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TRANSPORT CONTEXT REPORT JUNCTION OF THE VINERY AND A27 PROPOSED WAREHOUSING DEVELOPMENT THE VINERY, POLING, ARUNDEL

CLIENT

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CONTENTS

1.0 Introduction

2.0 Traffic Forecasts

3.0 Access Design

3.1 Design Standards

3.2 Existing Junction

3.3 Approved Development Access

3.4 Proposed Development Access Design

Appendix 1 Layout Drawing

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W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_junction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

1.0 INTRODUCTION

- 1.1 This Transport Context Report has been prepared in support of the current planning application relating to this site. No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.
- 1.2 The proposed development site is located on land abutting and to the south of the existing Vinery Industrial Estate. The Vinery Estate is situated on the south side of the A27 between Worthing and Arundel at Poling. It was originally a mushroom farm operated by Blue Prince Mushrooms. Following closure of the mushroom farm in 2003, the buildings have been refurbished to provide B1/B8 use employment space in accordance with planning permission A/14/05. There is a further unimplemented planning permission (A/37/08, renewed in 2010) for a green waste compost facility.
- 1.3 The currently proposed development involves the relocation to the application site of a local company (Fargro) from nearby premises in north Littlehampton which are affected by approved urban expansion development.
- 1.4 As part of the planning application an associated highway scheme is proposed which relates to the existing junction between the A27 and the access road serving the Vinery Estate. That access road also gives access to 16 residential properties in 4 terraces. For convenience, this report labels the access road 'The Vinery'.
- 1.5 The proposed junction improvement has been developed in accordance with the requirements of DMRB Volume 6 Section 2 Part 6, TD 42/95, 'Geometric Design of Major/Minor Priority Junctions'.
- 1.6 The Design Team comprised:
- Martin Roberts - GTA Civils Ltd
- Jack Wilshaw - GTA Civils Ltd
- Roger New - GTA Civils Ltd

W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_junction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

2.0 TRAFFIC FORECASTS

- 2.1 Transport Assessments prepared in support of previous, approved, applications for land at the Vinery Industrial Estate estimated the maximum number (2-way vehicles per day) and composition of vehicles using The Vinery at the access junction when the mushroom farm was operational. Those figures are shown in Table 1.

TABLE 1 TRIP GENERATIONS, ESTIMATED FOR HISTORIC USES

	TOTAL	HGV	%HGV
Residential	180	0	0.0
Mushroom farm	308	28	9.1
TOTAL	488	28	5.7

- 2.2 With those historic site uses, the total daily volume of traffic using The Vinery as the access road would therefore have been 488 2-way, or 244 vehicles (5.7% HGV) turning left into The Vinery daily, and 244 turning out.
- 2.3 The same Transport Assessments also estimated the volume and composition of traffic associated with proposals to replace or convert the mushroom farm buildings for B1/B8 use, and with the small green waste processing plant. Together with the existing residential properties, the consequential volume and composition of traffic using The Vinery as the access junction was estimated to be as shown in Table 2.

TABLE 2 TRIP GENERATIONS, ESTIMATED FOR EXISTING RESIDENTIAL AND APPROVED DEVELOPMENT

	TOTAL	HGV	%HGV
Residential	180	0	0.0
Approved B1/B8	608	79	13.0
Approved Waste Scheme	46	37	80.4
TOTAL	834	116	13.9

- 2.4 For the combination of existing residential and approved B1/B8 etc uses, the total daily volume of traffic using The Vinery as the access road would therefore have been 834 2-way, or 417 vehicles (13.9% HGV) turning left into The Vinery daily, and 417 turning out.

W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_junction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

- 2.5 New counts undertaken by Count-on-Us in 2012 established the actual trips generated by the residential and (then developed) B1/B8 elements. The count of 119 total (8 HGV) daily 2-way vehicles for the residential properties was lower than the TRICS-based estimate of 180, and is considered to be the more robust measure being based on actual observation. The count of traffic associated with the B1/B8 uses was 320 total (64 HGV) daily 2-way vehicles. A small part (1500m² of the total 12200m²) of the permitted B8 floorspace was still to be developed. Adjusting for this, traffic associated with the B1/B8 uses would have been 365 (73 HGV). This is substantially lower than the TRICS-based estimate but is again considered more robust in view of its reflection of the measured current and potential use of that part of the Vinery Industrial Estate.
- 2.6 The observed volume of traffic associated with the current site uses would therefore be as shown in Table 3.

TABLE 3 TRIP GENERATIONS, ACTUAL FOR EXISTING RESIDENTIAL AND OTHER LAND USES

	TOTAL	HGV	%HGV
Residential	119	8	6.5
B1/B8 (adjusted)	365	73	20.0
TOTAL	484	81	16.7

- 2.7 Adding for the approved but as yet unimplemented permission for the green waste compost facility, the volume of traffic that could have arisen in association with all current existing and permitted uses would be as shown in Table 4.

TABLE 4 TRIP GENERATIONS, EXISTING PLUS CURRENT PERMISSIONS

	TOTAL	HGV	%HGV
Residential	119	8	6.5
B1/B8 (adjusted)	365	73	20.0
Approved Waste Facility	46	37	80.4
TOTAL	530	118	22.3

- 2.8 Fargo have provided operational data supplied for their existing development. Total average weekday 2-way trips for the existing, permitted and current proposed development would be as shown in Table 5.

W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_unction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

**TABLE 5 TRIP GENERATIONS, EXISTING PLUS PERMITTED
PLUS CURRENT PROPOSALS**

	TOTAL	HGV	%HGV
Residential	119	8	6.5
Existing B1/B8	365	73	20.0
Waste facility	46	37	80.4
FARGRO	144	20	13.9
TOTAL	674	138	20.5

- 2.9 This equates to 337 vehicles (20.5% HGV) turning left into The Vinery daily, and 337 turning out.
- 2.10 It should be noted that figures in Tables 1 to 5 are based on a five day weekday average. However, AADT (Annual Average Daily Traffic) is the unit of traffic flow relevant to application of TD 42/95. AADT is defined as the total yearly traffic divided by the number of days in the year; essentially (although not exactly) equivalent to a seven day week average. For a development such as this, with a 5.5 day operating regime for all but the residential element, the AADT would lie between 80% and 85% of the 5-day average weekday figures quoted above.
- 2.11 The resultant AADT equivalent access flows for the existing development plus the proposed Fargo development could therefore lie between 539 and 573 AADT (20.5% HGV), equivalent to between 270 and 287 entering and the same leaving.

W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_unction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

3.0 ACCESS DESIGN

3.1 Design Standards

3.1.1 Design standards for an access of this type are set out in the Design Manual for Roads and Bridges, Volume 6, Section 2, Part 6, TD 42/95.

3.1.2 When the major road design speed is at least 85kph, the key determinants of whether diverging or merging tapers should be employed at a junction are (TD42/95 references in brackets):

- Nearside Diverging Tapers should be provided where:
 - o The volume of left turning traffic is greater than 600 vehicles AADT (para 7.52a);
 - o The volume of left turning traffic is greater than 450 vehicles AADT and the percentage of large goods vehicles is greater than 20% (para 7.52b);
 - o The volume of left turning traffic is greater than 450 vehicles AADT and the junction is on an up or down gradient of greater than 4% (para 7.52c).

Para 7.52 also states that where the major road flow is greater than 7-8000 AADT then the above flow figures for turning traffic can be halved.

- Merging Tapers should be provided where:
 - o The volume of left turning traffic is greater than 600 vehicles AADT (para 7.59);
 - o The volume of left turning traffic is greater than 450 vehicles AADT and the percentage of large goods vehicles is greater than 20% (para 7.59);
 - o The volume of left turning traffic is greater than 450 vehicles AADT and the junction is on an up gradient of greater than 4% (para 7.59).

Unlike for diverging tapers, there is no equivalent adjustment depending on major road flow. In addition, para 7.59 also states that merging tapers shall not be provided where the cost of provision would be excessive.

3.1.3 If those traffic figures indicate the need for diverging or merging tapers, the lengths of the tapers are dependent on the main road design speed. Full DMRB standards would require diverge tapers of 110m for a main road design speed of 120kph, 80m for 100kph and 55m for 85kph. Merge tapers requirements would be 130m for a main road design speed of 120kph, 110m for 100kph, and 90m for 85kph. Relaxations from those full standards are allowable with the Highways Agency's agreement in the light of local circumstances.

3.1.4 The average daily (7-day week) traffic flow on the A27 at The Vinery access junction would exceed the critical value of 8000 vpd in TD42/95. The gradient of the A27 at this point does not exceed 4%. The design speed of the A27 is 120kph.

W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_junction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

3.2 Existing Junction

- 3.2.1 The existing junction between The Vinery and the A27 has a 48m long diverging taper and no merging taper.

3.3 Approved Development Access

- 3.3.1 The Highways Agency's consultation responses to previous planning applications for the Vinery Estate were based on maximum forecast flows on The Vinery at the junction with A27 as shown in Table 2, i.e. 834 2-way vehicle trips / day (417 in and 417 out) with 13.9% HGV.
- 3.3.2 Based on those figures, the TD42/95 design standards, if applied without variation, would not have required a merging taper, but would have required a diverging taper of 110m.
- 3.3.3 HA ultimately accepted a variation consisting of a lower diverging lane length of 55m as a Relaxation of Standards, taking into account all the circumstances of the site. This represented a 2 design speed step relaxation for the A27 design speed of 120kph.
- 3.3.4 Following successful appeals against a Condition in the relevant planning permissions requiring the 55m diverging taper, the existing access junction with only a 48m diverging taper remains in place, serving development generating (Table 3) 484 2-way vehicles / day (16.7% HGV).

3.4 Proposed Development Access Design

- 3.4.1 The current estimates (Table 5) of total access flows that would use The Vinery for the combination of existing, permitted and currently proposed development, at 674 (20.5% HGV) 2-way vehicle trips / weekday, or 337 vehicles in and the same out, are substantially lower than those previously considered (Table 2 – 834 2-way).
- 3.4.2 The Highways Agency has indicated that as part of the current application it would require the junction of A27 and The Vinery to be improved to comply with the requirements of DMRB.
- 3.4.3 Judged against the TD42/95 criteria set out in section 3.1 above, the forecast level of exiting traffic (337) falls well short of the 450 vehicles per day (when more than 20% HGV) that would indicate the need for a merging taper. No merging taper is required.
- 3.4.4 Judged against the TD42/95 criteria set out in section 3.1 above, and in light of the local major road characteristics in para 3.1.4, the forecast level of exiting traffic does, however, require a diverging taper. Full application of TD42/95 would require a 110m diverging lane.
- 3.4.5 However, it is considered that a 1 design speed step relaxation to an 80m diverging taper is acceptable and appropriate in this case, on the basis that:

- Taking account of major road flow, the first 'trigger' for a diverging taper is a left turn flow of greater than 300 vehicles per day. The forecasts of 337 vehicles per day entering and the same leaving have a 5-day average basis and are likely over-estimates in respect of the requirements of TD42/95 which are based on 7-day averages. Para

W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_junction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

2.11 of this report estimates the equivalent AADT figures to be between 270 and 287 vehicles per day, i.e. less than the 300 vehicles per day that would trigger any need for a diverging lane;

- The percentage of HGVs is forecast to only just exceed the second 'trigger' of 20%;
- A 2 design speed step relaxation had been accepted by the Highways Agency for previous approved applications for this site which were, at that time, estimated to generate significantly higher access traffic flows (417 vehicles per day entering, 13.9% HGV, and the same leaving) than are now estimated for the current application;
- Even with a 1 design speed step relaxation to the diverging taper, the proposed design represents a major improvement on the existing situation.

3.4.6 A scheme drawing showing an improved access from the A27 to The Vinery including an 80m diverging taper but no merging taper is attached to this report at Appendix 1.

W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_unction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

Appendix 1 - ACCESS LAYOUT PLAN

W:\Projects\4144 Millwood, The Vinery, Poling, West Sx\2.3 Specifications & Reports\G. HA Context Report\v3 - final - HA_Context_Report_for_The_Vinery_unction_with_the_A27_-_The_Vinery_Issue3.doc	Date	Job No.
	30.5.2013	4144

