

Sizewell C, Route D2 and B1122 Queries and Responses

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A12 Sizewell C, Route D2 and B1122 Study

<F:\projects\Highways - A12 Four Villages\07 Design\Sizewell\Report\February 2015>

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Drawings

Name	Reference	Sheet
A12 Four Villages and Sizewell	Un-numbered SCC Drawing	1 of 1

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1 General

1.1

AECOM were commissioned by Suffolk County Council to carry out a study in response to a brief entitled 'Sizewell C Route D2 B1122 Study' issued in December 2013.

EDF Energy, the developer for the new Sizewell C Power Station, has identified the B1122 as the main access route to the site. The B1122 extends from the A12, north of Yoxford, to Leiston passing through the rural villages of Middleton Moor and Theberton.

In response to the brief AECOM developed designs for the original route proposals, the B1122 local bypass option (Middleton Moor and Theberton bypasses) and the D2 new route proposal. AECOM have also prepared plans for an improved solution for the A12/B1122 intersection consisting of a new roundabout at Yoxford; Environmental Assessment, Traffic Economic Assessment and Construction Costs estimate.

The information gathered was used to compile a report, which final version was issued to SCC in December. Following the submission of the final report and review from SCC Councillors, a list of questions were collated.

This report provides the responses to the questions from SCC Councillors. Additionally the report seeks to explain the assessment criteria used and any limitations.

1.2 Brief and Assessment Criteria

1.2.1 Summary of Brief

The brief issued by SCC required AECOM to carry out a high level assessment of the cost for constructing the improvement, benefits to journey times for the development traffic and the environmental impact of the improvements.

These assessments were to be undertaken following the Design Manual for Roads and Bridges (DMRB) and the Department of Transport's (DfT) WebTAG assessment.

The Assessment tools used were:

- DfT's Transport Users Benefit Appraisal (TUBA)
- DfT's WebTAG Assessment Unit A1-3
- DfT's Cost and Benefit to Accidents – Light Touch (COBALT) is a computer program developed by the DfT to undertake the analysis of the impact on accidents as part of economic appraisal for a road scheme

Further details of the assessment and any limitations are discussed in the following sections.

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1.2.2 Environmental Assessment

The methodology adopted for assessing the environmental impacts of the proposed bypass options where based on:

- The Highways Agency Design Manual for Roads and Bridges Volume 11
- The Department for Transport's (DfT) Transport Analysis Guidance (TAG) Unit A3, Environmental Impact Appraisal
- Regulatory and Planning Policy Frameworks (European, National and Local where applicable)

The DMRB details the general principles and guidance for undertaking an environmental impact assessment whilst the DfT's WebTAG details the methodology and tools required to carry out an environmental assessment and the criteria for quantifying the effects of a scheme on the environment. Alongside these it is also necessary to comply with the regulatory and planning policies European, National and or Local.

Assessment Methodology

The methodology for appraising the impact of a scheme on environmental topics follows a common general approach. The approach is detailed as follows:

- Scoping;
- Simple Assessment;
- Detailed Assessment

The DMRB Stage 1 Scoping Assessment was undertaken for appraising the environmental impacts of the proposed bypasses in the villages of Middleton Moor and Theberton. The aim of the Scoping Assessment is to carry out a desk study to identify the potential study area, collate and analyse information of the potential impact of the options within the study area and establish the need for further assessment.

This is a high level assessment required to highlight the magnitude of the potential broad scale effects on key receptors and identify which effects can be adequately mitigated

The criteria for assessing the magnitude and significance of the impact are defined in DfT WebTAG and presented the table below.

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Magnitude of impact	General Overview of Environmental Values				
	Very high	High	Medium	Lower	Negligible
Major negative*	Very Large adverse	Very Large adverse	Moderate adverse	Slight adverse	Neutral
Intermediate negative*	Large adverse	Large adverse	Moderate adverse	Slight adverse	Neutral
Minor negative*	Slight adverse	Slight adverse	Slight adverse	Slight adverse	Neutral
Neutral*	Neutral	Neutral	Neutral	Neutral	Neutral
Positive*	Large beneficial	Large beneficial	Moderate beneficial	Slight beneficial	Neutral

*Terminology might differ for each environmental topic but the principle is the same

The assessments also take into consideration the Regulatory and Planning Policy Frameworks, European, National and Local.

Assessment Limitations

The environmental assessments are subject to a number of limitations:

- The assessment seeks to outline the risks to the environment and typical measures that may be selected to address those risks
- Limited information available
- During the walkover survey access to all areas of the site was not possible as this was a scoping survey. Access was only available on publically accessible land
- Only elements with the potential of being affected by the proposed routes are included
- The ecological walkover scoping survey only provides a snapshot of the broad habitats and potential species present in an area at the time the survey was undertaken
- Only woodlands, waterbodies or hedgerows directly affected by the route were assessed
- Assessment only dealt with previously recorded data and there is potential for previously non-unrecorded assets to be discovered

Detail limitations associated with each environmental topic can be found in the Assessment Methodology sections in the Sizewell Study report. (*Sections 4.1.5, 4.2.5, 4.3.4, 4.4.5, 4.5.4, 4.6.4*)

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Assumptions and Degree of Certainty

In undertaking the environmental assessment assumptions have been made as to the likelihood of effects and for some environmental topics, a conservative approach has been assumed as only limited information was available when the assessment was carried out.

These assumed effects are limited to the information available, the desk study and associated techniques. The detail of the assumptions made for each environmental topic can be found in Section 4 of the Sizewell Study report.

It should also be noted that temporary or permanent construction effects, associated with the route options, have not been included in this Scoping Assessment for all the environmental topics. In the Air Quality and Noise assessment it has been assumed that for Do-Something scenarios no local traffic will use the existing B1122. The construction impacts, for the remaining environmental topics, will be appraised in the Simple Assessment.

1.2.3 Traffic Economic Assessment

Any benefits attributable to Sizewell construction traffic are accounted for in the schemes' economic assessments which were based on DfT's TUBA and COBALT systems.

The traffic related element of this exercise was limited in its scope due to available data. It has not made use of a traffic model and has relied heavily on very limited available traffic data, especially that relating to the construction of Sizewell 'C'. Actual outcomes for the schemes could be quite different, particularly for the B1122 and D2 schemes for which there was very little existing data to work with.

It should be noted that that initially SCC stated that the Do Something speed assumption for the B1122 should be 40mph for all traffic. This was similar to current observed average speeds based on the data available, indicating there would be no time savings (and hence benefits) from provision of the proposed B1122 bypasses. The assumption was changed to incorporate the reduced speed limits of 30mph within the villages on the B1122.

The same 40mph assumption was applied to the D2 route and, unlike the B1122 route options, this assumption was not changed. Therefore it can be argued that the D2 economic outcome is being penalised compared to that for the B1122 schemes, although changing it seems unlikely to result in positive business case.

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1.2.4 Cost Estimate Assessment

All of the cost estimates are based on the technical drawings, along with the associated list of assumptions and exclusions which are attached to each estimate (Section 7 contains the Cost Estimate Breakdowns for the schemes).

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2 Environmental

2.1 P11 Clarify query with regards Hurts Hall (Q9)

Hurts Hall is positioned to the south west of the property's land, surrounded on other sides by wooded areas. The Design Manual for Roads and Bridges (DMRB) states that a corridor 600m either side of a scheme is to be considered for a change in noise levels. However due to limited mapping information the assessment for this scheme has been set at a 200m corridor (Section 4.2.4 *Study Area* within the report). Reference to insert A which both show clearly the proximity (under 200m) of the proposed route (black line) to the property of Hurts Hall. The proposed route D2 passes to the south west of the property also, thus the need for noise barriers as mitigation to prevent a significant impact upon Hurts Hall.



Insert A: Source: "Hurts Hall" 52°12'33.67"N and 1°33'29.25"E. **Google Maps**. 2015. January 12th 2015.

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2.2 Clarify the comment at the bottom of p14 that suggests that trees would be removed. From reading the report, Buckles Wood would not be reduced but fragmentation of the environment would occur due to surrounding the wood by roads (Q10)

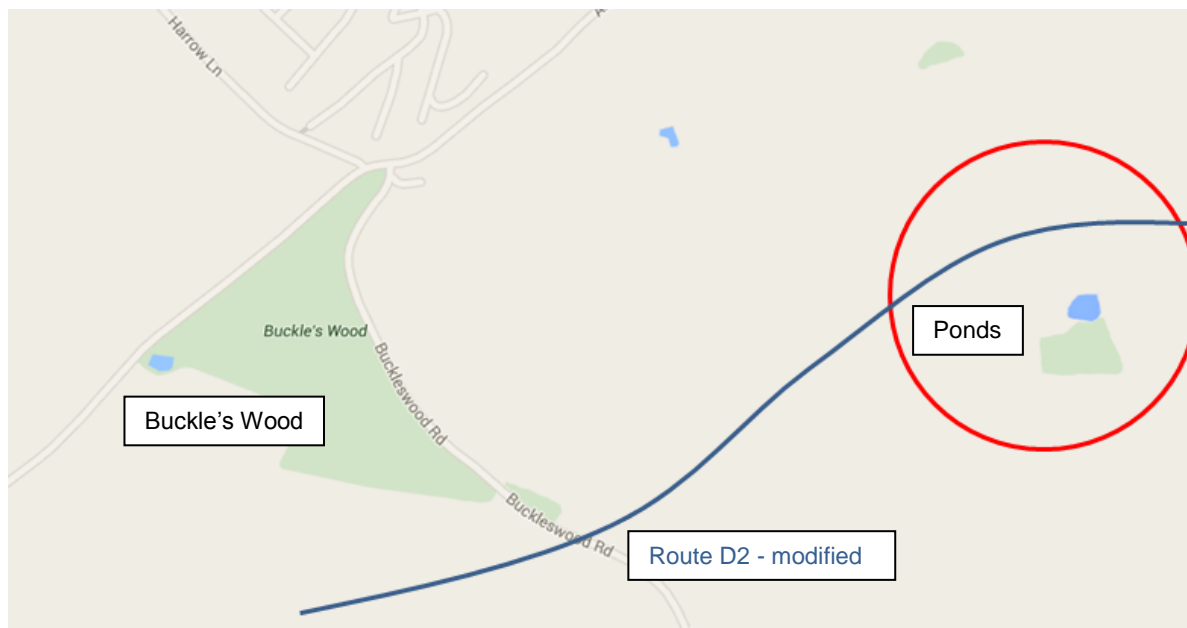
A small section of Buckles Wood would unfortunately be affected by the route D2, which would pass through the south east corner of the woodland causing the potential loss of trees and fragmentation. The road alignment would pass close to the main body of the Ancient woodland but intersect the small segment to the north of Buckleswood Road, see insert B below (black line).



Insert B: Source: "Buckle's Wood" 52°12'55.67"N and 1°33'29.25"E. Google Maps. 2015. January 12th 2015.

Ancient woodland is an irreplaceable asset, therefore cannot be mitigated by simply planting more trees. A possible solution to minimise the fragmentation of Buckle's Wood would be to change the alignment of the route to pass just south of the trees (see blue curve). This potential alignment would still need to pass to the north of ponds to the east of Buckle's Wood (insert C) in order to maintain a feasible road radius into the proposed roundabout at Leiston.

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Insert C: Source: "Vicinity of ponds to Buckle's Wood" 52°21'57.58"N and 1°57'06.37"E. **Google Maps**. 2015. January 16th 2015

2.3 Ref p18. A plan showing the properties referred to and the location of the cycle route, and its current status, also include location of AQ receptors referred to on p23 (Q11)

The air quality receptors mentioned on page 23 of the Sizewell Study are 13 and 17, which would both experience improvements of more than 5% of the NO₂ (Nitrogen Dioxide) annual mean objective as a result of D2. This is due to the positioning of the new route away from the location of the receptors and the assumption that all traffic will transfer from the old to the new route. The cycle route mentioned in the D2 report is in fact a bridleway. The mitigation measure for this affected bridleway is to position a gate at the carriageway crossing in order to still allow the route to be used. Properties to the south of Saxmundham and the north-east of Leiston will be visually affected by the D2 bypass. This assumption is based on the potential visual impacts of the bypass the properties would face due to the presence of intervening elements and not by their distance from the road. Further detailed study would have to be performed in order to properly evaluate the magnitude of impacts the bypass would have upon any of the properties that may have a visual disturbance.

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2.4 Ref p23. Provide explanation/evidence used for comments relating to the Sizewell marshes and the River Fromus, re eels (Q12)

“Consultation with the Environment Agency has indicated that eels (*Anguilla Anguilla*) are present in the Fromus River (upstream and downstream of the crossing.)” (Refer to section 4.6.3.5 *Protected Sites/ Species* in the report)

The impacts that could occur on the Sizewell Marshes would be an indirect impact from the watercourses situated in the vicinity of the scheme. It is stated in the baseline conditions of the Sizewell Study report (4.6.3 *Baseline Conditions*) that although a primary study area of 1km from the proposed routes is considered for impacts to a watercourse, a further 5km should be considered for a secondary area downstream of the route crossing. This is due to the potential impacts that may occur downstream caused by effects upstream, an extract from the report “An adverse water environment impact by the scheme could in turn propagate downstream and impact on the Site of Special Scientific Interest (SSSI) by affecting habitat and water quality.”

2.5 Explain the visual amenity impacts and how this relates to Saxmundham and Leiston. A plan showing the extent of the area affected would be useful here (Q13)

Visual amenity impacts fall into either design or environmental impacts. Design visual amenity involves the change in ground level due to the construction of the bypass whereas environmental impacts focus on the visual impact from the properties.

2km either side of the road corridor is the study area used for the visual amenity impact assessment of D2. Visual amenity impacts are defined as “a change to existing views as a result of the proposed route options” (Section 4.4.5 *Assessment Methodology*). As “the route passes in close proximity to outlying properties south of Saxmundham and north-east of Leiston, residents are likely to experience large adverse effects on their visual amenity” (4.4.11.2 *Option – Sizewell D2*). Large adverse effects are defined in ‘Table 4.4.2- Visual affects criteria’ as “· Substantial alteration to elements/features of the baseline (pre-development) conditions, · Where the proposed development would cause a very noticeable alteration in the existing view, · This would typically occur where the Development closes an existing view of a landscape of national importance and the proposed development would dominate the future view”.

Properties within Leiston and Saxmundham will experience an impact on the visual amenity due to the proposed route D2. The level of the new route is higher in sections (approximately 1m) than that of the existing level as the road enters the views of the houses around Leiston. The new road would be visible from the properties to the north-west Leiston, due to both the location of the bypass and the elevated height of the route. Similarly in Saxmundham, the proposed level of the proposed road is much higher than that of the existing ground (approximately 7m). The

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difference in height around the Saxmundham rail Bridge is also approximately 7m, which is within the view of the houses of the south of Saxmundham, affecting their visual amenity.

Hurts Hall is a grade 2 listed property located to the south-east of Saxmundham and therefore will also be affected visually and potentially aurally by the construction of D2. The bypass D2 may be audible from the property and therefore an acoustic barrier may be needed as a mitigation measure. During the site-walkover, AECOM employees noted that the land surrounding Hurts Hall contained no large changes in elevation, therefore it can be assumed that the route D2 will be more visible due to its raised height (an approximate average of 2m) above the landscape.

2.6 Summarise areas considered in the environmental assessment, with reference to standards being used, and what can be/has been used to assess the cost/benefits of the scheme (Q16). Clarify extent of area considered for impacts for all elements of the report. Provide specific response to consideration of the Minsmere approach environment (Q1).

All environmental subtopics adopt the methodology for assessing environmental impacts from the following standards;

- The Highways Agency Design Manual for Roads and Bridges Volume 11
- The Department for Transport's (DfT) Transport Analysis Guidance (TAG) Unit A3, Environmental Impact Appraisal
- Regulatory and Planning Policy Frameworks (European, National and Local where applicable)

The DMRB details the general principles and guidance for undertaking an environmental impact assessment whilst the DfT's WebTAG details the methodology and tools required to carry out an environmental assessment and the criteria for quantifying the effects of a scheme on the environment. Alongside these it is also necessary to comply with the regulatory and planning policies European, National and/or Local.

Air

- 200m is the maximum distance of air quality receptors from the road centre (*Section 4.1.5.5 WebTag Assessment*)

Noise

- A 200m corridor either side of the route has been considered for the assessment (*Section 4.2.4 Study Area*)

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Biodiversity

- A 500m corridor either side of the route has been considered for the local biodiversity study area (*Section 4.3.4.1 Step 1: Scoping and Identification of Study Area*)

Landscape/ Visual

- A 2km corridor either side of the route has been identified as the study area for landscape (*Section 4.4.2 Scope of Study*)

Heritage

- A 300m corridor either side of the route has been identified as the study area for heritage (*Section 4.5.3 Baseline Conditions*)

Water

- A 1km corridor either side of the route has been identified as the primary study area for water. A secondary study area of up to 5km downstream of the watercourse crossing point has also been included. (*Section 4.6.3.1 Study Area*)

Due to the closer proximity of the Theberton east option to the Minsmere-approach, than that of its western counterpart, the effect of this route option is deemed as significant (*Section 4.6.9.1 B1122*). The Minsmere – Walberswick Heaths and Marshes fall within the primary study area for the Theberton east option and within the secondary study area for that of Theberton west. The potential impact upon the SSSI would be greater in the eastern option but would also have the potential to impact downstream from Theberton West (*Section 4.6.6.1 B1122 Local Bypass Option*).

2.7 Explain the extent of the assessment of the impacts on residential amenity in Theberton (Q19)

The Theberton east route negatively impacts the residential amenity of the village more than that of the western route; this is due to the closer proximity of the bypass to the properties within Theberton. Unlike the Theberton west bypass, the eastern option separates residents from the main village as well as surrounding other residential properties by a road corridor; formed of the existing B1122 and the new road (*Section 10.1.1 Segregation*). The Theberton east bypass cuts through Church Road which, although isn't an official cycle path, is used by cyclists wishing to access the northern end of the village.

Properties in the villages of Theberton and Middleton Moor were assessed in band widths from the existing road in order to identify which could potentially be affected by noise, vibration, air quality and dust. Of the two Theberton bypasses, the western option has a higher number of

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properties which would experience benefits from the proposed route. In the 300m band, 2 properties in the Theberton East route would potentially experience a negative impact of the new bypass compared to that of the existing. (*Section 10.5 Comparison of Potential Net Environmental Benefits by band width*). The assessment is based on the assumption that properties in the closest band to the roads would experience the worst conditions.

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3 Traffic

3.1 Explanation on the benefit figures presented, what factors can be included in this and what was used to provide benefit of the D2 route (Q4)

The positive benefits calculated by TUBA for Route D2 are envisaged to be;

Accidents	5,094
Economic Efficiency: Consumer Users (Commuting)	699
Economic Efficiency: Consumer Users (Other)	2,565
Economic Efficiency: Business Users and Providers	6,704
Wider Public Finances (Indirect Taxation Revenues)	325

Any benefits attributable to Sizewell construction traffic would be accounted for in the overall assessment.

3.2 Provide detail about the accident analysis, the use of existing data and the comparison against estimated accident figures for the new road. Also if a reduced accident rate was considered for existing routes once a D2 route was provided and therefore less traffic on the old roads (Q5)

The accident analysis was undertaken as per DfT guidance using the COBA-LT program. Although observed accident data for the 3 years from December 2010 to December 2013 was provided, AECOM made use of default accident rates due to their marginally higher rates.

Although it may be perceived locally that accidents occur on some routes more than others; only accidents that result an injury (or importantly an injury being reported), are recorded in police statistics. If accidents do not result in an injury these are not recorded in police statistics.

The accident data provided by SCC is attached with the accompanying email (location and severity). Note that in COBA-LT it is not possible to specify the severity of injuries, and hence default rates are applied even to observed data.

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3.3 P27 provide details of how this figure was reached and link back to the figures used in section 6 (Q14)

“However estimated daily construction related trips on the B1122 (with the D2 route in place) are currently estimated to be 1036 car trips (i.e. 518 in each direction) and 116 LGV trips.”

There is only limited information available from the EDFE 2012 consultation documents. Based on what is stated in these the following summarises what information is provided and what assumptions has been included within the assessment.

Car Trips

No detail is provided within the EDFE consultation documents as to how many car trips are likely to be generated by Sizewell C construction. Therefore the number of commuting trips using the on site car park, approximately 1000 spaces, will be 25% from the area east and west of the A12 and using the A12 south and north. Additionally the number of visitor trips has been assumed to be 200 two-way trips per day.

LGV Trips

During the construction peak EDFE have estimated that there would be on average 170 visits (340 movements), with the busiest day being some 50% higher than this, i.e. 255 visits (510 movements). EDFE do not provide any assessment of where these LGV trips will originate.

The average daily volume of 170 and assumed that 66% originate from the A12 south and 34% from the A12 north, was used for this assessment.

HGV Trips

During the construction peak EDFE have estimated that there would be between 100 and 300 HGV deliveries per day with the busiest day being some 50% higher than this. EDFE expect that 85% of HGVs would originate from the A12 south and 15% from the A12 north.

The assessment has used the upper average daily volume of 300 HGV deliveries (600 2-way trips) and assumed 85% originate from the A12 south and 15% from the A12 north.

Bus Trips

EDFE do not provide any indication as to the number of bus trips that are expected to be generated during construction. EDFE are proposing two park and ride sites on the A12 and some direct buses from Ipswich and from Saxmundham railway station.

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For the purposes of this assessment it has been assumed that the P&R frequency is every fifteen minutes or four buses per hour in each direction at both sites between 0600 and 2400. It has been assumed that there are two buses per hour between Ipswich and Sizewell and one bus per hour from Saxmundham.

Although construction related traffic is likely to vary by day and hour it has been assumed for assessment purposes that traffic volumes will be constant across each day. The majority of Sizewell trips will occur between 0600 and 2400 and it will be assumed that volumes are evenly spread across each of these 18 hours. This results in the following construction related trips in 2024: Table 6.5.1 *Assumed hourly Sizewell C Trips (2024)* shown below.

Route	Car	LGV	HGV	Bus	Total Vehicles (hourly by direction)	Total Vehicles (daily both directions)
A12 Four Villages	24	6	14	6	50	1814
B1122*	29	3	17	4	53	1896
B1119	32	6	0	7	46	1640
D2 Route**	32	6	17	11	66	2384

* It is assumed that all Sizewell C construction HGV trips will access the site via the B1122.

**It is assumed that all Sizewell C construction HGV and Bus trips will use the D2 route.

From the figures in the above table, the estimated daily construction related car trips on the B1122 is:

29 one-way hourly car trips are estimated to occur on the B1122.

Approximately **518 (29*18)** one-way car trips are estimated to occur in an 18 hour day on the B1122

1036 (518*2) two-way car trips are estimate to occur on the B1122 daily

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3.4 What can be/has been used to assess the cost/benefits of the scheme (Q16 continued)

The Department for Transport's (DfT) Transport Users Benefit Appraisal (TUBA) program has been used in order to determine the economic benefits (*Section 6.6 Benefits*).

Any benefits attributable to Sizewell construction traffic are accounted for in the economic assessment of the D2 scheme.

3.5 Explain the basis for using a 60 year assessment period and indicate the impact on figures in 25 years used (Q17)

For standard assessment of the economic benefits of a new road scheme of the scale of the D2 scheme a 60 year assessment period is used as per the DfT's WebTAG guidance. Shorter assessment periods can be used but this will generally result in fewer accrued benefits.

The feedback also seems to suggest that the calculated benefits are based on only Sizewell traffic. However, they are actually based on all road users.

A 60 year period of evaluation is used in order to cover the design life of a road in construction terms. Shorter periods of evaluation can be used but would not give the equivalent overall positive benefits

3.6 Explain the limitations, outside of modelling, of assessing the impact of delays (Q18)

A very high level assessment of these schemes has been undertaken.

We have not used a traffic model and have based the assessment on expected changes in traffic volumes on the directly affected links that the proposed schemes provide alternative routes to.

To do otherwise would make the process too complex for a short term manual assessment that this was meant to be.

In terms of vehicle travel times this was based on changes in forecast traffic volumes. However as the B1122, B1119 and B1121 are lightly trafficked the expected increases are unlikely to change speeds to any substantial degree.

Assumptions regarding travel times did not include delays attributable to increased congestion at junctions. This would have required detailed modelling of the junctions in question which was not part of the brief, and would also have required junction turning counts that were not available.

It should also be noted that the information available regarding Sizewell construction traffic was very limited, in terms of hourly volumes by vehicle type, the origin of this traffic and the variation

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in volumes of expected traffic over the duration of the construction of Sizewell 'C'. This also included the expected start and end date of the construction. Therefore the assessment is also based on assumptions that could be very different to eventual outcomes, which could change the economic outcomes significantly.

4 Design

4.1 Provide reasons for the two additional roundabouts for D2 (Q3)

The proposed route varies from that specified in the brief in several ways. Firstly, the proposed priority junction positioned on the B1121 has been replaced by a roundabout. It was deemed safer to design a roundabout compared to a junction to reduce traffic speeds on the approach to the existing B1121 as well as reducing the speeds on the approach from the rail bridge. In this location the proposed road level is being lowered from a height of approximately 8m above existing ground level at the Saxmundham Railway Bridge to where the D2 route joins the B1121. Network Rail requires a headroom clearance of 8m where a road crosses an active railway line to allow for any future electrification.

Furthermore, it was originally suggested that the road will tie into the B1122, north of the junction to Lovers Lane at Leiston with a priority junction. This idea was also replaced with a roundabout to allow slower moving traffic easier access onto the proposed route and to allow existing roads to be linked at this point. A roundabout is again considered to be the safer option at this termination point.

Other factors that need to be taken into consideration in designing a junction are the turning clearance of HGVs, the percentage of HGVs using the junction and the potential to provide a signalised junction. Signalised junctions are relatively rare on high speed (35-65mph) roads in rural areas and have specific requirements for design and control of traffic signals (DMRB TD50 paras 2.2 – 2.7 & 2.54; TAL 02/03). Any roads with speed limits above 50mph would require the provision of speed reduction measures on the approach to junctions (TAL 02/03).

In summary, AECOM propose the use roundabouts at the junctions of the A12, B1121 and B1122 with the D2 bypass. The secondary option is signalised junctions, which are deemed safer than non-signalised junctions due to the reduction of speeds on the approach to the junction. The costs of having signalised junctions for the D2 route are detailed in section 5.2 construction cost estimate without roundabouts.

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4.2 Explain, using plans, the routes assessed against the D2, including the B1122 (Q6)

The first bullet point statement on page 4 of the Sizewell Study report: “The route has been designed as an alternative to the existing road...”

The statement refers to the route D2 providing an alternative to the B1122 and B1119, both of which will still be available for use. During the course of the study the benefits of the D2 route has been compared to the other proposed bypasses in the villages of Theberton and Middleton Moor as well as the existing roads; B1122, B1119 and B1121.

The benefits compared include environmental, construction costs, journey and accidents, and community impacts. Details of this comparison can be found in Section 8 of the Sizewell Study report.

It should be noted that detailed plans of the proposed bypasses were shown by AECOM in the Sizewell Q&A Meeting at SCC on Wednesday 21st January.

4.3 Clarify if the D2 scheme would use the existing B1119, where it coincides, would improve the B1119 at these points, or would demolish the road and rebuild. This will also have an impact on the unit rate calculations (Q7)

It is proposed that the B1119 route be demolished and rebuilt, where it coincides with the D2 route option, so as to provide a better design solution:

The widths of the existing B1119, approximately 6m, are below the standard road width of 7.3m for a single carriageway as detailed in the DMRB. Detailed plans were shown by AECOM in the Sizewell Q&A Meeting at SCC on Wednesday 21st January.

The initial statutory undertaker’s investigation conducted indicated that the following authorities will be affected, by the proposed route;

- BT Openreach- Overground and Underground Plant
- Essex and Suffolk Water- Trunk and Distribution Main
- National Grid- Low and Medium Pressure
- Virgin Media

The vertical alignment of the existing B1119 does not conform to current standards. Additionally where the road would need to be widened to 7.3m the vertical geometry would need to be adjusted to follow the appropriate profiles. There are buried services as named above which would also need to be considered and it is likely that the adjusted vertical profile may need to take this existing statutory undertakers plant into account. Currently there is no record of the road pavement thickness throughout this length of road or details of the existing construction. It would be necessary to take cores into the existing pavement to reveal these features. The assumption at this stage is that full depth reconstruction of the existing B1119 where the

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horizontal alignment coincides with the new design would be necessary. It should be noted that the cost estimates proposed for the D2 bypass includes approximate costs for diverting existing services under the B1119. More work would have to be undertaken in order to achieve a full statutory undertaker's investigation and associated costs.

4.4 Explain, using plans, the areas of lower speed limits used in the assessment (Q8)

The speed limits along the B1122/B1121/B1119 range from 30mph within the communities of Theberton, Middleton Moor, Saxmundham and Leiston to 60mph on the sections of road joining these settlements. A speed limit of 40mph is also present on the B1122, between the villages of Middleton Moor and Theberton.

It should be noted that detailed plans of the speed limits used for undertaking the study were shown by AECOM in the Sizewell Q&A Meeting at SCC on Wednesday 21st January.

4.5 Explain the table which considers environmental comparison and costs on page 30 (Q15)

In accordance to the brief AECOM were required to undertake a high level assessment to provide SCC with the tools to consider the options and provide EDFE with details of the scale of improvements that, in the absence of further details from EDFE, SCC see as needed to mitigate the impact of the development.

To this accord the environmental and cost comparison table, page 30 in Sizewell Study report, summarises the following points:

- The environmental benefits of the proposed route options;
- The construction costs for the proposed route options
- The Net Present Value Benefit for the proposed route options

The benefits summarised in the table were based on information available to AECOM and the associated assessments. It should be noted that this study, seeks to provide an indication of the environmental, costs, traffic, accidents and journey time benefits for the proposed route options. This information could be used as the basis to undertake further study which would include a cost benefit analysis.

Capabilities on project:
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5 Cost

5.1 Provide detail of why the cost per m² for the D2 scheme is so much higher than for the local B1122 bypass options (Q2)

Although the cost per square metre for the D2 route seems a lot higher than the other potential bypass options on the B1122; it is comparable to the costs calculated for the other routes considered in the Four Villages Study. The main elements that affect the cost are the number of structures, roundabouts or earthworks involved. As the D2 route contains 3 roundabouts, 2 railway bridges and 2 culverts, the price of this route will be comparatively larger than that of one without any of the aforementioned structures.

5.2 What would be the order of difference in costs if priority junctions were to be used instead (Q3 continued)

A simple cost estimate for the priority junctions instead of roundabouts was calculated and shown in the table below.

Description	Quantity	Unit	Rate	Total
Omit 32m diameter roundabout	-1	nr	320,000	(320,000)
Omit 27m diameter roundabout	-1	nr	270,000	(270,000)
Allowance for additional tarmac to new junctions, including sub-base, base, binder and surface courses	3,700	m ²	80	296,000
Sub Total				(294,000)
Traffic Signals on Cross Roads			200,000	
				94,000
Works Total				94,000

This cost estimate is based on the assumption that standard traffic signals will be used and nothing else will be changing other than the omission of the roundabout itself in lieu of a simple, signalized priority junction, i.e. no changes are made to the site are, excavation volume etc. a more detailed list of assumptions and exclusions are detailed below which should be considered when reviewing the above.

Capabilities on project:
Transportation

Assumptions and Exclusions

- Roundabout at the beginning of the D2 route is retained, the other two are being replaced by signalised junctions
- Assume excavation, disposal and imported topsoil required will be the same between roundabout and priority junction
- Assume omission of thermoplastic markings from roundabout equals addition of markings for junction
- Assume quantity of lamp posts for roundabouts equals quantity required at junctions
- Assume site boundaries of route will not change
- Assume no fencing required
- Assume kerbs priced for the roundabout area is equal to the kerbs needed at the junctions
- Assume footpaths costs will be the same
- Assume cost of stat undertakers will not change

For a more detailed estimate of the change, further information would be needed on the type of junction which is required and any other associated elements (traffic lights, lampposts...as this is currently all assumed).

5.3 What can be/has been used to assess the cost/benefits of the scheme (Q16 continued)

The cost breakdown used (i.e. Series 100 – Preliminaries, Series 700 - Pavements) is based on the Method of Measurement for Highways Works (MMHW) and the costs for each element is based on the base cost from Spons. Benefits from TUBA, Accident Benefits from COBA-LT

5.4 Provide the front cost summary sheets for each option.

The cost summary sheets for each bypass option can be found in Section 7 of this report.

Capabilities on project:
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6 Additional Questions from the Sizewell Q&A Meeting at SCC on the 21st January 2015

6.1 Confirm the distance of the proposed relief road for Middleton Moor from the i) Existing road and ii) the properties.

- i) The Middleton Moor proposed bypass is a maximum of 325m away from the existing B1122.
- ii) From the main cluster of houses within the village, it is situated 202m away from the nearest property. Where the scheme ties in with the existing road, a property will be approximately 20m from the new bypass.

6.2 Confirm the distance of the proposed Theberton west relief road from i) the existing road and ii) from Theberton Hall.

- i) The Theberton west bypass option is a maximum of 493m away from the existing B1122.
- ii) Theberton Hall is approximately 190m away from the site of the proposed bypass, Theberton west.

6.3 Report ref 2.2 could you clarify the ecological value of the ponds between Buckle's Wood and Leiston.

The ponds are found not to be a SSSI (Site of Special Scientific Interest). The ecological value of the aforementioned ponds is deemed to be of low significance (*Section 4.6.6.2 D2 New Route Option*). However the potential presence of the Great Crested Newt (GCN) has to be taken into consideration, which is a highly protected species (*Section 4.3.19.5 Route D2*). Further investigative study would have to be undertaken in order to confirm the presence of the GCN.

Capabilities on project:
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6.4 There was a request for comparing the residential amenity value for the proposed improvements against using the existing routes/ State the number of properties affected by the do nothing option and each local bypass option

Currently the visual amenity impact assessment is based on the assumption that the closer the proximity of the properties to the road corridor, the larger the effects. A band width assessment was carried out for the B1122, B1121 and B1119 bypass options. Properties were identified in band widths from the existing road in order to identify potential relief from noise, vibration, air quality, dust and other effects. The tables' in question 6.4 contain the numbers of properties potentially affected from the existing route and bypasses. (*Section 10.5 Comparison of Potential Net Environmental Benefits by band width*). From these results it is clear to see which of the smaller bypasses would benefit the most properties.

Route Option	Band Widths	
	50m	300m
Middleton Moor		
Properties in existing road band	24	42
Properties in new road band	7	23
Net Benefits Indicated - properties (no)	17	19

Route Option	Band Widths	
	50m	300m
Theberton West		
Properties in existing road band	46 (+C)	83 (+C)
Properties in new road band	0	50
Net Benefits Indicated - properties (no)	46 (+C)	33 (+C)

Route Option	Band Widths	
	50m	300m
Theberton East		
Properties in existing road band	46 (+C)	83 (+C)
Properties in new road band	0	85 (+C)
Net Benefits Indicated - properties (no)	46 (+C)	-2

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Route Option		Band Widths	
		50m	300m
D2			
Properties in existing road band	A12: D2 to B1121	2	203
	A12: B1121 to Yoxford	73	169
	B1122	104	175
	Total	179	547
Properties in new road band		1	39
Net Benefits Indicated - properties (no)		178	508

It should be noted that there will be benefits emanating from the diversion of traffic from the northbound A12 onto the D2 both during and following the construction of Sizewell C. These benefits will be experienced at properties on the A12, at Yoxford and also on the existing villages on the B1122.

The tables above show the results from the band width method used to determine the quantity of properties that would experience benefits due to the different bypass options. The figures in the rows entitled 'Properties in the existing road band' show the number of properties that would be affected by the do nothing approach.

- Middleton Moor – 42 properties
- Theberton West – 83 and Theberton Church
- Theberton East – 83 properties and Theberton Church
- D2 route – 547 properties

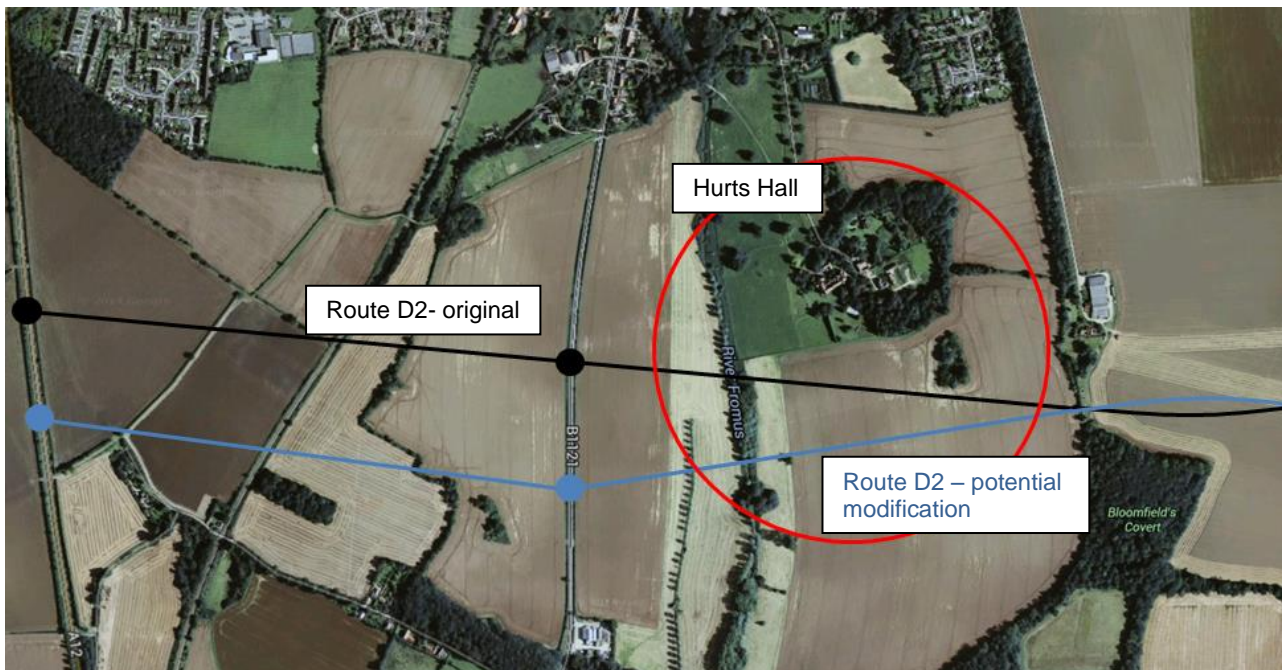
6.5 The report carried out a high level assessment of impacts on residential amenity, could you provide details of what would be included in the next level of assessment, if this was to be undertaken.

Residential amenity includes the assessment of visual, noise, air quality and vibration. There would be a need to also consider the effects of community severance. In the stage 2 assessment, detailed site visits would have to be undertaken in order to fully assess key factors so as to measure the magnitude of amenity impacts. This would be carried out by thoroughly evaluating the topography of the surrounding land, carrying out a full assessment of community severance, a detailed appraisal of the proximity of the route to the properties and any visual obscuration and the effects of these. Recommended mitigation measures in the next phases of design and appraisal might include the recommendation for visual amenity bunds, noise screening and lowering of designed earthworks to minimise the effects of the road alternatives.

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6.6 Provide a response to the query “would it be possible to move the D2 route further from Hurts Hall?” What would be the impact on the overall route if this is done.

It would be possible to change the alignment of the D2 to move the route further away from Hurts Hall. The insert below (Insert C) shows the vicinity of Hurts Hall to the original and potentially modified D2 routes. Due to Hurts Hall being surrounded by fields, the alignment could be taken approximately 200m away from the location of the property, which may remove it from the noise pollution study area and reduce the noise levels. The study area for landscape is 2km, so the Hall would still be affected visually but less so than the modified route.



Insert C: Source: “Hurts Hall” 52°12’33.67”N and 1°33’29.25”E. **Google Maps**. 2015. January 28th 2015.

Please note the modified route shown above is a very preliminary idea of a possible movement of the route and not a firm solution. More detailed work would have to be undertaken in order to assess the possible alignment.

6.7 Would the Theberton East route “cut off” Eastbridge from Theberton?

The location of the Theberton east bypass route would separate Theberton and Eastbridge by cutting through the land in-between the villages and severing the local roads; Onner’s Lane, Church Road and Potter’s Street. However access to Church Road and Onner’s Lane will be provided via staggered junctions at the crossing points on the proposed bypass. Potter’s Street will too have a junction onto the route but as the road does not currently continue over the

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junction, there will be no need for a staggered junction. Therefore links between the two villages will be maintained.

6.8 Cost Estimate Breakdowns for the bypass options

The Cost Estimate Breakdowns are found in Section 7.

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Transportation

7 Appendix

**A12 Four Villages and Sizewell
Sizewell B1122**

Middleton Moor



Elements	%	Area (m2)	Rate	Estimated Civils Cost
1 Highway Construction		13,785	£ 137.81	£ 1,899,667.93
2 Structures				
3 Signals				
4 Sundries				
5 Sub-Total (1-4)		13,785	£ 137.81	£ 1,899,667.93
6 Preliminaries & Traffic Management	30%			£ 569,900.38
7 Works Total		13,785	£ 179.15	£ 2,469,568.31
8 Ancillaries and Major Items				
9 Statutory Undertakers				£ 438,000.00
10 Construction Total				£ 2,907,568.31
11 Preparation and Supervision				
Preparation	12%			£ 348,908.20
Supervision	5%			£ 145,378.42
Design	4.5%			£ 130,840.57
12 Sub-Total				£ 3,532,695.50
13 Compulsory Purchase of Land		44,260 m2	£ 5.00	£ 221,300.00
14 Total				£ 3,753,995.50
15				
Contingency/ Risk	10%			£ 375,399.55
Inflation	20%			£ 750,799.10
Optimism Bias	32%			£ 1,201,278.56
14 Grand Total		13,785	£ 441.17	£ 6,081,472.71

**A12 Four Villages and Sizewell
Sizewell B1122**

Theberton East



Elements	%	Area (m2)	Rate	Estimated Civils Cost
1 Highway Construction		21,262	£ 113.74	£ 2,418,293.32
2 Structures				£ -
3 Signals				£ -
4 Sundries				
5 Sub-Total (1-4)		21,262	£ 113.74	£ 2,418,293.32
6 Preliminaries & Traffic Management	30%			£ 725,488.00
7 Works Total		21,262	£ 147.86	£ 3,143,781.32
8 Ancillaries and Major Items				
9 Statutory Undertakers				£ 963,000.00
10 Construction Total				£ 4,106,781.32
11 Preparation and Supervision				
Preparation	12%			£ 492,813.76
Supervision	5%			£ 205,339.07
Design	4.5%			£ 184,805.16
12 Sub-Total				£ 4,989,739.30
13 Compulsory Purchase of Land		73,550 m2	£ 5.00	£ 367,750.00
14 Total				£ 5,357,489.30
15				
Contingency/ Risk	10%			£ 535,748.93
Inflation	20%			£ 1,071,497.86
Optimism Bias	32%			£ 1,714,396.58
16 Grand Total		21,262	£ 408.20	£ 8,679,132.67

**A12 Four Villages and Sizewell
Sizewell B1122**

Theberton West



Elements	%	Area (m2)	Rate	Estimated Civils Cost
1 Highway Construction		27,044	£ 150.31	£ 4,065,043.42
2 Structures				
3 Signals				
4 Sundries				
5 Sub-Total (1-4)		27,044	£ 150.31	£ 4,065,043.42
6 Preliminaries & Traffic Management	30%			£ 1,219,513.03
7 Works Total		27,044	£ 195.41	£ 5,284,556.44
8 Ancillaries and Major Items				
9 Statutory Undertakers				£ 963,000.00
10 Construction Total				£ 6,247,556.44
11 Preparation and Supervision				
Preparation	12%			£ 749,706.77
Supervision	5%			£ 312,377.82
Design	4.5%			£ 281,140.04
12 Sub-Total				£ 7,590,781.08
13 Compulsory Purchase of Land		93,140 m2	£ 5.00	£ 465,700.00
14 Total				£ 8,056,481.08
13				
Contingency/ Risk	10%			£ 805,648.11
Inflation	20%			£ 1,611,296.22
Optimism Bias	32%			£ 2,578,073.94
14 Grand Total		27,044	£ 482.60	£ 13,051,499.34

**A12 Four Villages and Sizewell
Sizewell B1122**

Route D2



Elements	%	Area (m2)	Rate	Estimated Civils Cost
1 Highway Construction		69,541	£ 194.45	£ 13,521,875.73
2 Structures				£ 1,878,000.00
3 Signals				£ 128,310.00
4 Sundries				
5 Sub-Total (1-4)		69,541	£ 223.30	<u>£ 15,528,185.73</u>
6 Preliminaries & Traffic Management	30%			£ 4,658,455.72
7 Works Total		69,541	£ 290.28	<u>£ 20,186,641.44</u>
8 Ancillaries and Major Items				
9 Statutory Undertakers				£ 6,434,000.00
10 Construction Total				<u>£ 26,620,641.44</u>
11 Preparation and Supervision				
Preparation	12%			£ 3,194,476.97
Supervision	5%			£ 1,331,032.07
Design	4.5%			£ 1,197,928.86
12 Sub-Total				<u>£ 32,344,079.35</u>
13 Compulsory Purchase of Land		302,960 m2	£ 5.00	£ 1,514,800.00
14 Total				<u>£ 33,858,879.35</u>
15				
Contingency/ Risk	10%			£ 3,385,887.94
Inflation	20%			£ 6,771,775.87
Optimism Bias	32%			£ 10,834,841.39
16 Grand Total (exc VAT)		69,541	£ 788.77	<u>£ 54,851,384.55</u>

**A12 Four Villages and Sizewell
Sizewell B1122**

Yoxford Roundabout



Elements	%	Area (m2)	Rate	Estimated Civils Cost
1 Highway Construction		4,086	£ 137.04	£ 560,015.57
2 Structures				£ 320,000.00
3 Signals				£ 25,425.00
4 Sundries				
5 Sub-Total (1-4)		4,086	£ 221.57	£ 905,440.57
6 Preliminaries & Traffic Management	30%			£ 264,004.67
7 Works Total		4,086	£ 286.17	£ 1,169,445.24
8 Ancillaries and Major Items				
9 Statutory Undertakers				£ 1,494,000.00
10 Construction Total				£ 2,663,445.24
11 Preparation and Supervision				
Preparation	12%			£ 319,613.43
Supervision	5%			£ 133,172.26
Design	4.5%			£ 119,855.04
12 Sub-Total				£ 3,236,085.97
13 Compulsory Purchase of Land		3,480 m2	£ 5.00	£ 17,400.00
14 Total				£ 3,253,485.97
15				
Contingency/ Risk	10%			£ 325,348.60
Inflation	20%			£ 650,697.19
Optimism Bias	32%			£ 1,041,115.51
16 Grand Total (exc VAT)		4,086	£ 1,289.78	£ 5,270,647.27