SECTION 11: TRAFFIC

11.1 INTRODUCTION

11.1.1 Background

On 2 January 2008 John Barnett and Associates Ltd. appointed Atkins, to undertake a road and traffic impact assessment in support of a waste licence application for the continuation of inert waste recovery operations at the existing facility at Blackhall, Naas, Co. Kildare operated by Behan's Land Restoration Ltd. John Barnett and Associates is preparing the Waste Licence Application on behalf of Behan's Land Restoration Ltd.

We understand that this assessment report is required for inclusion in the Environmental Impact Statement (EIS) to accompany the Waste Licence Application to be submitted to the Environmental Protection Agency (EPA) in respect of the proposed development.

11.1.2 Scope of Works

This assessment report has been prepared in the context of the recommendations of the Guidelines for Traffic Impact Assessment published by the Institution of Highways and Transportation (IHT) and the Traffic Management Guidelines, jointly issued by the Department of the Environment and Local Government (DoELG), the Department of Transport (DoT), and the Dublin Transportation Office (DTO). A summary of the methodology of this assessment includes the following:

- Define forecasting methods;
- Appraisal of existing development;
- Appraisal of existing road network;
- Appraisal of existing traffic flows;
- Establish future road network and future background traffic flows;
- Appraisal of future background traffic flows;
- Appraisal of parking;
- Establish proposed development trip generation and distribution of traffic flows;
- Identify proposed development site access arrangements;
- Appraisal of predicted traffic flows with proposed development and
- Identify mitigation measures.

A traffic survey was undertaken by Atkins to establish existing year traffic flows on the local road network. Existing traffic data for the nearby M7 motorway was sourced from the National Roads Authority (NRA).

Background peak hour traffic volumes on the local road network were factored to forecast future levels by applying growth rates derived from the NRA publication entitled "Future Traffic Forecasts 2002-2040" (2003).

The NRA document RT201 'Expansion Factors for Short Period Traffic Counts' was used to estimate the existing 2008 Annual Average Daily Traffic (AADT) volumes on the existing road network.

The existing local road network junctions were analysed using the computer software programme PICADY.

Details of the expected operating hours, employee numbers, shift patterns, numbers of heavy vehicles entering and leaving the waste recovery facility and the existing and proposed distributions of development-related traffic on the surrounding road network have been obtained from the Client.

11.1.3 Forecasting Methods

PICADY (Priority Intersection Capacity and Delay) is a computer programme for calculating estimates of the capacity of major / minor road junctions, where the minor road is controlled by a stop or yield sign. The geometric details of the junction are supplied to the programme together with details of traffic flows and turning movements. The programme analyses the junction in relation to the various traffic flows and calculates the capacity of each approach. The programme also calculates the average queue length on each approach and the average delay per vehicle. The average queue length may be displayed in graphical form.

PICADY is issued by the U.K. company TRL.

11.1.4 Description of Existing and Proposed Development

Behan's Land Restoration currently operates an inert waste facility in the townland of Blackhall, Co. Kildare, approximately 5km southeast of Naas and 600m to the east of Punchestown racecourse. A site location map is shown in Figure 11.1.

The proposed scheme provides for continuation of inert waste recovery operations at the existing site and the restoration of the former worked-out sand and gravel quarry to its original (pre-extraction) ground level and agricultural after-use. Figure 11.2 shows the existing site layout showing the land holding area (approx. 35.4 acres), the application area and the restored areas.

The current filling rate varies between approximately 250,000 and 350,000 tonnes of inert soil per year. It is proposed to maintain filling at its current rate and consequently, the proposed operational life of the facility will be up to 15 years.

The existing waste recovery facility currently provides employment for a workforce of 2 on-site personnel. It is envisaged that current employee numbers will remain stable and will not increase in the future as restoration progresses.

11.2 RECEIVING ENVIRONMENT

11.2.1 Existing Road Network

With reference to Figure 11.1, it can be seen that access to the site is from the Blackhall local road. This local road intersects with the Punchestown road, approximately 2 km north-west of the site in the form of a stop sign controlled major-minor ("T") junction. Traffic on the Punchestown road has priority over traffic travelling on the Blackhall local road at this location. Approximately 50m north of this junction, the Punchestown road forms a priority controlled major-minor crossroads with the R410 Regional Road and the Johnstown local road. Approximately 20m east of the crossroads, the R410 intersects with the Arthurstown Road in the form of a priority-controlled major-minor "T"-junction. This location is known locally as 'Beggar's End Crossroads'.

At the existing development entrance, the Blackhall local road is 6m in width and has no road markings. From a visual inspection, the road pavement quality is in good condition with few signs of visible distress. Visibility along the Blackhall local road from the existing site entrance is less than desirable, based on guidance set out in the DMRB (TD 41/95 – Vehicular Access to All Purpose Trunk Roads). In many cases on local roads, visibility less than the required standards is often acceptable to Local Authorities. Based on on-site observations and given the light traffic volumes on the Blackhall local road (see below), it is considered adequate subject to minor mitigation measures (detailed in section 11.4.1) to ensure the continued safe movement of heavy goods vehicles in and out of the site.

At the stop sign controlled T-junction of the Blackhall local road with the Punchestown road, the Punchestown road is a single carriageway road with a typical width of 8m. There is good visibility in both directions from the minor road (Blackhall local road) along the major road (Punchestown Road) at this location. On approach to the junction, the Blackhall local road is approximately 6m in width and has no visible road markings. Based on a visual inspection, the pavement of both the Blackhall local road and the Punchestown Road are in good condition, with few signs of visible distress.

At Beggar's End Crossroads, the R410 is a single carriageway road with a typical width of 9m. There is good visibility is both directions from the minor road (Punchestown Road) along the major road (R410) at this location. On approach to the junction, the Punchestown Road is a single carriageway road with a typical road width of 8m. From a visual inspection, the pavement condition of the Punchestown Road and the R410 is in good condition, with few signs of visible distress.

11.2.2 Field Surveys

A review of historical traffic data in the area showed that the overall daily peak hour occurs during the PM peak (17:00-18:00). In line with this, Atkins undertook an evening peak, classified traffic count on Tuesday 8th of January 2008 at Beggar's End Crossroads.

The recorded evening peak hour traffic flows are shown in Table 11.1 and in Figure 11.3.

On the Blackhall local road, which provides access to the quarry from the Punchestown Road and the R410, the results of the count indicate that the existing 2008 PM peak trips (2-way) is of the order of 21. This includes traffic associated with operations at the existing waste recovery facility, which is estimated at approximately 12 trips (2-way) during the PM peak hour (based on information received from John Barnett and Associates Ltd.).

The existing facility is operated during the hours of 8.00am and 6.00pm Monday to Friday and on Saturday from 8.00am to 2.00pm. In the worst-case scenario, both on-site staff members finish work and leave the waste facility in the PM peak hour (17:00 – 18:00). This means that the waste facility generates 2 staff trips in the PM peak hour.

The waste recovery facility generates approximately 120 HGV trips per day (60 trips in, 60 trips out) and arrival / departure rates of HGV trips per hour during the day are essentially constant. This means that the average hourly HGV trip rate (approximately 12 trips) applies in the PM peak hour. The total trips therefore that are generated by the waste recovery facility in the PM peak hour based on the above information is inferred to be 14 trips (6 in, 8 out). The results of the PM peak count undertaken by Atkins were in line with these calculations.

At the development entrance, 100% of development related traffic turns right (north-westwards) towards the R410 and Naas via the Blackhall local road and none turns left (south-eastwards) towards Ballymore Eustace via the existing local road network.

At Beggar's End crossroads, 95% of development related traffic turns left on the R410 towards Naas and 5% turns right towards Blessington.

11.2.3 Future Years Background Traffic Flows

Subject to EPA approval, the required waste licence will be granted in 2008 and will remain valid for the lifetime of the facility. The IHT Guidelines for Traffic Impact Assessment recommend that the opening year (base year) of the development and a plan year, 10 years after the opening year, should be considered for assessing a proposed development. In this case, the base year is 2008 and the plan year is 2018.

In the document 'Future Traffic Forecasts 2002 – 2040' the NRA envisages that passenger car traffic and light goods vehicle traffic and heavy vehicle traffic on non-national routes will increase by a factor of 1.144 and by a factor of 1.147 respectively during the period 2008 to 2018. The design year (2018) traffic flows at the Beggar's End Crossroads are shown in Figure 11.4.

11.3 IMPACT OF RESTORATION WORKS

11.3.1 Do-Nothing Scenario

In traffic terms, the future operational or Do-Something scenario for the proposed development is equivalent to a Do-Nothing scenario. This is because neither the current filling rate nor the number of personnel employed at the waste recovery facility is proposed to change on account of the proposed development. Therefore, the existing number of trips generated by the waste recovery facility will also not change nor will the forecast distribution of development traffic at the development entrance.

11.3.2 Potential Impacts

In order to assess the operation of the nearby junctions with the proposed development in place in 2008 and 2018, the computer programme PICADY was used.

The output from PICADY provides a Ratio of Flow to Capacity (RFC) for each approach to the junction under analysis. An RFC of 0.90 for a priority-controlled junction is considered to represent typical practical capacity.

Full details of the PICADY junction analysis in the base year (2008) are provided in Appendix A. The results are summarised in Table 11.2.

The above analysis indicates that all the junctions analysed will operate well within capacity in the 2008 PM peak hour. The analysis indicated maximum queue lengths of 1 vehicle.

The above analysis also indicates that all the junctions analysed will operate well within capacity in the 2018 PM peak hour. The analysis indicated maximum queue lengths of 1 vehicle.

11.4 MITIGATION MEASURES

Visibility along the Blackhall local road from the existing site entrance is less than that required by the DMRB (TD 41/95 – Vehicular Access to All Purpose Trunk Roads) where it is set out that a "y" distance along the major road of between 120m and 160m is required for an 80kph speed limit. However, it must be noted that in the case of local roads it is recognised that these standards can be very difficult to achieve. Accordingly, Local Authorities will often accept a relaxation on the DMRB standards that is appropriate to the location and the standard of road. It is considered in this case that the appropriate mitigation would be to erect warning signs on the approaches to the development to alert drivers of HGV movements at the development entrance.

A wheel-wash facility is currently provided within the existing waste recovery facility. All trucks exiting the facility onto the public road should continue to use this. The operation and effectiveness of the wheel wash should be reviewed on a regular basis. In addition, trucks travelling to and from the site should be cleaned and maintained on a regular basis. These measures will eliminate / minimise the 'drag-out' of any dirt onto the public road.

11.5 CONCLUSIONS

This TIA has been prepared as part of a waste licence application to be submitted to the EPA for the purposes of the continuation of waste recovery operations at the existing inert waste facility operated by Behan's Land Restoration in Blackhall, Naas, Co. Kildare.

Atkins has undertaken a detailed investigation into the traffic impact of the proposed development on the adjacent road network relative to a base year, 2008 and a forecast year, 2018.

In order to assess the operation of nearby junctions with the development in place the computer programme PICADY was used. The PICADY analysis undertaken relative to the 2008 and 2018 PM peak hour indicated that all junctions will operate well within capacity with the development in place. The proposed development therefore will have no impact in traffic terms on the surrounding road network.

Trucks exiting the waste facility onto the public road will continue to use the wheel-wash located within the waste facility.

It is recommended that warning signs be put in place on the approaches to the development to alert drivers of HGV movements at the development entrance.

REFERENCES

Department of the Environment and Local Government (DoELG), Department of Transport (DoT) and Dublin Transportation Office (DTO) (2003)Traffic Management Guidelines

Institution of Highways and Transportation (IHT) (1994) Guidelines for Traffic Impact Assessment

National Roads Authority (1978) RT201 Expansion Factors for Short Period Traffic Counts

National Roads Authority (2003) Future Traffic Forecasts 2002-2040, August

FIGURES

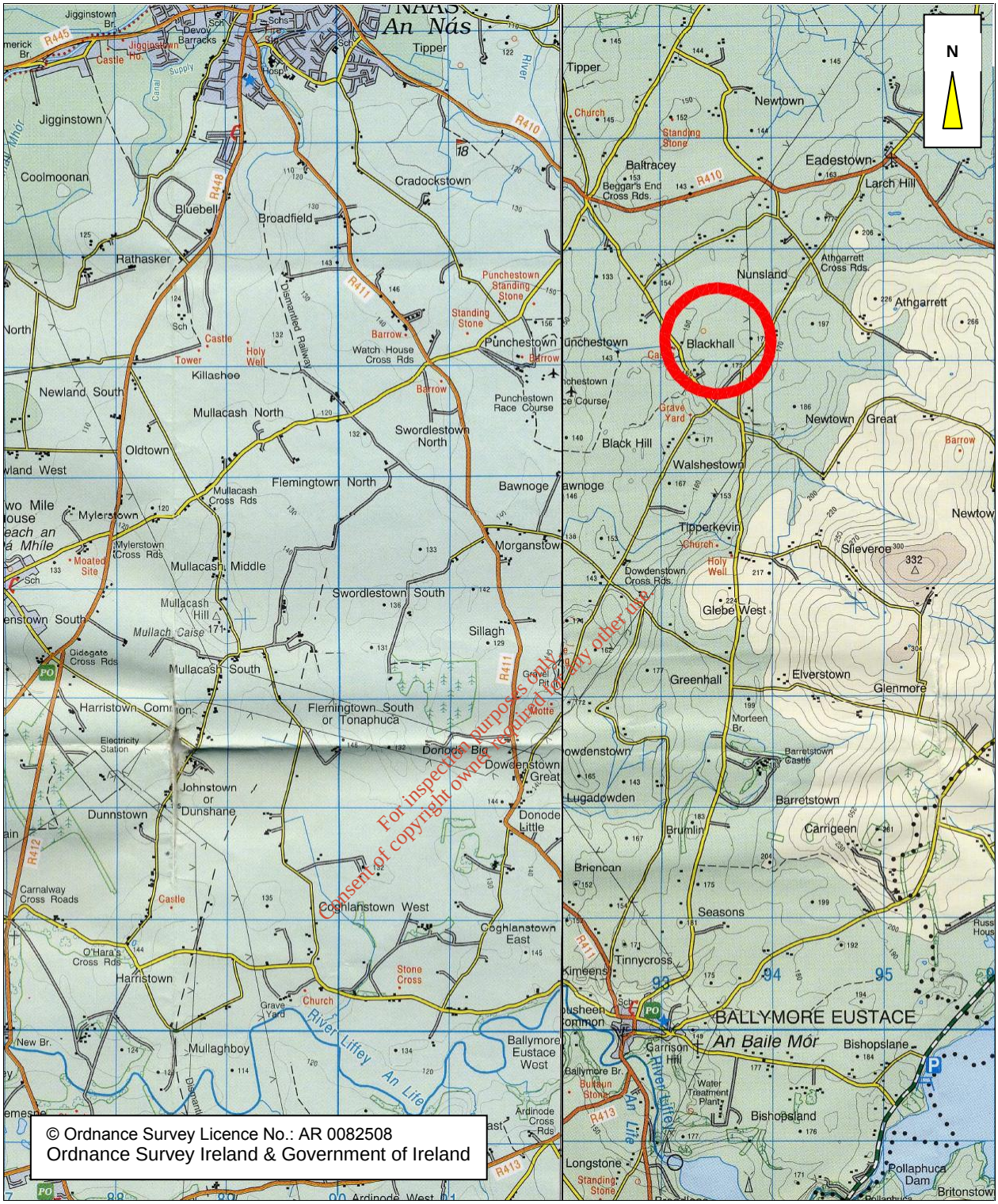


Figure 11.1 Site Location Plan

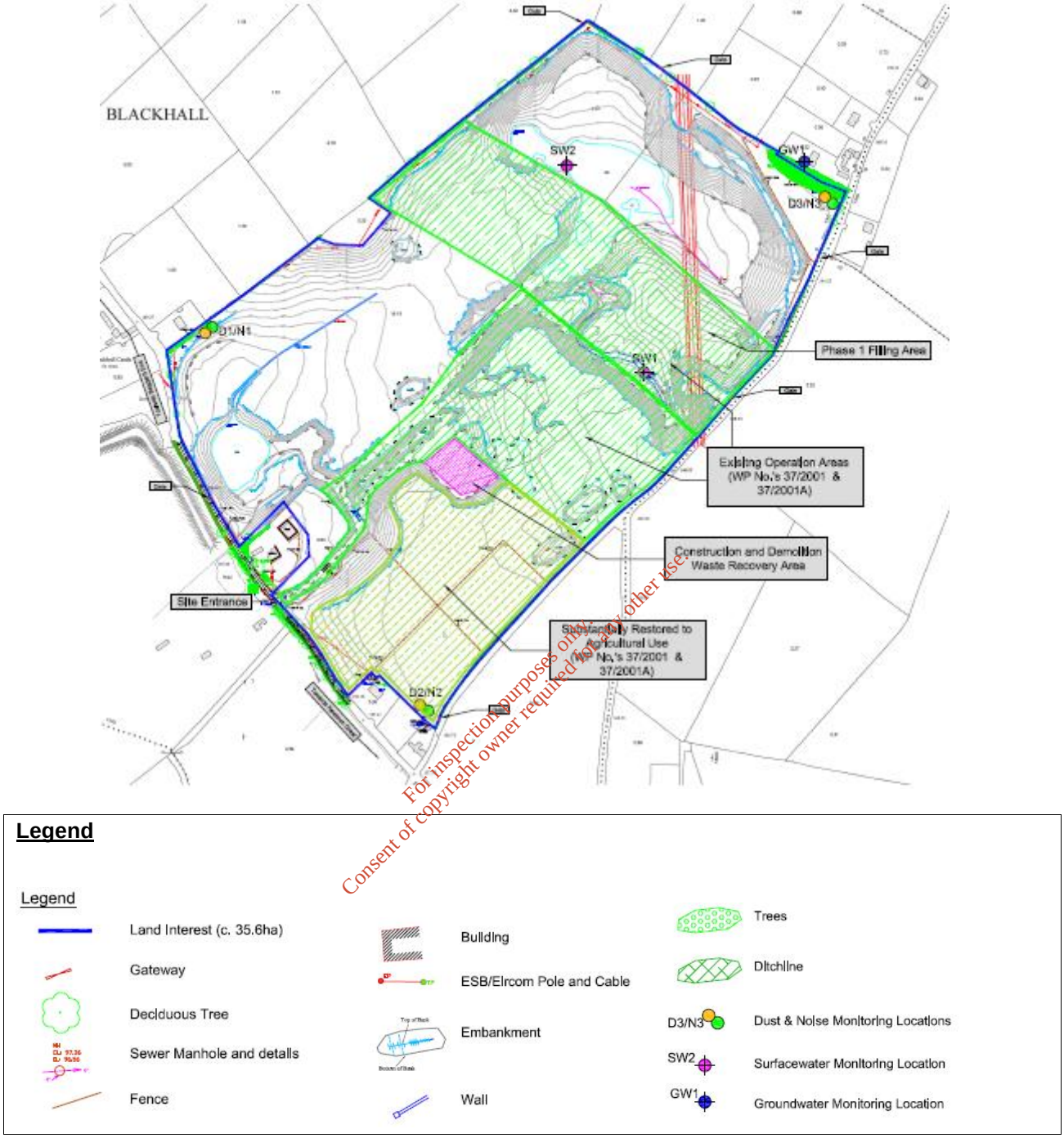


Figure 11.2 Existing Site Layout Plan

Figure 11.3 Base Year (2008) PM Peak Traffic Flows at Beggar's End Crossroads

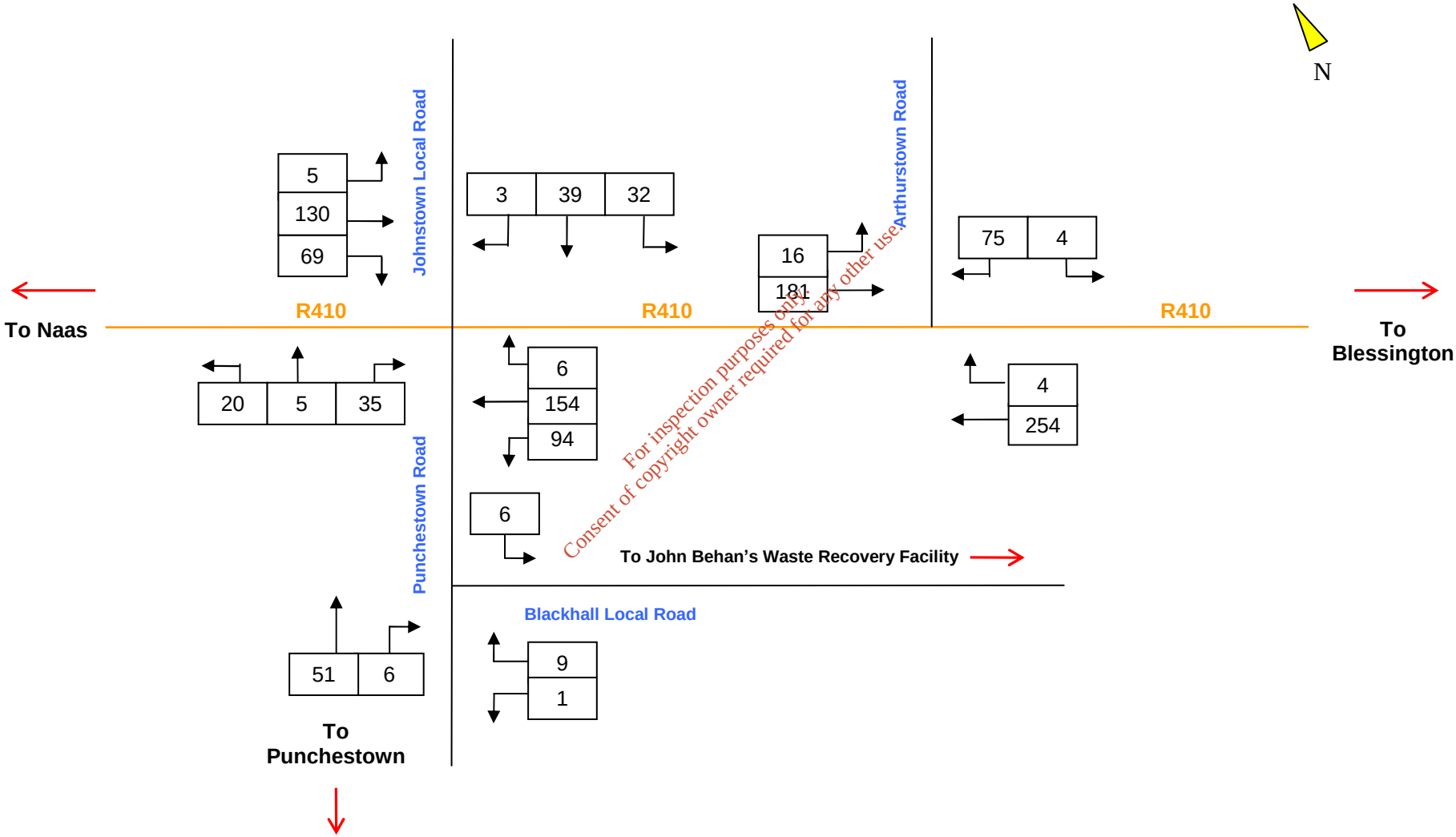
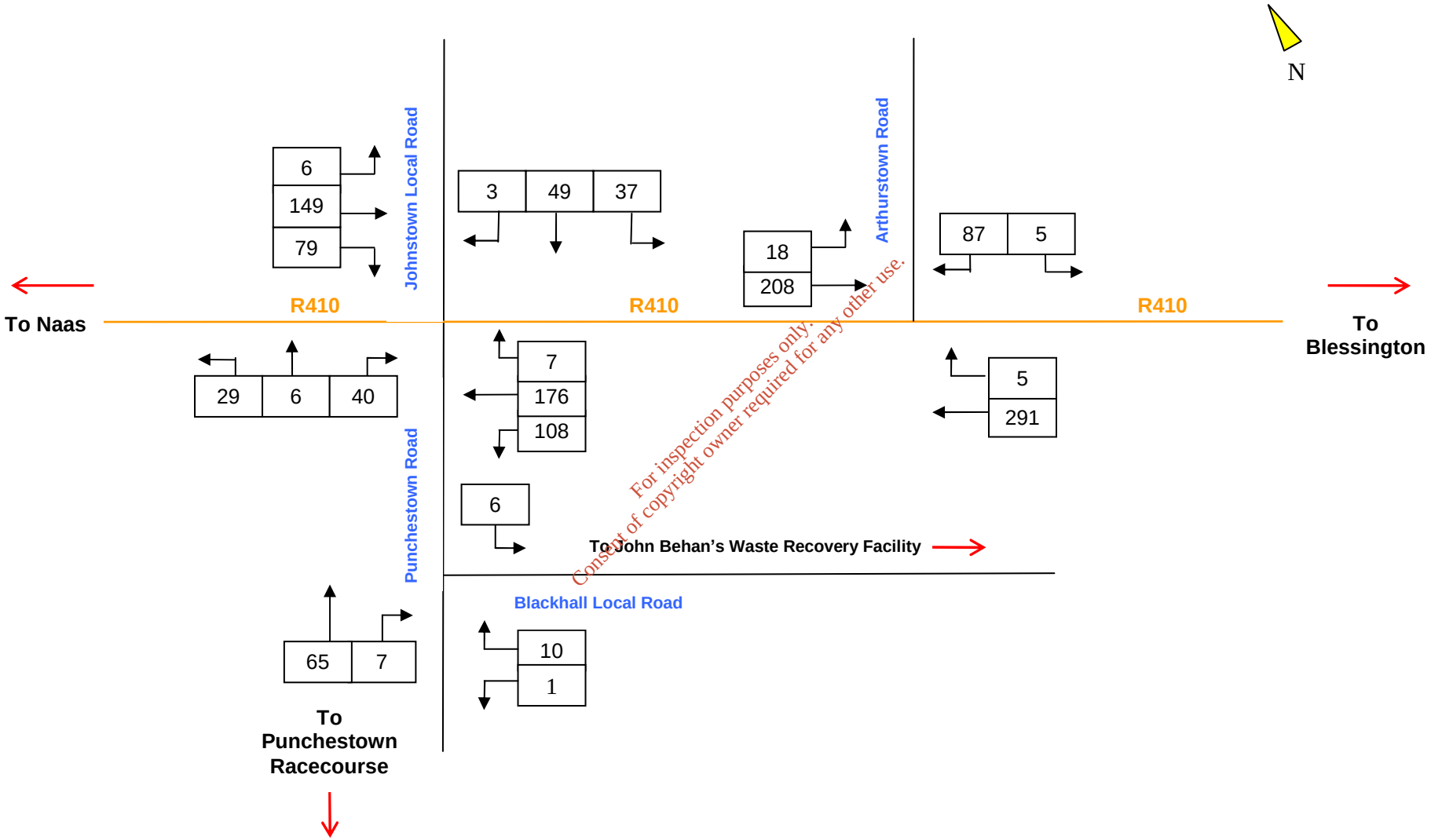


Figure 11.4 Forecast Year 2018 PM Peak Traffic Flows (vehs)



TABLES

Location	PM Peak Hour (Recorded)	AADT (Recorded)
R410 (east of junction)	**443**	**6,645**
R410 (west of junction)	**381**	**5,715**
Johnstown Local Road	**90**	**1,350**
Punchestown Road	**262**	**3,930**
Blackhall Local Road	**21**	**315**

Table 11.1 Recorded (2008) Two-Way Traffic Flows (Vehicles)

Junction	Highest Ratio of Flow to Capacity (RFC)	Highest Delays per Vehicle (Minutes)	Maximum Queue Length (Vehicles)
2008			
Beggar's End Crossroads	0.189	0.18	1
Punchestown Road/Blackhall Road	0.050	0.31	0.1
R410/Arthurstown Road	0.227	0.19	1
2018			
Beggar's End Crossroads	0.235	0.19	1
Punchestown Road/Blackhall Road	0.057	0.31	0.1
R410/Arthurstown Road	0.271	0.20	1

Table 11.2 Results of PICADY Analysis