								
Hour Ending	Car	Taxi	LGV	MC	PC	OGV1	OGV2	Total
8am	6	1	0	0	0.6	0	0	**7.6**
9am	2	0	0	0	0	0	0	**2**
10am	4	0	0	0	0	0	0	**4**
11am	1	0	0	0	0	0	0	**1**
12	0	0	0	0	0	0	0	**0**
1pm	1	0	0	0	0	0	0	**1**
2pm	2	0	0	0	0	0	0	**2**
3pm	2	0	1	0	0.6	0	0	**3.6**
4pm	0	0	0	0	0	0	0	**0**
5pm	0	0	0	0	0	0	0	**0**
6pm	0	0	0	0	0	0	0	**0**
7pm	5	0	0	0	0.6	0	0	**5.6**
Total	23	1	1	0	1.8	0	0	**26.8**

Departures (Vehicles)								
Hour Ending	Car	Taxi	LGV	MC	PC	OGV1	OGV2	Total
8am	3	0	0	0	0	0	0	**3**
9am	3	0	0	0	0	0	0	**3**
10am	1	0	0	0	0	0	0	**1**
11am	0	0	0	0	0	0	0	**0**
12	0	0	0	0	0	0	0	**0**
1pm	0	0	0	0	0	0	0	**0**
2pm	6	0	0	0	0	0	0	**6**
3pm	2	1	1	0	0	0	0	**4**
4pm	2	0	0	0	0	0	0	**2**
5pm	4	0	0	0	1	0	0	**5**
6pm	5	0	0	0	1	0	0	**6**
7pm	3	0	0	0	1	0	0	**4**
Total	29	1	1	0	3	0	0	**34**

Departures (PCUs)								
Hour Ending	Car	Taxi	LGV	MC	PC	OGV1	OGV2	Total
8am	3	0	0	0	0	0	0	**3**
9am	3	0	0	0	0	0	0	**3**
10am	1	0	0	0	0	0	0	**1**
11am	0	0	0	0	0	0	0	**0**
12	0	0	0	0	0	0	0	**0**
1pm	0	0	0	0	0	0	0	**0**
2pm	6	0	0	0	0	0	0	**6**
3pm	2	1	1	0	0	0	0	**4**
4pm	2	0	0	0	0	0	0	**2**
5pm	4	0	0	0	0.6	0	0	**4.6**
6pm	5	0	0	0	0.6	0	0	**5.6**
7pm	3	0	0	0	0.6	0	0	**3.6**
Total	29	1	1	0	1.8	0	0	**32.8**

Predicted Future Staff / Visitor Access Summary

There will be no additional staff trips to the development due to the increase in Waste Delivery Trips. These will remain the same as was counted in the 2018 traffic surveys

Staff Vehicle Trips - 12 Hours						
	Arrivals		Departures		Total	
	Vehs	PCU	Vehs	PCU	Vehs	PCU
LGV	28	26.8	34	32.8	62	59.6
HGV	0	0.0	0	0.0	0	0.0
Total	**28**	**27**	**34**	**33**	**62**	**60**

Staff Vehicle Trips - AM Peak						
	Arrivals		Departures		Total	
	Vehs	PCU	Vehs	PCU	Vehs	PCU
LGV	2	2	3	3	5	5
HGV	0	0	0	0	0	0
Total	**2**	**2**	**3**	**3**	**5**	**5**

Staff Vehicle Trips - PM Peak						
	Arrivals		Departures		Total	
	Vehs	PCU	Vehs	PCU	Vehs	PCU
LGV	0	0	6	5.6	6	5.6
HGV	0	0	0	0	0	0
Total	**0**	**0**	**6**	**6**	**6**	**6**

2018 Traffic Surveys Existing Staff Access Arrivals									
	Entry								
	CAR	Taxi	LGV	OGV1	OGV2	PSV	MC	PC	Total
07:00	0	1	0	0	0	0	0	0	1
07:15	1	0	0	0	0	0	0	0	1
07:30	2	0	0	0	0	0	0	0	2
07:45	3	0	0	0	0	0	0	1	4
1 Hr	6	1	0	0	0	0	0	1	8
08:00	0	0	0	0	0	0	0	0	0
08:15	2	0	0	0	0	0	0	0	2
08:30	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0
1 Hr	2	0	0	0	0	0	0	0	2
09:00	0	0	0	0	0	0	0	0	0
09:15	1	0	0	0	0	0	0	0	1
09:30	2	0	0	0	0	0	0	0	2
09:45	1	0	0	0	0	0	0	0	1
1 Hr	4	0	0	0	0	0	0	0	4
10:00	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0
10:30	1	0	0	0	0	0	0	0	1
10:45	0	0	0	0	0	0	0	0	0
1 Hr	1	0	0	0	0	0	0	0	1
11:00	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0
12:15	1	0	0	0	0	0	0	0	1
12:30	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0
1 Hr	1	0	0	0	0	0	0	0	1
13:00	1	0	0	0	0	0	0	0	1
13:15	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0
13:45	1	0	0	0	0	0	0	0	1
1 Hr	2	0	0	0	0	0	0	0	2
14:00	2	0	0	0	0	0	0	0	2
14:15	0	0	0	0	0	0	0	0	0
14:30	0	0	1	0	0	0	0	1	2
14:45	0	0	0	0	0	0	0	0	0
1 Hr	2	0	1	0	0	0	0	1	4
15:00	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0
18:00	1	0	0	0	0	0	0	0	1
18:15	1	0	0	0	0	0	0	0	1
18:30	2	0	0	0	0	0	0	1	3
18:45	1	0	0	0	0	0	0	0	1
1 Hr	5	0	0	0	0	0	0	1	6
Total	23	1	1	0	0	0	0	3	28

2018 Traffic Surveys Existing Staff Access Departures									
	Exit								
	CAR	Taxi	LGV	OGV1	OGV2	PSV	MC	PC	Total
07:00	1	0	0	0	0	0	0	0	1
07:15	1	0	0	0	0	0	0	0	1
07:30	0	0	0	0	0	0	0	0	0
07:45	1	0	0	0	0	0	0	0	1
1 Hr	3	0	0	0	0	0	0	0	3
08:00	0	0	0	0	0	0	0	0	0
08:15	1	0	0	0	0	0	0	0	1
08:30	1	0	0	0	0	0	0	0	1
08:45	1	0	0	0	0	0	0	0	1
1 Hr	3	0	0	0	0	0	0	0	3
09:00	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0
09:45	1	0	0	0	0	0	0	0	1
1 Hr	1	0	0	0	0	0	0	0	1
10:00	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0
13:00	2	0	0	0	0	0	0	0	2
13:15	2	0	0	0	0	0	0	0	2
13:30	0	0	0	0	0	0	0	0	0
13:45	2	0	0	0	0	0	0	0	2
1 Hr	6	0	0	0	0	0	0	0	6
14:00	0	0	0	0	0	0	0	0	0
14:15	0	1	0	0	0	0	0	0	1
14:30	1	0	0	0	0	0	0	0	1
14:45	1	0	1	0	0	0	0	0	2
1 Hr	2	1	1	0	0	0	0	0	4
15:00	1	0	0	0	0	0	0	0	1
15:15	0	0	0	0	0	0	0	0	0
15:30	1	0	0	0	0	0	0	0	1
15:45	0	0	0	0	0	0	0	0	0
1 Hr	2	0	0	0	0	0	0	0	2
16:00	1	0	0	0	0	0	0	1	2
16:15	2	0	0	0	0	0	0	0	2
16:30	1	0	0	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0
1 Hr	4	0	0	0	0	0	0	1	5
17:00	2	0	0	0	0	0	0	1	3
17:15	1	0	0	0	0	0	0	0	1
17:30	2	0	0	0	0	0	0	0	2
17:45	0	0	0	0	0	0	0	0	0
1 Hr	5	0	0	0	0	0	0	1	6
18:00	0	0	0	0	0	0	0	1	1
18:15	2	0	0	0	0	0	0	0	2
18:30	0	0	0	0	0	0	0	0	0
18:45	1	0	0	0	0	0	0	0	1
1 Hr	3	0	0	0	0	0	0	1	4
Total	29	1	1	0	0	0	0	3	34

Appendix E Forecast Trip Generation

Waste Delivery Vehicles - AM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
AM (08:00 - 09:00)	7	21	7	21	14	42
Total	**7**	**21**	**7**	**21**	**14**	**42**

Residual Waste Vehicles (Bottom Ash Movements) - AM Peak*						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
AM (08:00 - 09:00)	5	15	0	0	5	15
Total	**5**	**15**	**0**	**0**	**5**	**15**

*Assumes that all 5 Bottom Ash Trucks arrive during the AM Peak as a worst case scenario.

Residual Waste Vehicles (Flue Gas Treatment) - AM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
AM (08:00 - 09:00)	3	9	3	9	6	18
Total	**3**	**9**	**3**	**9**	**6**	**18**

Service Vehicles (HGV) - AM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**

Service Vehicles (Cars & LGV) - AM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
LGV	3	3	3	3	6	6
Total	**3**	**3**	**3**	**3**	**6**	**6**

Staff Vehicle Trips - AM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
LGV	2	2	3	3	5	5
HGV	0	0	0	0	0	0
Total	**2**	**2**	**3**	**3**	**5**	**5**

Total Trips - AM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
Total	**20**	**50**	**16**	**36**	**36**	**86**

Waste Delivery Vehicles - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
PM (17:00 - 18:00)	7	21	7	21	14	42
Total	**7**	**21**	**7**	**21**	**14**	**42**

Residual Waste Vehicles (Bottom Ash Movements) - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
PM (17:00 - 18:00)	0	0	5	15	5	15
Total	**0**	**0**	**5**	**15**	**5**	**15**

*5 Trucks depart the site after transporting Bottom Ash in the South Quay

Residual Waste Vehicles (Flue Gas Treatment) - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
PM (17:00 - 18:00)	2	6	2	6	4	12
Total	**2**	**6**	**2**	**6**	**4**	**12**

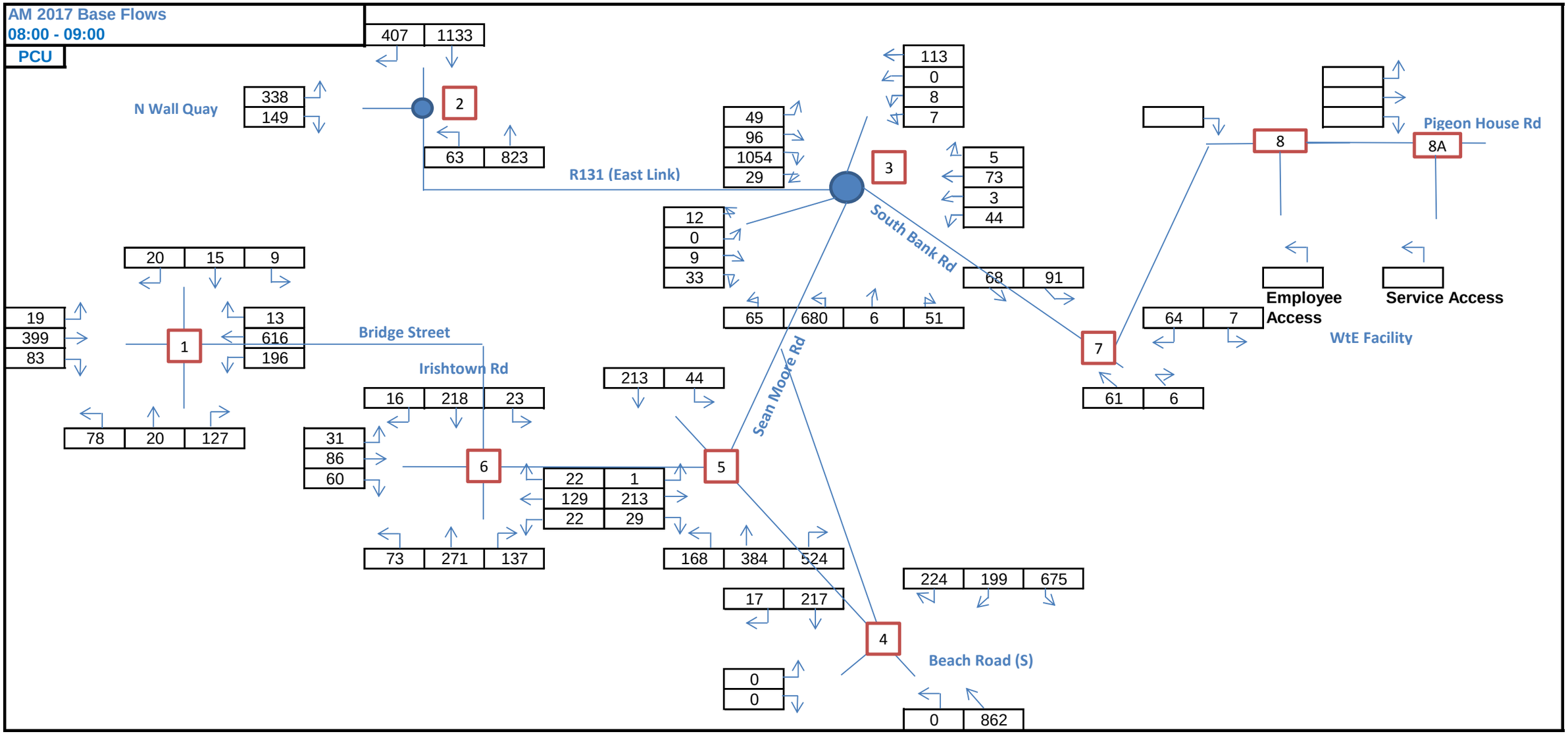
Service Vehicles (HGV) - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
HGV	0	0	1	3	1	3
Total	**0**	**0**	**1**	**3**	**1**	**3**

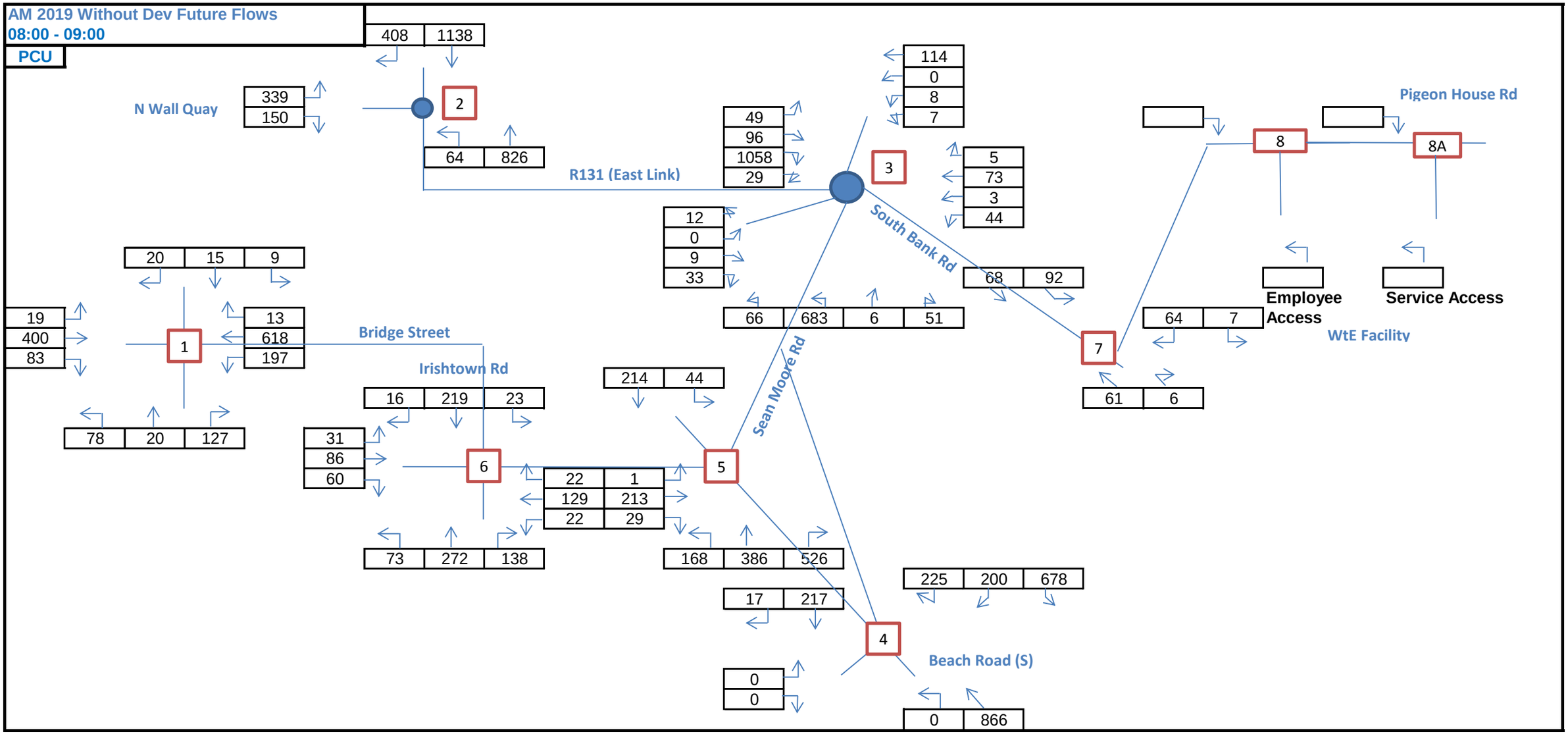
Service Vehicles - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
LGV	2	2	1	1	3	3
Total	**2**	**2**	**1**	**1**	**3**	**3**

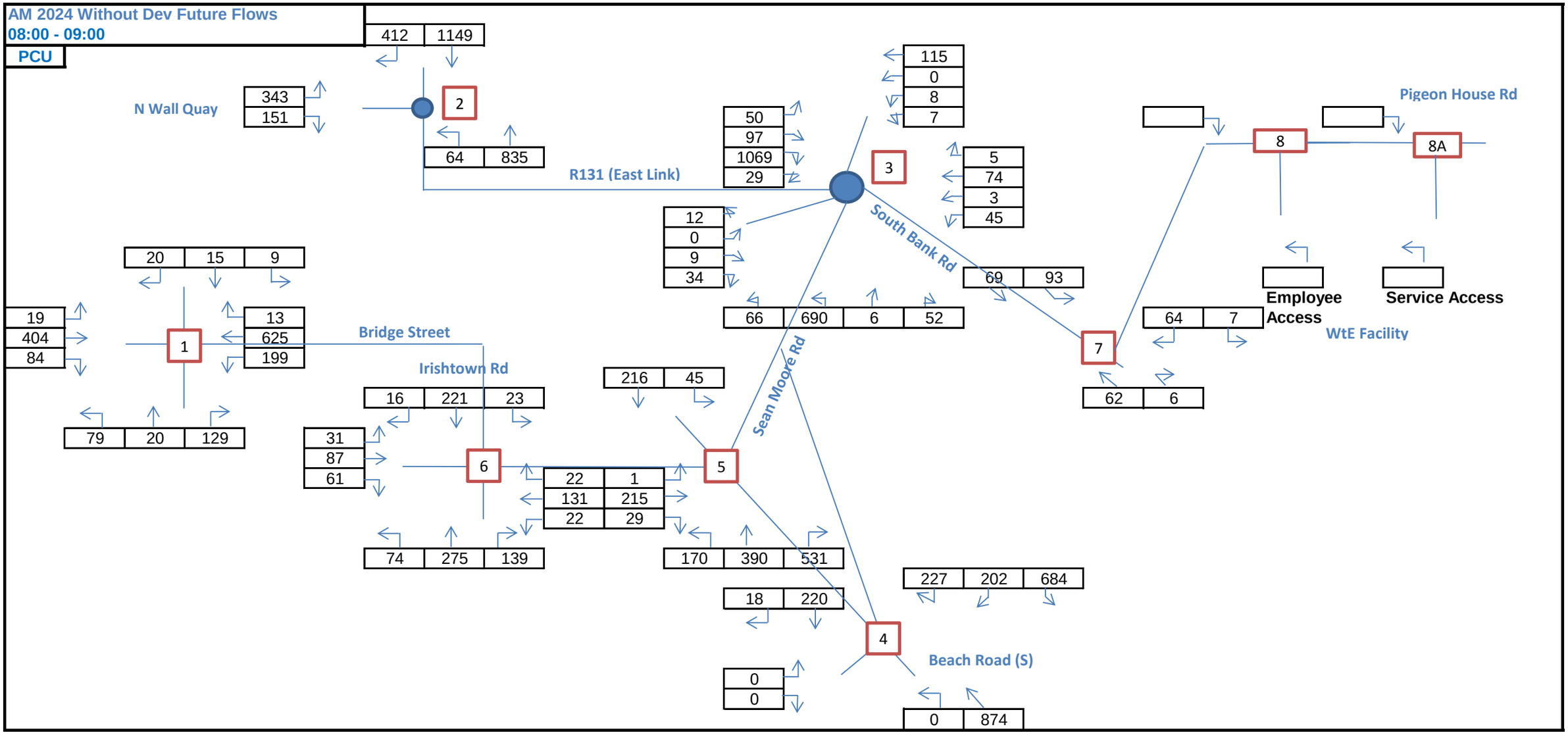
Staff Vehicle Trips - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
LGV	0	0	6	5.6	6	6
HGV	0	0	0	0	0	0
Total	**0**	**0**	**6**	**6**	**6**	**6**

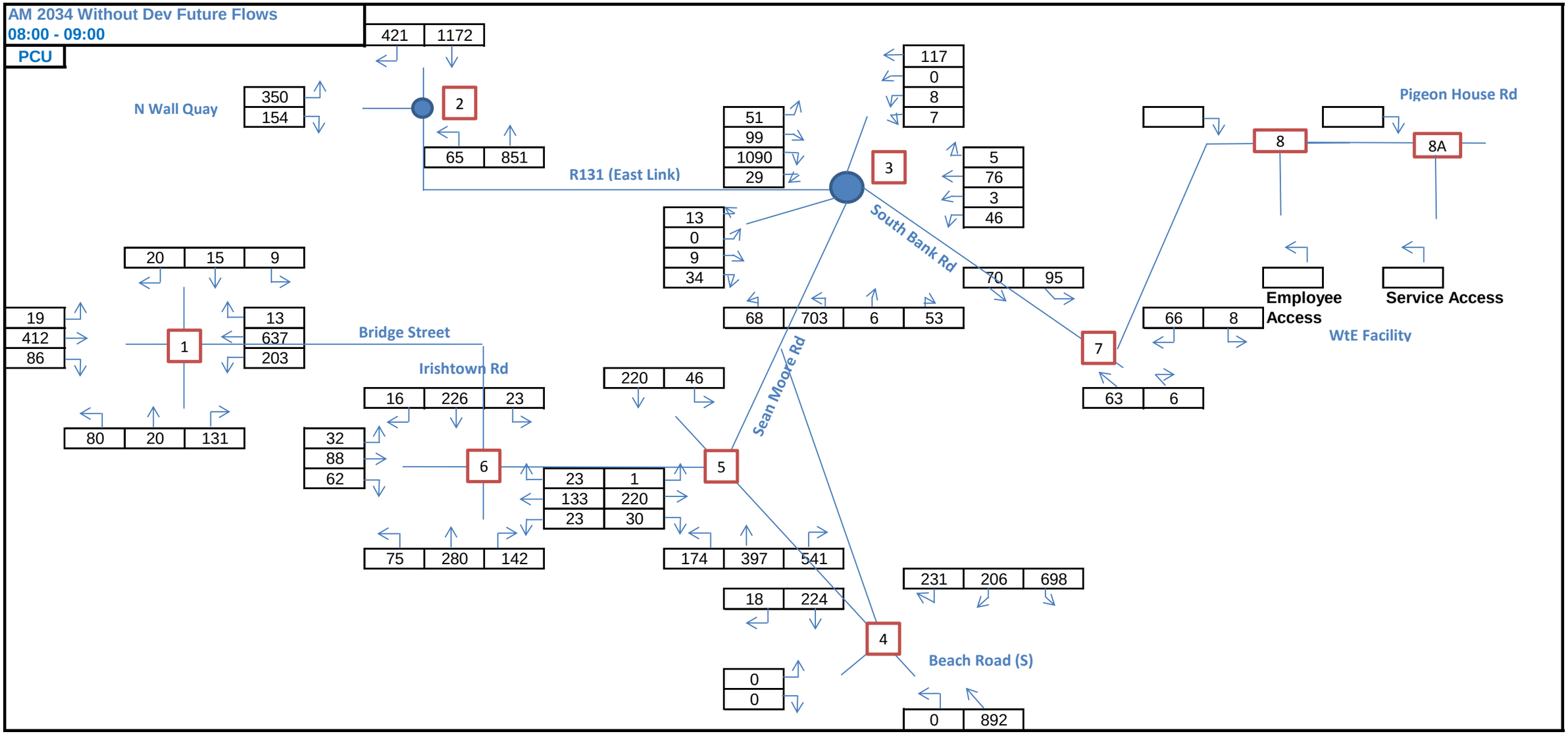
Total Trips - PM Peak						
	Arrivals		Departures		Total	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
Total	**11**	**29**	**22**	**52**	**33**	**81**

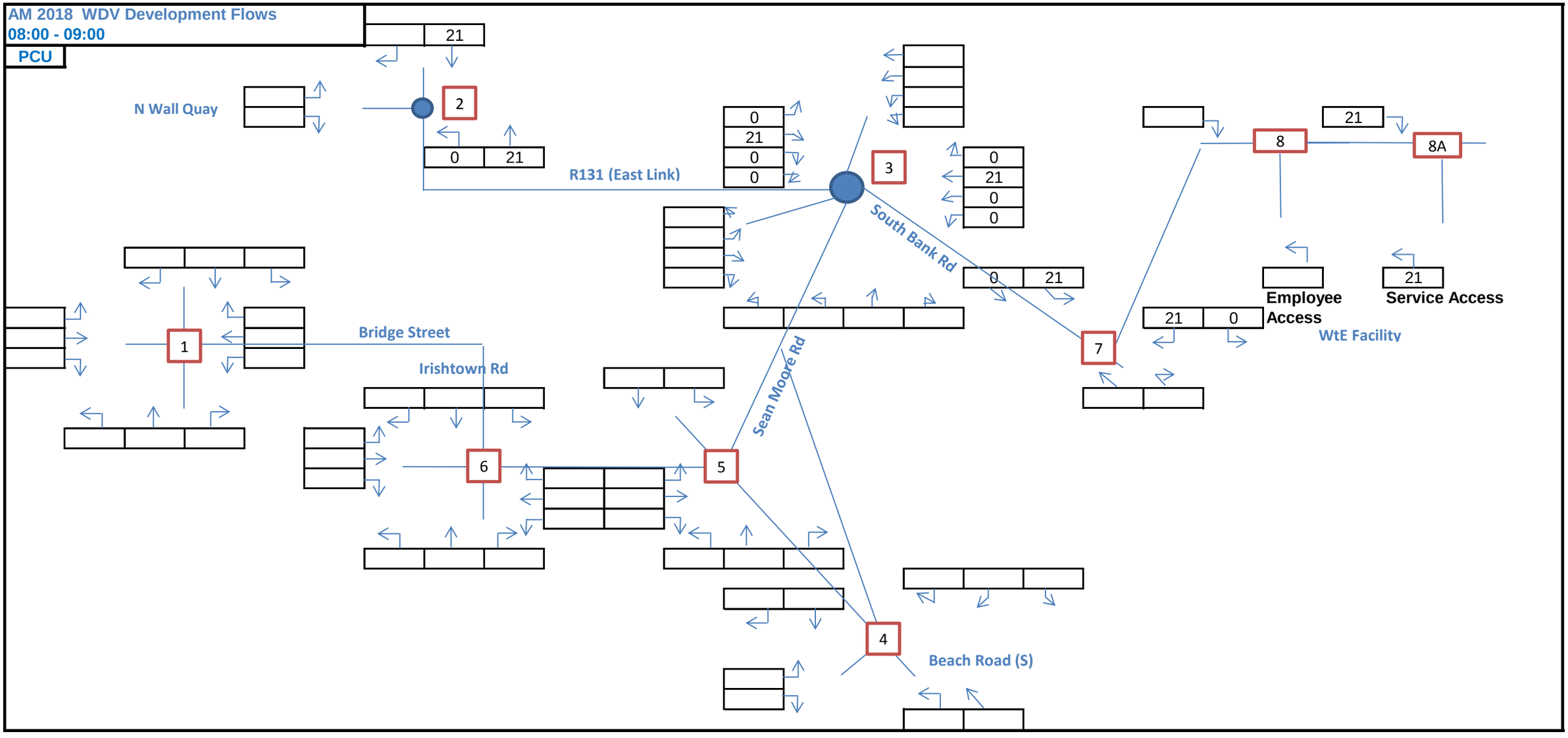
Appendix F AM Peak Traffic Flow Diagrams

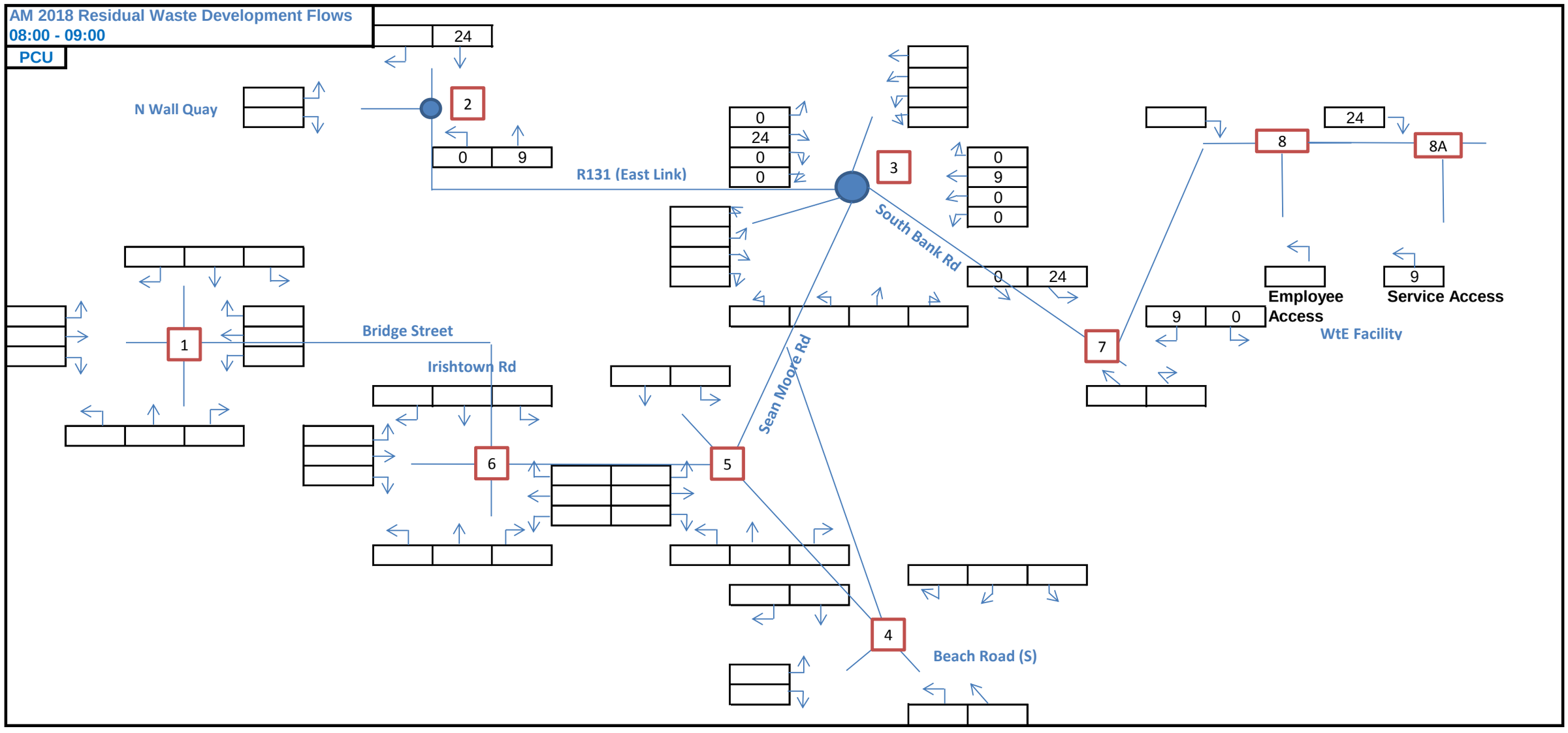

AM 2017 Base Flows
08:00 - 09:00
PCU
N Wall Quay
R131 (East Link)
South Bank Rd
Pigeon House Rd
Bridge Street
Irishtown Rd
Sean Moore Rd
Beach Road (S)
Employee Access
Service Access
WtE Facility
1
2
3
4
5
6
7
8
8A
407
1133
338
149
63
823
49
96
1054
29
113
0
8
7
5
73
3
44
12
0
9
33
65
680
6
51
68
91
20
15
9
19
399
83
13
616
196
78
20
127
16
218
23
31
86
60
213
44
22
1
129
213
22
29
73
271
137
168
384
524
17
217
0
0
224
199
675
64
7
61
6
0
862


AM 2019 Without Dev Future Flows
08:00 - 09:00
PCU
408
1138
N Wall Quay
339
150
2
64
826
R131 (East Link)
49
96
1058
29
114
0
8
7
3
5
73
3
44
12
0
9
33
South Bank Rd
68
92
Pigeon House Rd
8
8A
20
15
9
19
400
83
1
13
618
197
Bridge Street
Irishtown Rd
66
683
6
51
Employee Access
Service Access
64
7
WtE Facility
214
44
Sean Moore Rd
7
61
6
16
219
23
31
86
60
6
22
1
129
213
22
29
5
78
20
127
73
272
138
168
386
526
225
200
678
17
217
4
Beach Road (S)
0
0
0
866


AM 2024 Without Dev Future Flows
08:00 - 09:00
PCU
412
1149
N Wall Quay
343
151
2
64
835
R131 (East Link)
50
97
1069
29
115
0
8
7
3
5
74
3
45
12
0
9
34
South Bank Rd
69
93
Pigeon House Rd
8
8A
20
15
9
19
404
84
1
13
625
199
Bridge Street
Irishtown Rd
79
20
129
16
221
23
31
87
61
6
22
1
131
215
22
29
74
275
139
216
45
Sean Moore Rd
5
66
690
6
52
170
390
531
7
64
7
Employee Access
Service Access
WtE Facility
62
6
227
202
684
18
220
4
0
0
Beach Road (S)
0
874


AM 2034 Without Dev Future Flows
08:00 - 09:00
PCU
421
1172
N Wall Quay
350
154
2
65
851
R131 (East Link)
51
99
1090
29
117
0
8
7
3
5
76
3
46
13
0
9
34
South Bank Rd
70
95
Pigeon House Rd
8
8A
Employee Access
Service Access
WtE Facility
66
8
20
15
9
19
412
86
1
13
637
203
Bridge Street
Irishtown Rd
80
20
131
16
226
23
32
88
62
6
23
1
133
220
23
30
220
46
Sean Moore Rd
68
703
6
53
7
63
6
75
280
142
174
397
541
5
231
206
698
18
224
4
0
0
Beach Road (S)
0
892


AM 2018 WDV Development Flows
08:00 - 09:00
PCU
N Wall Quay
R131 (East Link)
South Bank Rd
Bridge Street
Irishtown Rd
Sean Moore Rd
Beach Road (S)
Employee Access
Service Access
WtE Facility
1
2
3
4
5
6
7
8
8A
21
0
21
0
21
0
0
21
0
21
0
21
21
0
21
21


AM 2018 Residual Waste Development Flows
08:00 - 09:00
PCU
24
N Wall Quay
2
0
9
R131 (East Link)
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24
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South Bank Rd
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24
8
24
8A
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Service Access
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WtE Facility
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Bridge Street
Irishtown Rd
Sean Moore Rd
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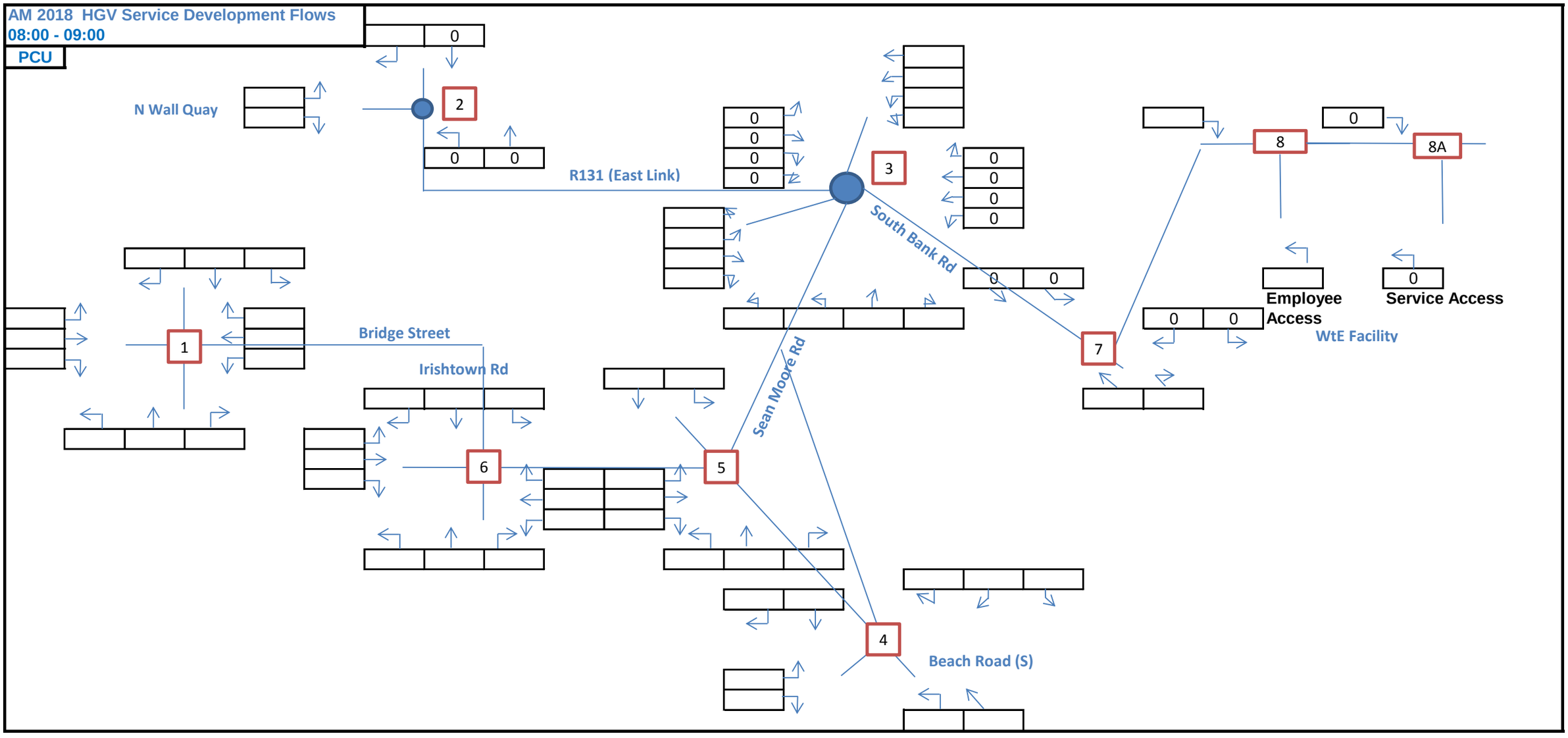
Beach Road (S)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PCU
N Wall Quay
R131 (East Link)
South Bank Rd
Bridge Street
Irishtown Rd
Sean Moore Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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3
4
5
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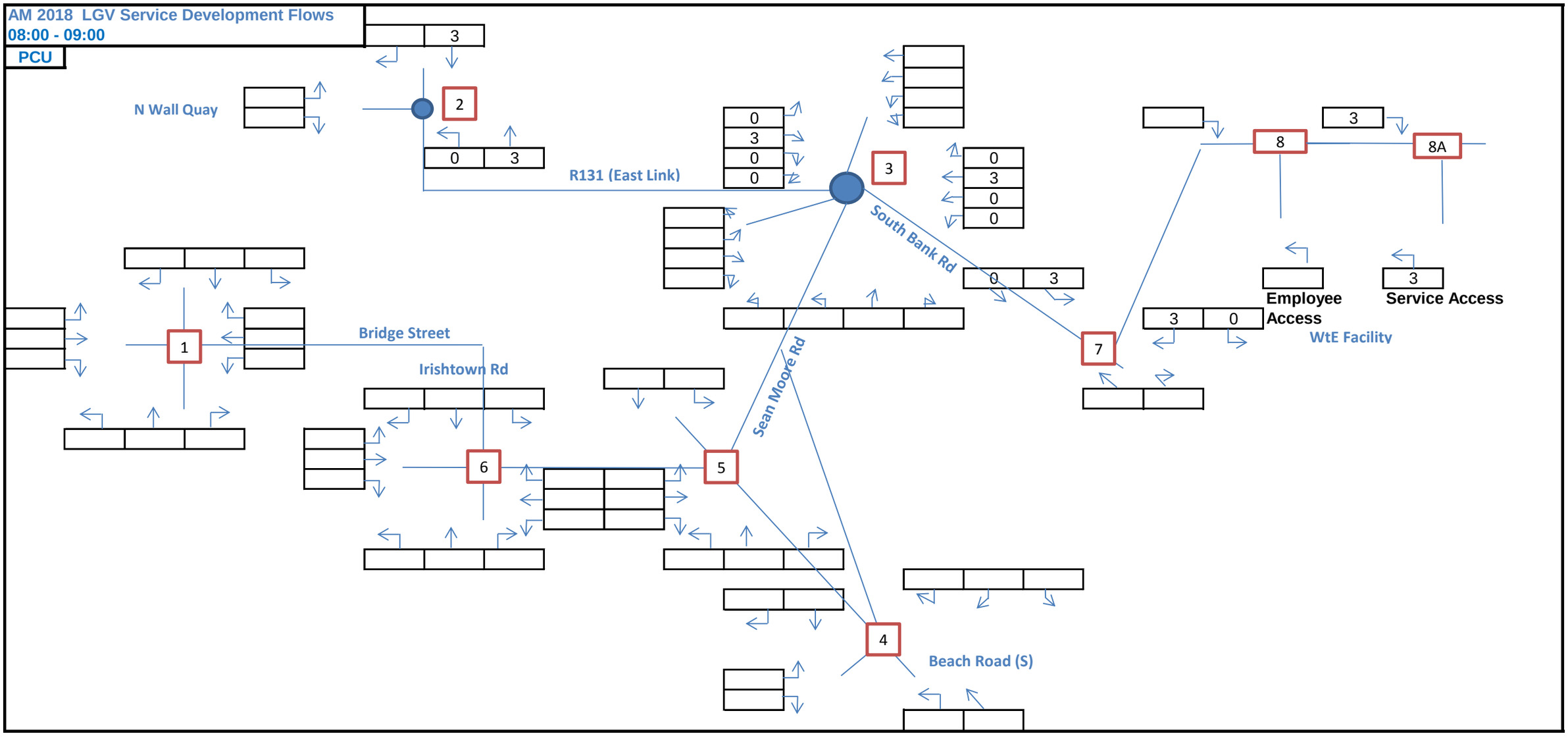
8
8A
0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R131 (East Link)
South Bank Rd
Bridge Street
Irishtown Rd
Sean Moore Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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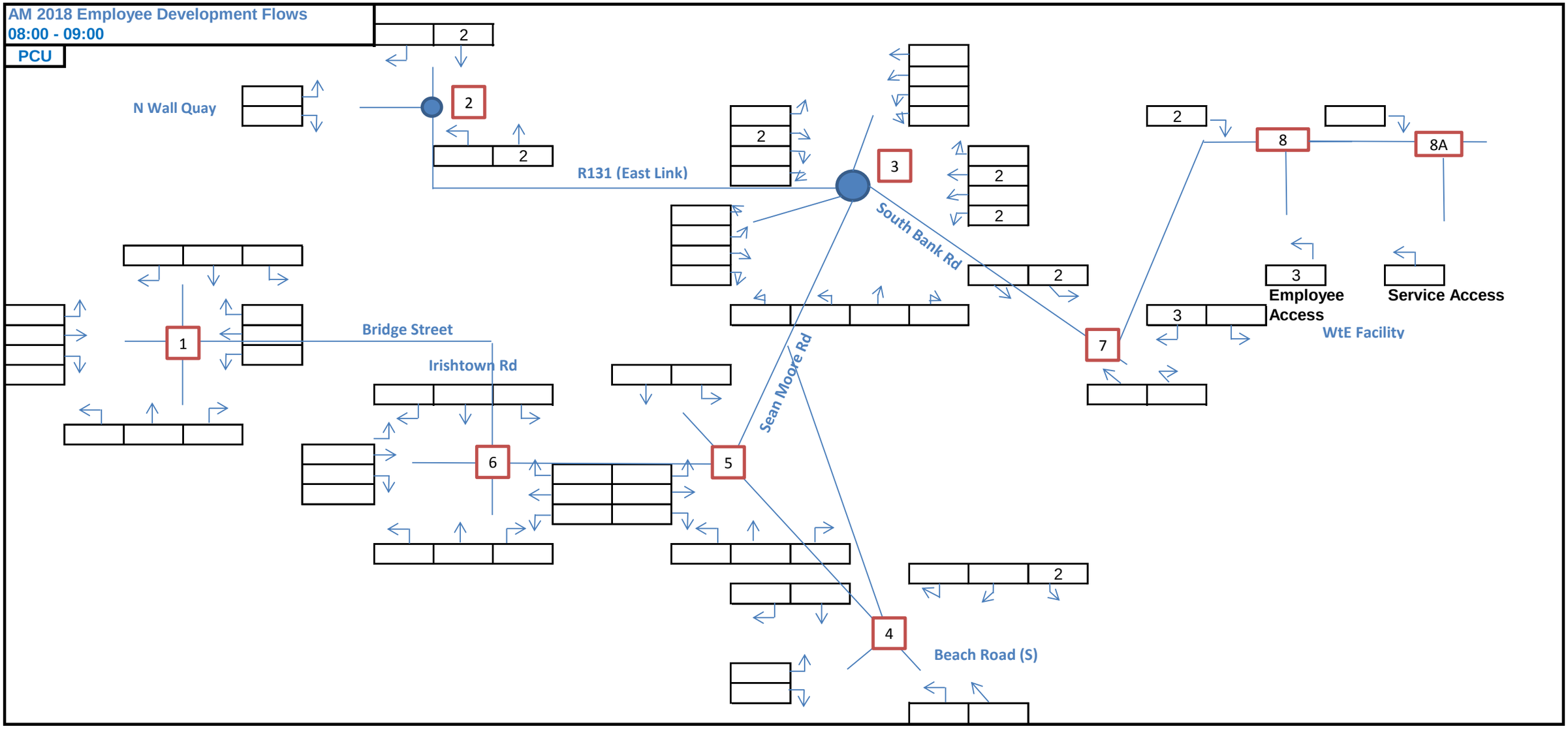
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South Bank Rd
Bridge Street
Irishtown Rd
Sean Moore Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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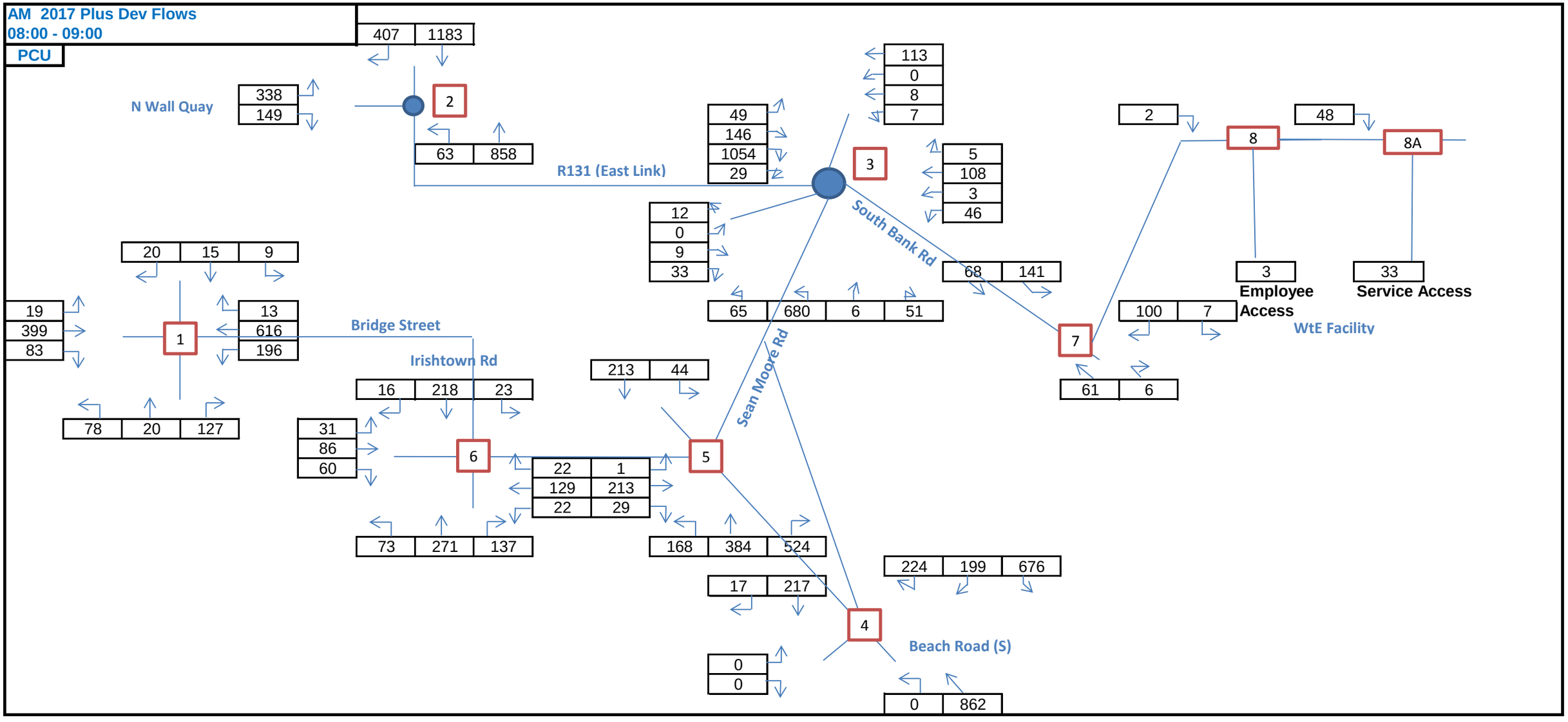
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South Bank Rd
Bridge Street
Irishtown Rd
Sean Moore Rd
Beach Road (S)
Employee Access
Service Access
WtE Facility
407
1183
338
149
2
63
858
49
146
1054
29
3
113
0
8
7
5
108
3
46
12
0
9
33
65
680
6
51
68
141
2
8
48
8A
3
33
100
7
20
15
9
19
399
83
1
13
616
196
78
20
127
213
44
16
218
23
31
86
60
6
22
1
129
213
22
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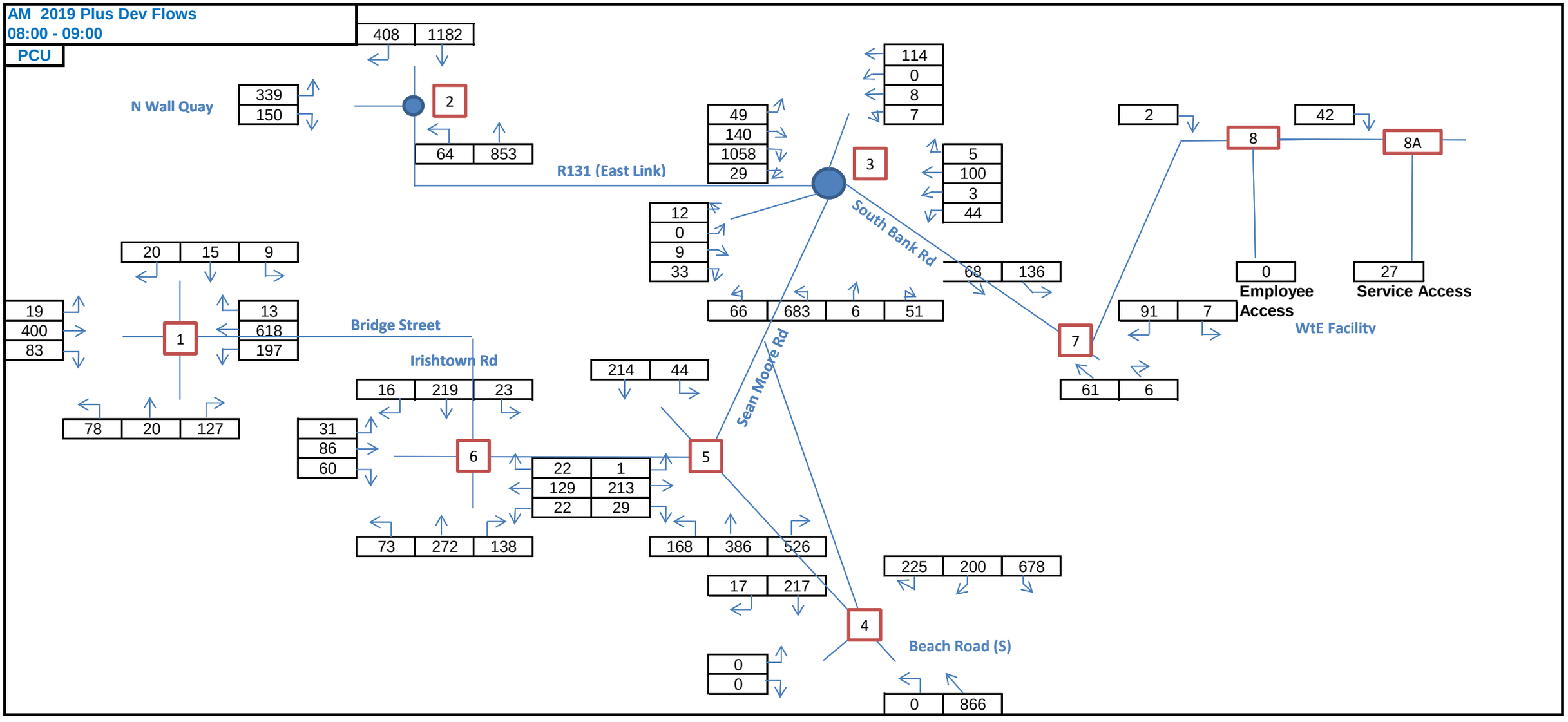
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150
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853
R131 (East Link)
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1058
29
114
0
8
7
3
5
100
3
44
South Bank Rd
12
0
9
33
68
136
66
683
6
51
2
8
42
8A
0
Employee Access
27
Service Access
91
7
WtE Facility
20
15
9
19
400
83
1
13
618
197
Bridge Street
Irishtown Rd
78
20
127
214
44
Sean Moore Rd
7
61
6
16
219
23
31
86
60
6
22
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129
213
22
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225
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217
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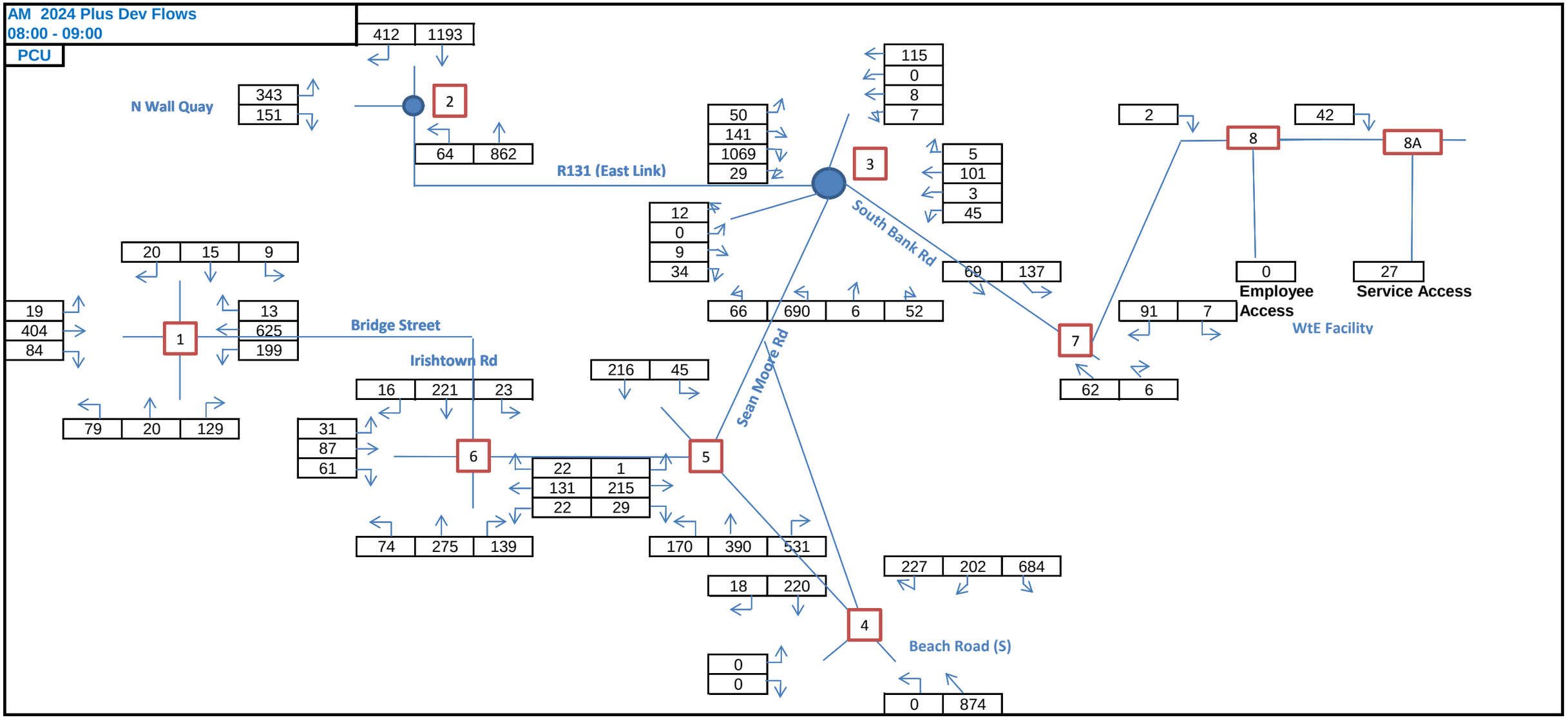
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1193
N Wall Quay
343
151
2
64
862
R131 (East Link)
50
141
1069
29
3
115
0
8
7
5
101
3
45
South Bank Rd
12
0
9
34
69
137
66
690
6
52
2
8
42
8A
0
Employee Access
27
Service Access
91
7
WtE Facility
7
62
6
20
15
9
19
404
84
1
13
625
199
Bridge Street
Irishtown Rd
79
20
129
216
45
Sean Moore Rd
16
221
23
31
87
61
6
22
1
131
215
22
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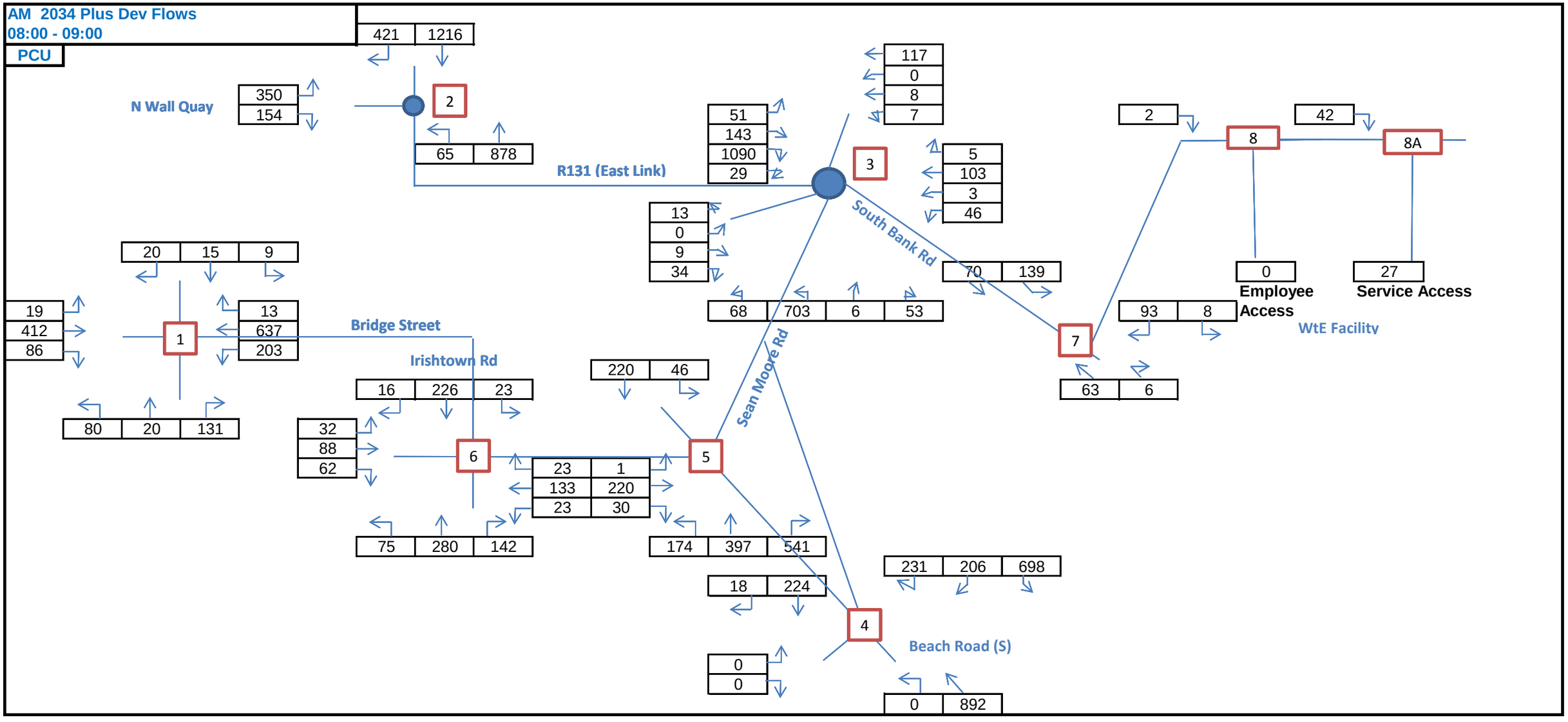
0
874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08:00 - 09:00
PCU
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R131 (East Link)
South Bank Rd
Bridge Street
Irishtown Rd
Sean Moore Rd
Beach Road (S)
Employee Access
Service Access
WtE Facility
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4
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6
7
8
8A
421
1216
350
154
65
878
117
0
8
7
51
143
1090
29
5
103
3
46
13
0
9
34
2
42
0
27
20
15
9
19
412
86
13
637
203
80
20
131
68
703
6
53
70
139
93
8
63
6
220
46
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226
23
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88
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23
1
133
220
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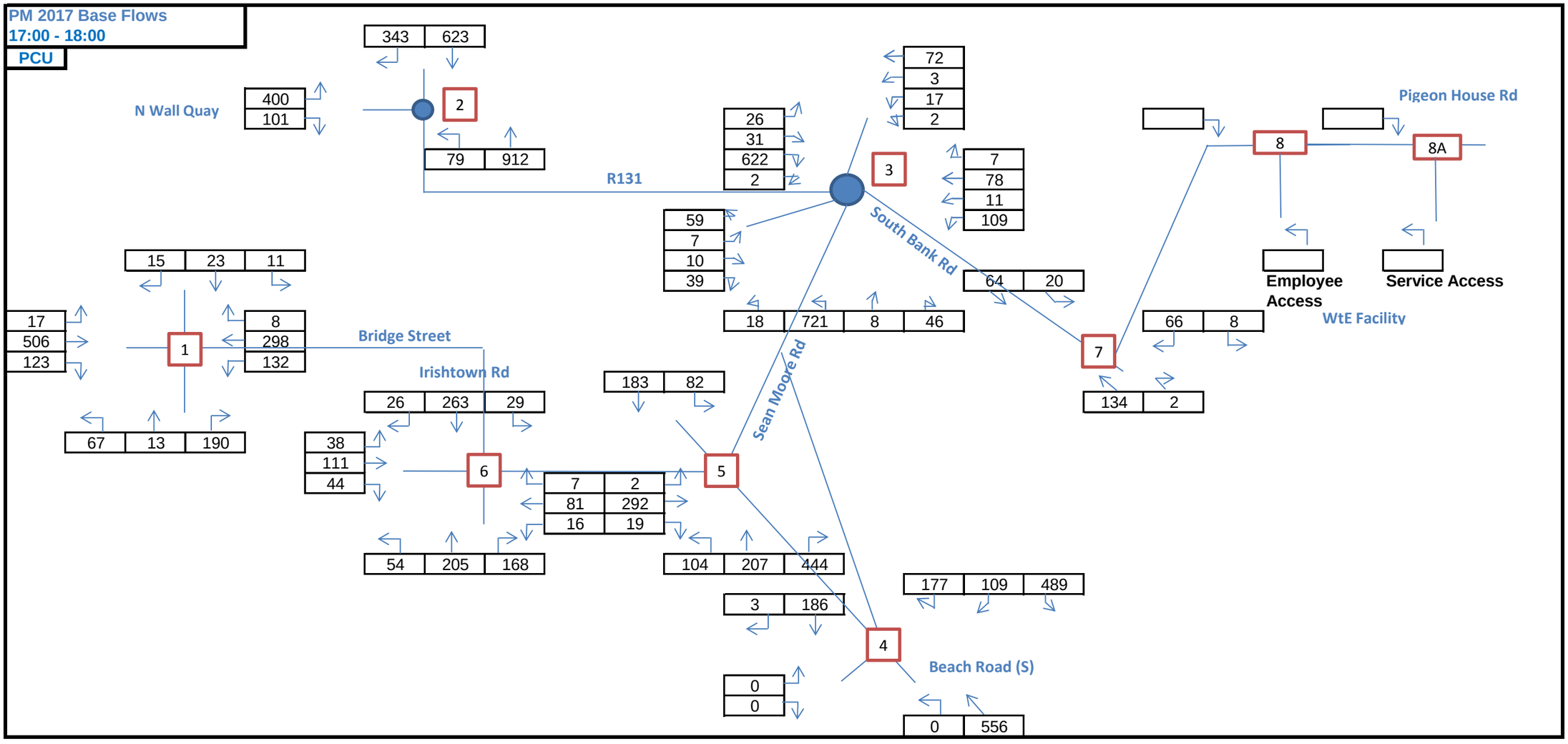
Appendix G PM Peak Traffic Flow Diagrams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17:00 - 18:00
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R131
Bridge Street
Irishtown Rd
South Bank Rd
Sean Moore Rd
Pigeon House Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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6
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8
8A
343 623
400 101
79 912
72 3 17 2
26 31 622 2
59 7 10 39
7 78 11 109
64 20
18 721 8 46
15 23 11
17 506 123
8 298 132
67 13 190
26 263 29
38 111 44
183 82
7 2 81 292 16 19
54 205 168
104 207 444
3 186
0 0
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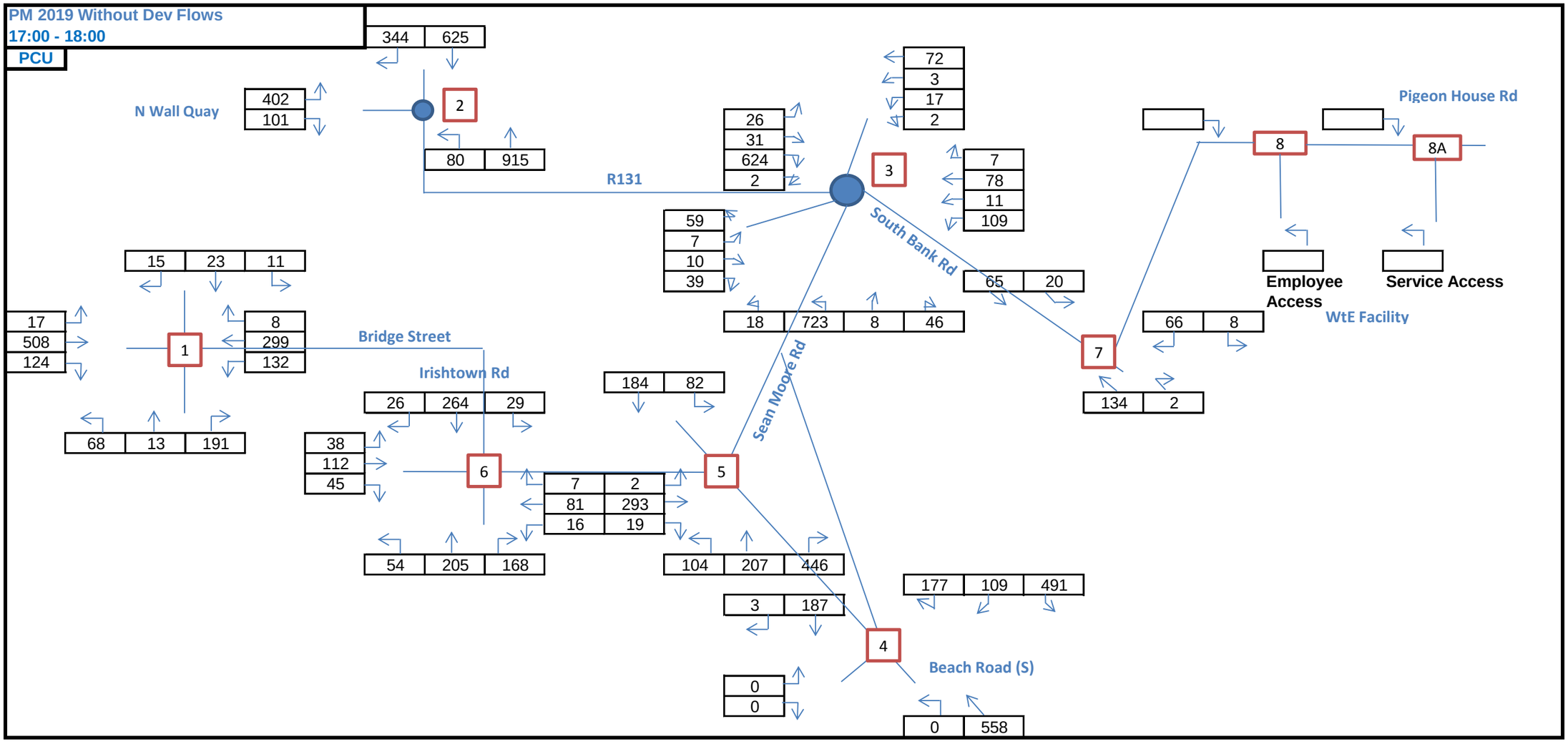
0 556
66 8
134 2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625
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402
101
2
80
915
R131
26
31
624
2
72
3
17
2
3
7
78
11
109
59
7
10
39
South Bank Rd
65
20
Pigeon House Rd
8
8A
Employee Access
Service Access
WtE Facility
66
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15
23
11
17
508
124
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299
132
Bridge Street
Irishtown Rd
68
13
191
26
264
29
184
82
Sean Moore Rd
18
723
8
46
7
134
2
38
112
45
6
5
7
2
81
293
16
19
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207
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187
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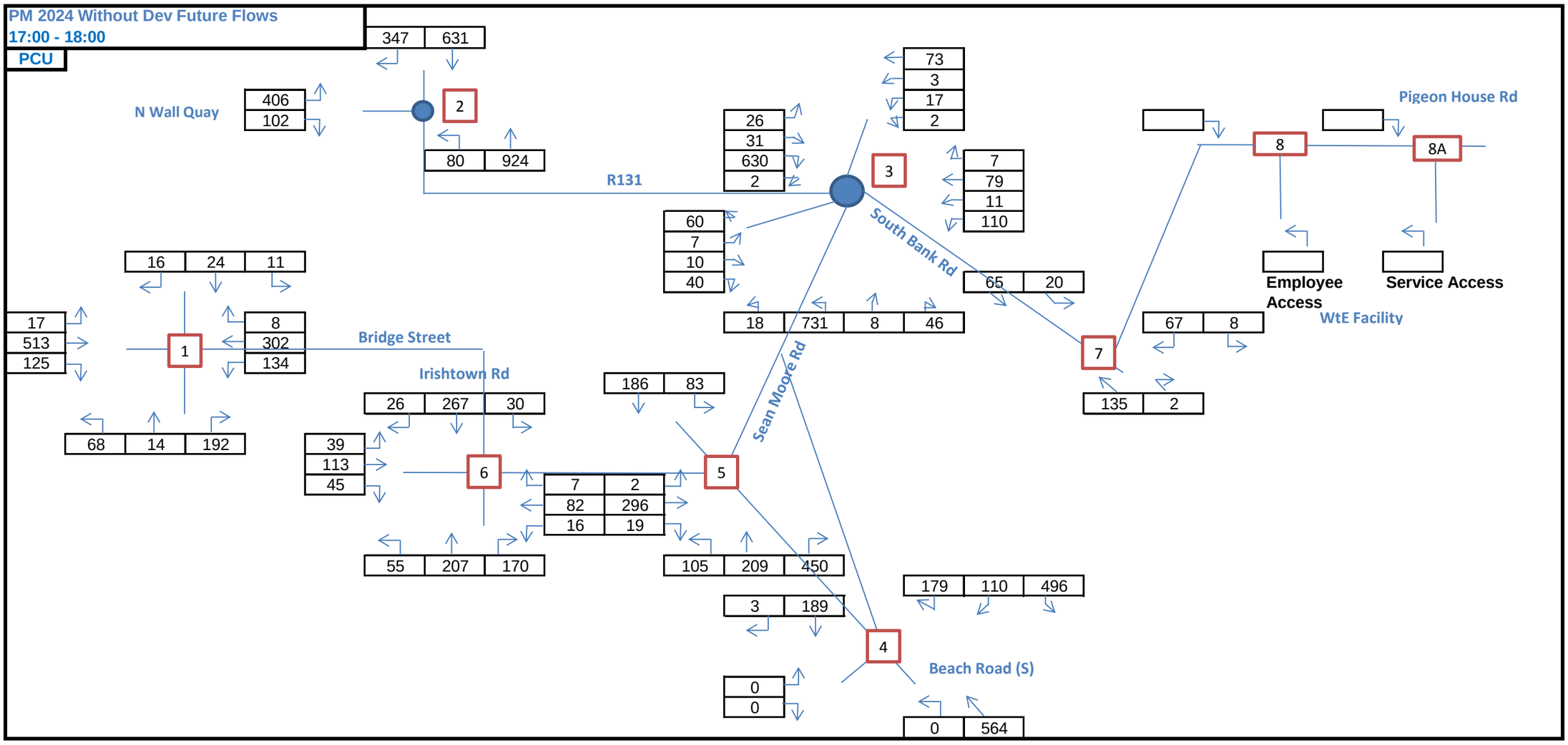
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R131
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South Bank Rd
Sean Moore Rd
Pigeon House Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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8A
347 631
406 102
80 924
73 3 17 2
26 31 630 2
7 79 11 110
60 7 10 40
65 20
18 731 8 46
16 24 11
17 513 125
8 302 134
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186 83
7 2 82 296 16 19
55 207 170
105 209 450
3 189
0 0
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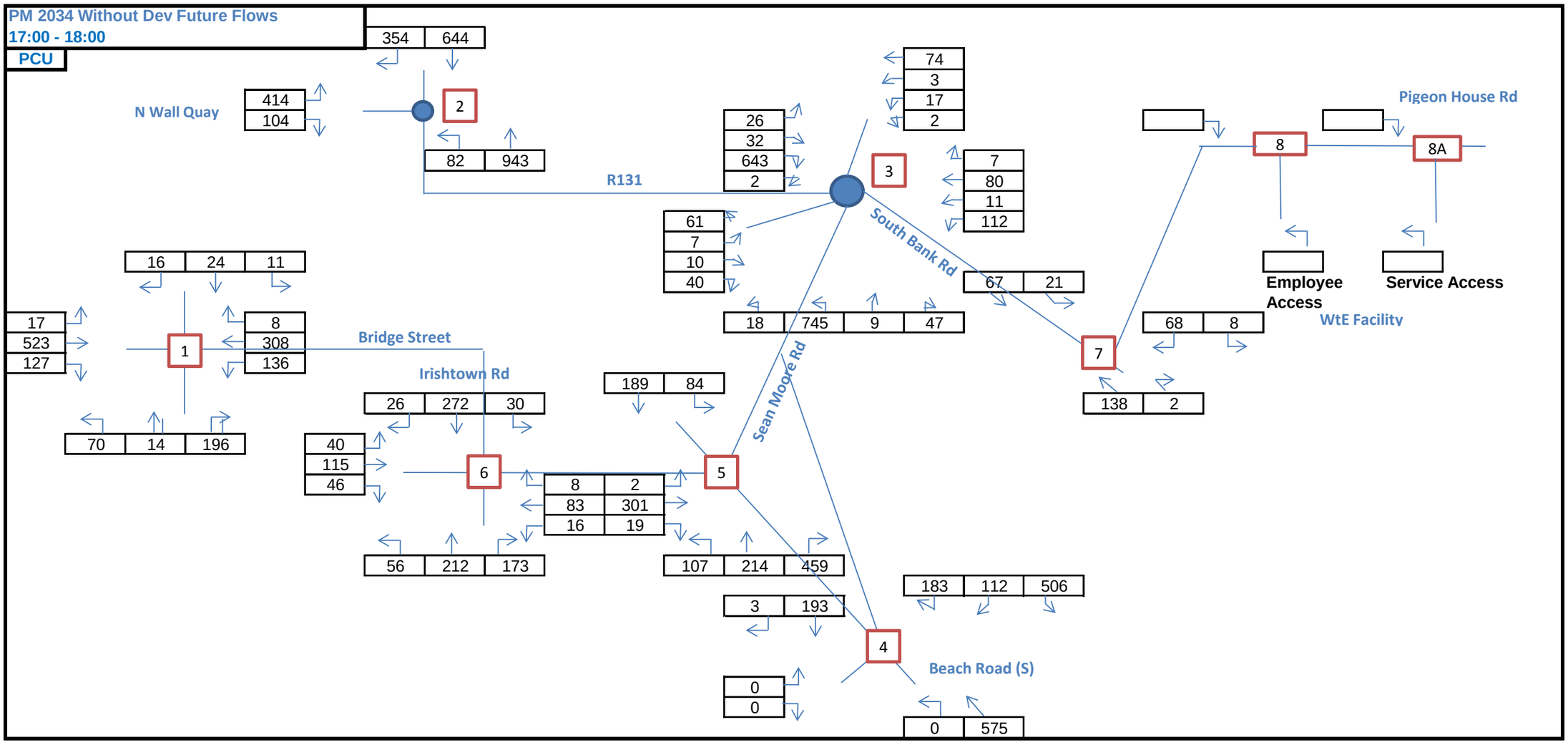
0 564
67 8
135 2


PM 2034 Without Dev Future Flows
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R131
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Bridge Street
Irishtown Rd
Sean Moore Rd
Pigeon House Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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7
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8A
354 644
414 104
82 943
74 3 17 2
26 32 643 2
7 80 11 112
61 7 10 40
67 21
18 745 9 47
16 24 11
17 523 127
8 308 136
70 14 196
26 272 30
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40 115 46
8 2 83 301 16 19
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0 575
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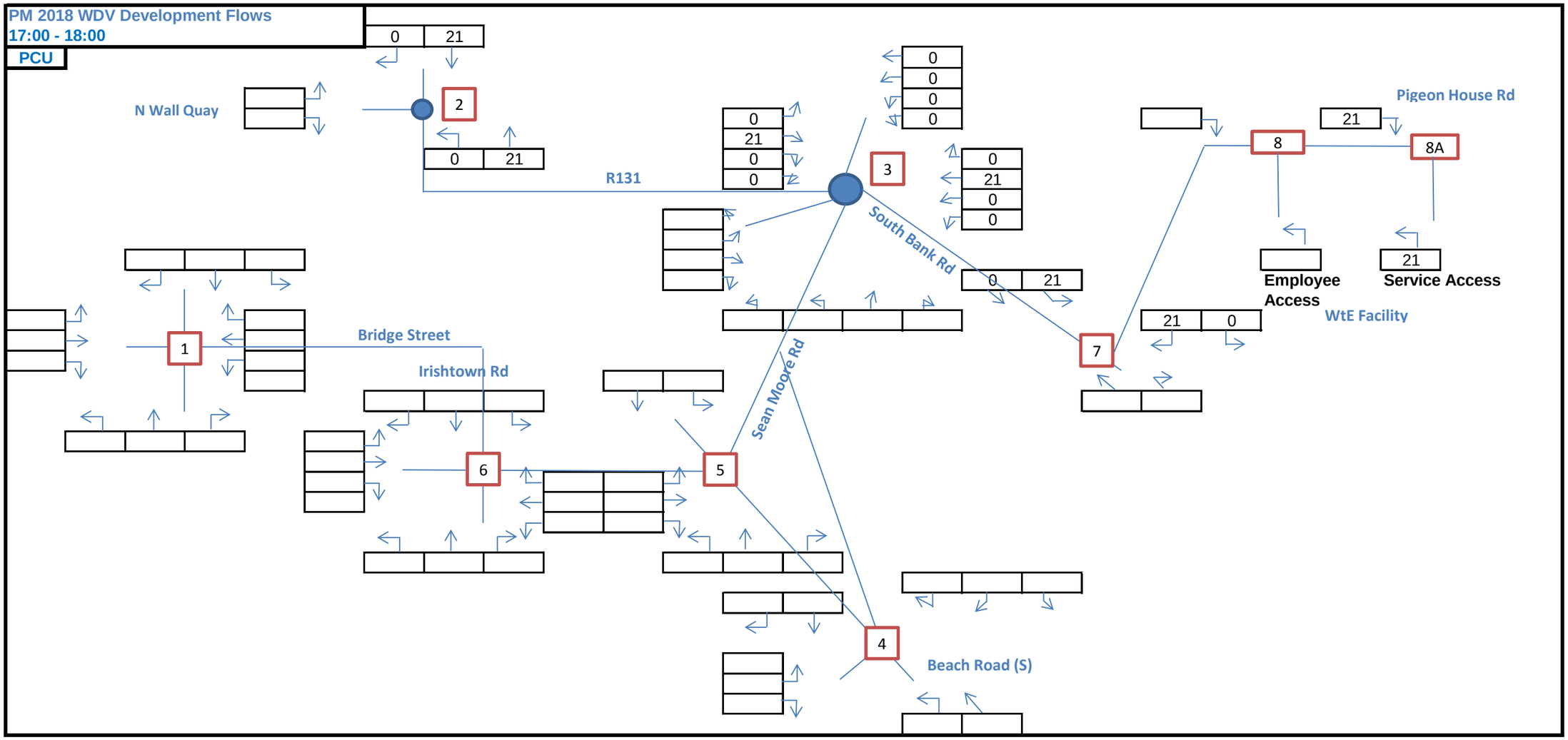
138 2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Irishtown Rd
South Bank Rd
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Service Access
WtE Facility
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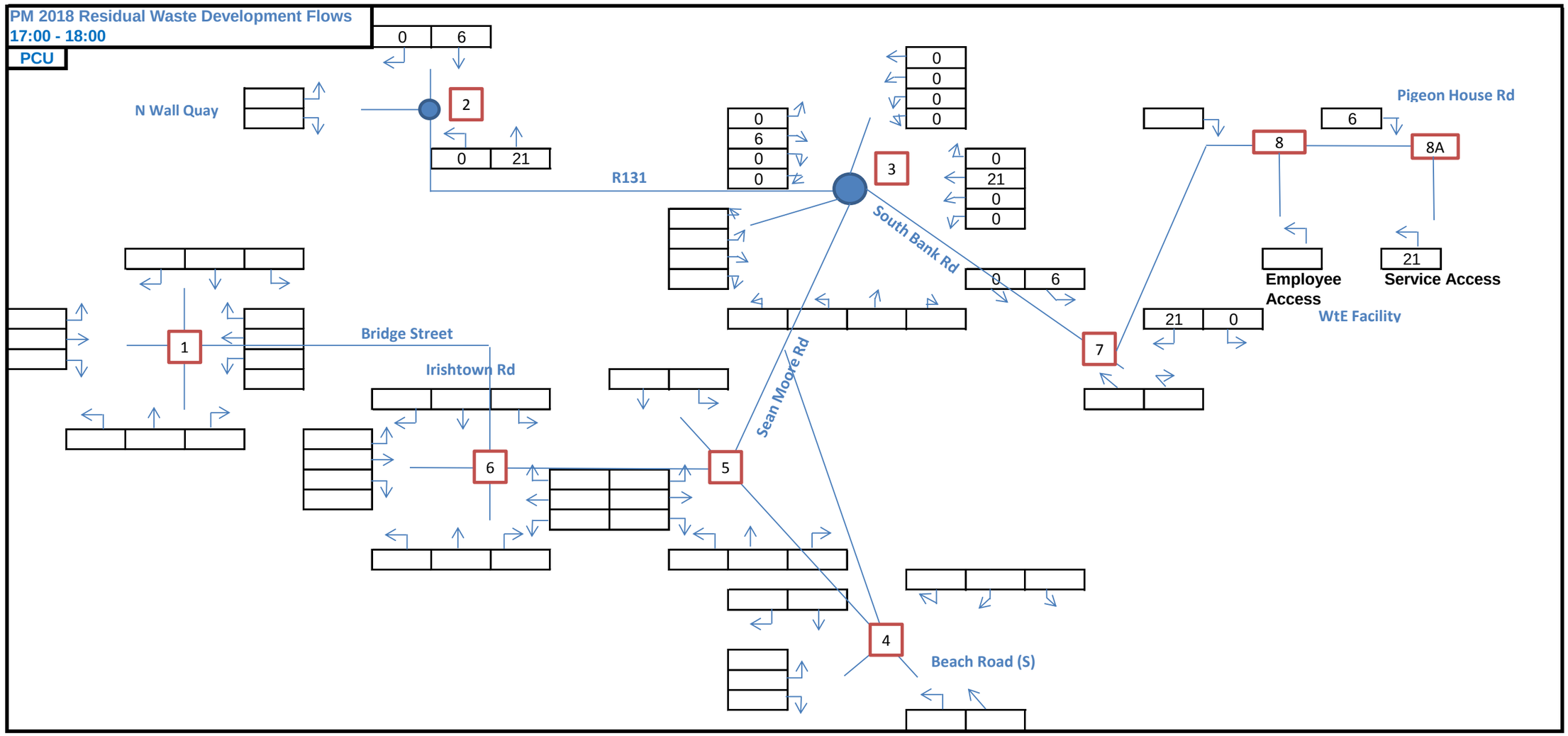
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South Bank Rd
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Service Access
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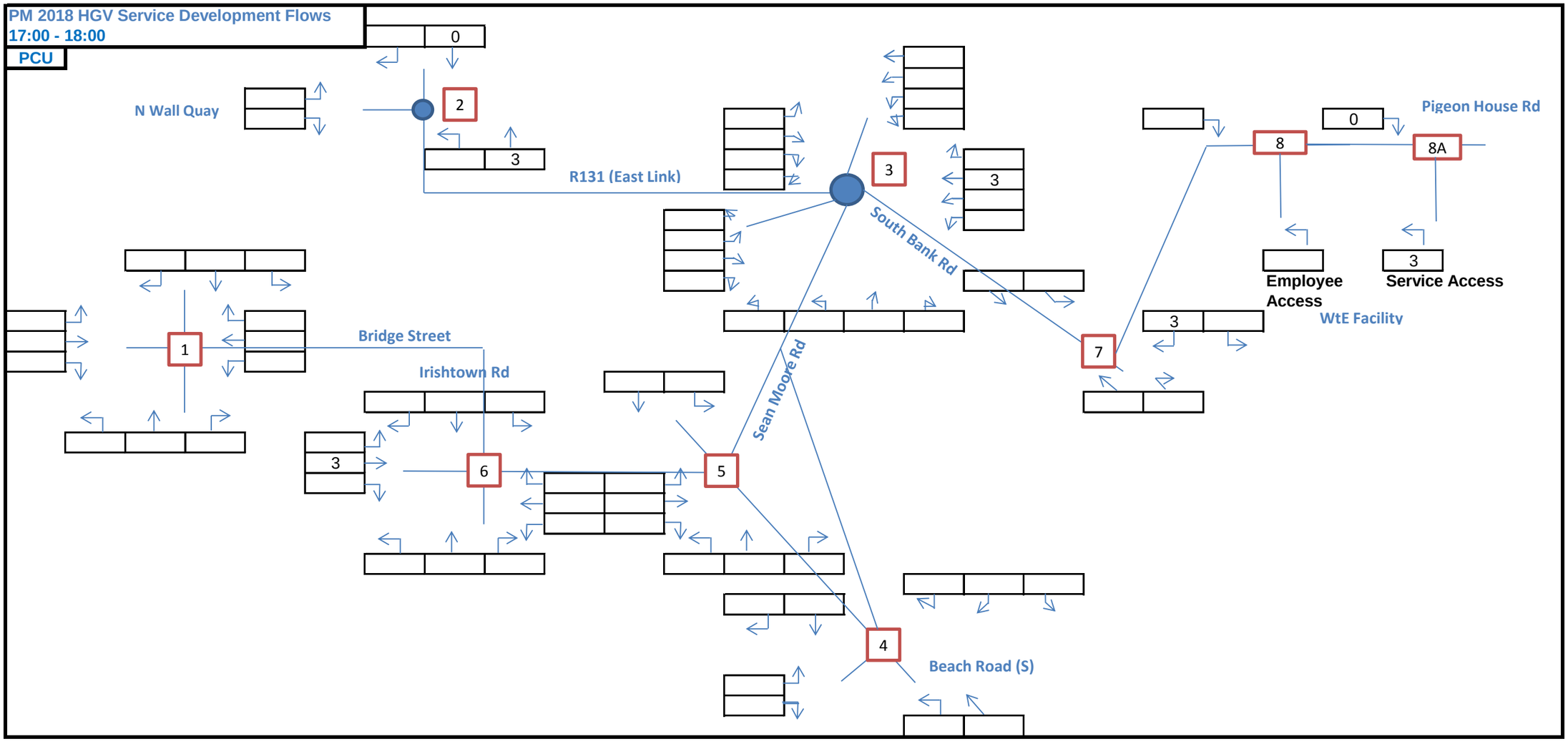
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Pigeon House Rd
Employee Access
Service Access
WtE Facility
Bridge Street
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Sean Moore Rd
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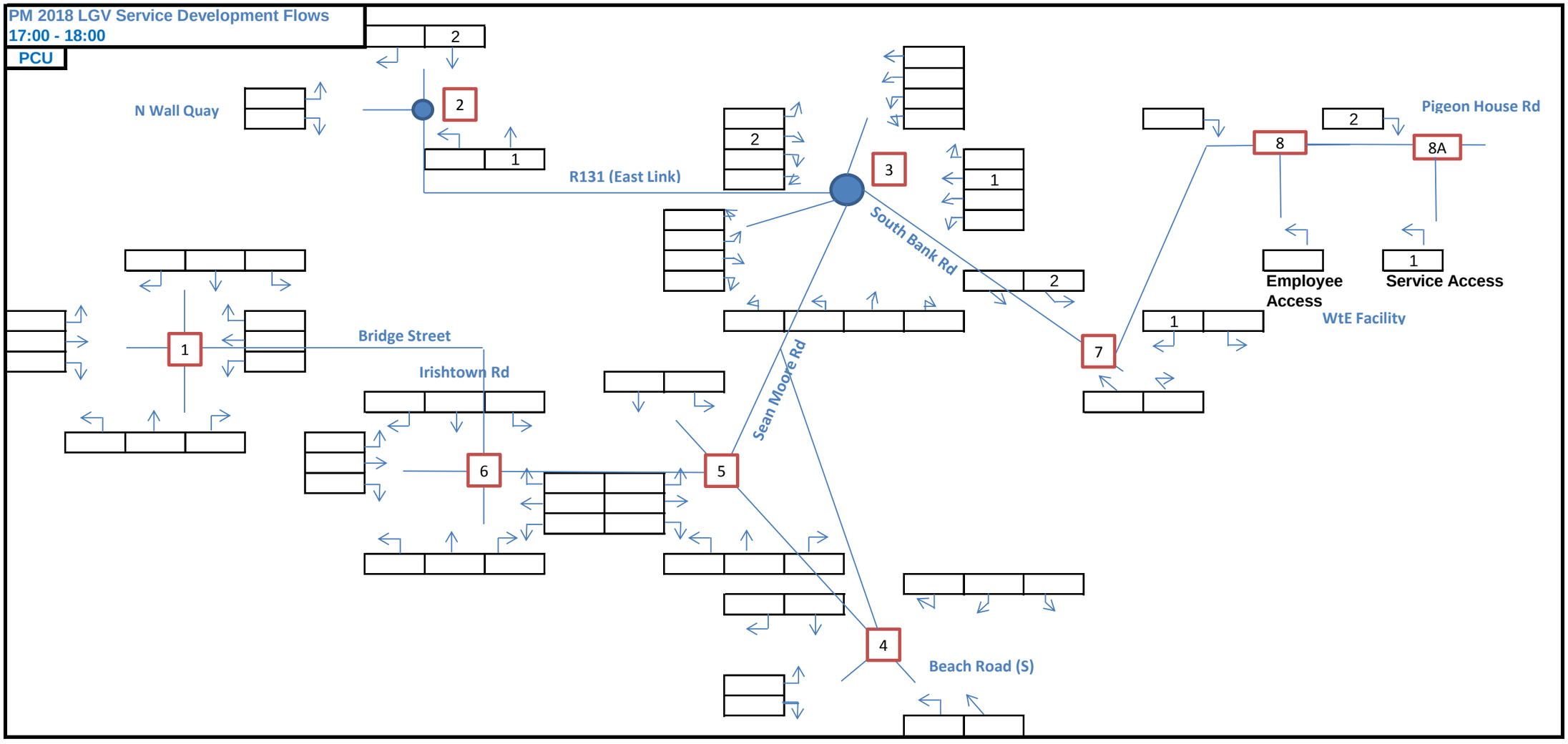
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South Bank Rd
Pigeon House Rd
Employee Access
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WtE Facility
Bridge Street
Irishtown Rd
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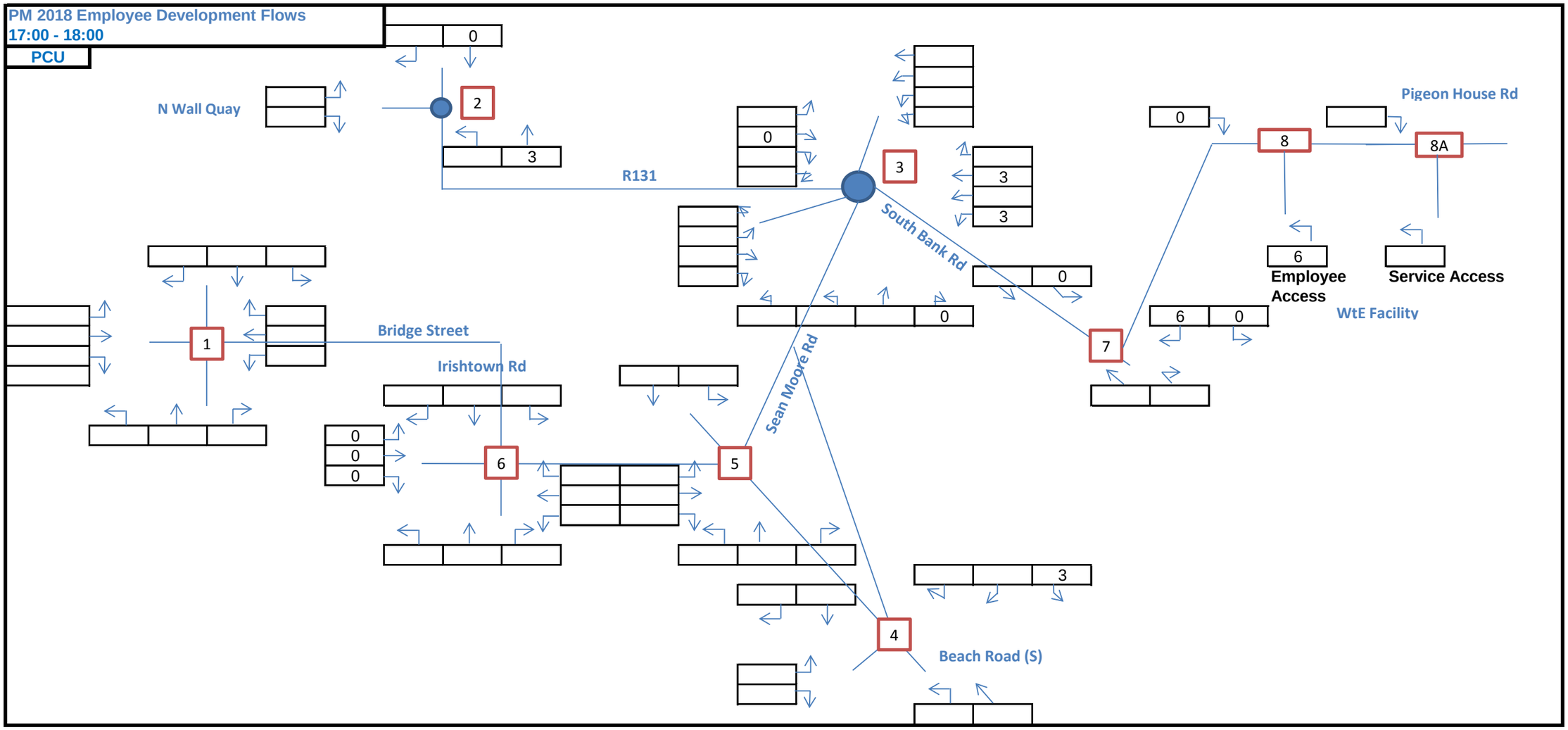
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Pigeon House Rd
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Service Access
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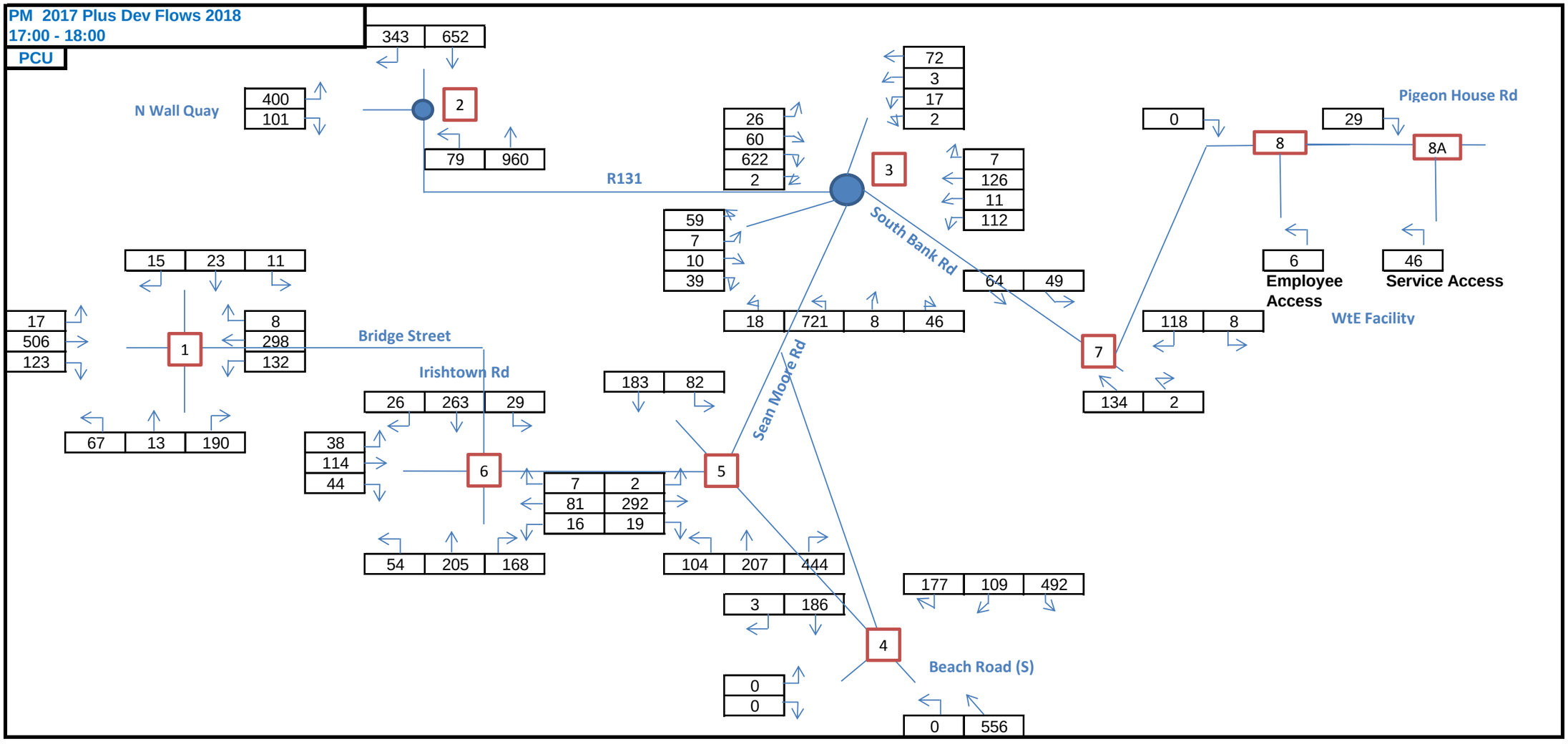
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Bridge Street
Irishtown Rd
South Bank Rd
Sean Moore Rd
Pigeon House Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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343 652
400 101
79 960
26 60 622 2
72 3 17 2
7 126 11 112
59 7 10 39
64 49
18 721 8 46
15 23 11
17 506 123
8 298 132
67 13 190
26 263 29
38 114 44
7 2 81 292 16 19
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183 82
104 207 444
3 186
0 0
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0 556
118 8
134 2
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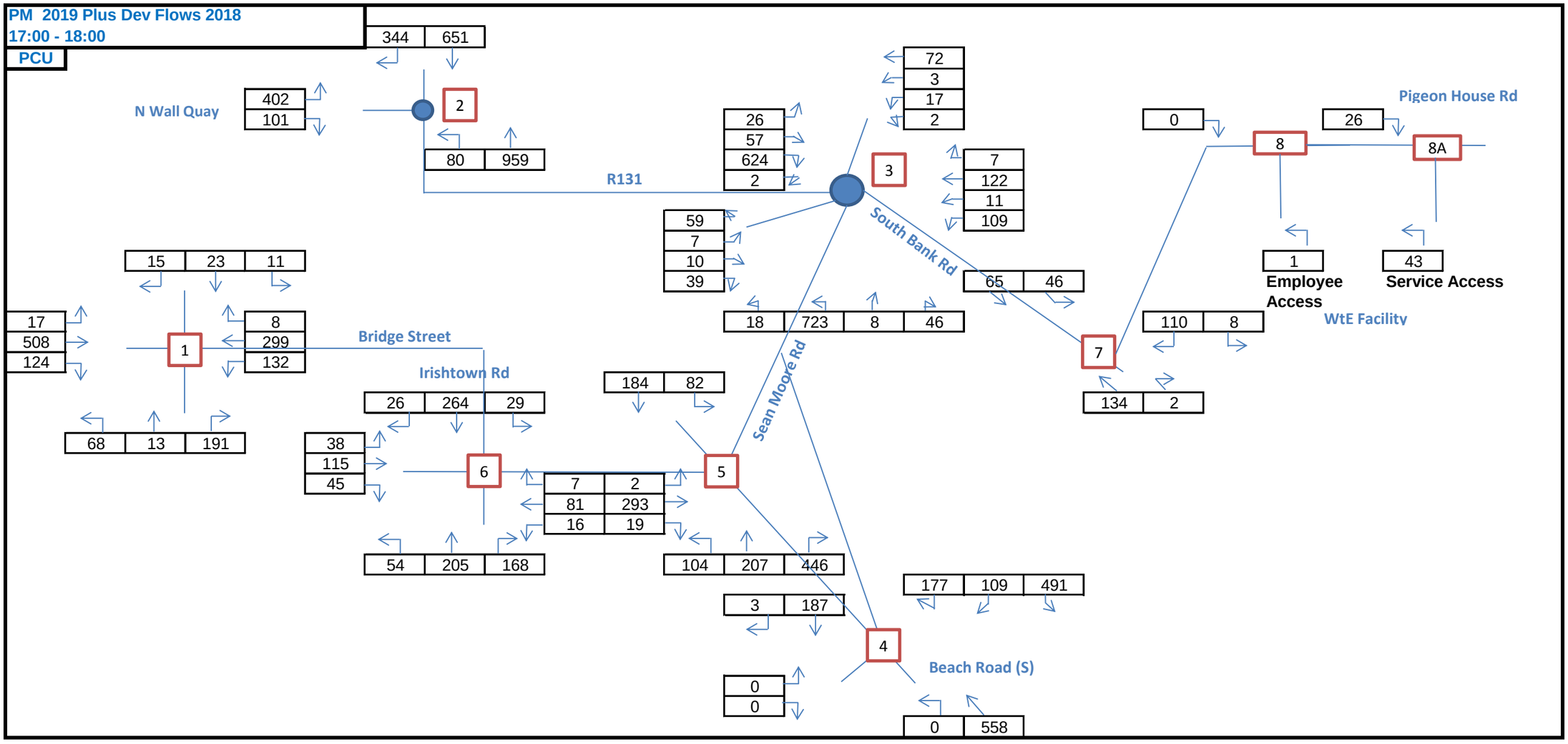
46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72
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122
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109
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46
18
723
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Pigeon House Rd
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26
8A
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Employee Access
43
Service Access
WtE Facility
110
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134
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132
Bridge Street
Irishtown Rd
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264
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184
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Sean Moore Rd
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293
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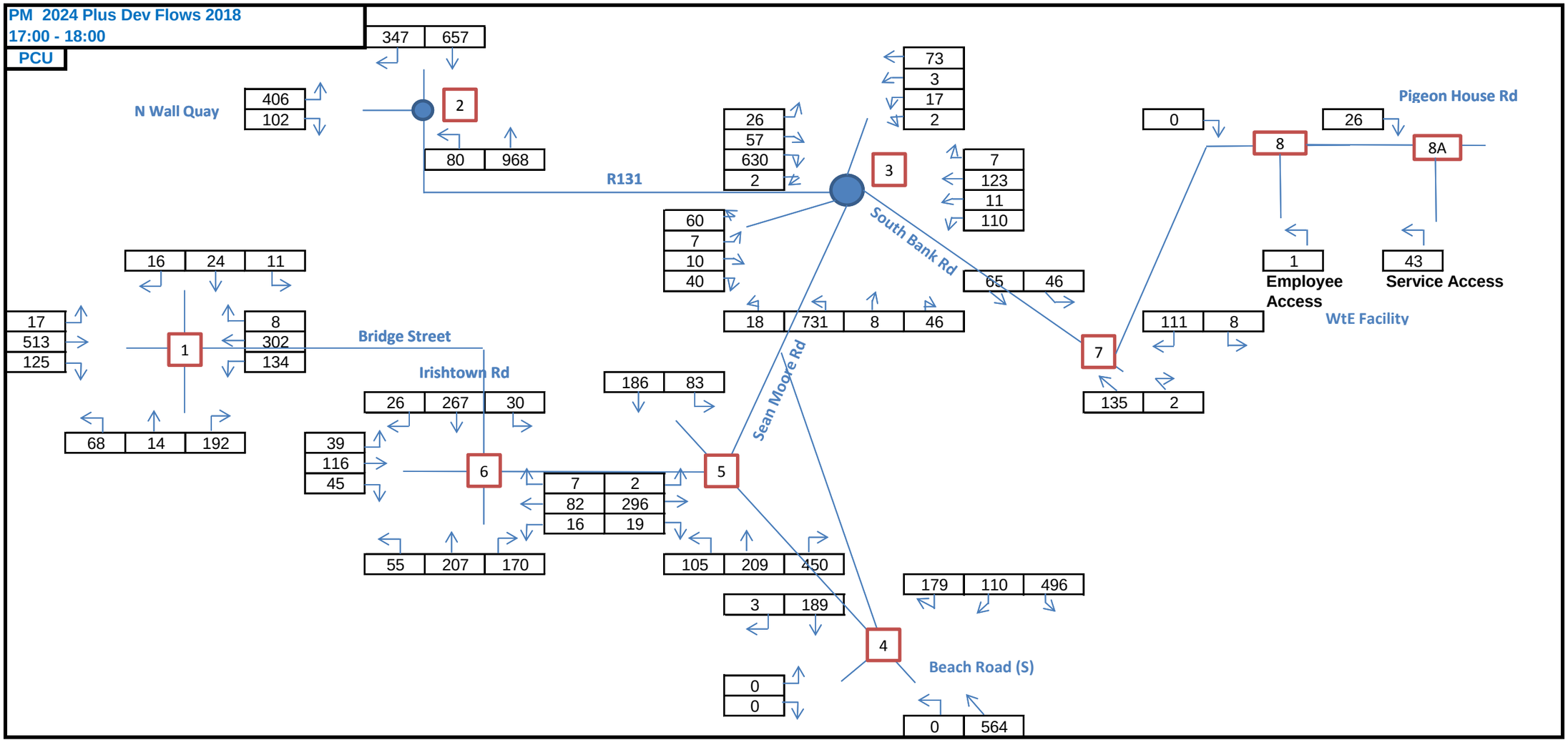
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Pigeon House Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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347 657
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80 968
73 3 17 2
26 57 630 2
7 123 11 110
60 7 10 40
18 731 8 46
65 46
0 26
1 43
111 8
135 2
16 24 11
17 513 125
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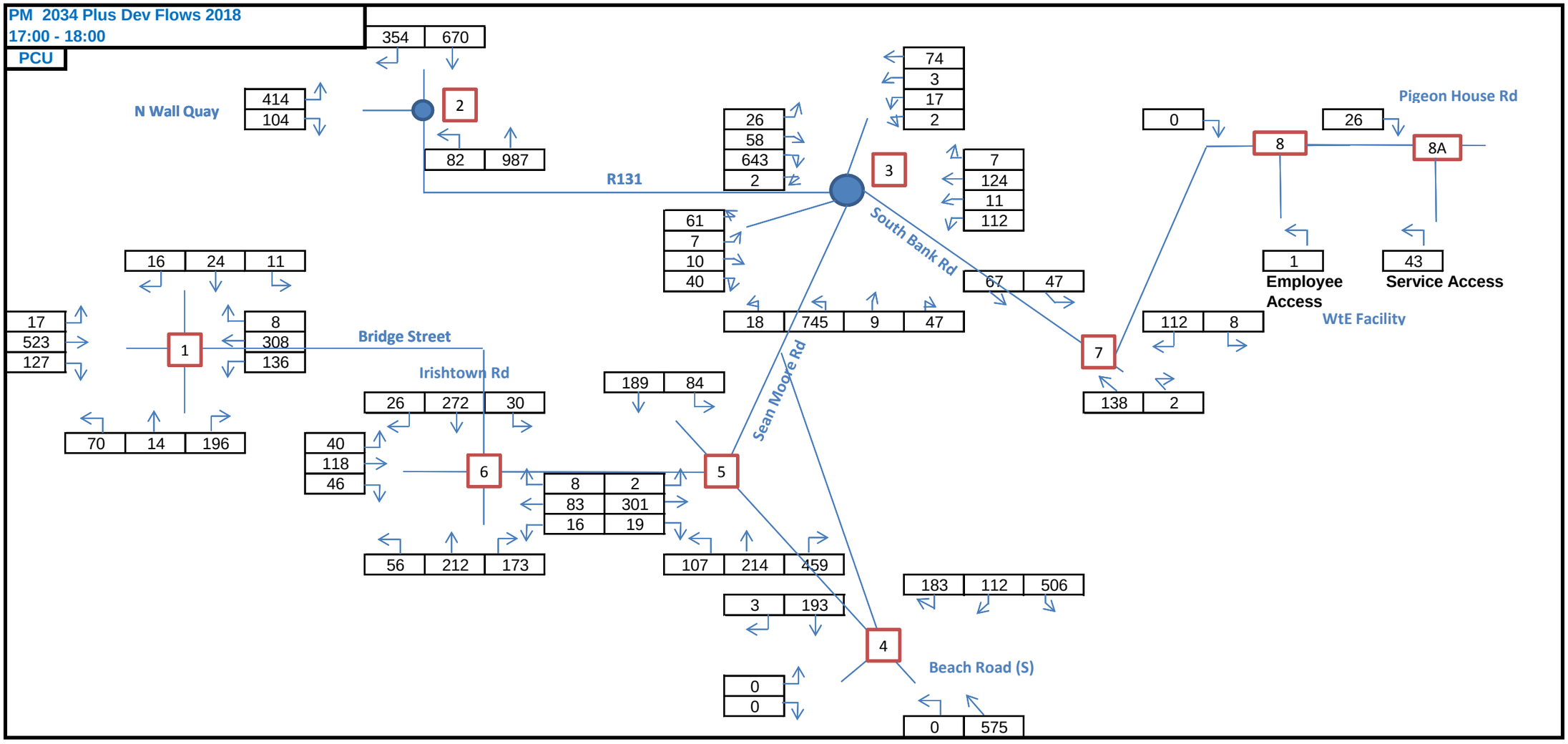
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17:00 - 18:00
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Bridge Street
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South Bank Rd
Sean Moore Rd
Pigeon House Rd
Employee Access
Service Access
WtE Facility
Beach Road (S)
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8A

Appendix H PICADY Analysis

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

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«2018, AM
»Junction Network
»Arms
»Traffic Demand
»Origin-Destination Data
»Vehicle Mix
»Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2018			
Stream B-C	0.0	5.63	0.01	A
Stream B-A	0.2	8.33	0.19	A
Stream C-AB	0.0	5.88	0.01	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/4/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\manniona
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018	AM	ONE HOUR	08:00	09:30	15	✓

2018, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	South Bank Road / White Bank Road	T-Junction	Two-way	2.27	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	South Bank Road (West)		Major
B	White Bank Road		Minor
C	South Bank Road (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			90.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes	3.50	3.50	90	90

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	580	0.101	0.255	0.161	0.365
1	B-C	715	0.105	0.265	-	-
1	C-B	626	0.232	0.232	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	204	100.000
B		ONE HOUR	✓	98	100.000
C		ONE HOUR	✓	67	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	136	68
	B	91	0	7
	C	61	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	5.63	0.0	A	6	10
B-A	0.19	8.33	0.2	A	84	125
C-AB	0.01	5.88	0.0	A	6	9
C-A					55	83
A-B					125	187
A-C					62	94

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	5	1	669	0.008	5	0.0	0.0	5.425	A
B-A	69	17	547	0.125	68	0.0	0.1	7.503	A
C-AB	5	1	621	0.008	5	0.0	0.0	5.839	A
C-A	46	11			46				
A-B	102	26			102				
A-C	51	13			51				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	6	2	660	0.010	6	0.0	0.0	5.510	A
B-A	82	20	541	0.151	82	0.1	0.2	7.833	A
C-AB	6	1	621	0.010	6	0.0	0.0	5.856	A
C-A	54	14			54				
A-B	122	31			122				
A-C	61	15			61				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	8	2	647	0.012	8	0.0	0.0	5.630	A
B-A	100	25	532	0.188	100	0.2	0.2	8.321	A
C-AB	7	2	620	0.012	7	0.0	0.0	5.878	A
C-A	66	17			66				
A-B	150	37			150				
A-C	75	19			75				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	8	2	647	0.012	8	0.0	0.0	5.631	A
B-A	100	25	532	0.188	100	0.2	0.2	8.329	A
C-AB	7	2	620	0.012	7	0.0	0.0	5.881	A

C-A	66	17			66				
A-B	150	37			150				
A-C	75	19			75				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	6	2	659	0.010	6	0.0	0.0	5.513	A
B-A	82	20	541	0.151	82	0.2	0.2	7.845	A
C-AB	6	1	621	0.010	6	0.0	0.0	5.856	A
C-A	54	14			54				
A-B	122	31			122				
A-C	61	15			61				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	5	1	669	0.008	5	0.0	0.0	5.427	A
B-A	69	17	547	0.125	69	0.2	0.1	7.524	A
C-AB	5	1	621	0.008	5	0.0	0.0	5.841	A
C-A	46	11			46				
A-B	102	26			102				
A-C	51	13			51				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: AM 2024 with Dev.j9
Path: F:\Admin\Admin_General_Dub\000_Projects\Covanta TA\Report\TA Aug 18\Junction Analysis\South Bank Junction
Report generation date: 12/4/2018 5:06:58 PM

«2018, AM
»Junction Network
»Arms
»Traffic Demand
»Origin-Destination Data
»Vehicle Mix
»Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2018			
Stream B-C	0.0	5.63	0.01	A
Stream B-A	0.2	8.34	0.19	A
Stream C-AB	0.0	5.88	0.01	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

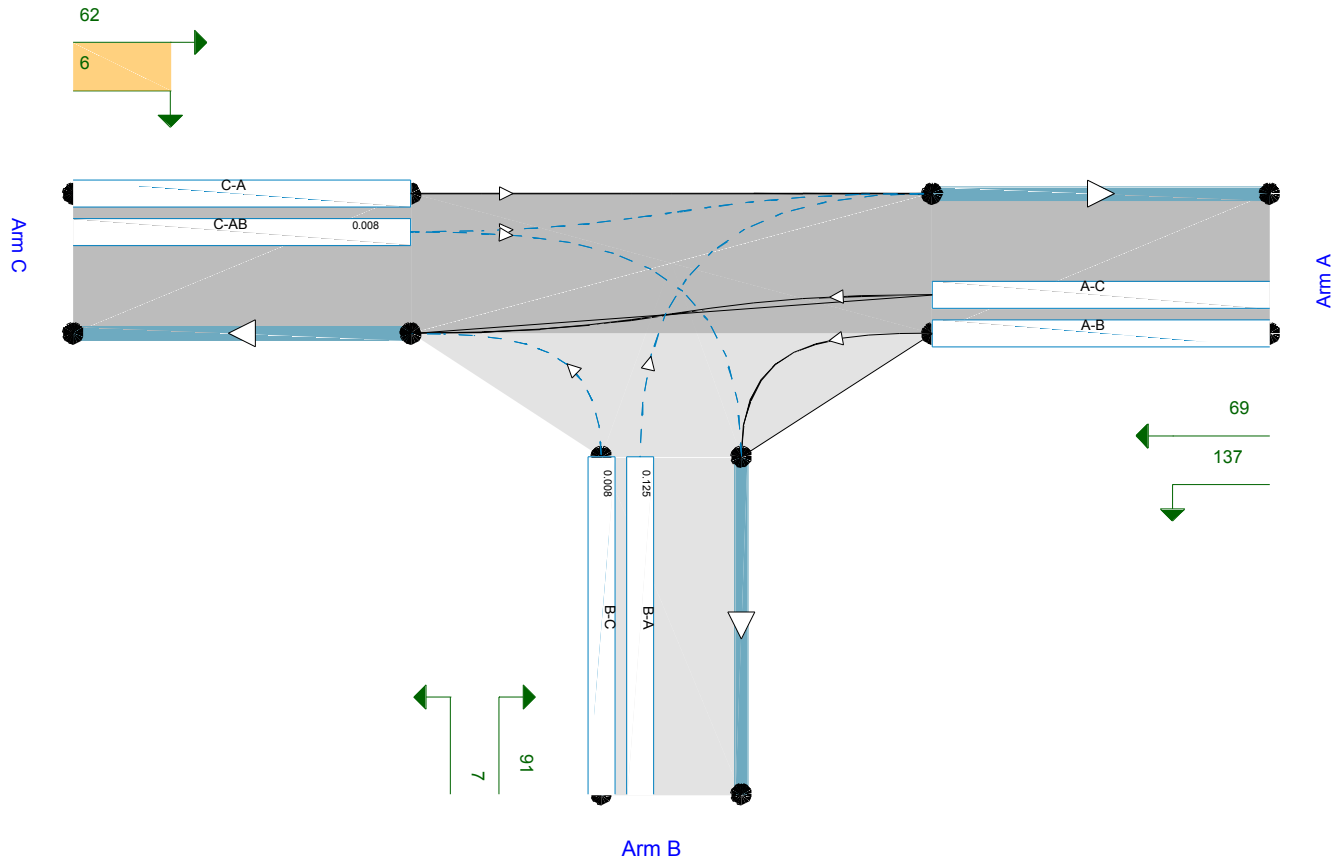
File Description

Title	(untitled)
Location	
Site number	
Date	12/4/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\manniona

Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



Flows show original traffic demand (PCU/hr).

Streams (downstream end) show RFC ()

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018	AM	ONE HOUR	08:00	09:30	15	✓

2018, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	South Bank Road / White Bank Road	T-Junction	Two-way	2.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	South Bank Road (West)		Major
B	White Bank Road		Minor
C	South Bank Road (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			90.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes	3.50	3.50	90	90

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	580	0.101	0.255	0.161	0.365
1	B-C	715	0.105	0.265	-	-
1	C-B	626	0.232	0.232	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	206	100.000
B		ONE HOUR	✓	98	100.000
C		ONE HOUR	✓	68	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	137	69
	B	91	0	7
	C	62	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	5.63	0.0	A	6	10
B-A	0.19	8.34	0.2	A	84	125
C-AB	0.01	5.88	0.0	A	6	9
C-A					56	84
A-B					126	189
A-C					63	95

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	5	1	668	0.008	5	0.0	0.0	5.427	A
B-A	69	17	547	0.125	68	0.0	0.1	7.509	A
C-AB	5	1	621	0.008	5	0.0	0.0	5.837	A
C-A	46	12			46				
A-B	103	26			103				
A-C	52	13			52				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	6	2	659	0.010	6	0.0	0.0	5.513	A
B-A	82	20	541	0.151	82	0.1	0.2	7.841	A
C-AB	6	1	621	0.010	6	0.0	0.0	5.854	A
C-A	55	14			55				
A-B	123	31			123				
A-C	62	16			62				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	8	2	647	0.012	8	0.0	0.0	5.634	A
B-A	100	25	532	0.188	100	0.2	0.2	8.332	A
C-AB	7	2	620	0.012	7	0.0	0.0	5.876	A
C-A	67	17			67				
A-B	151	38			151				
A-C	76	19			76				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	8	2	646	0.012	8	0.0	0.0	5.635	A
B-A	100	25	532	0.188	100	0.2	0.2	8.340	A
C-AB	7	2	620	0.012	7	0.0	0.0	5.876	A
C-A	67	17			67				
A-B	151	38			151				
A-C	76	19			76				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	6	2	659	0.010	6	0.0	0.0	5.516	A
B-A	82	20	541	0.151	82	0.2	0.2	7.853	A
C-AB	6	1	621	0.010	6	0.0	0.0	5.856	A
C-A	55	14			55				
A-B	123	31			123				
A-C	62	16			62				

09:15 - 09:30

Stream	Total Demand	Junction Arrivals	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS

	(PCU/hr)	(PCU)							
B-C	5	1	668	0.008	5	0.0	0.0	5.429	A
B-A	69	17	547	0.125	69	0.2	0.1	7.530	A
C-AB	5	1	621	0.008	5	0.0	0.0	5.840	A
C-A	46	12			46				
A-B	103	26			103				
A-C	52	13			52				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: AM 2034 with Dev.j9
Path: F:\Admin\Admin_General_Dub\000_Projects\Covanta TA\Report\TA Aug 18\Junction Analysis\South Bank Junction
Report generation date: 12/4/2018 5:09:05 PM

«2018, AM
»Junction Network
»Arms
»Traffic Demand
»Origin-Destination Data
»Vehicle Mix
»Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2018			
Stream B-C	0.0	5.66	0.01	A
Stream B-A	0.2	8.40	0.19	A
Stream C-AB	0.0	5.88	0.01	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

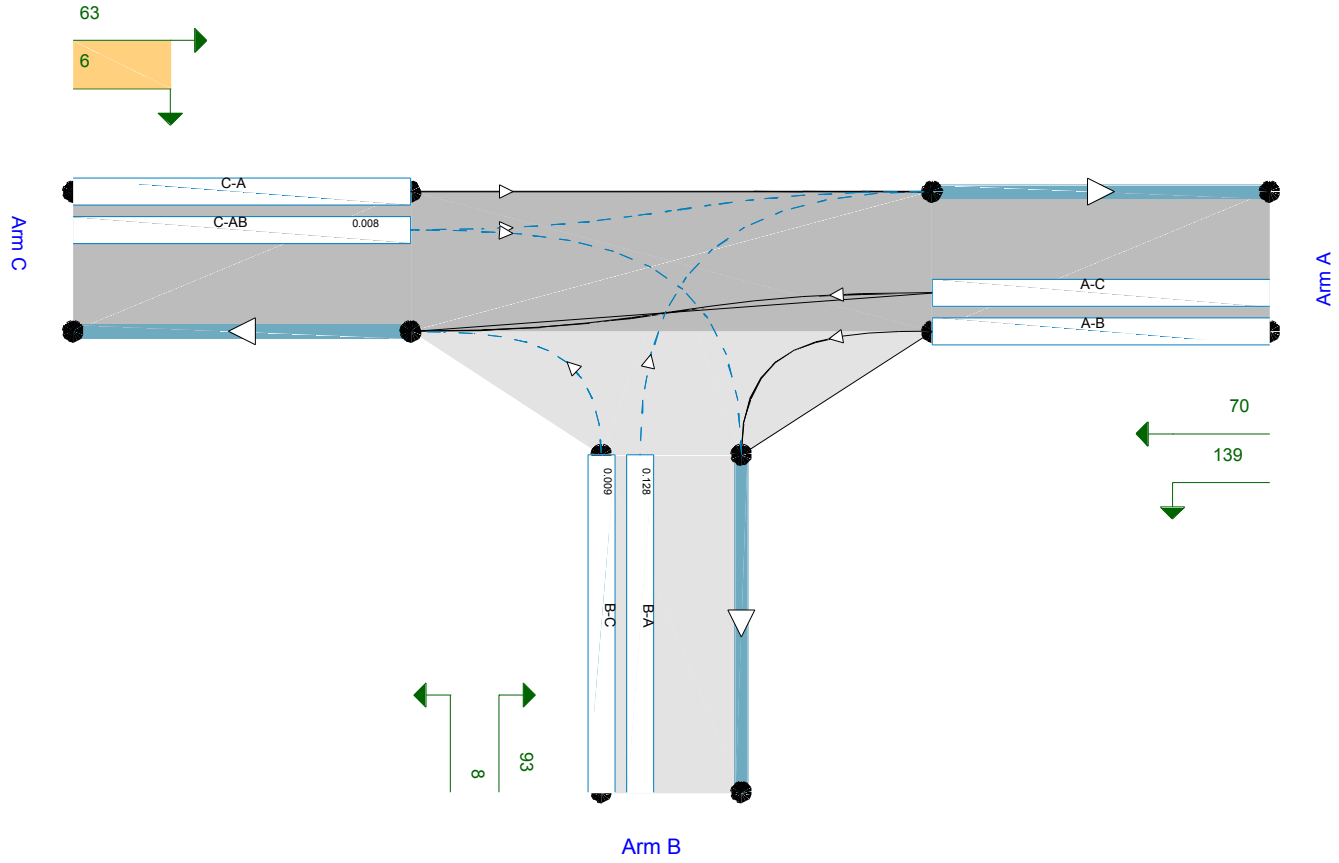
File Description

Title	(untitled)
Location	
Site number	
Date	12/4/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\manniona

Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



Flows show original traffic demand (PCU/hr).

Streams (downstream end) show RFC ()

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018	AM	ONE HOUR	08:00	09:30	15	✓

2018, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	South Bank Road / White Bank Road	T-Junction	Two-way	2.28	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	South Bank Road (West)		Major
B	White Bank Road		Minor
C	South Bank Road (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			90.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes	3.50	3.50	90	90

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	580	0.101	0.255	0.161	0.365
1	B-C	715	0.105	0.265	-	-
1	C-B	626	0.232	0.232	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	209	100.000
B		ONE HOUR	✓	101	100.000
C		ONE HOUR	✓	69	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	139	70
	B	93	0	8
	C	63	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	5.66	0.0	A	7	11
B-A	0.19	8.40	0.2	A	85	128
C-AB	0.01	5.88	0.0	A	6	9
C-A					57	86
A-B					128	191
A-C					64	96

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	6	2	668	0.009	6	0.0	0.0	5.440	A
B-A	70	18	547	0.128	69	0.0	0.1	7.536	A
C-AB	5	1	621	0.008	5	0.0	0.0	5.838	A
C-A	47	12			47				
A-B	105	26			105				
A-C	53	13			53				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	658	0.011	7	0.0	0.0	5.529	A
B-A	84	21	540	0.155	83	0.1	0.2	7.882	A
C-AB	6	1	621	0.010	6	0.0	0.0	5.854	A
C-A	56	14			56				
A-B	125	31			125				
A-C	63	16			63				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	9	2	645	0.014	9	0.0	0.0	5.655	A
B-A	102	26	531	0.193	102	0.2	0.2	8.388	A
C-AB	7	2	620	0.012	7	0.0	0.0	5.876	A
C-A	69	17			69				
A-B	153	38			153				
A-C	77	19			77				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	9	2	645	0.014	9	0.0	0.0	5.656	A
B-A	102	26	531	0.193	102	0.2	0.2	8.396	A
C-AB	7	2	620	0.012	7	0.0	0.0	5.876	A
C-A	69	17			69				
A-B	153	38			153				
A-C	77	19			77				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	658	0.011	7	0.0	0.0	5.532	A
B-A	84	21	540	0.155	84	0.2	0.2	7.894	A
C-AB	6	1	621	0.010	6	0.0	0.0	5.856	A
C-A	56	14			56				
A-B	125	31			125				
A-C	63	16			63				

09:15 - 09:30

Stream	Total Demand	Junction Arrivals	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS

	(PCU/hr)	(PCU)							
B-C	6	2	667	0.009	6	0.0	0.0	5.442	A
B-A	70	18	547	0.128	70	0.2	0.1	7.558	A
C-AB	5	1	621	0.008	5	0.0	0.0	5.840	A
C-A	47	12			47				
A-B	105	26			105				
A-C	53	13			53				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: PM 2019 with Dev.j9
Path: F:\Admin\Admin_General_Dub\000_Projects\Covanta TA\Report\TA Aug 18\Junction Analysis\South Bank Junction
Report generation date: 12/4/2018 5:11:26 PM

«2018, AM
»Junction Network
»Arms
»Traffic Demand
»Origin-Destination Data
»Vehicle Mix
»Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2018			
Stream B-C	0.0	5.61	0.01	A
Stream B-A	0.3	8.76	0.23	A
Stream C-AB	0.0	5.36	0.00	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

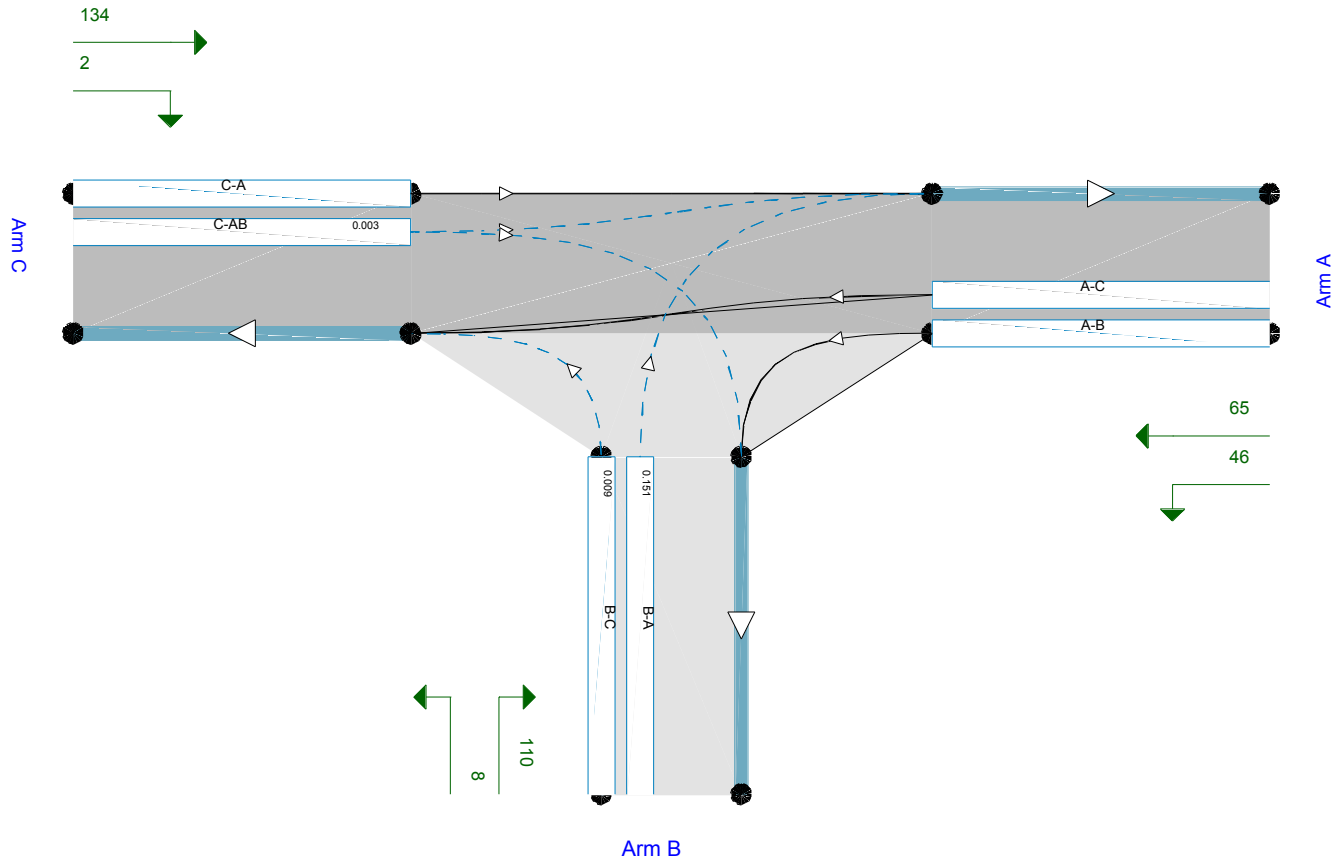
File Description

Title	(untitled)
Location	
Site number	
Date	12/4/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\manniona

Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



Flows show original traffic demand (PCU/hr).

Streams (downstream end) show RFC ()

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018	AM	ONE HOUR	08:00	09:30	15	✓

2018, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	South Bank Road / White Bank Road	T-Junction	Two-way	2.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	South Bank Road (West)		Major
B	White Bank Road		Minor
C	South Bank Road (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			90.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes	3.50	3.50	90	90

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	580	0.101	0.255	0.161	0.365
1	B-C	715	0.105	0.265	-	-
1	C-B	626	0.232	0.232	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	111	100.000
B		ONE HOUR	✓	118	100.000
C		ONE HOUR	✓	136	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	46	65
	B	110	0	8
	C	134	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	5.61	0.0	A	7	11
B-A	0.23	8.76	0.3	A	101	151
C-AB	0.00	5.36	0.0	A	2	3
C-A					123	184
A-B					42	63
A-C					60	89

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	6	2	672	0.009	6	0.0	0.0	5.407	A
B-A	83	21	547	0.151	82	0.0	0.2	7.731	A
C-AB	2	0.44	674	0.003	2	0.0	0.0	5.358	A
C-A	101	25			101				
A-B	35	9			35				
A-C	49	12			49				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	663	0.011	7	0.0	0.0	5.490	A
B-A	99	25	541	0.183	99	0.2	0.2	8.141	A
C-AB	2	0.55	683	0.003	2	0.0	0.0	5.286	A
C-A	120	30			120				
A-B	41	10			41				
A-C	58	15			58				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	9	2	651	0.014	9	0.0	0.0	5.606	A
B-A	121	30	532	0.228	121	0.2	0.3	8.750	A
C-AB	3	0.70	696	0.004	3	0.0	0.0	5.190	A
C-A	147	37			147				
A-B	51	13			51				
A-C	72	18			72				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	9	2	651	0.014	9	0.0	0.0	5.607	A
B-A	121	30	532	0.228	121	0.3	0.3	8.762	A
C-AB	3	0.70	696	0.004	3	0.0	0.0	5.192	A
C-A	147	37			147				
A-B	51	13			51				
A-C	72	18			72				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	663	0.011	7	0.0	0.0	5.493	A
B-A	99	25	541	0.183	99	0.3	0.2	8.157	A
C-AB	2	0.55	683	0.003	2	0.0	0.0	5.286	A
C-A	120	30			120				
A-B	41	10			41				
A-C	58	15			58				

09:15 - 09:30

Stream	Total Demand	Junction Arrivals	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS

	(PCU/hr)	(PCU)							
B-C	6	2	671	0.009	6	0.0	0.0	5.412	A
B-A	83	21	547	0.151	83	0.2	0.2	7.760	A
C-AB	2	0.44	674	0.003	2	0.0	0.0	5.358	A
C-A	101	25			101				
A-B	35	9			35				
A-C	49	12			49				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: PM 2024 with Dev.j9
Path: F:\Admin\Admin_General_Dub\000_Projects\Covanta TA\Report\TA Aug 18\Junction Analysis\South Bank Junction
Report generation date: 12/4/2018 5:13:13 PM

«2018, AM
»Junction Network
»Arms
»Traffic Demand
»Origin-Destination Data
»Vehicle Mix
»Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2018			
Stream B-C	0.0	5.61	0.01	A
Stream B-A	0.3	8.79	0.23	A
Stream C-AB	0.0	5.36	0.00	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

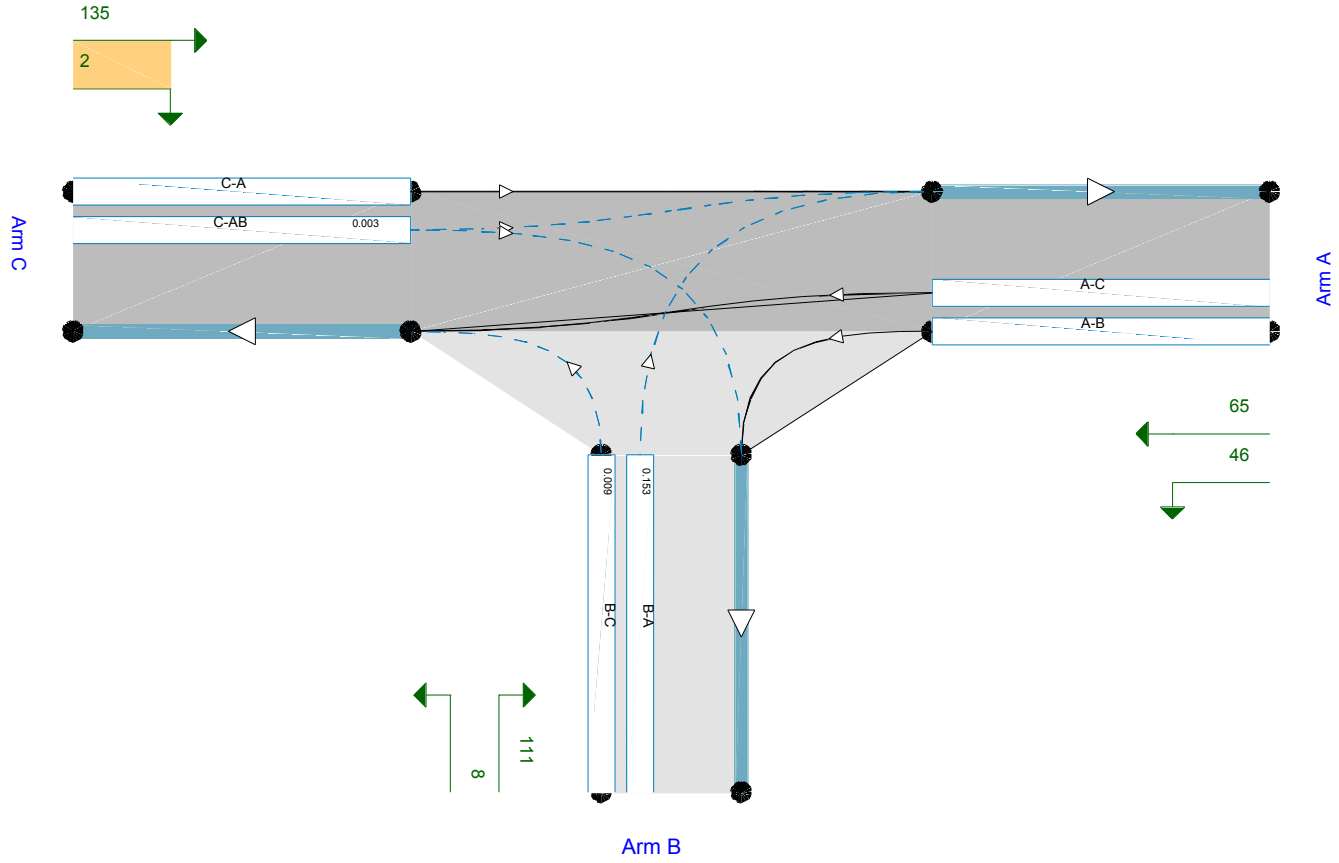
File Description

Title	(untitled)
Location	
Site number	
Date	12/4/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\manniona

Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



Flows show original traffic demand (PCU/hr).

Streams (downstream end) show RFC ()

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018	AM	ONE HOUR	08:00	09:30	15	✓

2018, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	South Bank Road / White Bank Road	T-Junction	Two-way	2.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	South Bank Road (West)		Major
B	White Bank Road		Minor
C	South Bank Road (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			90.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes	3.50	3.50	90	90

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	580	0.101	0.255	0.161	0.365
1	B-C	715	0.105	0.265	-	-
1	C-B	626	0.232	0.232	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	111	100.000
B		ONE HOUR	✓	119	100.000
C		ONE HOUR	✓	137	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	46	65
	B	111	0	8
	C	135	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	5.61	0.0	A	7	11
B-A	0.23	8.79	0.3	A	102	153
C-AB	0.00	5.36	0.0	A	2	3
C-A					123	185
A-B					42	63
A-C					60	89

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	6	2	671	0.009	6	0.0	0.0	5.409	A
B-A	84	21	547	0.153	83	0.0	0.2	7.745	A
C-AB	2	0.44	674	0.003	2	0.0	0.0	5.354	A
C-A	101	25			101				
A-B	35	9			35				
A-C	49	12			49				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	663	0.011	7	0.0	0.0	5.492	A
B-A	100	25	541	0.185	100	0.2	0.2	8.160	A
C-AB	2	0.55	684	0.003	2	0.0	0.0	5.282	A
C-A	121	30			121				
A-B	41	10			41				
A-C	58	15			58				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	9	2	650	0.014	9	0.0	0.0	5.610	A
B-A	122	31	532	0.230	122	0.2	0.3	8.778	A
C-AB	3	0.70	697	0.004	3	0.0	0.0	5.185	A
C-A	148	37			148				
A-B	51	13			51				
A-C	72	18			72				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	9	2	650	0.014	9	0.0	0.0	5.610	A
B-A	122	31	532	0.230	122	0.3	0.3	8.790	A
C-AB	3	0.70	697	0.004	3	0.0	0.0	5.185	A
C-A	148	37			148				
A-B	51	13			51				
A-C	72	18			72				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	662	0.011	7	0.0	0.0	5.493	A
B-A	100	25	541	0.185	100	0.3	0.2	8.178	A
C-AB	2	0.55	684	0.003	2	0.0	0.0	5.284	A
C-A	121	30			121				
A-B	41	10			41				
A-C	58	15			58				

09:15 - 09:30

Stream	Total Demand	Junction Arrivals	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS

	(PCU/hr)	(PCU)							
B-C	6	2	671	0.009	6	0.0	0.0	5.412	A
B-A	84	21	547	0.153	84	0.2	0.2	7.775	A
C-AB	2	0.44	674	0.003	2	0.0	0.0	5.356	A
C-A	101	25			101				
A-B	35	9			35				
A-C	49	12			49				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: PM 2034 with Dev.j9
Path: F:\Admin\Admin_General_Dub\000_Projects\Covanta TA\Report\TA Aug 18\Junction Analysis\South Bank Junction
Report generation date: 12/4/2018 5:16:06 PM

«2018, AM
»Junction Network
»Arms
»Traffic Demand
»Origin-Destination Data
»Vehicle Mix
»Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2018			
Stream B-C	0.0	5.62	0.01	A
Stream B-A	0.3	8.84	0.23	A
Stream C-AB	0.0	5.35	0.00	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

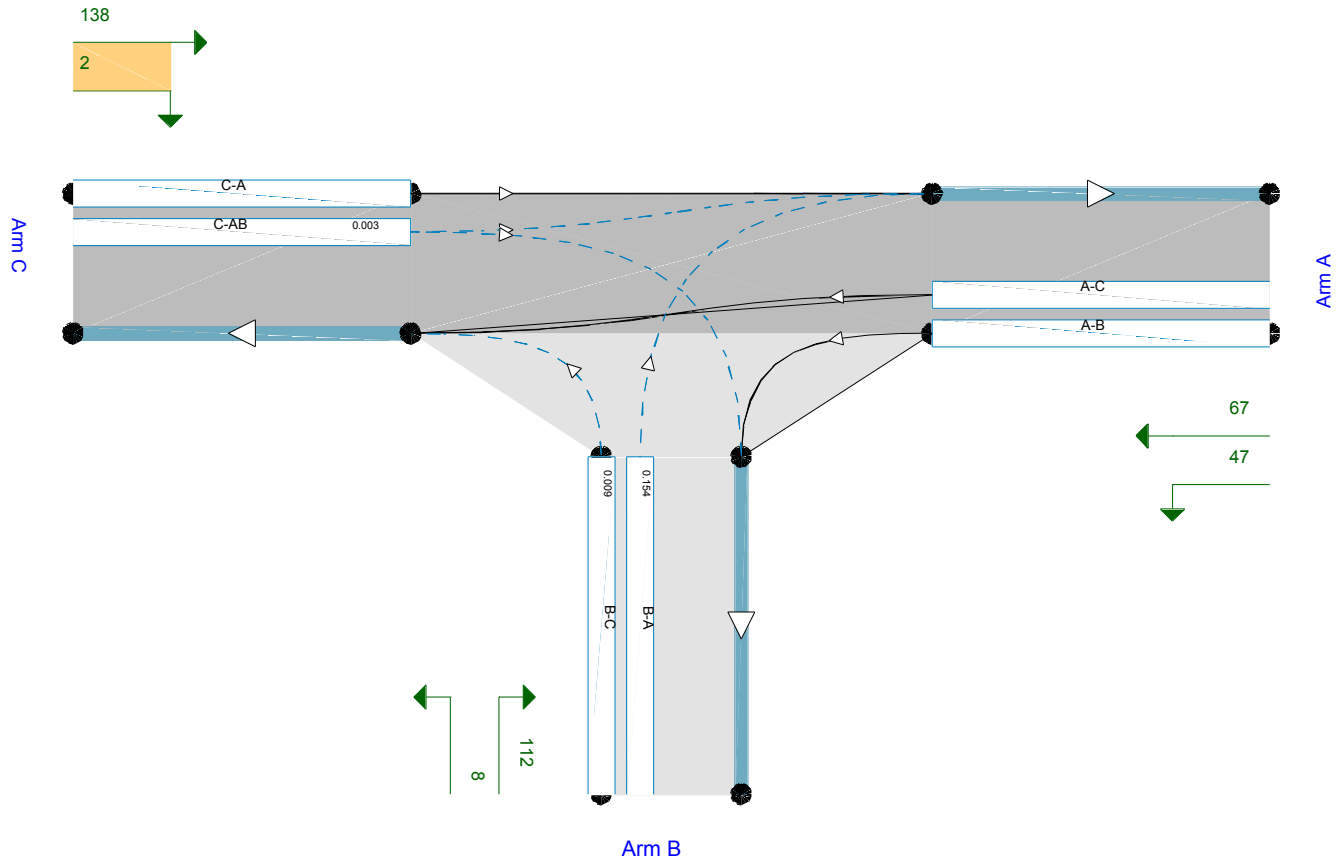
File Description

Title	(untitled)
Location	
Site number	
Date	12/4/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\manniona

Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



Flows show original traffic demand (PCU/hr).

Streams (downstream end) show RFC ()

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018	AM	ONE HOUR	08:00	09:30	15	✓

2018, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	South Bank Road / White Bank Road	T-Junction	Two-way	2.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	South Bank Road (West)		Major
B	White Bank Road		Minor
C	South Bank Road (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			90.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes	3.50	3.50	90	90

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	580	0.101	0.255	0.161	0.365
1	B-C	715	0.105	0.265	-	-
1	C-B	626	0.232	0.232	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	114	100.000
B		ONE HOUR	✓	120	100.000
C		ONE HOUR	✓	140	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	47	67
	B	112	0	8
	C	138	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	5.62	0.0	A	7	11
B-A	0.23	8.84	0.3	A	103	154
C-AB	0.00	5.35	0.0	A	2	3
C-A					126	189
A-B					43	65
A-C					61	92

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	6	2	671	0.009	6	0.0	0.0	5.415	A
B-A	84	21	546	0.154	84	0.0	0.2	7.772	A
C-AB	2	0.44	675	0.003	2	0.0	0.0	5.346	A
C-A	104	26			104				
A-B	35	9			35				
A-C	50	13			50				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	662	0.011	7	0.0	0.0	5.500	A
B-A	101	25	540	0.187	101	0.2	0.2	8.195	A
C-AB	2	0.55	685	0.003	2	0.0	0.0	5.273	A
C-A	124	31			124				
A-B	42	11			42				
A-C	60	15			60				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	9	2	649	0.014	9	0.0	0.0	5.619	A
B-A	123	31	531	0.232	123	0.2	0.3	8.827	A
C-AB	3	0.70	699	0.004	3	0.0	0.0	5.174	A
C-A	151	38			151				
A-B	52	13			52				
A-C	74	18			74				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	9	2	649	0.014	9	0.0	0.0	5.620	A
B-A	123	31	531	0.232	123	0.3	0.3	8.839	A
C-AB	3	0.70	699	0.004	3	0.0	0.0	5.176	A
C-A	151	38			151				
A-B	52	13			52				
A-C	74	18			74				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	662	0.011	7	0.0	0.0	5.503	A
B-A	101	25	540	0.187	101	0.3	0.2	8.214	A
C-AB	2	0.55	685	0.003	2	0.0	0.0	5.273	A
C-A	124	31			124				
A-B	42	11			42				
A-C	60	15			60				

09:15 - 09:30

Stream	Total Demand	Junction Arrivals	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS

	(PCU/hr)	(PCU)							
B-C	6	2	670	0.009	6	0.0	0.0	5.418	A
B-A	84	21	546	0.154	85	0.2	0.2	7.801	A
C-AB	2	0.45	675	0.003	2	0.0	0.0	5.346	A
C-A	104	26			104				
A-B	35	9			35				
A-C	50	13			50				

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Appendix 2: Project Description

Appendix A2-1

Summary of Planned and Consented Projects within 5 km Radius

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
2900/20	Planning permission for construction of new 4 storey residential development above existing ground floor consisting of 1-bedroom apartment at 1st floor level, 1-bedroom apartment at 2nd floor level & 2-bedroom Duplex apartment at 3rd and 4th floor level. All apartments are accessed from no. 31 Lower Abbey Street.	Submitted 22/06/2020	Pending
3209/20	Permission for development consisting of a 7 storey above ground floor residential building, totalling 8 storeys overall, at a height of 26.8m containing 24 apartments comprising of 5 no. studio units, 10 no. 1 no. bedroom units, and 9 no. 2 bedroom units all with private balcony, concierge facilities, a communal meeting room at ground floor level of 56m2 and a communal terrace at fourth floor level of 34.43m2. Bin storage is provided at ground floor level as well as a 24-space secure bicycle parking area. The proposal also includes landscaping works and all associated site works.	Submitted 17/08/2020	Pending
3424/20	Development at a c. 0.056 ha site. The development comprises the refurbishment and extension of the existing buildings to provide a 9-no. storey development including hotel, restaurant and roof bar. The development will consist of: A. The removal of the roof of the 2-no. storey (over basement) building fronting Meetinghouse Lane and the interconnected 2 no. storey building to the rear (total floor area c. 647 sq.m); B. The refurbishment of the buildings including the removal of internal floors (238 sq.m) and walls to facilitate the core structure of the proposed development; C. The replacement of the roof at the interconnected 2 no. storey building to the rear and provision of new window openings at mezzanine level; D. The extension of the building fronting Meetinghouse Lane to provide a 9-no. storey (including mezzanine) hotel development comprising 65 no. bedrooms and licenced restaurant (c. 2,547 sq.m total floor area). E. Partial demolition of the western elevation fronting Meetinghouse Lane to provide new windows opening at and entrances and elevational treatment with canopy above hotel entrance and signage (2.2 sq.m) with additional signage at entrance arch at Meetinghouse Lane (2.6 sq.m); F. Publicly accessible enclosed glazed roof garden, licenced restaurant and bar (c. 271 sq.m) at top floor level; G. Reception, storage, kitchen and refuse store and WC at ground floor level, with management office, staff changing facilities and multipurpose meeting room at upper floors; H. Landscaped external courtyard (c. 123 sq.m) including 12 no. bicycle parking spaces. I. Provision of plant at basement, mezzanine and top floor levels and all associated site works, infrastructure and green roof. No works are proposed to the floorspace occupied by Evans Art Supplies.	Submitted 23/09/2020	Pending
3409/20	The proposed development consists of the demolition of an existing 2 storey industrial/office building (331 sq m) and the construction of a 4 and 5 story block of apartments totalling 772 sq m (including roof garden) on a site of 267 sq m consisting of 1 no. studio apartment; 5 no. 1 bedroom apartments; 3 no. 2 bedroom apartments; balconies on the rear elevation at 1st to 4th floor levels; 18 no bicycle spaces; all associated site works and utility connections.	Submitted 18/09/2020	Pending
3381/20	The development will consist of the demolition of the existing two residential buildings and construction of four storey with setback fifth storey apartment block at 189-190 Rathgar Road. The proposed development will comprise of 29 no. apartments with a unit mix of 4 no. studio units, 13 no. one bedroom units and 12 no. two bedroom units with a gross floor area of 2,367.19 sqm on a site of 0.1253 ha. The proposal includes: - The demolition of two no. storey residential buildings on site - No. 189 is divided into five apartments; - The construction of 29 no. apartments comprising of 4 no. studio units, 13 no. 1-bed units and 12 no. 2-bed units in an apartment block ranging in height from 4 to 5 storeys with the 5th storey setback from Rathgar Road; - All units will be provided with private open space in the form of balconies/ terraces; - A roof garden shall be provided at fourth floor level; - 5 no. surface car parking spaces will be provided at surface level; - 48 no. residential bicycle parking spaces and 14 no. visitor bicycle spaces, totalling 62	Submitted 14/09/2020	Pending

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
	no. bicycle parking spaces; - Bin storage, lockers, switch room and substation shall be located at the rear of the proposed development and plant at roof level, which shall be screened; - The existing vehicular entrance at 190 Rathgar Road is to be closed; two pedestrian entrances are to be widened; the existing vehicular entrance at 189 Rathgar Road to be widened with a new front boundary treatment. A new boundary wall will be provided along the rear of the site. The proposed development includes landscaping and all ancillary site works.		
3327/20	The development will consist of demolition of Nos. 34, 35, 36 & 37 Pembroke Street Lower (3 no. 2-storey buildings; c.268 sqm total) comprising 3 no. commercial units; construction of a new 5 storey mixed use development consisting of 4 storeys of apartments including set back penthouse level with sedum roof containing 4 no. 2 bed and 3 no. 1 bed apartments (ranging in area from 45.7 - 86.2 sqm) each with private amenity terrace spaces; over commercial unit (90.4 sqm) at ground floor level; separate apartment entrance and communal facilities including secure bicycle parking (14 spaces) and refuse storage at ground floor level; all plant and ancillary site development works. The total gross floor area of the proposal is 713.4 sqm.	Submitted 04/09/2020	Pending
2811/20	Permission for development to amend a previously permitted 134 No. bedroom hotel (Reg. Ref. 2701/16; ABP Ref. 247947-17, as amended by Reg. Ref. 3157/18, Reg. Ref. 4326/19) on this site of c. 909 sq.m at No. 21 Ship Street Great, Dublin 8.	Granted	24/09/2020
3159/19	Permission for development on a site of 0.54 ha at Clanwilliam Court, Clanwilliam Place and Lower Mount Street, Dublin 2. The site is bounded by Velasco Building and Osprey House, onto Grand Canal Street to the North East, Marine House onto Clanwilliam	Granted	31/08/2020
2697/20	The development will consist of alterations to the existing North Wall Power Generating station, which include the replacement of existing indoor gas turbines with new and more efficient indoor gas turbines	Granted	28/08/2020
2142/20	The development consists of the following: (i) Demolition of existing structures on site. (ii) Construction of an 8 storey office development over a lower ground floor/basement level. A part mezzanine if provided between the upper ground floor and first	Granted	06/08/2020
2356/20	Permission for development on a site of c. 0.35 hectares at Nos. 31-34 Abbey Street Upper, 42-51 Great Strand Street and bounded by Byrnes Lane, Dublin 1 to amend part of the development permitted under Dublin City Council Reg. Ref. 3172/18.	Granted	06/08/2020
2376/20	The proposed development will4261/19 consist of variations to a permitted development granted by An Bord Pleanala under ABP Ref. 303526-19 / (P.A. Ref. No. 2407/18). The variations proposed consist of an increase of 1,360mm in the overall building height.	Granted	28/07/2020
2375/20	Permission for development within a permitted residential development, located at the former Holy Faith Convent Building, St. Brigid's Road, Killester, Dublin 5, as granted under Dublin City Council Ref. 3930/18 & An Bord Pleanala Ref. 303146-18.	Granted	21/07/2020
4646/19	Permission for development at a site located on the eastern side of Dominick Street Lower, at the junction of Dominick Street Lower and Dominick Place, Dublin 1. The site is part of SDRA 10 in the Dublin City Development Plan 2016-2022	Granted	16/07/2020

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
4540/19	Permission for development on a site of c. 0.35 hectares at Nos. 31-34 Abbey Street Upper, 42-51 Great Strand Street and bounded by Byrnes Lane, Dublin 1 to amend the development permitted under Dublin City Council Reg. Ref. 3172/18 and Reg. Ref. 2997/19	Granted	30/06/2020
2089/20	Planning Permission for development at the Watermarque Building, Ringsend Road, Dublin 4, D04K7N3. The site is bound by Ringsend Road to the north, Shelbourne Park Stadium to the south, the River Dodder to the east and South Lotts Road to the west.	Granted	22/06/2020
3546/19	Permission for development on a site of 0.14 ha at 39-42 Hill Street and 36a North Great George's Street, Dublin 1. The development consists of the following: The demolition of the existing former light industrial structures on the site	Granted	16/06/2020
3068/19	Planning permission for development on a site of c. 0.1629ha on lands at the former Alasta Motors site, at Bath Avenue Place near the junction at South Lotts Road, Ringsend, Dublin 4, D04 DH94.	Granted	20/05/2020
2667/19	Mater Private Hospital intends to apply for permission for development on a 0.6087 ha site, approximately, at Mater Private Hospital, Eccles Street, Dublin 7, D 07 WKW8. The development proposed includes an amendment to a previously permitted scheme	Granted	17/04/2020
DSDZ2186/20	KW PRS ICAV acting for and on behalf of its sub-fund KW PRS Fund 11 intends to apply for permission at a site (c.1.55Ha) at City Block 3 and Northbank House, Sheriff Street Upper, New Wapping Street and Mayor Street Upper, North Lotts, Dublin 1	Granted	26/03/2020
4603/19	The development consists of the amendment of previous permission (Reg. Ref. 4658/18) as follows: 1. Re-configuration and relocation of core within the permitted envelope to increase usable space at all levels. 2. Enlargement of the basement at Levels	Granted	20/03/2020
4622/19	Permission for development at a site of 0.27ha a 1 Central Plaza, Dame St, Dublin 2, D02 P656. The site is bound by Dame Street to the South, existing Annex building and Commercial Buildings to the East, Cope Street to the North and Fownes Street Upper	Granted	20/03/2020
3543/19	Planning permission for development at 74-75 Baggot Street Lower, Dublin 2. The site is bounded by Baggot Street Lower to the east and Wilton Terrace (and beyond it, the Grand Canal) to the south.	Granted	18/03/2020
D19A/0706	Permission. The proposed development comprises the provision of a substation and associated switchroom, with a gross floor area of 28 sq.m, and all associated ancillary works to the south east of the rejuvenated Frascati Centre (adjacent to an existing service yard).	Granted	04/03/2020
3669/19	The development will consist of 1.) Construction of a single storey ESB Substation & Switchroom located adjacent to the existing terminal entrance/exit gate onto Shelly Banks Road. 2.) All associated site works.	Granted	27/02/2020
4375/19	Planning permission for development at 1 Cumberland Place, Fenian Street, Dublin 2 (formerly known as Cumberland House). The site is bound by Fenian Street to the south, Boyne Street to the north and Bass Place to the east.	Granted	19/02/2020
2016/19	Permission for the development of an education and research building on a site of c. 0.3945 hectares comprising Block A Ardilaun Centre (also known as Nos. 112-114), St. Stephen's Green, Dublin 2, D02 AF59, No. 4, Proud's Lane, Dublin 2, D02 WY28, part	Granted	04/02/2020
3860/19	Permission for development at a site of 0.28 ha at 1 Central Plaza, Dame St., Dublin 2, D02 P656. The site is bound by Dame Street to the south, existing annex building and commercial buildings to the east, Cope Street to the north	Granted	29/01/2020

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
PWSDZ3270/19	Permission for development at a site forming part of the former Irish Glass Bottle and Fabrizia sites, Poolbeg West, Dublin 4. The application site is located within the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme 2019 area.	Granted	28/01/2020
3668/19	Permission for development at a site of 0.5 ha at Apollo House, Tara St (D02 N920); 9-11 Townsend St (incl. The Long Stone Pub) (D02 FE00); College House, Nos. 2-3 Townsend Street, (D02 F990), and the Screen Cinema, 16-19 Hawkins Street (D02 DP65), Dublin	Granted	28/01/2020
4265/18	The 4 to 7 storey development will consist of: (i) 47 no. apartments dwellings comprising; (a) 10 No. 3 bedroom apartments (five of which are duplex), (b) 27 No. 2 bedrooms apartments, and (c) 10 No. 1 bedroom apartments. (ii) Community meeting room	Granted	17/01/2020
DSDZ3042/19	Permission for development on a site of approximately 1.85 hectares at this site at North Wall Quay, Dublin 1.	Granted	17/01/2020
3433/19	Permission for development on a site of c. 0.5 ha which forms part of the Castleforbes Business Park, Sheriff Street Upper, Dublin 1 (D01 VX48). The site is bound by Sheriff Street Upper to the south, CIE railyard to the north and east, and Castleforbes	Granted	07/01/2020
3143/19	Planning permission for development at 35 O'Connell Street Upper, Dublin 1, an existing 5 storey over ground floor mid-terraced building and 33 and 34 O'Connell Street Upper, an existing 3 storey over ground floor mid terraced building.	Granted	19/12/2019
D19A/0707	Permission. The proposal is for a substation and associated switchroom, with a gross floor area of 25 sq.m, and all ancillary works, which will replace 3no. surface car parking spaces located to the north west of the Frascati Centre (adjacent to the internal road).	Granted	18/12/2019
3907/19	Permission for development at a site of 0.11 ha at the building known as the Annex Building, located to the east of the building formerly known as the Central Bank Building and to the south of Cope Street, and the Commercial Buildings, Dame St, Dublin 2.	Granted	17/12/2019
2900/19	Full permission is sought for a hospital helicopter landing pad and associated siteworks, to be located in the existing Mater Hospital surface carpark/construction compound area on the north side of Eccles Street, Dublin 7.	Granted	10/12/2019
DSDZ2926/19	Permission for development at the Central Bank of Ireland Headquarters, North Wall Quay, Dublin 1, D01 F7X3 at the northeast corner / rear part of the site. This application relates to a proposed development within the North Lotts & Grand Canal Dock SDZ.	Granted	01/12/2019
DSDZ4147/19	Planning permission for development at this site generally bounded by North Wall Quay, Castleforbes Road, Block D (under construction) and block B (under construction), North Lotts, Dublin 1.	Granted	29/11/2019
DSDZ4148/19	For development at this site: generally bounded by North Wall Quay, Castleforbes Road, Block D (under construction) and Block B (under construction), North Lotts, Dublin 1. The application relates to a proposed development within the North Lotts	Granted	29/11/2019

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
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Reference	**Proposed Development**	**Decision**	**Grant Date**
DSDZ4112/19	Permission at a site (c. 1.51 Ha) at Coopers Cross, City Block 3 at Sherriff Street Upper, New Wapping Street and Mayor Street Upper, North Lotts, Dublin 1. And otherwise generally bounded by Nos. 7-10 Mayor Street Upper to the south, Nos.1-14 New Wappin	Granted	25/11/2019
3718/19	Permission for development (to be known as the E3 Learning Foundry) at this site, c0.47 ha within the campus of Trinity College Dublin, Dublin 2, consisting substantially of the area of the four-storey Biochemistry building fronting Parade Ground	Granted	13/11/2019
3691/19	Permission for a pay-to-use waste portable compactor for dry recyclables and a pay-to-use portable waste compactor for residual waste and food waste.	Granted	11/11/2019
2907/19	Permission for development at a site of 0.5 ha at Apollo House, Tara St. (D02 N920); 9-11 Townsend St. (incl. the Long Stone Pub) D02 FE00; College House Nos. 2-3 Townsend Street (D02 F990) and the Screen Cinema, 16-19 Hawkins Street (D02 DP65, Dublin 2	Granted	08/11/2019
3560/19	The proposed development consists of the demolition of existing structures at the following addresses: Nos. 5, 6 & 7 George's Quay, Nos. 1A, 1, 3, 5, 7, 9, 11. 13 and 15 Tara Street and No. 11 Poolbeg Street and the construction of a mixed-use	Granted	24/10/2019
4627/18	Planning permission for development at a site within the overall Royal Hibernian Way complex of 0.24 hectares, Dawson Street, Dublin 2. The development site primarily relates to Block C, which fronts onto Duke Lane Upper	Granted	17/10/2019
2166/19	Planning permission is sought for the demolition of the existing semi-detached two storey mixed use commercial/dwelling building and replacement with a 4 storey building consisting of mixed use scheme	Granted	07/10/2019
2808/19	Permission for development at this site (0.37ha) known as "Boston Sidings Site" at Grand Canal Quay and Macken Street, Dublin 2. (Lands bound by Clanwilliam Square to the south, Grand Canal Quay to the east, the Dublin - Rosslare mainline railway.	Granted	07/10/2019
3379/19	The proposed development consists of demolition of the existing buildings, 190 being a 2 storey semi-detached house & 189 a 2storey semi-detached building divided into 5 flats, and construction of a 4 storey over basement apartment building with 22 apartments.	Granted	01/10/2019
3362/19	The development will consist of demolition of existing buildings on site including part of an office & warehouse, two vacant cottages and other structures and construction of 9 apartments, comprising 6 x 2 bed. and 3 x 1 bed.	Granted	27/09/2019
3336/19	Planning permission for development at 1 Cumberland Place, Fenian Street, Dublin 2 (formerly known as Cumberland House). The site is bound by Fenian Street to the south, Boyne Street to the north and Bass Place to the east.	Granted	25/09/2019

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Reference	**Proposed Development**	**Decision**	**Grant Date**
3275/19	Permission for development at a site of 0.28 ha at 1 Central Plaza, Dame Street, Dublin 2 , D02 P656. The site is bound by Dame Street to the south, existing Annex building and Commercial Buildings to the east, Cope Street to the north and Fownes Street.	Granted	18/09/2019
3284/19	Planning permission for development at a site at Nos 13-30 Fitzwilliam Street Lower, Dublin2 including most of a city block bounded by Fitzwilliam Street Lower, Mount Street Upper, James's Street East and Baggot Street Lower.	Granted	18/09/2019
3219/19	Development consisting of the demolition of an existing stone wall that bounds both properties.	Granted	12/09/2019
DSDZ3452/19	Planning permission for development at a site generally bound by North Wall Quay, New Wapping Street, Mayor Street and Castleforbes Road, Dublin 1. This application relates to a proposed development within the North Lotts and Grand Canal Dock SDZ .	Granted	03/09/2019
3893/18	The development will consist of the demolition of existing building James McSweeney House which contains 21 one bedroom apartments: the construction of a four storey building consisting of three stories plus one upper storey level setback from the street.	Granted	30/08/2019
3093/19	Permission to amend part of the development permitted under Dublin City Council Reg. Ref. 3172/18. The proposed development provides for an increase in the permitted basement area of c. 129 sqm to provide for additional hotel storage space.	Granted	30/08/2019
2644/19	Planning permission for the demolition of the existing detached 2-storey, 1130sqm handball centre and levelling of the associated site.	Granted	21/08/2019
2997/19	Permission for development on a site of c. 0.35 hectares at Nos. 31-34 Abbey Street Upper, 42-51 Great Strand Street and bounded by Byrnes Lane, Dublin 1 to amend part of the hotel development permitted under Dublin City Council Reg. Ref. 3172/18.	Granted	21/08/2019
4223/18	Luxor Investments Limited seek planning permission for a mixed-use development including office and commercial uses on a site which extends to 3,848 sq.m at Chancery Lane and Ship Street Great, Dublin 8. The site is bounded by the Chief State Solicitors.	Granted	20/08/2019
DSDZ3344/19	Paul McCann and Steve Tennant, Joint Statutory Receivers, acting for the Specified Assets of Henry A. Crosbie c/o Grant Thornton, 13-18 City Quay, Dublin 2 intend to apply for permission for development at Unit 24, Point Village District Centre, East Wall	Granted	19/08/2019
3711/18	Permission is sought for development that will consist of: construction of a bridge to span the existing cooling water outfall channel, adjacent to Pigeon House Road; construction of a new junction opposite the entrance to the Ecocem Ireland Plant; hard	Granted	12/08/2019

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Reference	**Proposed Development**	**Decision**	**Grant Date**
2953/19	Planning permission for development at Windmill Lane and Creighton Street, Dublin 2, which forms part of the development at 1-6 Sir John Rogerson's Quay, 17 Creighton Street and 21-22 Windmill Lane. The development consists of the amalgamation of 2 no.	Granted	12/08/2019
2326/19	The development will consist of permission for demolition of existing house and replacement with 2 no. 4 bedroom, 3-storey detached houses, new access to the N11 Stillorgan Road and all associated ancillary site works.	Granted	29/07/2019
4658/18	Planning Permission is sought for the demolition of the existing two storey office and restaurant building (2,368m2) and the erection of a part 4, part 6 storey (over two storeys of basement) building with a GFA of 10,395m2, comprising office	Granted	23/07/2019
DSDZ3109/19	KWCI GP Limited acting in its capacity as general partner of KWCI Limited Partnership intends to apply for permission for development at a site (0.93 Ha) at City Block 3, North Lotts, Dublin 1.	Granted	19/07/2019
2804/19	Planning permission for development at our existing molasses storage terminal at the corner of South Bank Road and Pigeon House Road, Ringsend, Dublin, D04 TC98.	Granted	18/07/2019
3500/18	Planning Permission for development on a site of c. 0.18ha on lands to the rear of No. 46-64 South Dock Street, Ringsend, Dublin 4. The subject site is bounded to south by No.'s 46-64 South Dock Street, to the north by No.'s 1-23 Hastings Street, to the	Granted	12/07/2019
4421/18	IPUT Plc intends for apply for a 10 year permission for development at lands at: A) Lands at Wilton Park House, Gardner House and Lad Lane Apartments, Cumberland Road and Wilton Place, Dublin 2 (bounded by Wilton Place to the southeast, Cumberland Road	Granted	10/07/2019
DSDZ3013/19	Permission for development at Units MSU2, 36 and 37, First and Second Floor, Point Village District Centre, East Wall Road & Sheriff Street, Dublin 1. The site is located within City Block 5 as identified in the North Lotts & Grand Canal Dock SDZ Planning	Granted	10/07/2019
DSDZ2464/19	Permission at a site (c. 1.51 Ha) at City Block 3 and Northbank House, Sheriff Street Upper, New Wapping Street and Mayor Street Upper, North Lotts, Dublin 1	Granted	08/07/2019
2709/19	The development will consist of the provision of 9 Offices / Consulting Rooms, Waiting Area and toilets in a single storey building of 190.4 square metres.	Granted	03/07/2019
DSDZ2011/19	Development at this site generally bounded by Mayor Street Upper to the north, proposed Block A and New Wapping Street beyond to the west, Castleforbes Road to the east and proposed Block E and North Wall Quay beyond to the south in the North Lotts	Granted	02/07/2019

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Reference	**Proposed Development**	**Decision**	**Grant Date**
2637/19	Planning permission for the erection of an external roof deck & balustrade, comprising a total of 203sq.m on the 4th floor of the South & East elevations of Bishops Square, Redmonds Hill, Dublin 2.	Granted	27/06/2019
2493/19	The development will consist of demolition of existing buildings on site including part of an office & warehouse, two vacant cottages and other structures and construction of 7 apartments, comprising 5 x 2 bed. and 2 x 1 bed.	Granted	17/06/2019
2463/19	The proposed development seeks to amend a previously permitted development under DCC Reg. Ref. 2163/09 (as extended in duration under DCC Planning Ref. 2163/09/x1), as amended under DCC Ref. 4014/15 (ABP Ref. PL29S.246130).	Granted	13/06/2019
3047/18	Planning permission for a residential development of 94 no. apartments (and a ground floor cafe of c. 67 sq. m) all on a c. 0.38 hectare site. The proposed development will consist of: 1) Demolition of existing 6 no. two storey dwellings and ancillary street.	Granted	11/06/2019
4155/18	Development at a 0.35 hectare (approx.) site. The proposal relates to an office development of c. 21,929 sq.m gross floor area in a part 7 no. part 8 no. storey building over 2 no. basement levels.	Granted	06/06/2019
4250/18	The development will consist of; the demolition of existing ESB Substation (approx. 25sq.m and 3.2m height), general site clearance, and construction of new ESB Substation building (approx. 40sq.m and 3.1m height) .	Granted	06/06/2019
2415/19	Permission for development at a site of 0.5 ha at Apollo House, Tara Street (D02 N920) 9-11 Townsend St. (incl. The Long Stone Pub (D02 FE00) College House, Nos. 2-3 Townsend Street, (D02 F990) and the Screen Cinema, 16-19 Hawkins Street (D02 DP65)	Granted	06/06/2019
2407/18	The proposed development site extends to 5,857 square metres in area and will have a gross floor area of 37,722 square metres, including basement areas of 14,970 square metres. The application site is bounded by Nassau Street to the north	Granted	28/05/2019
DSDZ2076/19	Permission for development at Unit 5, Point Campus, Upper Mayor St. and 113-115 Sheriff Street, Dublin 1. The site is bounded by Upper Mayor St./Point Village Square to the south, Sheriff St. to the north, North Wall Avenue.	Granted	27/05/2019
3900/18	Planning permission comprising the demolition of an existing commercial building, formerly used as a car dealers and the development of a 'Build to Rent' residential apartment development, intended for use as a long-term rental housing scheme	Granted	23/05/2019
DSDZ2572/19	Planning permission for development at a site of c. 0.435ha at the Opus Building, former Kilsaran Concrete Site, 6 Hanover Quay, Dublin 2.	Granted	16/05/2019

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Reference	**Proposed Development**	**Decision**	**Grant Date**
3653/18	Planning Permission for development at lands to rear of No. 28 Frederick Street North, Dublin 1 D01 T2W5 (with main access from Frederick Lane North). The development will consist of (i) new 4 storey building with 3 no. two bed apartments, 1 no. bed apartment.	Granted	08/05/2019
4059/18	Permission for development at 18/19 Richmond Street South, Dublin 2, D02 EF20. The development will consist of demolition of 18-19 Richmond Street South and the construction of a new standalone development comprising: - 15 No. apartments	Granted	25/04/2019
4070/18	Planning permission is sought for a variation to previously approved application (Reg. Ref. 2952/17) for a development of a new building containing a ground floor restaurant with 25 residential apartments overhead on a site at Pembroke Row, known as 5/5A	Granted	23/04/2019
2388/18	The development consists of the following: (i) The provision of a nine storey including two set back storeys (over basement) commercial development with 18,464 sq.m. gross floor area of office space; (ii) The provision of a new pedestrian link from Harcourt Road through to the existing plaza area west of One Park Place, providing for access through to Hatch Street Upper from Harcourt Road; (iii) The provision of two retail/restaurant/cafe units at ground floor to Harcourt Road and Adelaide Road with a GFA of 640 sq.m. (including mezzanine level); (iv) The provision of a single storey basement level of 2,648 sq.m. GFA which would link to the existing basement servicing One, Two and Three Park Place. Vehicular access to the basement is proposed via the existing ramp to Hatch Street Upper at Two and Three Park Place; (v) The provision of 48 no. car parking spaces and 193 bicycle parking spaces at the proposed basement level with associated facilities; (vi) The proposed development involves the demolition of the former Telephone Exchange building and vaulted foundations 10 and 11 adjacent to the former Harcourt Railway Station buildings; (vii) Public realm upgrades to Harcourt Road and Adelaide Road linking through to the plaza area west of One Park Place; (viii) All ancillary and associated site development, demolition works, site clearance, infrastructural works, provision of plant at basement and roof levels including photovoltaic panels. (ix) The overall development consists of a total 21,906 sq.m. GFA.	Granted	10/04/2019
4302/18	Construction of a new 3 storey apartment building comprising of three no. two bedroom apartments. The proposed works include; a new pedestrian entrance to the site in lieu of the existing vehicular access; balconies to the 1st and 2nd floor apartments	Granted	05/04/2019
2041/19	Planning permission for 1. To replace the existing hip with side gable 2. To increase the existing ridge line to match the adjoining property. 3. To raise the existing soffit level to front elevation to match the adjoining property. 4.	Granted	05/04/2019
3513/18	Demolition of the existing building , in the use as a licensed premises with roof garden and night club, while retaining part of the Victorian shop front and the construction of a 5 storey over basement with setback top floor building (seven stories in t	Granted	01/04/2019
3752/18	The proposed development will consist of the demolition of an existing 3 no. storey industrial building with a gross floor area of 1,052sq.m., and construction of a 7 no. storey office building over 1 no. basement level containing plant and ancillary fac	Granted	22/03/2019

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
4566/18	Permission for development at a site of 0.28 ha at 1 Central Plaza, Dame St., Dublin 2, D02 P656. The site is bound by Dame Street to the South, existing Annex building and Commercial Buildings to the East, Cope Street to the North and Fownes Street	Granted	19/03/2019
3172/18	The proposed development will consist of the construction of a 9 storey (with 7th and 8th floor level setback) over basement aparthotel fronting Great Strand Street, comprising 269 no. bedrooms and related aparthotel facilities	Granted	14/03/2019
DSDZ4423/18	Permission for development at a site of 0.17 ha at The Marker Hotel, Grand Canal Square, Misery Hill, Dublin 2. The site is bound by Misery Hill to the South, Hibernian Road to the West, Chimney Park to the North and Forbes St. to the East.	Granted	11/03/2019
DSDZ2074/19	Permission for development at Airbnb Warehouse, 6-8 Hanover Quay, Dublin 2 and The Reflector Building, 8 Hanover Quay, Dublin 2. The site is bound by Hanover Quay to the South, Benson St. to the West and Green St. to the North.	Granted	11/03/2019
3869/18	The development will consist of a new 38kv substation development comprising; (i) a single storey building (470sq.m floor area) over basement (330 sq.m floor area) with an overall height to apex of approx. 6 m; (ii) underground cabling and drainage	Granted	07/03/2019
3606/18	The development will consist of the demolition of an existing building (c.3,059 sq.m) and the construction of a building (max height c.26.8m) incorporating an 8-storey 158 No. bedroom hotel with a gross floor area of c.7,458sq.m, including a c.565 sq.m o	Granted	05/03/2019
4467/18	Planning Permission for development at 1 Cumberland Place, Fenian Street, Dublin 2 (formerly known as Cumberland House). The site is bound by Fenian Street to the south, Boyne Street to the north and Bass Place to the east.	Granted	05/03/2019
4292/17	Demolition of existing 3-storey building containing 2 commercial units at ground level and 2 three bedroom apartments at upper levels and the construction of a residential/ commercial development in two blocks consisting of: 1 no. commercial unit at grou	Granted	26/02/2019
3797/18	Hammerson ICAV and Irish Life Assurance plc intend to apply for permission for development at Kiosk K13, Central Square, Unit No. 21 Central Square and the Chapel accessed off Central Square, Unit Nos. 38A, 38B and 39 Central Square, Unit Nos. 56-60 and	Granted	26/02/2019
DSDZ4701/18	Planning permission for development at this site generally bounded by North Wall Quay, Castleforbes Road, Block D (under construction) and Block B (under construction), North Lotts, Dublin 1.	Granted	22/02/2019
4359/18	Permission for Medical Centre at first floor	Granted	15/02/2019
4363/18	The Provost, Fellows, Foundation Scholars and the other members of the Board of the College of the Holy and Undivided Trinity of Queen Elizabeth near Dublin, intend to apply for Permission for development at this site, the Trinity Biosciences Building	Granted	15/02/2019

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
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Reference	**Proposed Development**	**Decision**	**Grant Date**
DSDZ4618/18	PROTECTED TRUCTURE; We Versus Ltd. (In Receivership), Abbono Ltd. (In Receivership), Beckton Properties Ltd. (In Receivership) & Candourity Ltd. (In Receivership) (each acting by the Receiver Mark Reynolds), Savills, 33 Molesworth Street, Dublin 2	Granted	15/02/2019
3353/18	Permission was granted in June 2015 (Reg. Ref. 3757/14 and PL29N.244496), for a period of 3 years to operate the conference centre at the Regency Hotel subject to conditions relating to a) the use and opening hours of the conference centre and b) the noi	Granted	12/02/2019
4313/18	The development consists of forming two no. openings at ground floor level between no. 34 and 35 Wicklow Street and revision to floor level of no. 34 Wicklow Street to align with no. 35 Wicklow Street in order to connect the two buildings at ground level	Granted	12/02/2019
DSDZ4549/18	The proposed development is to modify previously permitted application DCC Reg. Ref,: DSDZ3865/14 and DSDZ4131/15 to allow the amalgamation of Enterprise Office Units 1,2,3 and 4 located on Horse Fair Road into the open plan office area	Granted	08/02/2019
DSDZ4465/18	For development at a site generally bounded by North Wall Quay, Castleforbes Road, New Wapping Street and Mayor Street Upper, Dublin 1. This application relates to a proposed development within the North Lotts and Grand Canal Dock SDZ Planning Scheme	Granted	25/01/2019
DSDZ4442/18	Planning Permission for development on a site of 0.43 ha at 8 Hanover Quay (former Durabond House), Dublin 2. The application relates to development within a Strategic Development Zone Planning Scheme area.	Granted permission and retention	23/01/2019
4494/17	Development comprising: 1) Demolition of existing single storey commercial units comprising Nos. 25-27 Donnybrook Road and Nos. 1-3 'The Crescent'; and 2) The construction of a 6-storey (16 metre high) over basement, 78-room contemporary hotel.	Granted	21/01/2019
DSDZ3370/18	Permission for a development at No. 15-18 Hanover Quay, adjoining Grand Canal Dock, Dublin 2, which is located in a Strategic Development Zone. The development involves the demolition and replacement of an existing 2 storey building (919sq.m in floor are	Granted	18/01/2019
DSDZ4332/18	The development consists of revisions to permitted student accommodation development under Reg. Ref: DSDZ3689/15 and as subsequently amended under DSDZ4385/16, DSDZ2460/17, and DSDZ2155/18. The application seeks to temporarily amend condition 5 of DSDZ36	Granted	09/01/2019
3730/18	Planning Permission at this 0.43 ha site, previously amended under Reg. Ref. 2260/17 and Reg. Ref. 3971/17. The proposed development will consist of the following: - Provision of 2 no. additional storeys (c. 1,052 sq.m) to Block D (located in the north	Granted	04/01/2019
DSDZ4308/18	Permission for development at 'Point Campus', Upper Mayor Street, and North Wall Avenue, Dublin 1. The site is bounded generally by Upper Mayor Street/Point Village Square to the South, Sheriff Street to the North, North Wall Avenue to the West and exist	Granted	20/12/2018
4110/17	Planning permission at a 0.127 hectare site. The proposed development comprises of the demolition of the existing 3 storey over basement building and the construction of a new 8 storey over single basement level building to comprise a 218 no. bedroom hot	Granted	12/12/2018

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
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Reference	**Proposed Development**	**Decision**	**Grant Date**
3068/18	The development will consist of the demolition of the low perimeter wall around the site and the construction of a part single storey, part two storey, detached three-bedroom mews house accessed from Price's Place, consisting of two courtyards within dwe	Granted	10/12/2018
2234/18	Permission for development at a site of 0.17 ha at Marine House, Clanwilliam Court, Clanwilliam Place, Dublin 2, D02 FY24. The site is bounded by Velasco Building and Osprey House, onto Grand Canal Street, to the North East and Clanwilliam House, onto Mo	Granted	07/12/2018
3884/18	We, the Provost, Fellows, Foundation Scholars and other Members of the Board of the College of the Holy and Undivided Trinity of Queen Elizabeth near Dublin, intend to apply for permission for development at this site, c 0.21 ha	Granted	07/12/2018
3304/18	Permission for development on a site of c. 48 sq m at No. 30 Moore Street, Dublin 1. The development will consist of the provision of a seven storey over basement level building comprising five aparthotel/serviced apartments (measuring 298 sq m gross flo	Granted	28/11/2018
2001/18	Permission for development at a site of c. 0.385 ha. The site is bounded by Church Avenue to the north; existing education (St. Matthew's National School) and residential development to the south and west; the junction between Cranfield Place and Beach R	Granted	26/11/2018
3671/17	Planning permission for development on a site of approximately 0.22ha, located at No. 98 Merrion Road, Dublin 4. The development will consist of the demolition of all of the existing structures on the site (872m2) currently in guesthouse use, and the con	Granted	21/11/2018
DSDZ3995/18	The site is bounded generally by Upper Mayor Street/Point Village Square to the South, Sheriff Street to the North, North Wall Avenue to the West and existing north-south street adjacent the Point Village District Centre to the East.	Granted	15/11/2018
3488/18	Permission for development at the former Asahi Site, Breakwater Road North, Dublin Port, Dublin 1. The development will consist of: the demolition of redundant storage tank including associated pipework; general site clearance; construction of new hard s	Granted	14/11/2018
3629/17	The proposed development comprises site clearance works, including the demolition of all existing building(s) on site and the construction of a new mixed-use building that ranges in height between 3 and 7-storey above basement level with a total Gross Fl	Granted	12/11/2018
3719/18	The development will consist of: permission for the painting a mural and other surface finishes by a professional street artist(s) to discourage unlawful graffiti and make a positive contribution to the streetscape and surrounding vicinity.	Granted	09/11/2018
3303/18	Permission for the development of a hotel on a site of c. 603 sq m at Nos. 17,18 and 19 Moore Lane, Dublin 1. The development will consist of the provision of a seven storey (with a setback at Sixth Floor Level along the Parnell Street and Moore Lane ele	Granted	06/11/2018
3563/18	We, the Provost, Fellows, Foundation Scholars and the other members of Board of the Holy and Undivided Trinity of Queen Elizabeth near Dublin intend to apply for permission for development at ; Trinity Biosciences building originally approved under Reg.	Granted	24/10/2018
DSDZ3754/18	Paul McCann and Steve Tennant, Joint Statutory Receivers, acting for the Specified Assets of Henry A. Crosbie c/o Grant Thornton, 24-26 City Quay, Dublin 2 intend to apply for permission for development at a site of 2,382sq.m at the junction of North Wal	Granted	15/10/2018
3419/18	Construction of new single storey, 41m2 games room to rear of existing building, associated site works and services.	Granted	03/10/2018

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
3377/18	The proposed development will consist of the construction of a mixed use hotel and retail development comprising a part-three to part-four storey building onto Dorset Street Lower and a part-four to part-six storey building, with the sixth storey set bac	Granted	26/09/2018
DSDZ3648/18	Planning permission is sought, under the Planning Scheme for the North Lotts and Grand Canal Dock Strategic Development Zone. Development will consist of (i) the demolition of an existing single storey building and the construction of a new eight-storey	Granted	26/09/2018
3351/18	The development is to extend the first floor area by 24 sq.m. by filling in an existing void at first floor level over the entrance reception area. The proposed development will increase the total floor area from 1,829 sq.m to 1,853 sq.m.	Granted	20/09/2018
3314/18	The development will comprise of works to the existing Breakwater Road North and Breakwater Road South to upgrade access to the Dublin Port Operations Centre and the Dublin Ferryport Terminals (DFT), to consist of: re-alignment of traffic lanes and modif	Granted	18/09/2018
DSDZ2896/18	Spencer Place Development Company Limited intend to apply for planning permission for development at a site of 1.26 hectares located at City Block 2, Spence Dock, Dublin 1.	Granted	05/09/2018
4458/17	The development will include the demolition of the existing vacant motor garage showrooms (c.2,211 m2) and the construction of a mixed-use scheme of 6-7 storeys in height (c.6,752 m2) arranged around a central courtyard of communal open space at 1st floo	Granted	31/08/2018
3143/18	The construction of a vehicle service/maintenance facility and office accommodation contained in one building (approx. 946sq.m and 7.2m high to eaves/9.8m high) incorporating vehicle service/maintence bays, a store with associated mezzanine, a boiler roo	Granted	31/08/2018
3145/18	Planning permission for development at Block B, Joyce's Court, Joyce's Walk, Talbot Street, Dublin 1. The application site is located to the north of Talbot Street, south of Foley Street and east of Joyce's Walk.	Granted	31/08/2018
3123/18	Permission is sought for the subdivision of the part two and part three storey house into two apartments including the demolition of the single storey return and the construction of a part two and part single storey return including a balcony at first fl	Granted	28/08/2018
3090/18	This application specifically relates to the student accommodation development currently under construction on the south side of the new east-west street (as permitted under Reg. Ref. 2182/16, and subsequently modified under PL.29S.249055 and Reg. Ref. 4	Granted	23/08/2018
3069/18	The development will consist of the use of the permitted student accommodation for tourist and visitor accommodation outside of academic term time only by the omission or modification of condition 19 of Register Reference 3971/15; An Bord Pleanala Refere	Granted	21/08/2018
3858/17	Department of Education & Skills intend to apply for permission for development at this site of 0.38ha. at nos. 11A Harcourt Terrace (former Garda Station) that also fronts onto Charlemont Place (Harcourt Terrace Lane); and 12-16 Harcourt Terrace (former	Granted	16/08/2018

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
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Reference	**Proposed Development**	**Decision**	**Grant Date**
2959/18	Permission for change of use of existing part-ground floor from offices to ESB substation and meter room to include all associated elevational changes and site works.	Granted	07/08/2018
2833/18	Planning permission for development at 1 Cumberland Place, Fenian Street, Dublin 2 (formerly known as Cumberland House). The site is bound by Fenian Street to the south, Boyne Street to the north and Bass Place to the east. The proposed development consi	Granted	20/07/2018
3637/17	Permission for the development of a mixed-use office scheme at this site of 0.288 hectares, approximately, at College House, Nos. 2-3 Townsend Street, Dublin 2, D02 F990 & the former Screen Cinema, Nos. 16-19 Hawkins Street, Dublin 2, D02 DP65. The devel	Granted	16/07/2018
DSDZ3029/18	Paul McCann and Steve Tennant, Joint Statutory Receivers, acting for the Specified Assets of Henry A. Crosbie c/o Grant Thornton, 24-26 City Quay Dublin 2 intend to apply for permission for development at Unit 11 & 12, First Floor, Point Village District	Granted	10/07/2018
2689/18	Planning Permission for the construction of a four storey residential building of 573 sqm to provide 8 number apartments at a vacant site (227 sqm) at 26 New Street South, Dublin 8, to the corner of New Street Gardens and adjacent to Atkinson House (prot	Granted	03/07/2018
3412/17	The proposed development will consist of the demolition of the existing derelict two storey building and the construction of a four storey over single basement apartment development to include 8 apartments, comprising of 1 no. one bed apartment and 7 no.	Granted	21/06/2018
DSDZ2145/18	KW Real Estate ICAV acting for and on behalf of KW Irish Real Estate Fund VIII intends to apply for permission for development at a site of c.1.93 ha, known as Capital Dock, at Sir John Rogerson's Quay, Britain Quay, Green Street East and Benson Street,	Granted	15/06/2018
2477/18	Planning Permission for the demolition of an end of terrace house and the construction of a new two storey end of terrace house including associated site works.	Granted	12/06/2018
2486/18	The development will consist of a single storey ESB sub-station of approx. 14sq.m located in the South East of the site and all associated ancillary site development works.	Granted	12/06/2018
DSDZ2784/18	Planning Permission for a new revolving door at North Elevation of Block C and all associated works including making good existing facade and external landscape works. The application relates to a proposed development within a strategic development zone	Granted	11/06/2018

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Reference	**Proposed Development**	**Decision**	**Grant Date**
2429/18	The development will consist of the provision of a plant room (measuring circa 108 sq m gross floor area) at Level 00; two associated exhaust flues on the northern elevation (up to a maximum height of 23.5m); associated radiators at Level 04; and anci	Granted	07/06/2018
3846/17	A 38 bedroom hotel (approximately 1,752 sq.m including roof level plant approximately 73 sq.m and a basement of approximately 250 sq.m), ranging in height from four to eight storeys plus setback roof level plant (overall height approximately 24.7m, 33.17	Granted	25/05/2018
2379/18	Development at this site, comprising existing office floorspace at Block D within the upper Abbey Court garden level, on a site of 707 sq.m approximately, principally bounded by Blocks A, C, D and G of the Irish Life Centre, Abbey Street Lower, Dublin 1.	Granted	23/05/2018
3710/17	The development will consist of demolition of the existing ground floor meeting rooms (c. 159 sq m) and provision of an additional c.942 sq m at ground to 7th floors to provide a new conference/meeting room area, and an additional 40 hotel bedrooms (br	Granted	17/05/2018
2266/18	Permission for development at a site comprising Nos. 35 & 36 Charlemont Street, Dublin 2. The development will consist of an amendment to permission granted under Reg. Ref. 2907/15 (ABP Ref. PL29S.246118), as amended by Reg. Ref. 3894/16 and Reg. Ref. 39	Granted	16/05/2018
DSDZ2135/18	David Carson of Deloitte, Statutory Receiver of Danninger Unlimited Company (In Receivership & Liquidation), intends to apply for planning permission for development at a site of c. 0.842 hectares bound by Mayor Street Upper to the south, Castleforbes Ro	Granted	08/05/2018
2106/18	Permission for the demolition of the front two storey section of an end of terrace house and the rebuilding of same to match existing including associated site works	Granted	25/04/2018
4153/16	The proposed development will consist of the demolition of the existing 3 storey Kildress House building and the 2 no. 3 storey dwellings at numbers 1 & 2 Pembroke Row and all their associated structures and the construction of a new 6 storey (4 storeys)	Granted	06/04/2018
4303/16	The proposed development will consist of the demolition of the existing 3 storey building at 13 Pembroke Row and the 2 storey building at 6 Pembroke Row and all their associated structures and the construction of a new 6 storey	Granted	06/04/2018
4601/17	Permission for development at the Former Clyde Court Hotel, being part of a wider site known as the D4 Hotels site / former Jury's Hotel site, generally bounded by Lansdowne Road to the north, Shelbourne Road to the east and Pembroke Road to the west, Ba	Granted	05/04/2018

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Reference	**Proposed Development**	**Decision**	**Grant Date**
4593/17	The proposed development will consist of the demolition of the existing nine storey over basement College House building (8,501 sq m gross floor area) including its associated multi-storey carpark and ancillary structures; demolition of the existing thre	Granted	05/04/2018
4620/17	The development will consist of 1 no. security kiosk 1.5m x 1.5m x 2.1m (high) and associated site works which will be placed in the under croft at the south west corner of the building fronting onto East Road.	Granted	05/04/2018
4643/17	Planning permission for revisions to an approved development Reg. Ref. 2990/14 and PL 29N.244466 on site at 27-31 Church Street, Dublin 7. The revisions locate at ground floor in the approved building and will comprise (a) the provision of screen walls i	Granted	05/04/2018
2560/17	Planning permission for development at this site of 0.132 ha at River House, 21-25 Chancery Street, Dublin 7, D07 KX21. This site is bound by the St. Michan's House housing development to the north, Chancery St. to the south, Greek St. to the west and S	Granted	03/04/2018
4529/17	Planning permission for development at the Junction of Mill Street and Blackpitts, Dublin 8 (bounded partly by Warrenmount Lane to the west). The development will consist of the use of the permitted Student Accommodation for Tourist or Visitor Accommodat	Granted	28/03/2018
DSDZ2155/18	Development at a site of 0.75 ha. The site is bounded by Upper Mayor Street/ Point Village Square to the South, Sheriff Street to the North, a new north-south street to the West and existing north-south street adjacent the Point Village District Centre t	Granted	21/03/2018
2951/17	Development at this site c. 0.18 ha. The proposed development comprises of the construction of a retail and student accommodation development comprising of a part-three to part-four storey building onto Dorset Street Lower, and a part-four to part-six no	Granted	16/03/2018
4342/16	The development will consist of the demolition of an existing two storey building (c.603.3sqm GFA) and replacement with a nine storey + plant level (c.27.9m) over lower ground floor hotel development of c.4,138 sqm (GFA) consisting of 155 bedrooms	Granted	28/02/2018
DSDZ4478/17	KW Real Estate ICAV acting for and on behalf of its sub-fund KW Irish Real Estate Fund XIII intends to apply for planning permission at a site at Charlotte Quay, Grand Canal Dock, South Dock Road, Ringsend, Dublin 4, generally bounded by Grand Canal Dock	Granted	13/02/2018
2449/17	The development involves a modification to the permitted development under Reg. Ref. 2182/16 (student accommodation scheme with ancillary office development). Specifically the development consists of the demolition of a vacant structure (c.38sqm gfa) on	Granted	09/02/2018

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Reference	**Proposed Development**	**Decision**	**Grant Date**
2827/17	Permission for development at a 0.2067 Ha site known as Nos. 1, 2 ,2.5 and 3 Spitalfields, No. 15 Carman's Hall, and Nos. 28-32 Garden Lane, Dublin 8 (former pig abattoir site).	Granted	09/02/2018
DSDZ4463/17	Extend the existing 25mm Diameter relief vent pipe work from 3.8m to max 5m above ground level to include all ancillary services and associated site works. This application relates to land within the north lotts and Grand Canal Dock Strategic Developmen	Granted	09/02/2018
3608/17	At the site of the Tara Towers Hotel and ancillary car park on Merrion Road and Bellevue Avenue, Dublin 4. The proposed development of the hotel site	Granted	06/02/2018
4166/16	The develoment proposes the demolition of the existing 5 storey over lower ground floor office developmenton the site (c.2,290 sqm, [c.15.70m high with roof plant extending to overall height of c. 18.94m])	Granted	29/01/2018
4012/17	Permission for change of use of existing first floor of building (400.3m2) from permitted office use to laboratory (research & development) including associated external plant & equipment, including plant platform, all located to the rear	Granted	19/01/2018
4039/17	The development will consist of the use of the permitted Student Accommodation for Tourist or Visitor Accommodation outside of academic term time only by the omission or modification of Condition 2 of Reg. Ref. 3611/14 (ABP Reg. Ref. PL 29N245025)	Granted	19/01/2018
2997/17	Irish Life Assurance plc together with Ventasker Ltd and MIRELF V1 Irish Investments ICAV, intend to apply for planning permission for development at this site, part of St. Stephen's Green Shopping Centre (128 - 140 St. Stephen's Green, Dublin 2)	Granted	18/01/2018
3942/17	Development consisting of: i)Demolition of 2 no. two-storey existing structurally unsound terraced dwellings at Nos. 6 & 7 Walworth Road and construction of 2 no. replacement two-storey terraced dwellings similar in form, appearance and character	Granted	08/01/2018
3322/17	The proposed development comprises the demolition of all existing buildings on site and the construction of a new building that ranges in height between 2- to 6- storeys above ground level on Mill Street, and between 4- and 5- storeys above ground level	Granted	05/01/2018
DSDZ4165/17	Extend the existing 25mm diameter relief vent pipework from 3.9m to max 6m above ground level to include all ancillary services and associated site works. This application relates to land within the North Lotts and Grand Canal Dock Strategic Development	Granted	03/01/2018

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Reference	**Proposed Development**	**Decision**	**Grant Date**
3421/17	The construction of two double storey semi detacted houses with single storey elements to rear elevations on site at side of existing house, also all associated site works, to include new vehicular site entrances to serve new houses.	Granted	20/12/2017
3958/17	A variation is sought to an existing Planning Permission (Reg. Ref. 3015/15). The permission granted involved a mixed use development of a 4 storey-over basement building comprising 1 retail unit at Ground Floor level with retail storage and gym at Basem	Granted	20/12/2017
DSDZ3780/17	David Carson Statutory Receiver, acting for Crossman Properties Limited (in receivership) c/o Deloitte, 29 Earlsfort Terrace, Dublin, D02 AY28 intend to apply for a ten year permission for development at a site of 0.91 ha at North Wall Quay and Mayor St	Granted	19/12/2017
DSDZ3805/17	The development will consist of the following; Demolition of all existing structures on site including 2-storey office building (c.380 sq.m). Construction of a 7-9 storey building (with mezzanine) providing c.18,679 sq.m of offices with two entrances	Granted	11/12/2017
3788/17	The development will consist of the change of use of the building from warehouse use to self storage use. Works will also include the addition of a new mezzanine area comprising of 1,036.45sq.m, a new office comprising of 15 sq.m), and a lift and stairs	Granted	06/12/2017
DSDZ4064/17	The development at a site generally bounded by Project Wave Block D (currently under construction) to the west, 81-82 North Wall Quay and Castleforbes Road to the East, by project Wave Block B (currently under construction) to the north and by North Wal	Granted	06/12/2017
DSDZ4112/17	Planning permission for development at a site generally bounded by the Central bank of Ireland to the west, Project Wave Block D (currently under construction) to the north and east, and by North Wall Quay to the south, North Lotts, Dublin 1 of c. 50sq.m	Granted	06/12/2017
3744/17	The application site comprises of 0.24 hectares and is bound by Dawson Street to the East, Anne Street South to the South, Duke Street to the North and Duke Lane to the West. The development will consist of upgrades to the Dawson Street and Duke Lane	Granted	04/12/2017
3746/17	Permission sought for montessori school to rear, side of existing family home, approx 40m2 and opening hours 8.30am 4.30pm Monday to Friday and all associated site works.	Granted	04/12/2017
2952/17	A mixed use development. The proposed development comprises of 6 Storey building facing Pembroke Row consisting of 25 apartments (5 one bed apartments, 15 two bed apartments and 5 three bed apartments) all above a ground floor, restaurant & cafe 434 sq	Granted	01/12/2017

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
DSDZ3979/17	The proposed development seeks to amend previously permitted development under Reg. Ref. DSDZ2878/16. The proposed development consists of: - Amalgamation of previously subdivided Unit 1 (office / reception and retail) to form 1 no. unit of 197 sq.m GFA;	Granted	28/11/2017
DSDZ3357/17	I, David Carson of Deloitte, Statutory Receiver of Chinook Investments Limited Company (In Receivership), intend to apply for planning permission for development at a site of 1.54 hectares bound by Sheriff Street Upper to the north	Granted	23/11/2017
2981/17	Permission for development on this site (0.43ha) bound by Gardiner Street Lower to the west,Summerhill to the north, Gloucester Place Upper to the east and Diamond Park to the south)The application relates to the permitted student residence complex Reg.R	Split decision	14/11/2017
DSDZ3897/17	Demolition of existing single storey cottage and associated structures. The application relates to a proposed development located within a Strategic Development Zone Planning Scheme area.	Granted	14/11/2017
3152/17	The development will consist of demolition of existing buildings on site including an office & warehouse, two vacant cottages and other structures and construction of 14 apartments , comprising 8 x 1 bed. duplex units and 6 x 2 bed.	Granted	10/11/2017
DSDZ3776/17	Permission for development at a site of 2,382sqm.The overall site is located within City Block 10, as identified in the North Lotts & Grand Canal Dock SDZ Planning Scheme. The development consists of revisions to permitted development of the Exo Building	Granted	27/10/2017
3973/16	Planning permission is being sought for a residential apartment development consisting of the demolition of 4 no. existing dwellings, 1 no. workshop and other ancillary structures and the erection of an apartment block containing 71 no. apartments	Granted	25/10/2017
3454/17	The development will consist of the construction of a new two storey permanent steel gantry structure to allow for safe inspection and repair of refrigeration engines on shipping containers & all associated site works.	Granted	23/10/2017
4459/16	The development will comprise: (i) Demolition of existing single storey sheds (670 sqm); (ii) Construction of 5 no. five-storey, over basement, residential apartment buildings, accommodating a total of 90 no. residential apartments, each with and assoc	Granted	09/10/2017
4436/16	Permission for development at this site, Chatham Court, Chatham Street, Dublin 2 bounded to the north by Chatham Street, to the south by the rear of The Gaiety Centre, King Street South, to the west by Clarendon Row and to the east by 6 Chatham Street an	Granted	13/09/2017
2932/17	Development on this site (0.43 ha). (Site bound by Gardiner Street Lower to the west, Summerhill to the north, Gloucester Place Upper to the east and and Diamond Park to the south). The application relates to the permitted Student Residence Complex Reg.R	Granted	30/08/2017
2052/17	Site (0.52ha) at Gardiner Street Lower, Summerhill and Gloucester Place Lower & Upper, Dublin 1, (Site bound by Gardiner Street Lower and Diamond Park to the west, Summerhill to the north, Gloucester Place Upper & Lower to the east and Diamond Park and L	Granted	28/08/2017
2080/17	The proposed development comprises of the demolition of the existing vacant commercial building on part of the site and the construction of a 6 storey over lower ground floor/basement level student accommodation development	Granted	18/08/2017

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
2199/17	Construction of a two-storey operations building of 432 sq.m, an ESB substation of 21.8 sq.m with ancillary transformer and generator and site clearance works.	Granted	18/08/2017
2099/17	Permission sought for the redevelopment of the existing two storey building, to provide a new four storey over basement building. The new building will provide 11 no hotel bedrooms (1 no wheelchair accessible) at ground to third floors	Granted	14/08/2017
2893/17	Permission to widen existing single width pedestrian gateway at south end of site.	Granted	09/08/2017
DSDZ3172/17	Development on a site of 0.43 ha. The application relates to a proposed development within a Strategic Development Zone Planning Scheme area. The proposed development seeks to amend permitted mixed use development on the subject site Reg.Ref.DSDZ3777/15,	Granted	09/08/2017
4280/16	Planning permission for a mixed-use development including residential and commercial uses on a site which extends to 3,848 sqm at Chancery Lane and Ship Street Great, Dublin 8.	Granted	25/07/2017
2701/16	The development will consist of the construction of a 136 bedroom , 4 star hotel in a 7 storey block over partial basement comprising: 1) Demolition of the existing warehouse building on the site (gross floor area of 802 sq m); 2) a 136 bedroom hotel	Granted	24/07/2017
2693/17	The development will consist of a golf course toilet with Streamline BAF wastewater treatment system complete Puraflo Module and a sand polishing filter. The toilet will be of masonry construction and will be landscaped as a sand/ grass dune.	Granted	18/07/2017
4341/16	Development at a 0.1285 ha site. The proposal comprises the demolition of the existing vacant warehouse building on the site with a GFA of 1,156 sq.metres and the construction of a student accommodation development with 77 no. bedspaces	Granted	12/07/2017
2137/17	The development will consist of 1) demolition of the existing rooftop (6th .floor) plant-room and its replacement with a new penthouse (6th) floor with 16 bedrooms; 2) the addition of a new floor (4th) and plant-room (5th) facing Bethesda Place; 3) the	Granted	12/07/2017
3847/16	Planning permission at 60-63 Dawson Street and 3 Duke Lane (Hibernian House); 64-65 Dawson Street and 34-39 Nassau Street (Hibernian Corner) and 40-43 Nassau Street (Nassau House), Dublin 2 (on a site measuring approximately 0.36ha in extent).	Granted	10/07/2017
DSDZ2505/17	Permission for development at a site of 0.17 ha at the Marker Hotel, Grand Canal Square, Misery Hill, Dublin 2. The site is bound by Misery Hill to the South, Hibernian Road to the east , Chimney Park to the North and Forbes St to the West and located w	Granted	10/07/2017
2599/17	The development will consist of the demolition of existing single storey workshop (103B) and the construction of a three storey building to the rear of existing shop unit and first floor apartment. The building will consist of 2 no. 1 bedroom apartments	Granted	05/07/2017
3037/16	Site of 0.3536ha at Hawkins House, Hawkins St, Dublin 2. The site is bounded by the Screen Cinema and College House to the South, Apollo House to the East, Hawkins St to the West and Poolbeg St to the North.	Granted	14/06/2017

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
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Reference	**Proposed Development**	**Decision**	**Grant Date**
	The proposed development consists of the demo		
3036/16	Apply for permission for development at a site of 0.2925ha at Apollo House, Tara St., Dublin 2 and 9-11 Townsend Street (Incl. The Long Stone Pub), Dublin 2. The site is bounded by Townsend St. to the south, Tara St. to the East, Hawkins House to the Wes	Granted	14/06/2017
DSDZ2723/17	Permission is sought by Tenable Networks Security Ireland Limited for development under the Planning Scheme for the North Lotts and Grand Canal Dock Strategic Development Zone at 81B Sir John Rogerson's Quay, Dublin 2 (adjacent to the existing Liffey Qu	Granted	13/06/2017
DSDZ2673/17	Targeted Investment Opportunities ICAV (an umbrella fund with segregated liability between sub-funds, for and on behalf of South Docks Fund, a sub-fund of Targeted Investment Opportunities ICAV) intend to apply for permission for development at this site	Granted	02/06/2017
3963/16	The proposed development consists of the demolition of the existing buildings, 190 being a 2 storey semi detached house and 189 a 2 storey semi detached building divided into 5 flats, and construction of an apartment building with two interconnected block	Granted	22/05/2017
DSDZ2014/17	Under the Planning Scheme for the North Lotts and Grand Canal Dock Strategic Development Zone. Development will consist of the demolition of an existing single storey building and the construction of a new eight-storey mixed-use development, comprising:	Granted	22/05/2017
2243/17	Permission for development on this site (0.43ha) bound by Gardiner Street Lower and Diamond Park to the west, Summerhill to the north, Gloucester Place Upper to the east and Diamond Park to the south). The application relates to the permitted student residence	Granted	22/05/2017
2258/17	The development will consist of the construction of a five storey over basement mixed use development of 1,112.4sqm at the corner of, and fronting onto Capel Street and Strand Street Little and consisting of 7 no. two bed apartments	Granted	22/05/2017
2164/17	Development to amend a previously permitted 137 no. bedroom hotel (DCC Reg.Ref. 2246/15; ABP Reference PL29S.245162) on a site of c. 0.1441 ha.	Granted	16/05/2017
DSDZ2460/17	Permission for development at a site of 0.75 ha. at Upper Mayor St and 113-115 Sheriff Street, Dublin 1. The site is bounded by Upper Mayor St/Point Village Square to the South, Sheriff St to the North, the under construction new north-south street	Granted	08/05/2017
4442/16	Development at a 0.1 ha site approximately. This site is principally bounded by Earlsfort Terrace to the west, the Conrad Hotel to the north, Blocks J and F of Earlsfort Centre to the east, and Block D of the Earlsfort Centre and Nos. 5-15, Hatch Street	Granted	27/04/2017
2047/17	The development will consist of the construction of: 320 sq.m of infill offices in an existing void space on the ground, first and second floors of the existing 8-storey block; new plant area (427 sq.m) on the roof of the existing three storey block; 520	Granted	24/04/2017
2051/17	The site (c. 0.19 ha) encroaches on the adjoining Herbert Park Hotel service lane along the eastern boundary and otherwise is generally bounded by Herbert Park Hotel to the east, Herbert Park (public park) to the south, Nos. 36, 38 & 40 Herbert Park	Granted	24/04/2017

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
4434/16	Permission for construction of a single storey toilet with verandah and all ancillary site works.	Granted	06/04/2017
4415/16	The development will consist of: Demolition of existing LV switchroom (14 sq.m) and construction of new single storey ESB substation and LV switchroom (21.5 sq.m) with associated drainage and services diversions within the existing Eir car park accessed	Granted	05/04/2017
4423/16	The development will consist of: New vehicle entrance with piers and associated works. All finishes to match existing and all of the above to include associated site works and all services connected to existing.	Granted	05/04/2017
3277/16	The proposed development will consist of: - Demolition of all existing buildings within the site; - Construction of a 4 to 6 storey over part basement mixed use retail/ commercial building	Granted	30/03/2017
4369/16	The proposed development comprises the provision of 16 no. 2-bed units in lieu of 4 no. 1-bed units and 12 no. 2-bed units previously permitted, at Levels 01-04 of Block 6B; each unit has a balcony / terrace.	Granted	30/03/2017
4170/16	Planning permission is sought for stone rendering to gable/side wall to be removed and replaced with a smooth nap render finish and all associated site works.	Granted	27/02/2017
DSDZ4385/16	Development at a site of 0.75 ha. The site is bounded by Upper Mayor Street/ Point Village Square to the South, Sheriff Street to the North, the under construction new north-south street	Granted	21/02/2017
2656/16	The development will consist of the construction of a new single storey operational control room, complete with electrical switch room to ESB specifications. A transformer will be sited adjacent to the North side of the new control room.	Granted	03/02/2017
2311/16	Permission is sought to demolish the existing two storey warehouse and office building at 71 Pleasants Place which is to the rear of 71 Camden Street Lower in order to construct on the same footprint, a three storey apartment building to include a studio.	Granted	30/01/2017
DSDZ3552/16	Development of c. 0.37 ha. The development will consist of the demolition of a business premises (280 sq.m) and the construction of Block E over a single level basement (17,068 sq.m). Block E will consist of: 124 no. apartment units; 3 no. units	Granted	18/01/2017
2382/16	Planning permission is sought on foot of grant of planning permission Reg. Ref. 3453/15, for the demolition of the existing vacant commercial building and the construction of a residential student accommodation development of 17 no. student accommodation.	Granted	12/01/2017
2388/16	The development will consist of 1) the demolition of the commercial building on site (858sqm), and 2) the provision of 4, 3-bed, 3-storey, terraced units ranging from 184-185sqm. Permission will include all associated site works.	Granted	11/01/2017
3794/16	The development will consist of the reinstatement of the recessed vehicular access, fencing and gates on the line of the original access to the ESB Station lands at Poolbeg. The works include the removal of 100m of existing 2.6m high palisade fence.	Granted	11/01/2017
3754/16	The proposed development seeks to accommodate 8 no. 2 bedroom houses, with new proposed rear returns to same (86.4m2 in total), thus replacing 13 no. individual units currently accommodated within No.s 1-8 Dean Swift Square.	Granted	09/01/2017

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
DSDZ4049/16	Continuation of use of the unit for financial services (Class 2) as permitted under DSDZ3879/14.	Granted	04/01/2017
2308/16	Planning permission sought by Gannon Properties for revisions to the previously approved scheme Reg. Ref. 2620/14 on lands at the former Paper Mills site , bounded by the river Dodder to the east, Clonskeagh Road to the West, Clonskeagh bridge to the south.	Granted	30/12/2016
3160/16	Avam Limited intend to apply for planning permission for development at a 513 sq.m site located at 48-50 Cuffe Street to the Southside of Cuffe Street and to the east of Wexford Street, Dublin 2.	Granted	19/12/2016
3255/16	The development will consist of the demolition of the existing 80 sqm single storey bungalow and construction of a 200 sqm two storey dwelling ancillary to the main house no. 22 Ailesbury Road.	Granted	19/12/2016
3170/16	The development will consist of revisions to previously approved permission under Reg. Ref. 2651/14 (An Bord Plean ├íla Ref. PL29N.243648) comprising reorientation of House Types B & B1 (a terrace numbered 8-11 on the original permission)	Granted	06/12/2016
2210/16	The development will consist of the demolition of the existing single storey sheds (670 sq.m) and the construction of 5 no. buildings accommodating 71 no. residential apartments in total	Granted	05/12/2016
2209/16	The site is bounded by the Luas Green Line to the north-east and east; 'Harcourt Green' residential development to the north-west; 'Charlemont Exchange' to the west; and Charlemont Place and the Grand Canal to the south.	Granted	28/11/2016
2554/16	The development will consist of the construction of 16 no. residential dwelling units with a total gross floor area of 2,074.16 sq.m in a five storey residential building (with a maximum building height of 16 metres) with a setback fourth floor penthouse.	Granted	28/11/2016
3581/16	The development will consist of the formation of a new single story ground floor entrance to the western elevation to existing office building.	Granted	25/11/2016
3595/16	Planning permission for development at Cumberland House, Fenian Street, Dublin 2, D02 HY05. The site is bound by Fenian Street to the south, Boyne Street to the north and Bass Place to the east.	Granted	25/11/2016
DSDZ3831/16	David Carson of Deloitte, Statutory Receiver of Crossman Properties Limited (In Receivership), intend to apply for planning permission for development at this site.	Granted	23/11/2016
3535/16	Planning permission for development at 8 Vergemont Hall, off Clonskeagh Road, Dublin 6 an Architectural Conservation Area consisting of demolition of single storey offices and the construction of a detached single storey dwelling of 140 sq. metres	Granted	18/11/2016
3492/16	Planning permission for development at the overall site of c. 0.48 ha is generally bounded by Baggot Street Upper to the north No.23-25 Baggot Street Upper and Durrow Mews to the west, St Martin's House to the east and Fleming Place to the south.	Granted	14/11/2016
DSDZ3686/16	Paul McCann and Steve Tennant, Joint Statutory Receivers, acting for the Specified Assets of Henry A. Crosbie c/o Grant Thornton, 24-26 City Quay, Dublin 2 intend to apply for permission for development at this site of 1.1507 ha.	Granted	03/11/2016

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
3438/16	The development will consist of:Demolition of existing 3 storey building over basement to be replaced with new 7 storey over basement incorporated into main structure of hotel, to include a new fire escape stairs exiting onto Talbot Street.	Granted	01/11/2016
3387/16	The development will consist of: the demolition of 5 no. existing buildings.	Granted	21/10/2016
2784/16	Erection of a detached metal cladded 192 sq.m 7.65m high warehouse structure with 17.4 sq.m link building, all to the north of the existing warehouse/ vehicle maintenance unit adjacent to East Wall Road on lands at P & O Terminal, East Wall Road, Dublin	Granted	19/10/2016
2051/16	Site of c0.385 ha at 1-6 Wilton Terrace (formerly Fitzwilton House), bounded by Wilton Terrace, Cumberland Road and Lad Lane Upper, Dublin 2. Site of c0.385 ha at 1-6 Wilton Terrace (formerly Fitzwilton House), bounded by Wilton Terrace, Cumberland Road	Granted	17/10/2016
2221/16	Development at a site of 1.513 hectares. The development will consist of the demolition of the existing four no. office blocks with a total gross floor area of 9,789 sq.m on the site and the construction of 2 no. 6 storey office buildings	Granted	03/10/2016
4124/15	The development will consist of part demolition of existing four storey stair core building, construction of a new 5 storey residential development comprising of 29 no. apartments with balconies i.e. 25 no. 1 bed apartments, 4 no. 2 bed apartments.	Granted	28/09/2016
3230/16	Amalgamation of 2 no. two-storey terraced houses into one dwelling including all associated site works.	Granted	22/09/2016
DSDZ2749/16	of c.0.6ha This development will consist of: The construction of Block B to contain 161 no. apartment units (18,708 sqm), including a retail unit (275 sqm), a caf ├⌐ (280 sqm), a community use unit (50 sqm), a residents lounge (185 sqm) and an ESB substa	Granted	07/09/2016
3028/16	Chartered Land Management and Irish Life Assurance plc intend to apply for permission for development. The development will consist of: The amalgamation of two existing retail units to create a single retail unit measuring 153 sq m at ground floor level	Granted	02/09/2016
DSDZ3197/16	The development will consist of construction of a new residential and commercial development within a 7-8 storey building (including set back top floor) comprising the following: 122 no. apartments (including 11 no. duplex apartments)	Granted	18/08/2016
2923/16	Irish Life Assurance plc intends to apply for planning permission for development at a site of c. 0.42 ha. The proposed development includes demolition of the existing front entrance to the blocks and its replacement with an extended new entrance.	Granted	16/08/2016
2868/16	The development will consist of (a) The demolition of the existing 5 storey commercial building (total GFA of building to be demolished is c. 3290m2) (b) The construction of 1 no. commercial building 4-6 storeys over basement level with pedestrian	Granted	10/08/2016
DSDZ3111/16	Targeted Investment Opportunities ICAV (an umbrella fund with segregated liability between sub-funds, for and on behalf of South Docks Fund, a sub-fund of Targeted Investment Opportunities ICAV) intend to apply for permission for development at this site	Granted	08/08/2016

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
2182/16	Development on a site measuring approx. 0.5526 hectares. The proposed development will be concentrated on the southern portion of the overall site (which currently has permission for a permitted office development under Reg.Ref. 2768/09.	Granted	28/07/2016
DSDZ2457/16	The development will consist of demolition of all existing structures on the site and construction of a 6-storey plus set back (over basement) commercial, retail and residential development in 2 mixed-use blocks to include: - Construction of a new stree	Granted	26/07/2016
2693/16	Permission for works to the existing three-storey 2,225m2 Secondary School building comprising 1) demolition of 72m2 of the existing single storey wing containing the existing boiler room and chimney, changing rooms, cloaks and stores 2) the construct	Granted	21/07/2016
2612/16	Permission for the equal subdivision of 2 Stable Lane, a 2 storey, middle house in a terrace of 3. The rear half of 2 Stable Lane at ground and first floor level will be joined to 1 Stable Lane with the front half at ground and first floor level.	Granted	06/07/2016
2577/16	Permission for a new gated entrance onto Bolton Street with all associated Site Works. The proposed entrance is for full-time pedestrian student use and occasional service vehicles for the school by arrangement only.	Granted	04/07/2016
4294/15	The conversion of a three storey (including basement) building extending to 843 sq.m, previously in education use but now vacant at corner of 40-41 Sean MacDermott Street Lower, and Rutland Street Lower, Dublin 1 to use as 9 no. residential dwelling unit	Granted	29/06/2016
2545/16	Planning permission is sought for the proposed new single storey self contained residential unit to rear and associated external landscaping.	Granted	27/06/2016
2465/16	The development will consist of the construction of a free standing single storey ESB substation and switch room (approx 25 sq m) to the side (South-East) of the site, and associated site works.	Granted	16/06/2016
3084/15	Permission for development at a site (c.0.094 ha) at Scotch House, corner of Burgh Quay and Hawkins Street, Dublin 2. The site currently accommodates an existing 7 storey office building (c.4002sq.m gfa) over basement (8 floor levels in total), including	Granted	14/06/2016
3987/15	Hibernia REIT plc intend to apply for a 10 year planning permission for development at a 0.38 hectare site. The proposed development comprises of Phase 2 of the redevelopment of the overall site (Phase 1 is permitted under Reg.Ref.: 2527/15).	Granted	13/06/2016
DSDZ2642/16	David Carson acting as Statutory Receiver of Jarmar Properties Limited (In Receivership), intend to apply for planning permission for development at a Site of 0.65 ha located to the South and West of Northbank Apartment Block, Castleforbes Road/Sheriff.	Granted	03/06/2016
DSDZ2558/16	Planning permission is sought for a) Sub-division of existing retail unit (Unit C - Ground Floor Retail Area = 362.6sq.m., Basement Floor Storage Area - 80.7sq.m.) into 2 No. retail units (Unit C1 - Ground Floor Retail Area = 184.6sq.m.	Granted	23/05/2016

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Reference	**Proposed Development**	**Decision**	**Grant Date**
2279/16	Planning permission for development at the office building currently under construction at 18-21 Charlemont Place, Dublin 2 (as permitted under Register Reference 2502/12, ABP Reference PL29S. 240817). The site is bounded by the LUAS Green Line.	Granted	18/05/2016
2294/16	The development will consists of: The erection of a single story workshop with an area of 47m2 in the existing yard to the rear of the Abbey Theatre.	Granted	16/05/2016
2139/16	To construct a 19M long x 5M high concrete 'hurling wall' together with associated site works.	Granted	28/04/2016
2755/15	The proposed development shall provide for a commercial development (total GFA c. 2,509 sq.m) of 4-6 storeys in height comprising retail use (c. 822.8 sq m) at basement and ground floor level, the option of providing retail or office accommodation	Granted	27/04/2016
DSDZ2242/16	David Carson, Statutory Receiver of Crossman Properties Limited (In Receivership) and David Carson acting as Statutory Receiver of Chinook Investments (In Receivership), intend to apply for planning permission for development at a site of 1.44 ha	Granted	07/04/2016
DSDZ3632/15	Paul McCann and Steve Tennant, Joint Statutory Receivers, acting for the Specified Assets of Henry A. Crosbie c/o Grant Thornton, 24-26 City Quay, Dublin 2 intend to apply for permission for a development at a site of 1.1507 ha	Granted	24/03/2016
4198/15	Permission for development at a site of 0.280 ha comprising the Molesworth Building, 10-11 Molesworth Street (formerly 10-14 Molesworth Street); the Frederick Buildings, South Frederick Street, and 35 to 37 Setanta place, Dublin 2 (Eircode Nos: D02 W260	Granted	23/03/2016
DSDZ2141/16	Paul McCann and Steve Tennant, Joint Statutory Receivers, acting for the Specified Assets of Henry A. Crosbie c/o Grant Thornton 24-26 City Quay, Dublin 2 intend to apply for permission for development at Unit 27, Point Village District Centre, East Wall	Granted	21/03/2016
3829/15	The development will consist of the provision of a ground floor ESB substation (c. 15sqm) within the existing footprint of the building, relocation of retail accommodation stairs, relocation of 2 no. lift shafts, omission of existing boiler room in basement.	Granted	03/03/2016
4084/15	Hibernia REIT Plc intend to apply for full planning permission for development at Cumberland House, Fenian Street, Dublin 2, D02 HY05. The application site adjoins Fenian Street to the south, Bass Place to the east and Boyne Street to the north.	Granted	23/02/2016
2347/15	The development at this 3.065ha site will consist of:- 101 no. residential units, comprising 12 no. 5 bed units, 12 no. 4 bed units, 55 no. 3 bed units and 22 no. of 2 bed apartments;- The dwelling units are to be provided as follows: 28 no. units of hou	Granted	08/02/2016
3876/15	The development will consist of a new pharmacy facility ancillary to the principal hospital use at roof level of the existing Main Ward Block in the form of a new 2 and 3 storey structure. It will consist of: the demolition of the existing single storey	Granted	29/01/2016
3878/15	Permission sought for development consisting of formation of connection at ground and basement floor levels, to provide for a single/combined letting of: (a) Ground Floor- Retail: 190 Sq.m. and (b) Basement- storage: 159 Sq.m.,	Granted	22/01/2016
3851/15	Redevelopment of the lands by the construction of a mail delivery services unit as follows:- 1) Demolition of all existing structures on site inluding a warehouse occupying the East Road frontage, former commercial buildings fronting Ravensdale Road .	Granted	19/01/2016

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Reference	**Proposed Development**	**Decision**	**Grant Date**
3068/15	Planning permission for development at a site of c. 0.15 hectares at Hainault House, Nos. 69-71 St Stephen's Green, Dublin 2. The development will consist of the demolition of the existing six storey office development (c.3,686 sq m) over basement (c.401).	Granted	18/01/2016
3245/15	Kavcre Chanel Ltd. intend to apply for planning permission at a site comprising c.1.6ha surrounding Chanel College and fronting onto Coolock Village, Dublin 5. The development will consist of an amendment to a previous permission granted under reg. ref.	Granted	11/01/2016
2158/15	The development will consist of the demolition of the existing three storey over basement building on the site and the construction of a 2,679 sq.m five storey over basement mixed use building comprising: 225 sq.m of retail floor space.	Granted	31/12/2015
DSDZ3875/15	William G.O'Riordan and Declan McDonald of PWC (Joint Statutory Receivers of Wintertide Limited) intend to apply for permission for development at this site (0.75ha) formerly known as the "Tedcastles Site" at 91-94 North Wall Quay, Mayor Street Upper.	Granted	11/12/2015
3313/15	The proposed development will consist of the replacement of an existing ESB LC substation with a MV ESB substation with selected facing brickwork to match the existing wall and all associated site development and site layout works.	Granted	08/12/2015
3104/15	The development of a serviced apartments/ aparthotel scheme with ancillary accommodation on a site of 0.635 hectares at No. 25 Upper Pembroke Street and including garages to the rear of Nos. 22 and 23 Upper Pembroke Street.	Granted	23/11/2015
3452/15	Permission for development at Port Centre, on a 1.7ha site bounded by Alexandra Road & East Wall Road, Dublin 1.	Granted	13/11/2015
DSDZ3350/15	Planning permission for development at a site bounded by North Wall Quay, New Wapping Street, Mayor Street Upper and Castleforbes Road, Dublin 1 of c.1.875 ha. The development will consist of: demolition of ESB substation (c.50 sq.m) .	Granted	10/11/2015
DSDZ3630/15	The development will consist of: 1. Demolition of existing buildings and other structures on the site including part of the existing warehouse structures at 89-90 North Wall Quay (c.330sq.m) and the former Chetham warehouse at Mayor Street Upper (c.1,527).	Granted	09/11/2015
3258/15	Planning permission for development at 4-5 Harcourt Road, Dublin 2. The application site comprises of 0.14 hectares and is bounded by Harcourt Road (adjacent to Adelaide Road) to the north, Harcourt Lane to the west and Albert Terrace to the south. The p	Granted	27/10/2015
3257/15	Development at a 0.02 hectare site comprising of an existing battery room located at ground floor level to the rear (north) of the Eircom Telephone Exchange building, Adelaide Road, Dublin 2. The proposed development comprises the demolition of part.	Granted	19/10/2015
3153/15	ESB substation attached to previously approved development (Reg. Ref. 2555/13) on site of 0.9h	Granted	30/09/2015
2338/15	The application site comprises of 0.185 hectares and is bound by Dawson Street to the west ,Molesworth Street to the south and Dawson Lane to the north and east.The proposed development will consist of the demolition of the existing 5 storey office.	Granted	28/09/2015
3611/14	The development will consist of:- Demolition of all existing structures on the site including 18 no. light industrial units (1,330 sq.m) and the construction of a student residence complex with associated ancillary accommodation and a caf ├⌐/ restaurant.	Granted	25/09/2015

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
2364/15	The development will consist of the amendment of part of a previously permitted development under Dublin City Council Reg. Ref 3373/10 (An bord Plean ├íla Reg. Ref. PL29S.232913) as subsequently amended by Dublin City Council Reg. Refs. 2812/11, 3773/11,	Granted	22/09/2015
2756/15	Permission for development at a 0.353 hectare site located at Hatch Street Upper, Adelaide Road, and Adelaide Court, (including existing units 1-14 Adelaide Court), Dublin 2. The site has an existing access from Adelaide Road. The proposed development co	Granted	17/09/2015
3170/14	The development will consist of the amendment of part of a previously permitted development under Dublin City Council Reg. Ref. 3373/10 (An Bord Pleanala Reg. Ref. PL29S.232913) as subsequently amended by Dublin City Council Reg. Refs. 2812/11, 3773/11 a	Granted	04/09/2015
2944/15	Planning permission for development at a 0.077 hectare site located at Block 5 of the Harcourt Centre, Harcourt Road and Camden Street Upper, Dublin 2. The proposed development comprises of - Provision of additional infill office floorspace at fourth floor.	Granted	02/09/2015
2821/15	Permission for development to a previously permitted mixed-use scheme (the 'parent permission' DCC Reg. Ref. 4798/07; An Bord pleanala Reg. Ref. PL 29S.228224, which was subsequently amended by DCC Reg. Ref. 2227/15) on a site of 0.825 hectares.	Granted	26/08/2015
2838/15	We, targeted Investment Opportuniies PLC intend to apply for planning permission on a 0.57 ha site located at portion of 104A part 105-106 and 107-115 Dorset Street Upper & No 65-70 Wellington Street Lower, Dublin 1.	Granted	26/08/2015
2788/15	Permission for development to amend a previously permitted office development (DCC Reg. Ref. 3397/13) on a site of 0.2133 ha, approximately, formerly known as the 'Dairy Science Laboratory', Charlemont Place (also known as Harcourt Terrace Lane), Dublin	Granted	14/08/2015
F15A/0141	Aviation fuel pipeline from Dublin Port to Dublin Airport.	Granted	07/07/2015
3960/14	Permission for an alteration to permitted development, Register Reference 3709/13 at Grattan Court, No. 1 Grand Canal Street, Dublin 2 to consist of: 1) The relocation of existing ESB Substation and Switch Room from basement to the ground floor.	Granted	20/05/2015
2043/15	Demolition of the existing light industrial building and construction of a 5 storey mixed-use building and consisting of an art gallery, cafe and 4 no. residential units with a total gross floor area of 944sqm, with access from Pembroke Row only.	Granted	17/04/2015
3924/14	The development will consist/consists of the construction of two identical pedestrian link bridges providing connection between office blocks A/B & C at second and fourth level at Grand Canal Plaza located on Grand Canal Street Upper.	Granted	30/03/2015
DSDZ3864/14	Targeted Investment Opportunities PLC (an umbrella fund with segregated liability between sub-funds, for and on behalf of South Docks Fund, a sub-fund of Targeted Investment Opportunities PLC) intend to apply for Permission for development at a site of c.0.81 ha at former Kilsaran Concrete site, 5 Hanover Quay, Dublin 2. The development will consist oconstruction of a new residential and mixed-use development within a 7-8 storey building (including set back top floor) comprising the following: 100 no. apartments.This application relates to a proposed development within the North Lotts & Grand Canal Dock SDZ Planning Scheme area.	Granted	20/03/2015

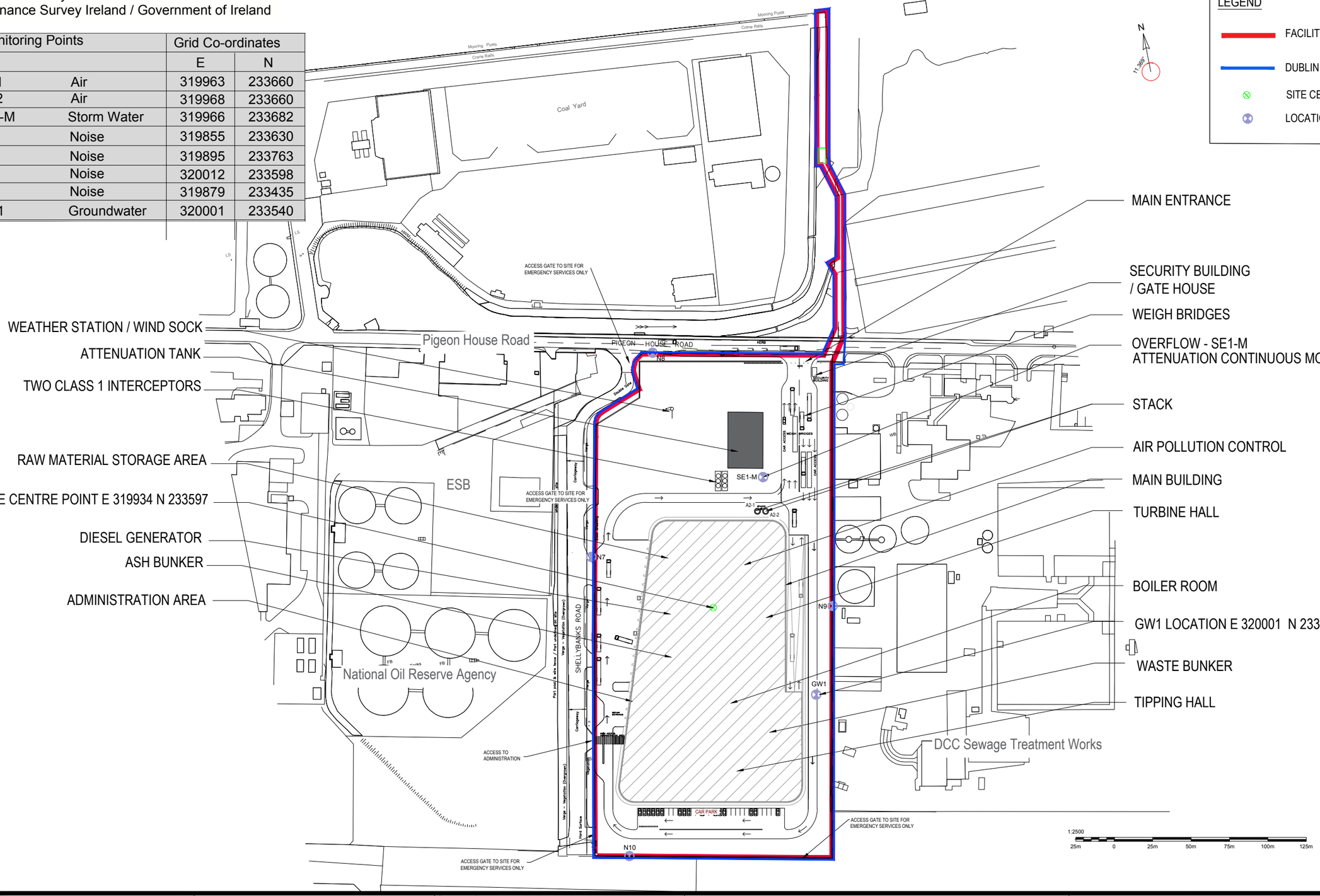
Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
3763/14	Development at an existing 1252 sq.m six storey building (including two penthouse storeys) at Windmill Lane, Dublin 2, (as permitted under planning permissions reference nos. 3780/00, 0653/02, 4348/02, 2164/05 and 3284/12)	Granted	09/03/2015
2767/14	Permission for development at a site of 0.0556 ha at Nos. 34-37 Clarendon Street, Dublin 2 (sometimes known as Clarendon House). (The site excludes the ground floor retail unit 'A Star is Born' at the same address.	Granted	02/03/2015
2940/14	The development will consist of the demolition of a 2 storey warehouse building and the construction of a new 5 storey apartment building, including a partially setback top floor. Total area of building is 1610 sq.m.	Granted	04/02/2015
D14A/0648	Permission for development. The development will consist of: New facilities for the UCD Confucius Institute for Ireland consisting of the construction of a freestanding 3 storey building (2058.9 sqm) which will include teaching spaces, library exhibition space, Restaurant facility and ancillary areas such as office space for fulltime, part time and visiting lectures, a paved roof terrace at 1st Floor, a paved entrance plaza with access steps and an access ramp leading up from the lake, 25 bicycle stands, site signage, external lighting and the introduction of new site landscaping, services/plant on the roof, and all associated site development works. The application site is located adjacent to the existing UCD Engineering and Materials Science centre and the attenuation lake on Campus.	Granted	15/01/2015
D14A/0134	Permission for development on an application site area of 3.41 hectares.	Granted	04/12/2014
DSDZ3096/14	Planning permission for development at a 0.22 hectare site at the Central Quay Building (Block B) at the Riverside IV development, with frontage to Blood Stoney Road and Horse Fair (also known as Britain Quay), Dublin Docklands, Dublin 2. The proposed de	Granted	30/10/2014
3154/14	Mixed use development on a vacant site at no. 34 Camden Street Lower, Dublin 2. The proposed development will consist of the construction of a replacement three-storey building containing a ground floor retail unit with ancillary yard area to the rear, 2	Granted	30/10/2014
3140/14	The development will comprise the provision of a ship to shore (STS) gantry crane and all ancillary works.	Granted	22/10/2014
2772/14	Permission is sought to vary a mixed use development currently under construction. the approved proposal, (Reg. Ref. 3639/07/x1), consisted of the construction of a 4 storey building over single level basement to accommodate: apartments.	Granted	20/10/2014
2789/14	The proposed development will consist of the construction of 2 no. 50MVAr shunt reactance coil units within, and at the southern boundary of, the existing Poolbeg Generating station complex, which comprises the area of the existing Poolbeg 220 kV substation.	Granted	10/09/2014
2538/14	Planning permission is being sought for the following works at and adjacent to, Block P9, East Point Business Park, being on a 0.82 ha site (forming part of a larger 6.3 ha site) bounded by Bond Road to the east, an existing building "Eirfreeze" to the	Granted	15/07/2014
2305/14	Construction of a single-storey electrical sub-station with doors opening onto the street.	Granted	09/06/2014

Appendix A2-1: Summary of Planned and Consented Projects Within 5 km Radius			
Source: https://data.gov.ie/dataset/national-planning-applications, accessed on 14/10/2020			
Reference	**Proposed Development**	**Decision**	**Grant Date**
2555/13	For a mixed use development to be constructed over 2 no. blocks (A & B) and totalling 6,258sqm gross floor space on a site of 0.9 hectares. The proposed development comprises Blocks A & B fronting East Wall Road and Church Road.	Granted	06/05/2014
2482/13	To amend part of a previously permitted development under Dublin City Council Reg. Ref. 3373/10 (An Bord Pleanala Reg. Ref PL29S.232913) as subsequently amended by Dublin City Council Reg. Refs. 2812/11 and 3773/11, respectively at no's 21-23 Grafton Street.	Granted	30/04/2014
3657/13	Permission for development at a site of c.1.85 ha located at Sion Hill Road & Carberry Road (off Glandore Road), Dublin 9. The development will consist of: a residential development of 69 no. 2 to 3 storey units comprising 46 no. terraced houses, 22 no.	Granted	21/03/2014
3388/13	For the following works at and adjacent to, Block P9 East Point Business Park, being on a 0.82 ha site (forming part of a larger 6.3 ha. site) bounded by Bond Road to the east, an existing building "Eirfreeze" to the north.	Granted	24/01/2014
3309/13	Planning permission for a change of use from warehousing to a micro craft distillery and visitor centre, with a maximum production capacity of 500,000 litres per annum, including reception area, ancillary offices and meeting room, cafe/restaurant.	Granted	09/01/2014
3311/13	The development will consist of: Construction of a new emergency evacuation bridge, approx 12m long x 1.7m wide spanning over the railway and adjoining platforms and projecting out over the Grand Canal Basin.	Granted	07/01/2014
3207/13	Demolition of an existing 3 storey apartment building and the construction of a 4 storey mixed use development. The development will consist of 9 no. one bed apartments, 3 per floor, (3 at 56.50sqm, 3 at 55.50sqm and 3 at 56.86sqm).	Granted	11/12/2013
2692/13	The development will consist of alterations to the existing 110kV station consisting of new 110kV line bay and associated site works.	Granted	02/09/2013
2209/13	The development will consist of: the continuation of use of the site as a concrete batching paint and associated facilities for a period of ten years (previously granted for a period of ten years in 2004 under DCC reg ref 1420/04, ABP reg. Ref PL29S.2071	Granted	12/08/2013
D10A/0092	Planning permission for development at a site of c.2.64 ha comprising Belgrove Student Residences located within the campus of University College Dublin, Belfield, Dublin 4. The development will comprise refurbishment works to the residences (which comprise 196 no. student apartments in 37 no. 3-storey blocks) .	Granted	20/05/2010
D10A/0105	demolition. part two storey, part three storey 6,117 sq.m building for the School of Law incorporating lecture theatres, teaching areas, office space and associated ancillary facilities on a site to the south east of the Quinn School of Business building; the construction of a new realigned section of internal campus vehicle ring road connecting to the existing internal campus vehicle network including the future provision of pedestrian only and cyclist only route ways within the campus	Granted	20/05/2010
Further details available at https://data.gov.ie/dataset/national-planning-applications			

Appendix A2-2

Facility Layout and Environmental Emission Monitoring Locations

Monitoring Points		Grid Co-ordinates	
		E	N
A2-1	Air	319963	233660
A2-2	Air	319968	233660
SE1-M	Storm Water	319966	233682
N7	Noise	319855	233630
N8	Noise	319895	233763
N9	Noise	320012	233598
N10	Noise	319879	233435
GW1	Groundwater	320001	233540



Project Title: Proposed Amendments to Annual Tonnage at Dublin Waste to Energy Facility, Pigeon House Road, Dublin	Drawing Title: FACILITY LAYOUT AND ENVIRONMENTAL EMISSIONS MONITORING LOCATIONS	Purpose of issue: FINAL			
Client: DWtE		Designed: RPW	Drawn: SMF/RDH	Checked: CD	Approved: CD/DUB	Date: 04.04.19
		AECOM Internal Project No.: PR-351653		Suitability: FOR INFORMATION	
		Scale @ A3: 1:2500		Zone / Mileage: DUBLIN	

Drawing Number	Rev
002	B

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Appendix A2-3

List of Wastes Accepted at the Facility

List of Wastes Accepted at the Facility

Waste Type	European Waste Catalogue (EWC)
Non-hazardous Residual Waste	
Mixed municipal waste	20 03 01
Waste from markets	20 03 02
Street cleaning residues	20 03 03
Bulky waste	20 03 07
Wastes from aerobic treatment of solid waste	19 05 01
Combustible waste (refuse derived fuel)	12 12 10
Sludges from treatment of urban wastewater	19 08 05
Commercial & Industrial Wastes	02 01 03, 02 01 04, 02 01 07' 02 02 02, 02 02 03, 02 03 02, 02 03 03, 02 03 05, 02 05 01, 02 06 01, 02 06 02, 02 07 01, 02 07 02, 02 07 03, 02 07 04, 02 07 05, 03 01 01, 03 01 05, 03 01 03, 03 01 07, 03 03 08, 04 02 09, 04 02 10, 04 02 15, 04 02 17, 04 02 21,04 02 22, 06 05 03, 07 02 13, 08 01 12, 12 01 05, 15 01 09, 15 02 03, 16 01 03, 16 01 19, 16 01 22, 16 03 04, 16 03 06, 19 02 03, 19 0210, 19 05 02, 19 05 03, 19 08 01, 19 08 09,19 10 04,19 10 06,19 12 01, 19 12 04, 19 12 07, 19 12 08, 19 12 12. 07 02 12, 07 05 12[1] 18 01 04, 18 01 09[2]

Note: Maximum annual quantity to be accepted shall not exceed 600,00 tonnes

[1] Technical Amendment 2019
[2] Technical Amendment 2020. The acceptance of this LoW code is limited to the date specified in the Health Act 1947 (Section 31A -Temporary Restrictions) (Covid 19) Regulations 2020 (S.I. No. 121 of 2020), as amended, and in accordance with Condition 8.2.3.

Appendix 9: Air Quality

Appendix A9-1

Dublin Waste To Energy Facility Air Report

AECOM Imagine it. Delivered.

Dublin Waste to Energy Facility

Air Report

Dublin Waste to Energy Limited

01 February 2019

Quality information

Prepared by	Checked by	Approved by
		
Frankie Pickworth Air Quality Consultant	Gareth Hodgkiss Associate Director	Fergus Hayes Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
DRAFT	January 2019	Draft report	Y	FH	Director
01	February 2019	Final Report	Y	FH	Director
02	June 2019	Revised Final Report	Y	FH	Director

Prepared for:

Dublin Waste to Energy Limited

Prepared by:

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6. Conclusions 16
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1. Introduction

Dublin Waste to Energy (DWtE) is proposing an increase in the annual capacity of the waste to energy plant at Pigeon House Road, Poolbeg from the current 600,000 tonnes per annum (tpa) to 690,000 tpa.

This report focuses on impacts on air quality with a particular emphasis on:

- The receiving environment and predicted impacts as described in the original environmental impact assessment completed in 2006;
- Emissions to air from the facility since commissioning in 2017;
- The receiving environment in 2018 and an updated air quality impact assessment.

2. The Receiving Environment and Predicted Impacts 2006

2.1 Reported Background Air Quality

Background data was sourced from a baseline survey undertaken between July 2003 and December 2005. The survey included the monitoring of the following pollutants:

- Oxides of nitrogen (NO_X);
- Nitrogen dioxide (NO_2);
- Particulate matter (PM_{10});
- Fine particulate matter ($PM_{2.5}$);
- Benzene (C_6H_6);
- Sulphur dioxide (SO_2);
- Heavy metals (Antimony (Sb), Arsenic (As), Cadmium (Cd), Cobalt (Co), Chromium (Cr), Copper (CU), Mercury (Hg), Manganese (Mn), Nickel (Ni), Lead (Pb), Thallium (Tl) and Vanadium (V));
- Hydrogen Chloride (HCl);
- Hydrogen Fluoride (HF); and
- Polychlorinated dibenzodioxins (PCDDs)/Polychlorinated dibenzofurans (PCDFs).

Some of the listed pollutants were monitored using a continuous analyser at a location on the Irish Glass Bottle Co. Ltd. site in Ringsend, Dublin 4. NO_2 and SO_2 were also measured passively at four other locations in close proximity to the DWtE plant site, at Irishtown Nature Park, Sean Moore Park, Sandymount Green, Ringsend Park, and further afield, at Belgrove Road, in Clontarf, and on Bull Island.

This data is provided in Table 2.1, as it was summarised in the 2006 EIS. The data indicated that none of the pollutants monitored exceeded the air quality Limit Values during the survey. It also indicated that concentrations of NO_2, PM_{10} and $PM_{2.5}$ were elevated at the monitoring site/s situated at the roadside locations (Irish Glass Bottle site), and that concentrations of SO_2 were elevated at the monitoring site situated close to the Port and nearby industry.

Table 2-1: Monitored Background Air Quality Survey Data, as reported in the 2006 EIS

Pollutant	Monitoring Info	Averaging Period	Average Concentration µg/m³	Limit Value[1] µg/m³
NO_2	Continuous analyser between July 2003 and August 2005 (continuous)	Annual	30.5	40
		99.8th percentile of 1 hour values	101.0	200
	Diffusion tube measurements between July 2003 and August 2005 (24 monthly results)	Annual	16.0 to 30.6	40
PM_{10}	Continuous analyser between July 2003 and August 2005 (three hundred and fourteen (314) 24-hour samples)	Annual	34.0	40
		90th percentile of 24-hour values	57.0	50
$PM_{2.5}$	Continuous analyser between September 2003 and October 2005 (sixty (60) 24-hour samples)	Annual	11.0	25
SO_2	Diffusion tubes between July 2003 and August 2005 (24 monthly results)	Annual	4.8	20
	Diffusion tubes between January 2004 and March 2005 (2 monthly results only)	Annual	4.7 to 11.7	
C_6H_6	Diffusion tubes between July 2003 and August 2005 (16 weekly results)	Annual	2.0	5
HCl	Nylon Membrane Filter analysis between August 2003 and August 2005 (16 weekly results)	Annual	0.18	20
HF	Nylon Membrane Filter analysis between August 2003 and August 2005 (16 weekly results)	Annual	0.01	0.3
Hg	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.001	1
Cd	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.001	0.005
As	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.001	0.006
V	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.005	5
Ni	ICP monitoring between August 2003 and August 2005 (16 weekly results)	Annual	0.006	0.02

1. Statutory limits for NO_x, NO_2, PM_{10}, SO_2, derived environmental assessment levels (EALs) for other parameters.

2.2 Reported Predicted Impacts

The results of the dispersion modelling assessment to inform the 2006 EIS are summarised in Table 2.2, which are based on the impact from maximum operation at the location of maximum impact. The results reported in the 2006 EIS refer to the inclusion of the cumulative and site traffic contributions within the background (ambient) concentrations reported.

Table 2.2 provides the relevant Environmental Assessment Levels (EALs) for each pollutant (including statutory air quality standards, where applicable), the background concentration (intended to represent existing conditions), the Process Contribution (the impact of emissions associated with the DWtE site's stack emissions) and the Predicted Environmental Concentration (the Process Contribution added to the background concentration), as well as the proportion of the Process Contribution and Predicted Environmental Concentration to the relevant EAL.

The predicted results suggested that impacts would not be significant and that the Process Contribution would be less than 10% of the EAL for the majority of pollutants, and that there would be no exceedances of the EALs considered.

Table 2-2: Predicted Air Quality Values, as reported in the 2006 EIS

Pollutant	Averaging Period	Environmental Assessment Level (µg/m³ unless stated)	Background/ Ambient Concentration (µg/m³)	Process Contribution (PC) (µg/m³ unless stated)	PC % of EAL	Predicted Environmental Concentration (PEC) (µg/m³ unless stated)	PEC % of EAL
NO_2	1-Hour	200	55.2	39.1	20	94.3	47
	Annual	40	27.6	3.3	8	30.9	77
NO_x	Annual	30	19.8	3.7	12	23.5	78
SO_2	1-hr	350	28.0	19.3	6	47.3	14
	24-hr	125	14.0	7.1	6	21.1	17
	Annual	20	14.0	0.9	5	14.9	75
PM_{10}	24-hr	50	30.0	0.6	1	30.6	61
	Annual	40	30.0	0.2	1	30.2	76
$PM_{2.5}$	Annual	25	10.5	0.2	1	10.7	43
CO	8-hr	10,000	120.0	51.0	1	171.0	1.2
TOC	Annual	5	1.7	0.2	5	1.9	38
HF	1-hr	3	2.0×10^{-02}	0.3	9	0.3	9
	Annual	0.3	1.0×10^{-02}	2.0×10^{-02}	7	3.0×10^{-02}	10
PCDD/PCDF	N/A	N/A	5.5×10^{-05}	2.3×10^{-06}	N/A	5.9×10^{-05}	N/A
PAHs	Annual	1,000	180.0	2.3×10^{-02}	<1	180.0	18
Hg	Annual	1	1.0×10^{-03}	1.1×10^{-03}	<1	2.1×10^{-03}	0
Cd	Annual	5.0×10^{-03}	1.0×10^{-03}	1.1×10^{-03}	22	2.1×10^{-03}	42
As	Annual	6.0×10^{-03}	1.0×10^{-03}	4.0×10^{-04}	7	1.4×10^{-03}	23
V	Max 1-Hour	1	1.0×10^{-02}	8.0×10^{-03}	1	1.8×10^{-02}	2

It is noted that additional modelling, including the use of CALPUFF, was completed in 2007/2008 to support the Waste Management Licensing Process. However, the predicted air quality impacts did not differ materially from those presented in the 2006 EIS.

3. DWtE, Commissioning and Operation 2017/2018

The DWtE plant was commissioned in the summer of 2017 and began accepting waste as an annual run rate equivalent of 600,000 tonnes in September 2017.

Emissions to air through the main stack have been constantly monitored since commissioning by means of a permanently installed continuous emission monitoring (CEM) system and quarterly independent testing by a stack gas testing company.

The CEM systems (one for each line), plus a redundant system, continuously monitors flue gas flow, NO_x, SO_2, particulate, HCl, and Total Organic Carbon (as C). The CEM systems were designed, commissioned and calibrated in accordance with *IS EN 14181 Stationary source emissions. Quality Assurance of automated measuring systems.*

The independent quarterly testing has been completed by Exova Catalyst, a UKAS ISO/IEC 17205 accredited testing laboratory. The parameters tested included all the parameters measured by the CEMs system as well as Hg, Cd & Tl, other heavy metals, hydrogen fluoride, and PCDD/PCDF.

AECOM has reviewed the independent test data for eight sets of quarterly tests and this data is summarised in Tables 3.1a, 3.1b and 3.2 below. Tables 3.1a and 3.1b contains a summary of the actual data while Table 3.2 details the average for each parameter over the series of tests, the relevant Emission Limit Value (ELV) as defined in the site IE Licence issued by the EPA, the actual average mass flow of the pollutant as released to atmosphere, the licensed mass flow (ELV multiplied by the maximum permitted flue gas flow rate) and indicative percentages of the ELV and mass flow represented by the average data.

The data indicates that emissions to air from the DWtE facility are generally running at less than 10% of the licence limits with respect to the concentration ELVs and mass flows. The mass flow of PCDD/PCDF is less than 1% of the licence limit, while the mass flow of HCl is less than 0.5% of the limit value.

The only exception to the statements in the paragraph above is with respect to NO_2 which is averaging 72.44% of the ELV and 62.6% of the mass flow limit, values still well below relevant limit values.

AECOM has also reviewed the 2018 CEM data which consists of validated 30-minute average values for flue gas flow, NO_x, SO_2, particulate, HCl, and Total Organic Carbon (as C). This data is continuous and contains over 200,000 data-points per incineration line and is consistent with the data generated in the quarterly reports. The CEM data indicates no exceedance of any 30 minute or daily average values and long-term average results well within the minimum and maximums described in Table 3.1 below.

The ELVs in the sites IE licence are transcribed from Chapter IV and Annex VI of the Industrial Emission Directive (IED) (2010/75/EU). The ELVs are consistent with BAT as defined in the relevant Reference Document on the Best Available Techniques for Waste Incineration (August 2006). It is noted that a revised reference document on best available techniques is currently being finalised by the European IPPC Bureau and this will ultimately lead to revised and binding BAT conclusions and BATAELs. AECOM has reviewed the draft BATAELs (*Best Available Techniques (BAT) Reference Document for Waste Incineration Final Draft December 2018*) and the performance of both lines of the DWtE plant and concluded that the plant is currently operating not only well within the ELVs as provided in the current licence but also well within the 2018 draft BATAELs.

The data indicates a waste to energy plant operating within its design envelope with regard to capacity and also generating emission to air well below those anticipated and modelled in 2006 as part of the air quality impact assessment.

Table 3-1a: Independent Emissions Data from 2017 and 2018 Quarterly Tests

Parameter	Units	20-21st September 2017		4th-8th December 2017			8th-19th January 2018		30th April- 4th May 2018		17th - 26th Sept 2018	
		Result		Result			Result		Result		Result	
	Line	1	2	1	2	2	1	2	1	2	1	2
Total Particulate Matter	mg/m³	1.35	0.83	-	-	-	0.434	1.25	0.48	0.948	0.095	0.31
Hydrogen Chloride	mg/m³	0.03	0.072	-	-	-	<0.018	<0.017	<0.018	<0.015	0.02	<0.019
Cadmium & Thallium	mg/m³	< 0.00071	<0.00056	0.00067	0.00065	0.00068	<0.00063	<0.00066	0.00068	<0.00065	<0.00081	<0.001
Heavy Metals	mg/m³	0.159	0.13	0.052	0.105	0.040	0.019	0.020	0.03526	0.023	0.0114	0.0181
Mercury	mg/m³	< 0.00030	0.00091	0.00292	0.00056	0.00124	0.00056	0.00056	<0.00027	0.00084	0.00048	0.00073
Dioxins & Furans (NATO I-TEQ)	ng/m³	0.0035	0.00022	0.00235	0.00016	0.00016	0.00063	0.00060	0.00169	0.00080	0.00082	0.00124
Hydrogen Fluoride	mg/m³	< 0.036	0.042	0.092	0.051	0.051	<0.040	0.074	<0.049	<0.05	<0.038	0.09
Sulphur Dioxide	mg/m³	0.062	0.068	-	-	-	3.59	2.95	0.37	0.36	0.84	0.41
Total VOCs (as Carbon)	mg/m³	2	0.29	-	-	-	0.342	1.350	0.28	0.30	0.26	0.26
Oxides of Nitrogen (as NO_2)	mg/m³	103.2	106.7	-	-	-	150.6	156.7	139.2	173.20	117.74	163.03
Carbon Monoxide	mg/m³	1.82	0.23	-	-	-	11.11	15.03	6.29	5.30	2.75	14.80
Volumetric Flow Rate (REF)	Nm³/hr	211,623	236,824	226,647	240,009	234,447	227,461	223,451	229,496	232,687	245,802	240,015

Table 3-2b: Independent Emissions Data from 2018 and 2019 Quarterly Tests

Parameter	Units	12th – 15th Nov 2018 Result		21st – 25th January Result		2nd – 11th April 2019 Result	
	Line	1	2	1	2	1	2
Total Particulate Matter	mg/m³	0.09	0.40	0.336	0.54	0.114	0.317
Hydrogen Chloride	mg/m³	0.016	0.025	0.018	0.02	0.03	0.018
Cadmium & Thallium	mg/m³	0.00073	<0.00061	0.00062	0.001	0.00062	0.00065
Heavy Metals	mg/m³	0.037	0.014	0.024	0.028	0.024	0.0072
Mercury	mg/m³	<0.00023	0.00034	0.00043	0.00036	0.00069	0.00125
Dioxins & Furans (NATO I-TEQ)	ng/m³	0.0022	0.00035	0.00160	0.00060	0.00040	0.00043
Hydrogen Fluoride	mg/m³	0.42	0.50	0.11	0.05	0.17	0.051
Sulphur Dioxide	mg/m³	3.88	6.95	24.62	11.46	2.13	4.95
Total VOCs (as Carbon)	mg/m³	0.28	0.26	0.28	0.35	0.28	1.28
Oxides of Nitrogen (as NO_2)	mg/m³	143.9	111.53	127.30	140.48	179.70	163.40
Carbon Monoxide	mg/m³	7.68	10.26	11.47	13.09	3.69	10.17
Volumetric Flow Rate (REF)	Nm³/hr	260,869	248,468	261,910	248,059	245,562	229,680

Table 3-3: Average Emission Test Results

Parameter	Average mg/m^3	ELV[1] mg/m^3	% of ELV %	Licenced Mass Flow kg/hr	Actual Mass Flow kg/hr	% of Licensed Mass Flow %
Total Particulate Matter	0.535	10	5.35	2.75	0.128	4.63
Hydrogen Chloride	0.024	10	0.24	2.75	0.0077	0.21
Cadmium & Thallium	0.0007	0.05	1.4	0.01375	0.0002	1.21
Heavy Metals	0.044	0.5	8.8	0.1375	0.01	7.6
Mercury	0.00075	0.05	1.49	0.01375	0.0002	1.29
Dioxins & Furans (NATO I-TEQ)	0.001 (ng/m^3)	0.1 (ng/m^3)	1.04	0.0275 (g/hr)	0.0002 (g/hr)	0.9
Hydrogen Fluoride	0.113	2	5.63	0.55	0.027	4.87
Sulphur Dioxide	4.47	50	8.95	13.75	1.06	7.74
Total VOCs (as Carbon)	0.56	10	5.58	2.75	0.1327	4.83
Oxides of Nitrogen (as NO_2)	144.87	200	72.44	55	34.45	62.6
Carbon Monoxide	8.44	100	8.44	27.5	2.01	7.3
Volumetric Flow Rate (REF)	237,824	275,000	86.48	n/a	n/a	n/a

Note 1: ELVs are B 30-minute averages from W0232-01.
Note 2: less than (<) values included in average at detection limit

4. Receiving Environment 2018

4.1 Existing Air Quality

Since the completion of the EIS in 2006, monitoring of NO_2, NO_X, SO_2 and PM_{10} has been undertaken for several periods at the Dublin City Council Recycling Centre, Sean Moore Road, Ringsend, Dublin 4 using a continuous analyser. This data is summarised in Table 4-1. The equivalent data gathered at the Glass Bottle site in 2003 - 2005 is also provided again for comparison. Both the Glass Bottle site and Sean Moore Road site monitoring locations could be described as roadside, in that they are both located adjacent to Sean Moore Road (R131) and the concentrations measured directly influenced by the vehicles emissions from road traffic movements on that road.

Table 4-1: EPA Pollutant Monitoring Data, gathered at the Glass Bottle Factory (2003 – 2005) and Sean Moore Road (2009 – 2011, 2017 and 2018)

Pollutant	Averaging Period	Air Quality Limit Value	Years					
			2003 – 2005[1]	2009	2010	2011	2017	2018
NO_2 µg/m^3	1-Hour (99.8th percentile)	200	101.0	(6)[2]	(1)[2]	(0)[2]	99.5	87.9
	Annual	40	30.5	27.7	30.4	28.1	27.3	21.9
NO_x µg/m^3	Annual	N/A	N/A	56.6	58.0	50.0	49.7	54.3
SO_2 µg/m^3	1-hr (99.7th percentile)	350	N/A	N/A	17.3	N/A	24.7	N/A
	24-hr (99.2nd percentile)	125	N/A	N/A	12.9	N/A	17.4	N/A
	Annual	20	4.8	5.7	3.5	2.5	4.3	N/A
PM_{10} µg/m^3	24-hr (90.4th percentile)	50	57.0	(6)[3]	(16)[3]	(6)[3]	21	30.5
	Annual	40	34.0	17.7	23.0	17.8	13.4	13.3

[1] As reported in Table 2.1, [2] Number of exceedances of the 1 hour mean NO_2 air quality standard, [3] Number of exceedance of the 24 hour PM_{10} air quality standard.

There is no significant variation in the trend of monitoring data gathered at the Sean Moore Road site, between 2009 and 2018, other than the dip in annual mean NO_2 concentrations in 2018. The NO_X, NO_2 and SO_2 data gathered at the Sean Moore Road site from 2009 to 2017 is also fairly consistent with pollutant data gathered at the Glass Bottle site from 2003 to 2005, albeit generally slightly lower. However, annual mean and 1 hour mean PM_{10} concentrations monitored at the Sean Moore Road site are markedly lower than those monitored at the Glass Bottle site.

Any suggestion of a reduction in pollutants associated with road traffic emissions (NO_X, NO_2, PM_{10} and $PM_{2.5}$) can potentially be attributed to improvements in vehicles emissions technology that has occurred over the years, and the evolution of that technology into the local vehicle fleet. However, the effect of such improvements on concentrations of NO_X, NO_2, PM_{10} and $PM_{2.5}$ is partially offset by the year on year increase in vehicle movements on the local road network, due to general growth and vehicle movements associated with nearby developments.

The 2006 EIS also noted a number of other industrial point sources (especially for NO_X) in the general vicinity of the Poolbeg peninsula i.e.:

- Synergen Power Limited operates a 750 MWth gas-fired power station on Pigeon House Road. The site environmental licence was revised in 2012 and again by technical amendment in 2015 to bring it into line with the ELVs for large combustion plant in the IED;
- The ESB operates Poolbeg Power Station. The 510 MWe thermal power station closed in 2010. The 470 MWe CCGT plant was subject to licence review in 2012 and again in 2015 to ensure conformity with the ELVs in the IED.
- North Wall Generating Station consisted of two gas turbine generators with a combined 272 MWe. One of the turbines ceased operation in 2010 with the other continuing as a limited-hours peaking plant. Since 2016, the operational hours of this plant have been further limited and final closure is anticipated by 2023.

Consequently, there has been a significant reduction in point source emissions of NOx since 2006 as a result of plant closures and reduced ELVs as plants are updated to bring them into line with the IED.

The monitoring data reported in Table 2-1 and Table 4-1, as well as the reported 2006 EIS impacts summarised in Table 2-2, were influenced by local meteorology. Figure 4-1 provides a set of windroses based on wind speed and wind direction data gathered at Dublin Airport (2015 -2017). The updated windroses (which are similar to those used in the 2006 EIS) demonstrate that the predominant wind direction is blowing from west to east, although the wind does blow from all directions on occasions throughout the year. Therefore, maximum annual mean impacts from the DWtE stacks are likely to occur to the east of the site, in Dublin Bay, rather than at any of the sensitive receptors located to the north, south or west of the site. Because winds still blow from other directions over the course of the year, this assumption is unlikely to apply to maximum short term mean impacts.

Figure 4-1 also provides a windrose plot for 2018, gathered by a meteorological station located at the DWtE site. It demonstrates a similar pattern frequency in winds blown from each direction at Dublin Airport, but does suggest wind speeds are often lower at this location.

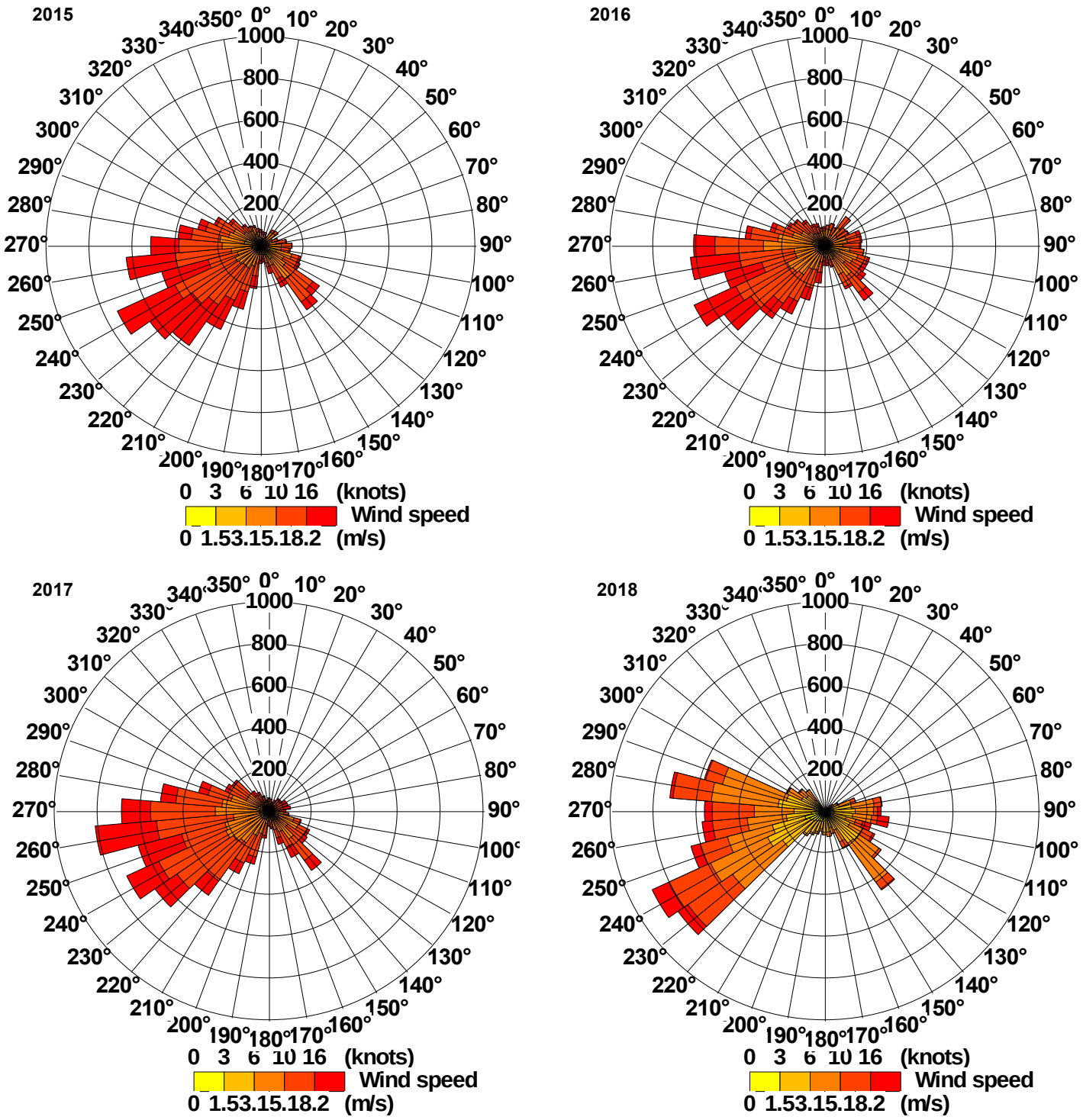

Figure 4-1: Dublin Airport Windrose Plots (2015 – 2017) and Site-Specific Windrose Plot (2018)

There are a number of human health sensitive receptor located in the vicinity of the DWtE site that could be impacted by emissions to air from the site's stacks and from the site's associated vehicle movements on the public road network. Selected human health sensitive receptors are shown in Figure 4-2 and include residential properties at Ringsend. In addition to the human health sensitive receptors, there are also a number of ecologically sensitive receptors nearby, which form part of the EU's Natura 2000 Network, that could be impacted by emissions to air from the DWtE site's stacks. Selected locations that represent these ecological receptors are also shown on Figure 4-2.

Figure 4-2: Air Quality Sensitive Receptors

5. Updated Air Quality Impact

5.1 Updated Dispersion Model Results

The assessment of air quality impacts associated with the operation of the DWtE site has been revisited. The contribution of the facility's stack emissions to pollutant concentrations have been quantified, at their currently permitted levels (maximum ELVs and maximum flue gas flow rate), at the worst affected offsite location. Modelling has been undertaken using three years of meteorological data for Dublin Airport (2015 – 2017), and one year of meteorological data from the DWtE site (2018). These results are provided in Table 5-1. It is noted that the ELVs set by the IE Licence for arsenic (As) differ to the Emission Limits included in the assessment that accompanied the 2006 EIS (i.e. 0.2 mg/m^3 in the licence and 0.5 mg/m^3 included in the 2006 EIS).

The results suggest that the licenced impacts are less than 10% of the relevant EALs for the majority of pollutants and averaging periods, with little risk of any exceedance of the EALs considered for the protection of human health. The largest impacts concern hourly mean NO_2 and annual mean As, although the Predicted Environmental Concentrations for both pollutants remain well below their relevant EALs.

Appendix A1 provides isopleths for the key pollutants of concern listed in Table 5-1. Plots are provided for annual mean NO_2, hourly mean NO_2, based on the worst of the meteorological years considered for Dublin Airport, and the 2018 meteorological year for the DWtE site.

Table 5-1: Predicted Air Quality Values, Point of Maximum Offsite Impact (Stack Emissions Only)

Pollutant	Averaging Period	Environmental Assessment Level (µg/m³ unless stated)	Background/ Ambient Concentration (µg/m³)	Worst Case Dublin Airport Met Data (2015 – 2017)				Pigeon House Road Site Met Data (2018)			
				Process Contribution (PC) (µg/m³ unless stated)	PC % of EAL	Predicted Environmental Concentration (PEC) (µg/m³ unless stated)	PEC % of EAL	Process Contribution (PC) (µg/m³ unless stated)	PC % of EAL	Predicted Environmental Concentration (PEC) (µg/m³ unless stated)	PEC % of EAL
NO_2	1-Hour	200	45.2[(1),(2)]	40.3	20	85.5	43	49.1	25	94.3	47
	Annual	40	22.6[(2)]	1.3	3	23.9	60	2.7	7	25.3	63
SO_2	1-hr	350	8.6[(1),(3)]	9.9	3	18.5	5	12.0	3	20.6	6
	24-hr	125	8.6[(1),(3)]	2.8	2	11.4	9	4.8	4	13.4	11
PM_{10}	24-hr	50	26.2[(1),(2)]	0.2	<1	26.4	53	0.5	1	26.7	53
	Annual	40	13.1[(2)]	0.1	<1	13.2	33	0.1	<1	13.2	33
$PM_{2.5}$	Annual	25	9.5[(2)]	0.1	<1	9.6	38	0.1	<1	9.6	38
CO	Max 8-hr	10000	2000.0[(2)]	17.0	<1	2017.0	20	20.7	<1	2020.7	20
TOC	Annual	5	1.7[(4)]	0.1	2	1.8	36	0.1	2	1.8	36
HCl	Max 1-hr	100	0.5[(4)]	1.0	1	1.5	2	1.6	2	2.1	2
HF	Max 1-hr	3	$2.0x10^{-2}$[(1),(4)]	0.2	7	0.2	7	0.3	10	0.3	11
	Annual	0.3	$1.0x10^{-2}$[(4)]	$1.3x10^{-2}$	4	$2.3x10^{-2}$	8	$2.7x10^{-2}$	9	$3.7x10^{-2}$	12
Dioxins	Annual	N/A	$5.6x10^{-8}$[(4)]	$6.6x10^{-7}$	N/A	$7.2x10^{-7}$	N/A	$1.4x10^{-6}$	N/A	$1.5x10^{-6}$	N/A
Hg	Annual	1	$1.0x10^{-3}$[(4)]	$3.3x10^{-4}$	<1	$1.3x10^{-3}$	<1	$6.9x10^{-4}$	<1	$1.7x10^{-3}$	<1
Cd	Annual	$5.0x10^{-3}$	$1.0x10^{-3}$[(4)]	$3.3x10^{-4}$	7	$1.3x10^{-3}$	27	$6.9x10^{-4}$	14	$1.7x10^{-3}$	34
As	Annual	$6.0x10^{-3}$	$1.0x10^{-3}$[(4)]	$1.3x10^{-3}$	22	$2.3x10^{-3}$	38	$2.7x10^{-3}$	45	$3.7x10^{-3}$	62
V	Max 24-Hour	1	$1.0x10^{-2}$[(4)]	$4.9x10^{-2}$	5	$5.9x10^{-2}$	6	$6.8x10^{-2}$	7	$7.8x10^{-2}$	8

[(1)] Short term Background Contributions are double the long-term contributions, [(2)] Background sourced from Environmental Protection Agency Monitoring undertaken at background locations in Zone A, in 2016, [(3)] Background sourced from Environmental Protection Agency Monitoring at Ringsend (2017 & 2018), [(4)]Background sourced from 2006 EIAR.

Table 5-2 presents updated impacts at nearby ecologically sensitive receptors for the pollutants of ecological concern (NO_X and SO_2). The updated results also include consideration of Ammonia (NH_3), which was not included in the 2006 EIS.

Table 5-2 suggests that impacts at the worst affected ecologically sensitive location are relatively minor (PC <5% of EAL) but does show that annual mean concentrations (PEC) of NO_X exceed the air quality Limit Value for this pollutant, because of elevated background/ambient conditions, which are already in exceedance.

Table 5-2: Predicted Air Quality Values, Worst Case Ecological Site Impacts (Irishtown Nature Reserve) (Stack Emissions Only)

				Worst Case Dublin Airport Met Data (2015 – 2017)				Pigeon House Road Site Met Data (2018)			
Pollutant	Averaging Period	Environmental Assessment Level ($\mu g/m^3$)	Background/ Ambient Concentration ($\mu g/m^3$)	Process Contribution (PC) ($\mu g/m^3$)	PC % of EAL	Predicted Environmental Concentration (PEC) ($\mu g/m^3$)	PEC % of EAL	Process Contribution (PC) ($\mu g/m^3$)	PC % of EAL	Predicted Environmental Concentration (PEC) ($\mu g/m^3$)	PEC % of EAL
NO_X	Annual	30	37.2[2]	1.3	4	38.5	128	1.4	7	38.6	129
NH_3	Annual	3[1]	1.7[3]	0.1	3	1.8	60	0.1	3	1.8	60
SO_2	Annual	20	4.8[4]	0.3	2	5.1	26	0.4	2	5.2	26

[1] NH_3 EAL based on the standard set by the UK Environment Agency assumed [2] Background sourced from Environmental Protection Agency Monitoring undertaken at background locations in Zone A, in 2016, [3] Background sourced from Environmental Protection Agency Research (Ambient Atmospheric Ammonia in Ireland, 2013-2014), [4] Background sourced from 2006 EIAR.

The impact (Process Contribution) reported in Table 5-1 and Table 5-2 are based on the ELVs as set by the existing IED Licence for the site.

The concentrations reported in Table 5-1 and 5-2 are also considered to be conservative, in that stack monitoring undertaken at the site reported in Section 3 above confirms that actual emission concentrations and mass flows are significantly less than those described in the IE Licence. The monitored emission concentration of HCl, for example, accounts for less than 1% of the licenced emission concentration for that pollutant. The monitored emissions concentrations for PM_{10}, Cd, Hg, Heavy metals, HF, SO_2, TOC, CO and Dioxins and Furans account for less than 10% of the relevant licenced emission concentrations. The monitored emission concentration of NO_X accounts for 72% of its licenced emission concentration. Stack monitoring suggests that the volumetric flow rate is also lower than licenced, accounting for 86% of that value.

6. Conclusions

AECOM has reviewed emissions data from the DWtE facility for 2017, 2018 and 2019 and concluded that emissions to air are well below the ELVs in the sites IE Licence. The data indicates a waste to energy plant operating well within its design envelope with regard to capacity and also generating emission to air well below those anticipated and modelled in 2006 as part of the air quality impact assessment.

AECOM has remodelled emissions to air from the DWtE facility using both updated meteorological data from Dublin Airport (2015 – 2017) and site-specific data from the Pigeon House Road site (2018), using the latest version of the relevant dispersion modelling software ADMs 5. The model also assumed "*worst-case*" emissions at the licensed ELVs and mass flows rather than actual mass-flows.

The modelling results with respect to emissions to air from the DWtE stacks indicate that the worst-case direct air quality impact is ***not significant*** with the process contribution for most parameters less than 5% of the relevant EAL. The predicted levels for some of the metals (Cd, As and V) are higher. However, emission monitoring indicates emissions of these metals are very low and considerably below the relevant ELVs. Consequently, the metals impacts can again be considered to be ***not significant*** or ***imperceptible***. The worst-case NO_2 process contribution is approximately 20% of the 1-hour average EAL.

7. Appendix A1

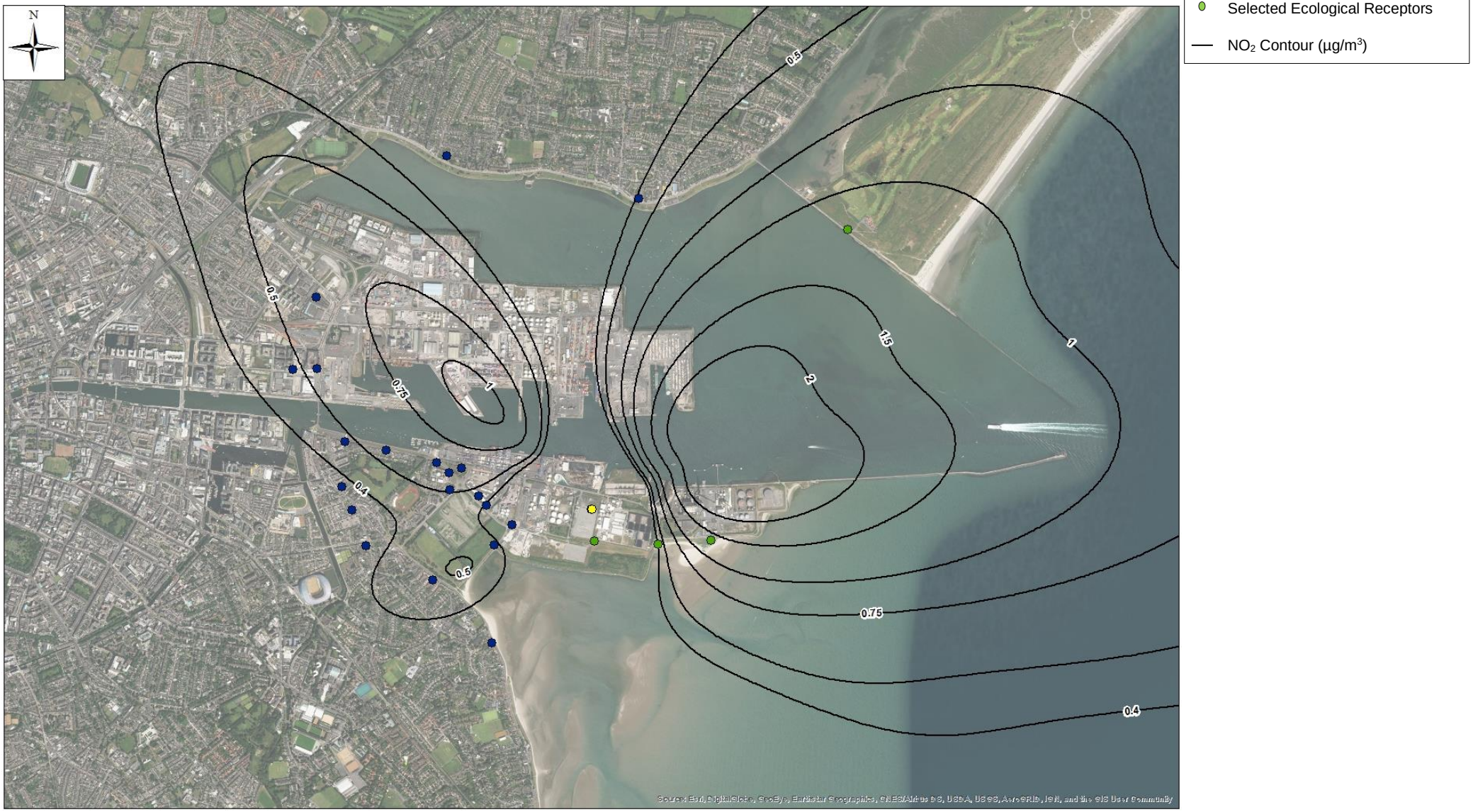

Figure A-1: Annual Mean NO_2 Process Contribution (Dublin Airport Meteorological Data 2017)

Figure A-2: Annual Mean NO_2 Process Contribution (DWTE Meteorological Data 2018)

Figure A-3: 1hr Mean NO_2 Process Contribution (Dublin Airport Meteorological Data 2018)

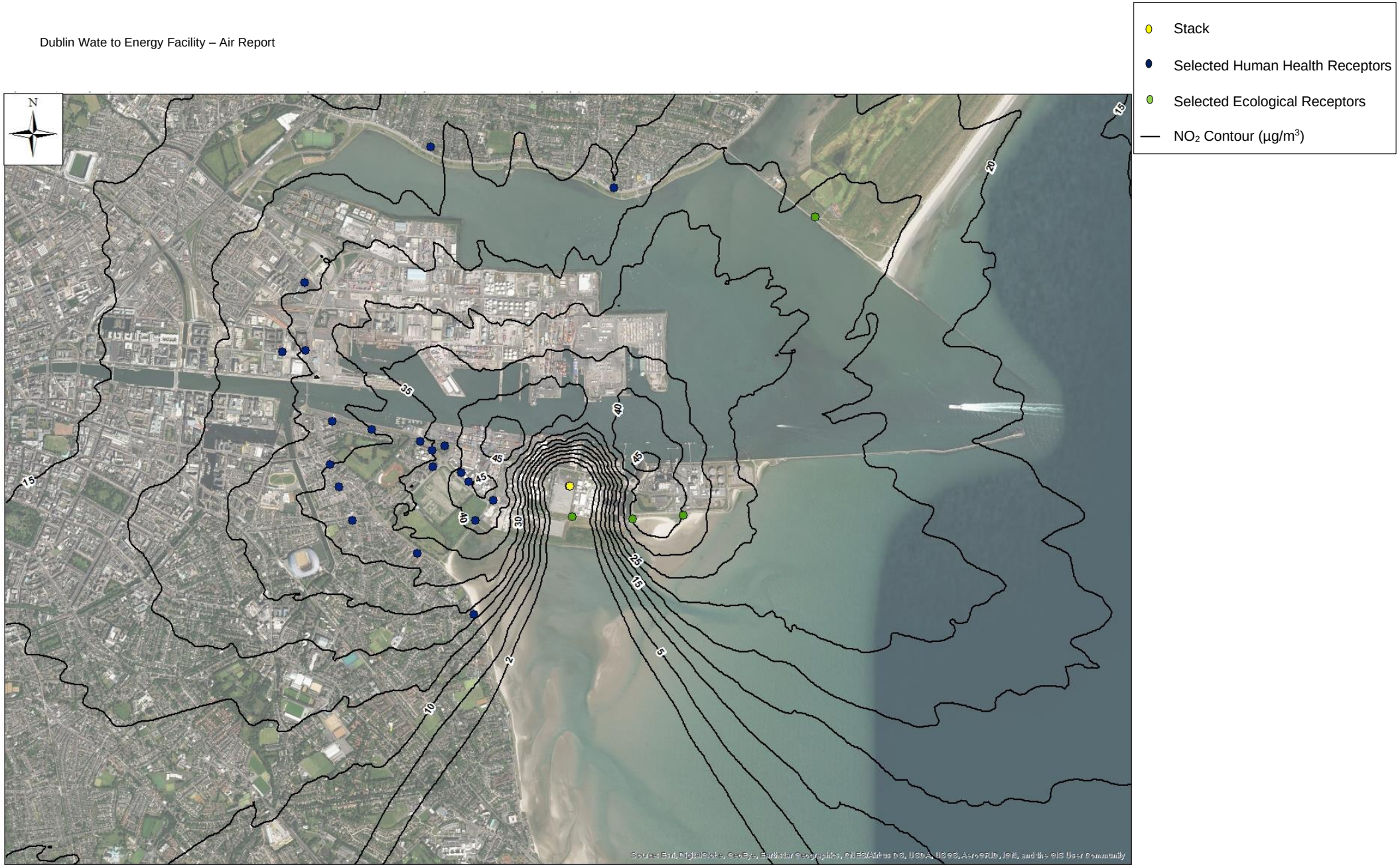

Figure A-4: 1hr Mean NO_2 Process Contribution (DWTE Meteorological Data 2018

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