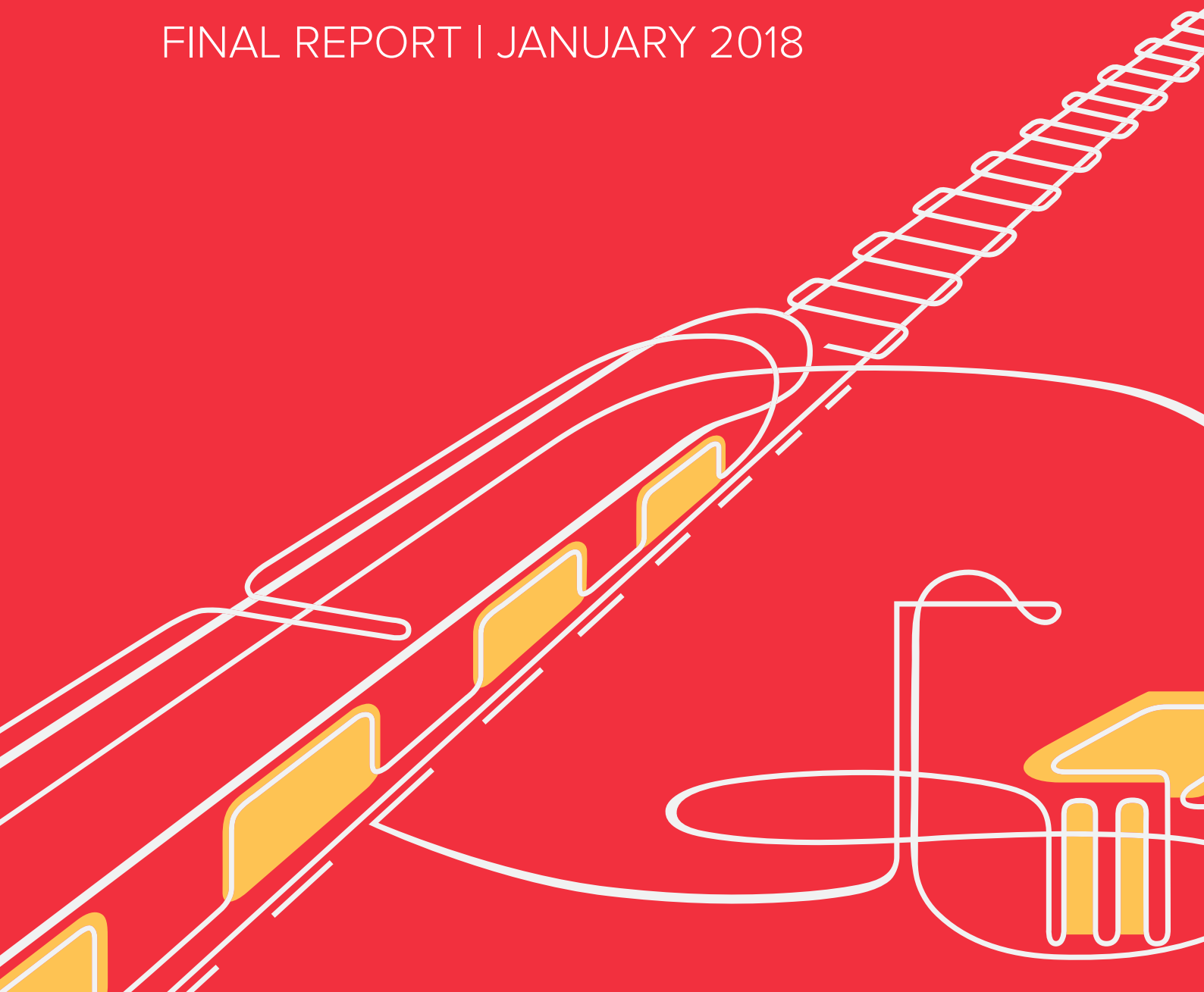
REDSTART

COEDELY: STRATEGIC OUTLINE CASE REPORT (WELTAG STAGE 1)

IMPACTS ASSESSMENT REPORT

FINAL REPORT | JANUARY 2018



REDSTART

Project No: CS/092493 Doc Ref: CS/092493 Rev:

CLIENT: Rhondda Cynon Taf County Borough Council
ISSUE DATE: January 2018

Coedely: Strategic Outline Case Report (WelTAG Stage 1)
Impacts Assessment Report
Final Report

	NAME	SIGNATURE	DATE
AUTHOR	Dave Bennett		12/01/2018
CHECKER	Greg Williams		12/01/2018
APPROVER	Greg Williams	Gregory Williams Digitally signed by Gregory Williams Date: 2018.01.12 14:29:15 Z	12/01/2018

ISSUE RECORD

REV	DATE	DESCRIPTION/COMMENTS	AUTHOR/ PREPARED BY:	APPROVED FOR ISSUE BY:

Contents

Appendices

Section 1 – WelTAG Stage 1: Strategic Outline Case (SOC)

1. Introduction

The WelTAG Stage 1 Strategic Outline Case includes the Five Cases appraisal (Strategic, Transport, Commercial, Financial, and Delivery) for Coedely. The outcome of this has been the identification of a short-list of options for addressing the transport problems and issues in the Coedely area. These will be appraised in greater detail at WelTAG Stage 2 Outline Business Case.

This Impacts Assessment Report gathers together all the evidence that has been used to determine and support the short-list of options for Coedely. At the present time, all the information is contained within a single section, Section 1. This will be supplemented with additional information at Stage 2 Outline Business Case, and Stage 3 Full Business Case, in the future.

- Section 1 – WelTAG Stage 1: Strategic Outline Case (SOC)

The contents of Section 1 are described in subsequent chapters of this report. Throughout the section, references in brackets are the relevant items in the Appendices.

2. WelTAG Stage 1: Strategic Outline Case (SOC)

This section contains all the work that informed the SOC and includes a feasibility report on the dualling of the A4119 at Coedely that was undertaken in 2016 (Appendix 1.1). A summary of the Workshop that marked the commencement of the WelTAG process is included as Appendix 1.2. The Workshop was where problems, opportunities and constraints within the Ely Valley were first identified (Appendix 1.3).

A long list of 28 objectives (Appendix 1.4) that a transport intervention should be appraised against was also identified at this time. These were grouped by theme (Appendix 1.5) to give a total of eight, which were refined to give a short-list of six (Appendix 1.6). These became the Transport Planning Objectives against which all possible options for interventions were appraised.

A long list of 32 possible options (Appendix 1.6) for intervention was produced, which included a Do Minimum scenario. These were grouped by theme to reduce the number to 22 (Appendix 1.8) with a description of each included as Appendix 1.9. Where appropriate, options are shown on a plan (Appendix 1.16).

The 22 options were appraised against the outcomes, goals, and objectives of the following national policy documents:

- Wales Transport Strategy – outcomes (Appendix 1.10);
- The Well-being of Future Generations Act (2015) – goals (Appendix 1.11).

Options were then appraised against the six Transport Planning Objectives (Appendix 1.12) as well as the criteria of Economics, Environment, and Social, all at a high level in the Appraisal Summary Table (Appendix 1.13).

Options were also appraised against their ability to tackle the identified problems (Appendix 1.14). Finally, options were appraised against Deliverability (Appendix 1.15), the criteria of which were Feasibility, Affordability, Acceptability, Timescale, and Risks.

It should be noted that in some cases where the information from Worksheets has been included in the WelTAG Stage 1: Strategic Outline Case report, they have either had a summary column added or their contents have been summarised in a separate table. This has allowed a clearer understanding of how options perform against the various criteria. However, this information has not been added to the Worksheets in this Impacts Assessment Report.

From all the evidence and other information that was gathered together as part of the WelTAG Stage 1: Strategic Outline Case, a recommended short-list of options was produced for Coedely. This was subsequently reviewed and agreed by a Review Group comprising officers of Rhondda Cynon Taf County Borough Council. The short-list of options is as follows:

A. Dualling of the A4119 with associated roundabout improvements - Option 1;

B. Dualling of the A4119 with associated roundabout improvements, plus an adjacent Active Travel route (Option 1 and Option 11);

C. Dualling of the A4119 with associated roundabout improvements, plus an adjacent Active Travel route, plus a Park & Ride/Park & Share facility within the SSA 14.1 development site, plus Park & Ride expansion north of the study area (Option 1, Option 2, Option 11, and Option 15);

D. Do Minimum (Option 22).

A change in option references between those contained in the main chapters of the WelTAG Stage 1 Strategic Outline Case and those that have been recommended above, has been necessary. This has been to recognise that two of the options (B and C) are comprised of at least one other from the long list. These options offer packages of measures to tackle the identified problems.

Appendices

Section 1 – WelTAG Stage 1: Strategic Outline Case (SOC)

1.1 A4119 Coed Ely Dualling – Feasibility Report (Sept 2016)

CAPITA

A4119 Coed Ely Dualling

Feasibility Report

September 2016

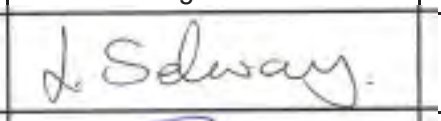
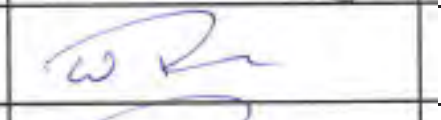
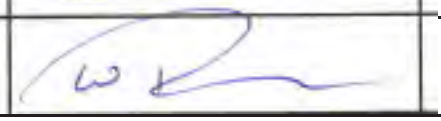
We | Listen Create Deliver

CAPITA

Project No: GC/002498 Doc Ref: GC/002498/003 Rev: Final

Client: Rhondda Cynon Taf County Borough Council
Issue Date: September 2016

A4119 Coed Ely Dualling Feasibility Report

	Name	Signature	Date
Author	Lee Selway		14/09/2016
Checker	Wayne Palmer		14/09/2016
Approver	Wayne Palmer		14/09/2016

Issue Record

Rev	Date	Description/Comments	Author/Prepared by:	Approved for Issue by:
-	18/08/16	Draft – Issued for comment	_	_
-	14/09/16	Final – Updated with comments from the workshop		

Contents

Appendices

1. Introduction

1.1 Scheme Background

1.1.1 Rhondda Cynon Taf County Borough Council (RCT) have commissioned Capita to undertake a feasibility study into the proposed dualling of the A4119 Ely Valley Road. The proposed dualling will take place between the Fire Service roundabout and the Coedely Roundabout, as shown in Figure 1.0 below.
The Works involve the excavation of the existing carriageway and provision of a new 1.3km dualled section. It is likely that widening will take place 'offline' due to the horizontal constraints of the sewage works and retaining walls.

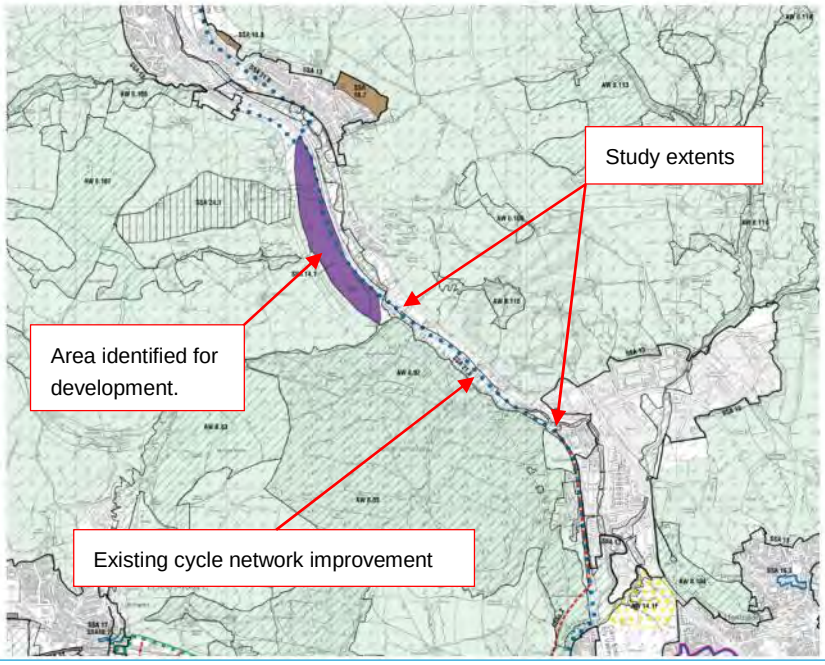


Figure 1.0 – Site location and proposed development land ***(Extract form RCTCBC Local Development Plan)***

1.1.2 The purpose of this report is to determine the feasibility in terms of capital cost, highways alignment, traffic and transportation and ecology. Depending on the findings of this report, the scheme may be progressed to preliminary /detailed design stage.

1.1.3 The dualling has been proposed to open up a 14.32ha Strategic Area for Employment site that has been identified in in RCTs approved Local Development Plan, as shown on Fig 1.0. A strategic road improvement scheme - The Ynysmaerdy to Talbot Green relief road is also proposed to connect into the southern roundabout.

2. Highways Feasibility Design

2.1.1 Topography and Alignment Constraints

In the absence of a topographical survey, LIDAR data was used to create a ground model of the existing topography. The Lidar data has been checked and deemed suitable to undertake the feasibility design. A full topographical survey will be required at the next stage, preliminary design, as several constraints along the route that need to surveyed accurately. The main constraints are:

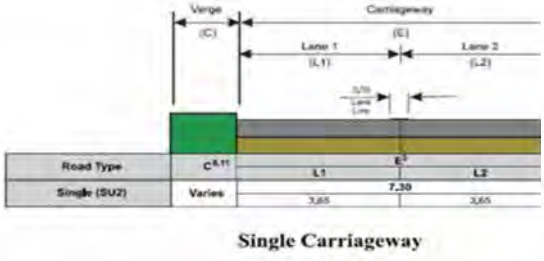
- Existing side roads and field access
- Existing retaining walls
- Extents of the sewage treatment plant
- Vertical alignment

2.1.2 Existing and Proposed Cross Sections

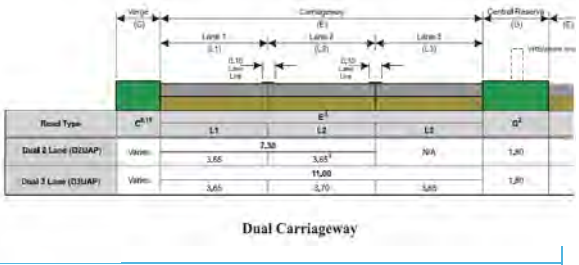
The existing carriageway cross section is based on a single urban carriageway layout SU2 taken from ***TD27/05 Cross Section and Headrooms***. This cross section provides two 3.65m wide running lanes and a footway throughout the majority of its length. The dualled section in advance to the study area seems to be a substandard cross section with a narrow central reserve. The posted speed limit on the existing dualled section is 40mph. The posted, existing speed limit in the study area is 50mph.

Traveling North within study extents

Travelling North on existing dualled section * Non standard



Existing cross section ***(TD27/05 DMRB 6.1.2.4)***



Proposed cross section ***(TD27/05 DMRB 6.1.2.4)***

Figure 2.0 – Existing and proposed cross sections

2.1.3 Design Philosophy

The cross section of the proposed design is fully TD27 compliant and provides two 3.65m wide lanes in both directions. It also has a standard 1.8m central island. The proposed design speed is 85Kph (50mph) although it may be prudent to post a speed limit of 40mph to tie in with the adjacent sections. It is not recommended to post a speed limit ≥50mph in a relatively short section, which is adjacent to 40mph speed limits at either end, the reason for this is;

- Vehicles approaching the roundabouts may fail to slow down sufficiently to negotiate the junctions.
- Inconsistent speed limits as the road user will travel from a section of 40mph through a ≥50mph and back to a 40mph section.
- Bus stops have been proposed along the route – Buses slowing down to use the stops may pose a hazard to road users. Buses exiting the laybys will be travelling at slow speeds when exiting the laybys, especially on the northbound uphill section.
- The extents of Vehicle Restraints Systems would need to be reviewed and potentially increased.
- The risk of an errant vehicle leaving the carriageway would increase.

Following the outcome from the initial scheme workshop a 2m wide footway has been proposed on both sides of the new dualled section. Due to spatial constraints of the sewage works and the retaining walls, the footway widths my need to be narrowed or the footways removed. This would present an opportunity to reduce the overall scheme costs. The narrowing/ removal of the footway can only be determined as part of the next stages of the design once the topographical survey has been completed.

The proposed scheme constraints layout plan can be found in **Appendix A.**

2.1.4 Junctions and Side Roads

There are four commercial, one agricultural and four field accesses located along the existing route. Due to limited available width, it is recommended that all these access operate as 'Left in, Left out' junctions to mitigate the provision of ghost islands and gaps in the central reserve. The 2 commercial access at the southern extents of the scheme (currently operating as a car garage and salvage yard), already have right turns into the premises banned and operate as left in left out.

2.1.5 Statutory Undertakers

We have made C3 enquiries with all the statutory undertakers (SU's) and the anticipated works are summarised in Table 1 below. Unfortunately, BT have not returned a C3 cost and the costs have been estimated. This estimated value is based on engineering judgement for statutory undertaker's diversions on schemes of a similar nature.

Undertaker	Apparatus affected	C3 Costs	Remarks
BT Openreach	✓	£100,000.00 (Est)	Over and Underground apparatus on both sides of existing carriageway
National Grid	✗	-	Unlikely, no apparatus in the locality

Virgin Media	✗	-	No apparatus in the vicinity of the works
Vodafone	✗	-	No apparatus in the vicinity of the works
Welsh Water	✓	£222,058.95	Divert approx. 560m of 6" main
Western Power Distribution	✓	£43,000.00	Minor diversionary/ protection works
Wales and West Utilities	✓	£153,998.82	Diversion and abandon 1200m of gas main
Total Estimated Stats Cost		£520,000.00	Approx

Table 1 – Anticipated works by Statutory undertakers

During the preliminary design phase, it would be prudent to discuss the anticipated supplies for the new development. Where possible any necessary infrastructure could be installed as part of the dualling. There would be a comparatively small capital cost to install ducting and infrastructure and this would provide a dual benefit minimising further installation disruption to the road user and making the development site more desirable. The principle of this has been discussed with the stats and they have agreed to review this at C4 stage, after the prelim design has been developed.

2.1.6 Sustainable Transport (Non-Motorised Users and Public Transport)

There is an existing, substandard width footway on the southern side of the existing route that serves Ynysmaerdy Dyffryn Isaf (NW-bound) bus stop. There is not currently a footway serving Ynysmaerdy Dyffryn Isaf (SE-bound) bus stop and the lack of any pedestrian facilities makes this location and undesirable location to embark/disembark the bus. Both bus stops are shown in Figure 3.0 below.

Ynysmaerdy Dyffryn Isaf (NW-bound) bus stop | Ynysmaerdy Dyffryn Isaf (SE-bound)

Figure 3.0 – Location of existing bus stops

It is unclear from the bus operator's website whether these stops are still operational and there does not seem to be any clear attractor's within the locality. The proposal allows for two standard bus stops/ laybys mid-way through the scheme extents , in the vicinity of the existing stops. The need and provision of these stops can be discussed and agreed as part of the prelim design phase. The removal of the stops would provide both land and construction cost savings. It would also reduce the risk of bus/ vehicle interaction.

As mentioned in section 2.1.3 a 2m wide footway is provided on either side of the carriageway. The footways links into the existing pedestrian routes at Coed Ely roundabout and the Fire service roundabout.

There is an existing cycle network improvement which has been constructed on land directly adjacent to the A4119 in this locality (Figure 4). The works were completed in 2013/2014 and consisted of the provision of a 3m wide cycleway/ footway throughout its entirety shown in Figure 4.

The cycle/footway route forms part of the LDP Policy SSA 21.6 – Pontypridd to Tonyrefail via Llantrisant and this section provides a route to the hospital, local industrial areas and eventually Pencoed train station.

To minimise land take through the proposed dualled section, the use of the cycleway/footway could be promoted rather than providing a footway adjacent to the road. There are very limited attractors on this section of road and if the aforementioned bus stops are abandoned the footway may get very little use. These points would require further discussion with the relevant stakeholders.

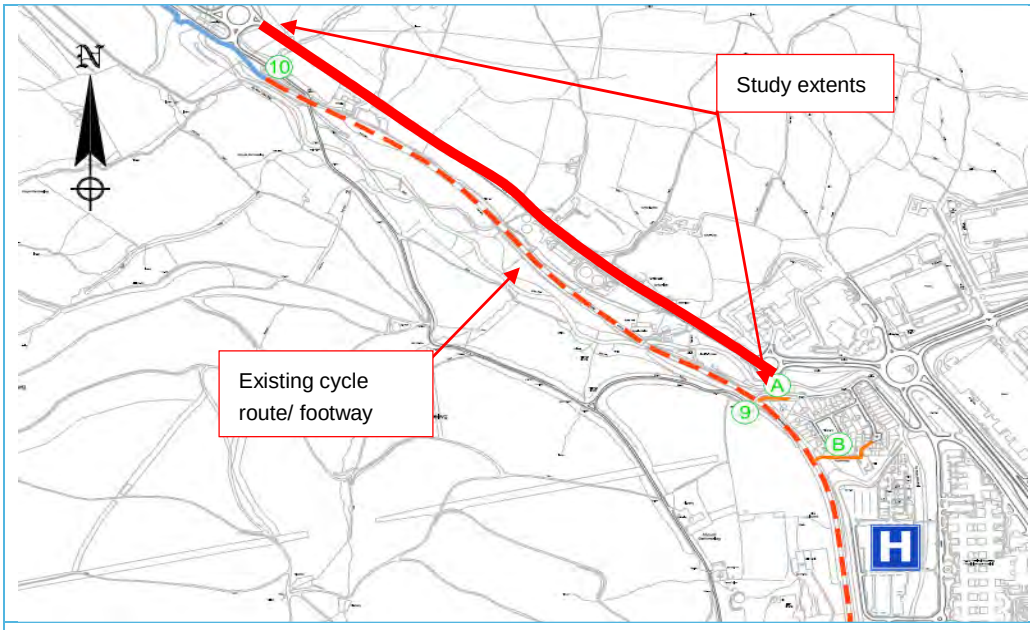


Figure 4.0 – Location of existing cycle/footway route

2.1.7 Land Matters

A land registry search was completed on 04 July 2016 and identified that potentially 18 separate landowners (including RCT) may be affected by the scheme. The land ranges from accesses for commercial premises to agricultural land. Approximately 30,000m2 would need to be purchased as part of the scheme. Using high-level land costs of approximately £26k per hectare, there is potentially £78k worth of land to be purchased. The cost per hectare was derived from the 2016

RICS index, which states '***The highest price for arable land in H2-2015 was £25,946/hectare, which was recorded in the South East region an increase of 5.0% on H1-2015'.*** The highest price of land was used as a worst case scenario rather than the mean land cost for England and Wales.

2.1.8 Risk

A draft Risk Register has been prepared and can be found in **Appendix B**. This will need to be reviewed and amended in conjunction with RCT.

2.1.9 Programme

An indicative programme has been prepared which details the required tasks to take the scheme through preliminary design up to submission of the planning application. The high level programme can be found in **Appendix C.** It can be seen, that the ecology work drives the critical path. A meeting was arranged with the County Ecology on 06 September 2016 and the scope of services and programme was confirmed.

3. Ecological Constraints

3.1 Summary of Ecological Report

3.1.1 The following non-technical appraisal summarises the findings of the initial Preliminary Ecological Assessment and the requirements following a meeting with the county ecologist. A copy of the draft ecological report can be found in **Appendix D.**

3.1.2 Non-Technical Summary

Site Location	**A section of the A4119 between Ynysmaerdy and Coed Ely. Central British National Grid Reference: ST026849.**
Proposed Development	Dualling of the A4119.
Purpose of survey/s	To identify possible ecological constraints to development.
Dates of survey and names of surveyors	• Holly Lewis (ACIEEM) Senior Ecologist: 7th July 2016. • Holly Lewis and Rebecca Howells Graduate Ecologist: 8th August 2016.
Overview of Results	• Two SSSI's exist within 2 km of the proposed site. • The southern end of the scheme runs directly adjacent to the River Ely SINC. Seven additional SINCs exist within 2 km of the site. • Habitats recorded on site included: semi-natural broad-leaved woodland, broad-leaved plantation woodland, mixed plantation woodland, scattered trees, dense scrub, poor semi-improved grassland and improved grassland. • Bat roosting potential was noted in trees on site and in nearby buildings. • Otter potential was identified within the River Ely and other watercourses adjacent to the site. • Woodland, scrub and hedgerows have the potential to support low numbers of dormice. • Breeding bird potential existed in woodland, trees and scrub habitats on site. • Reptile potential was identified within road verges on site. • Japanese knotweed, Himalayan balsam and cotoneaster were noted on site.
Further Surveys / Action Required	• Protection of the River Ely SINC. • Hedgerow retention. • Further bat assessment (buildings, retaining wall, culverts, and trees). • Bat activity surveys. • Dormouse nut search (to inform need for method statement and/or further survey).

	• Otter survey. • Badger survey. • Reptile survey. • Invasive species mapping and method statement. • Maintain habitat connectivity. • Avoid night working (where possible) and lighting of watercourses. • Sensitive vegetation clearance with respect to dormice, reptiles and breeding birds. • Prevent water pollution during and following construction.
Opportunities for enhancement	• Improvement of habitat connectivity. • Enhancement of culverts for otters and bats. • Planting of species to benefit wildlife. • Additional opportunities will be dependent on the results of further surveys.

4. Transportation Considerations

4.1 Summary of High Level Transportation Assessment

A transportation assessment has been undertaken and is provided in **Appendix E.** The following text summarises the report.

Assessment of the existing roundabout layout in opening year (2018) found that the junction is forecast to continue to operate within capacity in the AM peak, and over capacity in the PM peak with a maximum RFC of 0.72 and 0.88 respectively. This increased marginally with the addition of strategic development traffic. With 2033 traffic flows the existing junction is forecast to operate over capacity in the AM peak and the PM peak with a maximum RFC of 0.88 and 1.07 respectively. This increased marginally with the addition of strategic development traffic in the AM, and more significantly during the PM, due to the already high level of RFC.

The addition of a dual carriageway on the A4119 Ely Valley Road (South) arm of the junction was found to increase the capacity of the roundabout and resulted in a reduction in the RFC on the A4119 South arm by up to 15% in the AM peak and 26% in the PM peak with 2018 traffic flows. With 2033 traffic demand the addition of a dual carriageway reduced the RFC of the A4119 by up to 18% in the AM and 30% in the PM. However the A4119 Ely Valley Road (North) is forecast to continue to operate marginally over capacity with an RFC of up to 0.90. In 2033 with the strategic development flows added the unnamed road (potential strategic development site access) is also forecast to operate over capacity with an RFC of 0.96 (+8%) in the PM peak.

An evaluation of the high level traffic modelling approach used has been undertaken. It was found that there are drawbacks associated with the initial junction modelling approach used. These include the fact that lane usage is not specified within the ARCADY junction modelling program and it is therefore likely to overestimate the capacity of the roundabout, and that junction modelling does not take into account issues with capacity elsewhere in the network. In light of this, it is recommended that a more sophisticated and wider area modelling approach be implemented.

Review of typical traffic speeds in the area using Google indicated that there is slow moving traffic on the A4119 between the Fire Service roundabout and Coedely roundabout. It also showed that there is slow moving traffic on the A4119 to the north up to the A4093/A4119 roundabout, and south down to the A41119/B4595 signalised crossroads. In light of this it is recommended that a Vissim microsimulation assessment is undertaken with model extents between the A4093/A4119 roundabout to the north and the A4119/B4595 crossroads to the south. The microsimulation assessment should look at the operation of the corridor currently and provide an evaluation of the forecast impact of a dual carriageway on the A4119 Ely Valley Road between the Fire Service roundabout and Coedely roundabout.

5. Preliminary Cost Estimates

5.1 Construction Costs

A breakdown of the estimated construction costs are provided in **Appendix F.** These costs have been derived using the quantities established as part of the feasibility design and the following key assumptions:

- New works have been measured from outline drawings
- South East Wales Framework rates are used where possible to establish the prices. Where there are no comparable rates or items cannot be easily measured, lump sums have been inserted.
- An allowance has been made for the possible additional cost due to night time working for the resurfacing
- An optimism bias of 44% has been added to the construction costs to give the total of the scheme estimate.

We have identified a number of items that could be value engineered as part of the preliminary design, but these would need to be discussed and agreed with RCT. The potential value engineering opportunities are tabulated below and include:

Series	**Value Engineering Opportunity**	**Potential Saving**
400 – VRS	A safety barrier has been provided along the central reserve. This may not be needed if the cross section is reduced (sec 3.1.2)	£95k
Earthworks	Earthworks could be minimised by removing 1 or both of the footways	£225/£450k
Bus stops	Removal of the bus laybys	£35k
Footways		£68k/£136k
Kerbs	If the footways are removed then over edge drainage may be provided	£55k
	Potential Cost Saving (depending on whether one or both of the footways are removed)	**£546k/£703k**

** The VE savings should be compared against the construction cost only i.e. excluding Optimism Bias.

There are other potential VE designs that could be considered including the relaxation of the TD 27 cross section to match the existing dualled section in advance of the study area. This can be discussed prior to preliminary design stage.

5.2 Design Fee

As stated in the Coed Ely Technical Memo dated 28 May 2016. It would be beneficial to split the design process into five distinct design stages, these being;

- ***Stage Gate 1, Feasibility*** - **£33,492.00**- This report completes this stage of work
- ***Stage Gate 2 Preliminary design to submission of Planning stage*** **- £143,906** - provided in the Draft Brief and Commissioning Documents in **Appendix G**. Once the draft document has been reviewed and agreed with RCT it will be formally reviewed and signed off by Capita.

NOTE: The Stage Gate 2 design fee allows for the 'Do Minimum' in order to gain planning permission. It excludes detailed design and there is a risk that the successful grant of permission may attract additional conditions that will need to be discharged as part of the next phase.

- ***Stage Gate 3 Planning period - Detailed design - £95,000.00*** - Estimated (to be reviewed upon completion of Stage 2)
- ***Stage Gate 4 CPO and Pre Construction - £50,000.00***- Estimated (to be reviewed upon completion of Stage 3)
- ***Stage Gate 5 Construction Phase***- **£160,000.00 -** Estimated (to be reviewed upon completion of Stage 4)

The total estimated design fee from inception to completion is approximately **£483,000.**

5.3 Estimated Scheme Budget (Excluding Client Staff Costs)

A summary of the estimated scheme costs is as follows,

Estimated Construction Costs (See Appendix F)	**£5,942,699.95**
Add optimism bias at 44%	£2,614,787.98
Sub Total (Main works and OB)	£8,557,487.93
Land Costs	£78,000.00
Design Fee - Stage Gate 1 (Feasibility)	£33,492.00
Stage gate 2 - Preliminary Design / Planning (Inc PD Role)	£143,906.00
Stage Gate 3 - Detailed Design	£95,000.00
Stage Gate 4 - CPO/ Precon	£50,000.00
Stage Gate 5 - Construction Supervision	£160,000.00
Estimated 3rd Party Survey costs	£79,000.00
Estimated 3rd Party costs : solicitors, cpo , advertising etc	£40,000.00
Risk - See Scheme Risk Register (Appendix B)	£366,500.00
Total Estimated scheme cost	**£9,603,385.93**

NB* No allowance has been made for RCT staff costs

6. Conclusions and Recommendations

From the feasibility design undertaken to date there appears to be a viable option for the provision of a dualled section between the Coed Ely roundabout to Fire Service roundabout. Depending on funding, budgetary and time constraints, it is recommended that the design be progressed to Stage 2 – Preliminary Design through to Planning. Prior to Stage 2 to commencing, it is recommended that the following aspects are considered;

Aspect	**Comment**
Scheme Objectives	It is advisable to set a clear set of scheme objectives at prelim design stage which will ultimately drive the scheme. These could include - Open up land for development in accordance with the LDP of - Reduce congestion and improve journey times
Road Cross section	Agree whether a standard or 'relaxed' cross section is used to develop the design.
Speed Limit	Agree a design speed and posted speed limit for the scheme
NMU's	Determine the requirements for pedestrians and public transport
Ecology	Discuss the Ecological PEA with the County Ecologist and agree the scope/ requirements for surveys
Diversion routes	It is understood that the route cannot be closed during construction.
Transport	Determine whether a route assessment is required for the A4119 to avoid developments being considered in isolation.

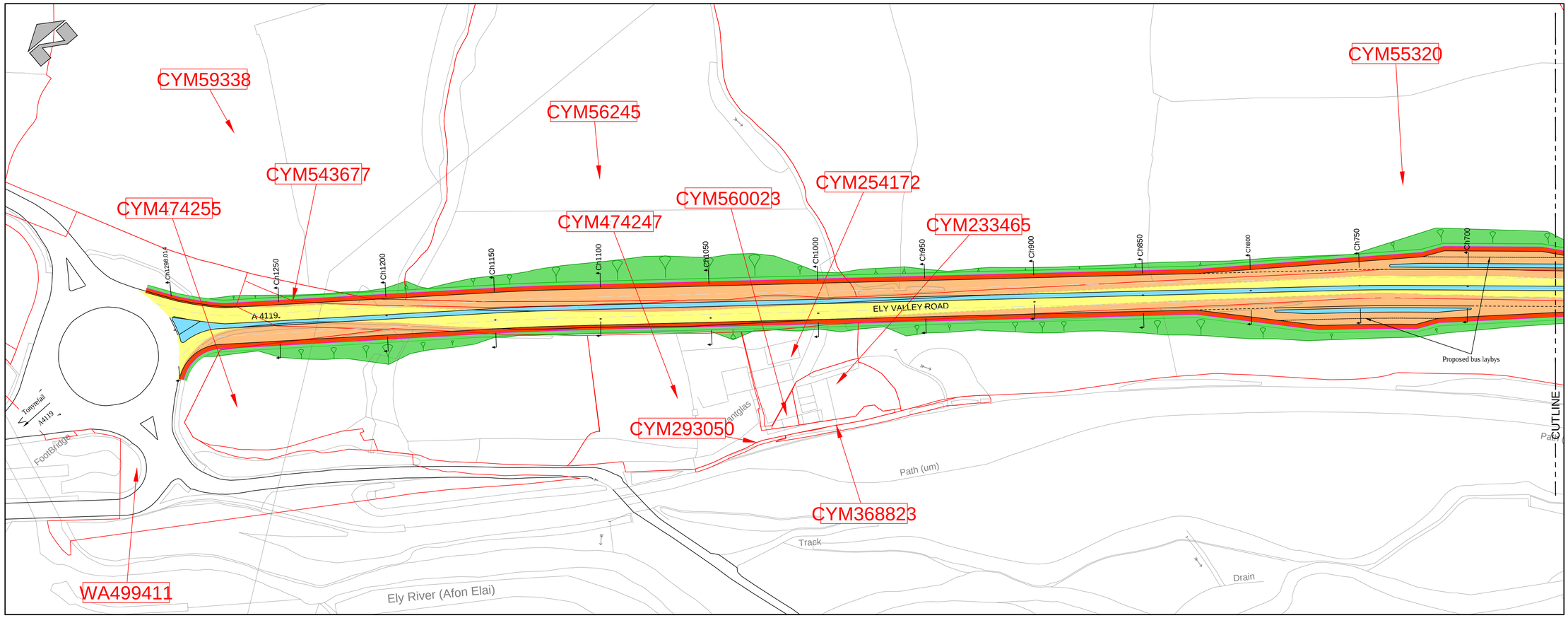
All of the above points can be discussed and agreed prior to the start of the preliminary design period.

Appendix A – Scheme Overview Plan

Capita Property and Infrastructure Ltd
St David's House
Pascal Close
St Mellons
Cardiff
CF3 0LW

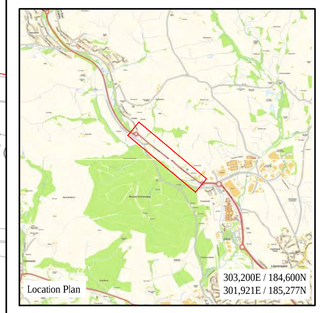
Tel +44 (0) 29 2080 3500
Fax+44 (0) 29 2036 6199

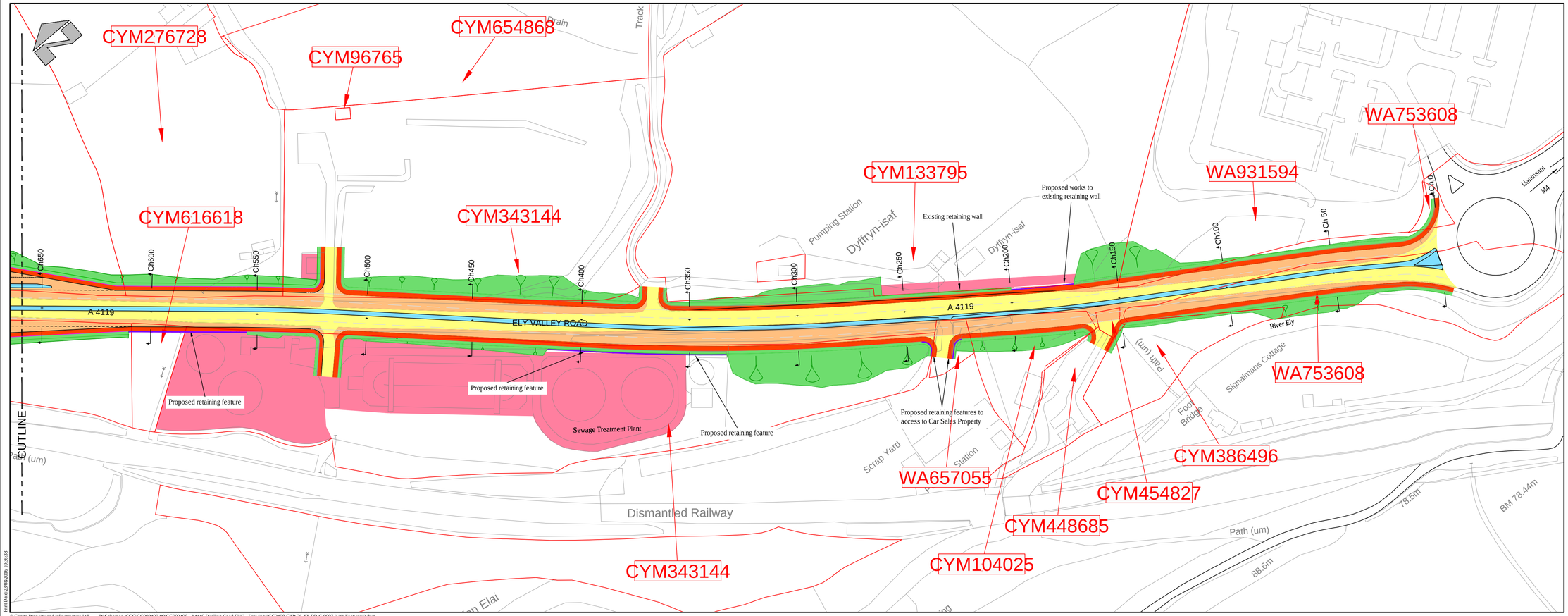
www.capita.co.uk



Key

- New road
- Revised/raised road
- New 2m wide footway
- New/revised verge and embankment
- Site Constraints
- Central reservation





Rev	Dwn	Chk'd	Appr'd	Description	Date

Purpose of Issue
S2 - Suitable for Information

Classification
Commercial in Confidence

Client
Rhondda Cynon Taf
County Borough Council

Project
A4119 Ely Valley Road Dualling

Drawing
Preliminary Proposals
with Footways

Scale @ A1	Drawn	Checked	Approved
1:1,000	HT	NM	

Project No.: GC/002498
Date: July 2016

Drawing Identifier (Project - Originator - Zone - Level - File Type - Role - Number): GC2498-CAP-76-XX-DR-C-0007
BS1192 Compliant revision: P01.1

CAPITA
Civil Engineering
St David's House, Pascal Close, St Mellons, Cardiff CF3 0LW
029 2080 3500
www.capitaproperty.co.uk
Capita Property and infrastructure Ltd

DRAFT 23/08/2016

P:\Schemes_CGC\GC002400-99\GC002498 - A4119 Dualling Coed Ely\2 - Drawings\GC2498-CAP-76-XX-DR-C-0007 (with Footways).dwg
Print Date:23/08/2016 10:36:38

Appendix B – Draft Risk Register

Capita Property and Infrastructure Ltd
St David's House
Pascal Close
St Mellons
Cardiff
CF3 0LW

Tel +44 (0) 29 2080 3500
Fax+44 (0) 29 2036 6199

www.capita.co.uk

A4119 COED ELY DUALLING

COMMERCIAL / POLITICAL RISKS/ STRATEGIC RISKS

Risk Ref.	Threat/Opportunity	Consequence/Impact	Probability	Impact	Risk Factor	Mitigation	Probability	Impact	Risk Factor	Residual Risk	Low Value (£)	Most Likely Value (£)	High Value (£)	Residual Probability (%)	Risk Premium (£)	Risk Owner	Date Identified	Date Last Reviewed	Comments / Status	Closed
CP1	Planning permission not granted or protracted planning negotiations	Scheme unable to be constructed	2	5	10	Organise early meeting with planning department to determine their requirements - Coed Ely development is part of the LDP	1	5	5	LOW if discussed with planning					0	RCT			Unable to quantify	Open
CP2	Capacity along A4119 Route	Severe queuing along the route due to new development- There has been several developments along the route and it is unclear whether the impact of the developments have been considered in isolation or as part of the whole route	2	5	10	Undertake additional transport assessments to ensure route is able to deal with additional traffic generated by the development -	1	5	5	This may involve a strategic network decision. The scheme may need route wide modelling						RCT			Unable to quantify	Open
CP3	Objections from landowners	There may be objections/ claims from the adjacent landowners for loss of profit during the construction	3	3	9	Early consultation required with the landowners to avoid excessive planning objections/ potential for public enquiry - Potential to pre negotiate land?	3	2	5	This will have both time and cost implications if not mitigated early						RCT			Unable to quantify	Open
CP4	Delays during construction	There is no obvious diversion route and it is probable that 1 lane may need to be closed during construction.	4	5	20	There is likely to be complains by the travelling public during construction - Need to consider the buildability and any diversion routes at an early stage	2	5	10							RCT			Unable to quantify	Open
CP5	Delays to emergency services during construction - Hospital	The hospital is located on the roundabout into which we are tying into	5	5	25	Place restriction in the contract to ensure a section of the road will be made available for emergency services	5	4	20							RCT			Unable to quantify	Open
CP6	Inconsistent cross section - Confusion for road users	The cross section of the dual carriageway section O/S the hospital is sub standard. This may confuse the motorist	3	4	12	Consider matching the cross section and design speed of the existing dualled section	2	4	8							RCT			Unable to quantify	Open
CP7	Noise impact on surrounding buildings	Potential for Part 1 Claims	3	4	12	Consider matching the cross section and design speed of the existing dualled section	2	4	8		£1,000.00	£10,000.00	£30,000.00	50	£5,000	RCT			Unable to quantify	Open
CP8	Land Costs	Disproportionately high land costs (using historic RCT schemes)	3	4	12	Negotiate land early and confirm costs	2	4	8	Risk remains until the land is negotiated	£10,000.00	£150,000.00	£200,000.00	50	£75,000	RCT				Open
											£11,000	**£160,000**	**£230,000**		**£80,000.00**					

A4119 COED ELY DUALLING

DESIGN STAGE RISKS

Risk Ref.	Threat/Opportunity	Consequence/Impact	Probability	Impact	Risk Factor	Mitigation	Probability	Impact	Risk Factor	Residual Risk	Low Value (£)	Most Likely Value (£)	High Value (£)	Residual Probability (%)	Risk Premium (£)	Risk Owner	Date risk identified	Date Last Reviewed	Comments / Status	Closed
D1	Inconsistent design parameters, design speed, cross section etc.	May be confusing to road users	3	4	12	Amend the cross section - would require early agreement/departures/relaxations	2	4	8	This should be low with very little cost impact	£5,000.00	£15,000.00	£30,000.00	10	£1,500				This allowance is over and above the estimated stats cost in the cost estimate	
D2	Evasive species	High disposal cost	3	5	15	As above	3	5	15	To be updated after the evasive species mapping is complete										
D3	Additional surveys (Ecology) - Potential for additional surveys after initial scoping	Additional ecology surveys may be required after initial surveys have taken place	2	4	8	Unable to mitigate at this stage	2	4	8	To be updated after the initial ecological surveys	£10,000.00	£20,000.00	£40,000.00	50	£10,000					
D4	EIA required after results of screening	Scoping may determine the need for full EIA	3	5	15	Complete and agree ROND early	3	5	15	To be updated after the initial ecological surveys and EIA scoping	£50,000.00	£200,000.00	£300,000.00	2.5	£5,000					
D5	Supervision of GI by Ecology team	The GI work may need to be supervised by an ecologist	2	3	6	To be updated after ecological surveys	2	3	6	To be updated after the initial ecological surveys	£5,000.00	£10,000.00	£15,000.00	50	£5,000				Costs included above	
D6	Scope Creep - This depends on the resu;ts from the surveys	Additional costs	2	3	6		2	3	6		£5,000.00	£10,000.00	£20,000.00	50	£5,000					
D7	Additional Utility Diversions Required - (Re design work fee only)	Additional Design costs	2	3	6	Early liaision wth stats	2	3	6	To be updated after detailed design	£5,000.00	£20,000.00	£30,000.00	50	£10,000					
															£36,500.00					

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CONSTRUCTION RISKS

Risk Ref.	Risk	Consequence	Probability	Impact	Risk Factor	Mitigation	Probability	Impact	Risk Factor	Residual Risk	Low Value (£)	Most Likely Value (£)	High Value (£)	Residual Probability (%)	Risk Premium (£)	Risk Owner	Date risk identified	Date Last Reviewed	Comments / Status	Closed
C1	Contaminated Land	High disposal costs/ possible harm to human health	3	5	15	Undertake ecological surveys/ GI. This risk can be reduced after results from GI - Evasive species mapping	3	5	15	To be updated after the GI results	£50,000.00	£200,000.00	£400,000.00	50	£100,000					
C2	Evasive species	High disposal cost	3	5	15	As above	3	5	15	To be updated after the evasive species mapping is complete										
C3	Stats	Cost of relocating services is higher than assumed within the cost estimate . Difficulty coming to agreement as to proposed solution. Long lead item delays to programme.	3	5	15	The C3 returns have been sent out the we are currently awaiting the budgetary cost and programme estimates. RR to be updated once these have been received	2	5	10	Cost/ Programme -	£350,000.00	£500,000.00	£700,000.00	25	£125,000					
C4	Mine Workings	Possibility of treatment of shallow mine workings	2	3	6	To be picked up in PSSR and GI	1	3	3	There is a slight residual risk at this stage however this will be mitigated prior to construction	200,000	£250,000.00	£70,000.00	10	£25,000					
C5																				
C6																				
C7																				
															£250,000.00					

Probability / Impact

Low	1	
	2	
Medium	3	
	4	
High	5	

Total Suggested Risk Allocation **£366,500**

Appendix C – Draft Programme

Capita Property and Infrastructure Ltd
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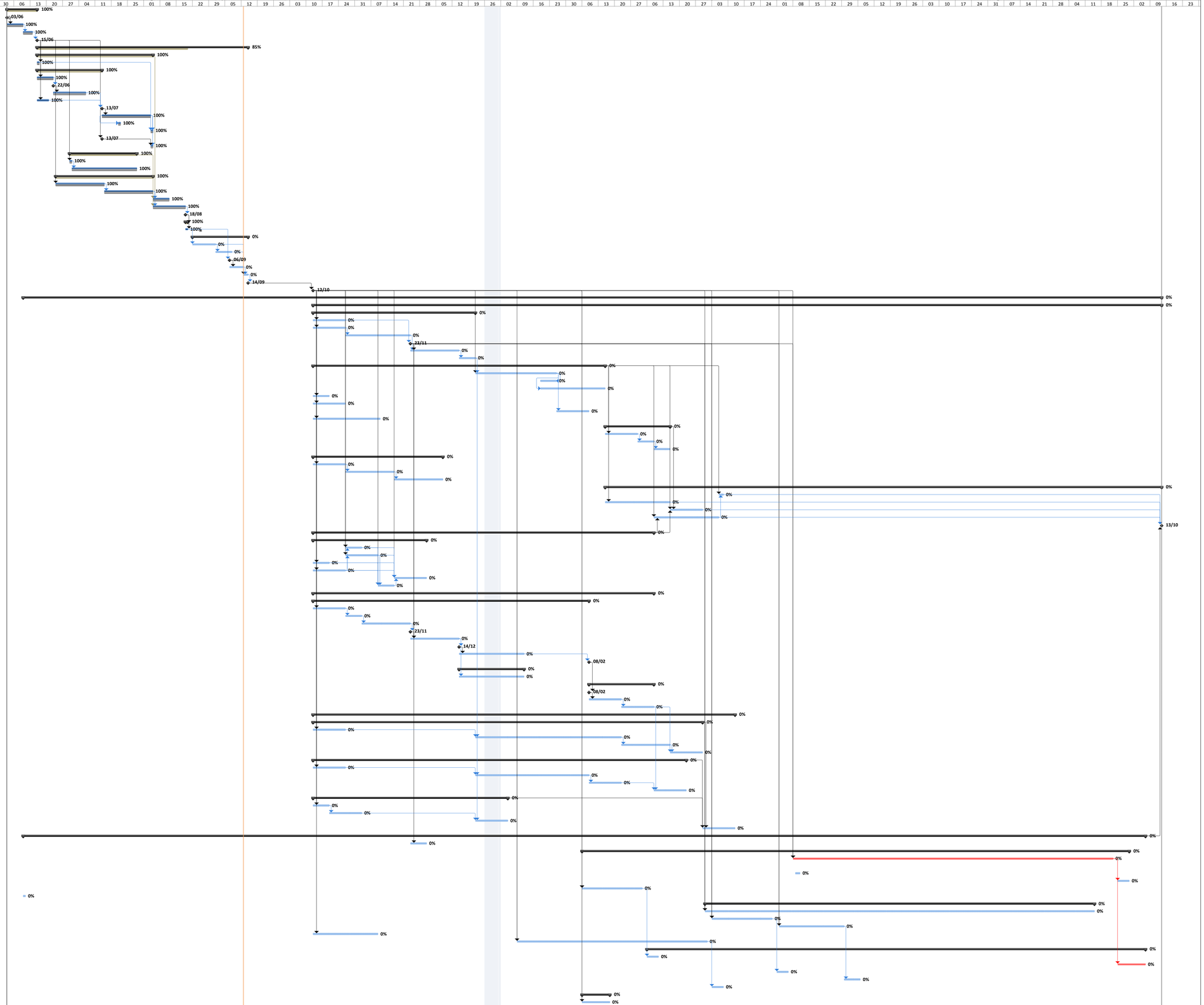
St Mellons
Cardiff
CF3 0LW

Tel +44 (0) 29 2080 3500
Fax+44 (0) 29 2036 6199

www.capita.co.uk

ID	Task Mode	Task Name	Duration	% Complete	Baseline Start	Baseline Finish	Start	Finish
1		**Development of Brief**	**9 days**	**100%**	**Fri 03/06/16**	**Wed 15/06/16**	**Fri 03/06/16**	**Wed 15/06/16**
2		Submission of high level costing review	0 days	100%	Fri 03/06/16	Fri 03/06/16	Fri 03/06/16	Fri 03/06/16
3		RCT Review	5 days	100%	Fri 03/06/16	Thu 09/06/16	Fri 03/06/16	Thu 09/06/16
4		Prepare commissioning document	2 days	100%	Fri 10/06/16	Mon 13/06/16	Fri 10/06/16	Mon 13/06/16
5		RCT sign off	0 days	100%	Wed 15/06/16	Wed 15/06/16	Wed 15/06/16	Wed 15/06/16
6		**Stage 1 - Feasibility Design**	**64 days?**	**85%**	**Thu 16/06/16**	**Thu 04/08/16**	**Thu 16/06/16**	**Wed 14/09/16**
7		**Highways Design (Feasibility)**	**36 days?**	**100%**	**Thu 16/06/16**	**Thu 04/08/16**	**Thu 16/06/16**	**Thu 04/08/16**
8		Undertake C2 Stats requests	1 day	100%	Thu 16/06/16	Thu 16/06/16	Thu 16/06/16	Thu 16/06/16
9		**Procure topographic survey**	**20 days**	**100%**	**Thu 16/06/16**	**Wed 13/07/16**	**Thu 16/06/16**	**Wed 13/07/16**
10		~~Arrange for quotes~~	5 days	100%	Thu 16/06/16	Wed 22/06/16	Thu 16/06/16	Wed 22/06/16
11		~~Appoint contractor~~	0 days	100%	Wed 22/06/16	Wed 22/06/16	Wed 22/06/16	Wed 22/06/16
12		~~Undertake survey~~	10 days	100%	Thu 23/06/16	Wed 06/07/16	Thu 23/06/16	Wed 06/07/16
13		Procure Lidar Data	3 days	100%	NA	NA	Thu 16/06/16	Mon 20/06/16
14		Receive survey data	0 days	100%	Wed 13/07/16	Wed 13/07/16	Wed 13/07/16	Wed 13/07/16
15		Undertake Hz and Vert feasibility design	15 days	100%	Thu 14/07/16	Wed 03/08/16	Thu 14/07/16	Wed 03/08/16
16		Undertake earthworks assessment	1 day?	100%	Thu 21/07/16	Thu 21/07/16	Thu 21/07/16	Thu 21/07/16
17		Undertake C3 Stats request	1 day?	100%	Thu 04/08/16	Thu 04/08/16	Thu 04/08/16	Thu 04/08/16
18		Receive landownership plans from RCT	0 days	100%	Wed 13/07/16	Wed 13/07/16	Wed 13/07/16	Wed 13/07/16
19		Undertake a land take assessment	1 day?	100%	Thu 04/08/16	Thu 04/08/16	Thu 04/08/16	Thu 04/08/16
20		**Ecology**	**21 days?**	**100%**	**Thu 30/06/16**	**Thu 28/07/16**	**Thu 30/06/16**	**Thu 28/07/16**
21		Undertake site visit	1 day?	100%	Thu 30/06/16	Thu 30/06/16	Thu 30/06/16	Thu 30/06/16
22		Prepare ecology desktop study	20 days	100%	Fri 01/07/16	Thu 28/07/16	Fri 01/07/16	Thu 28/07/16
23		**Transportation**	**30 days**	**100%**	**Fri 24/06/16**	**Thu 04/08/16**	**Fri 24/06/16**	**Thu 04/08/16**
24		Traffic Surveys	3 wks	100%	Fri 24/06/16	Thu 14/07/16	Fri 24/06/16	Thu 14/07/16
25		Reporting	3 wks	100%	Fri 15/07/16	Thu 04/08/16	Fri 15/07/16	Thu 04/08/16
26		Prepare documentation for workshop	5 days	100%	Fri 05/08/16	Thu 11/08/16	Fri 05/08/16	Thu 11/08/16
27		Prepare feasibility report	10 days	100%	Fri 05/08/16	Thu 18/08/16	Fri 05/08/16	Thu 18/08/16
28		Submit feasibility report to RCT	0 days	100%	Thu 18/08/16	Thu 18/08/16	Thu 18/08/16	Thu 18/08/16
29		RCT to Review draft report and comment on findings	1 day	100%	NA	NA	Fri 19/08/16	Fri 19/08/16
30		Workshop to discuss findings	1 day	100%	Thu 25/08/16	Thu 25/08/16	Fri 19/08/16	Fri 19/08/16
31		**Capita to amend the report and re -issue**	**17 days**	**0%**	**NA**	**NA**	**Mon 22/08/16**	**Wed 14/09/16**
32		Amend HZ alignmnet	7 days	0%	NA	NA	Mon 22/08/16	Wed 31/08/16
33		Update costs	5 days	0%	NA	NA	Thu 01/09/16	Wed 07/09/16
34		Meeting with County Ecologist	0 days	0%	NA	NA	Tue 06/09/16	Tue 06/09/16
35		Update programme	4 days	0%	NA	NA	Wed 07/09/16	Mon 12/09/16
36		Finalise Report	2 days	0%	NA	NA	Tue 13/09/16	Wed 14/09/16
37		Submit Report	0 days	0%	NA	NA	Wed 14/09/16	Wed 14/09/16
38		RCT to review costs and confirm Stage 2 Start	0 days	0%	NA	NA	Wed 12/10/16	Wed 12/10/16
39		**Stage 2 - Preliminary Design to Planning**	**345 days?**	**0%**	**NA**	**NA**	**Fri 10/06/16**	**Fri 13/10/17**
40		**Highways and Infrastructure**	**257 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Fri 13/10/17**
41		**Land Access and Surveys**	**50 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 21/12/16**
42		Prepare licence plans for entry onto land for surveys	2 wks	0%	NA	NA	Thu 13/10/16	Wed 26/10/16
43		Preparation of contract document for topo survey	2 wks	0%	NA	NA	Thu 13/10/16	Wed 26/10/16
44		Let topo tender and tender assessment	4 wks	0%	NA	NA	Thu 27/10/16	Wed 23/11/16
45		Licence in place for Topo, eco surveys and GI	0 days	0%	NA	NA	Wed 23/11/16	Wed 23/11/16
46		Topo Survey	3 wks	0%	NA	NA	Thu 24/11/16	Wed 14/12/16
47		Survey review	1 wk	0%	NA	NA	Thu 15/12/16	Wed 21/12/16
48		**Prelim Highways Design**	**85 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 15/02/17**
49		Geometric design	4 wks	0%	NA	NA	Thu 22/12/16	Wed 25/01/17
50		Fencing and VRS	1 wk	0%	NA	NA	Thu 19/01/17	Wed 25/01/17
51		Drainage	4 wks	0%	NA	NA	Thu 19/01/17	Wed 15/02/17
52		Pavement	1 wk	0%	NA	NA	Thu 13/10/16	Wed 19/10/16
53		signing and lining	2 wks	0%	NA	NA	Thu 13/10/16	Wed 26/10/16
54		street lighting	2 wks	0%	NA	NA	Thu 26/01/17	Wed 08/02/17
55		Stats liaison	21 days	0%	NA	NA	Thu 13/10/16	Thu 10/11/16
56		**Preliminary Design Drawings**	**20 days**	**0%**	**NA**	**NA**	**Thu 16/02/17**	**Wed 15/03/17**
57		Preparation of drawings	2 wks	0%	NA	NA	Thu 16/02/17	Wed 01/03/17
58		Checking	1 wk	0%	NA	NA	Thu 02/03/17	Wed 08/03/17
59		Approval	1 wk	0%	NA	NA	Thu 09/03/17	Wed 15/03/17
60		**Land Interest and CPO**	**40 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 07/12/16**
61		Prepare Land Interest Plans	2 wks	0%	NA	NA	Thu 13/10/16	Wed 26/10/16
62		Prepare CPO Plan	3 wks	0%	NA	NA	Thu 27/10/16	Wed 16/11/16
63		Prepare CPO Schedules	3 wks	0%	NA	NA	Thu 17/11/16	Wed 07/12/16
64		**Planning Application**	**172 days**	**0%**	**NA**	**NA**	**Thu 16/02/17**	**Fri 13/10/17**
65		Complete Application Forms	2 days	0%	NA	NA	Thu 06/04/17	Fri 07/04/17
66		Design and Access Statement	4 wks	0%	NA	NA	Thu 16/02/17	Wed 15/03/17
67		Prepare Planning Drawings	2 wks	0%	NA	NA	Thu 16/03/17	Wed 29/03/17
68		Collate Planning Supporting Information	4 wks	0%	NA	NA	Thu 09/03/17	Wed 05/04/17
69		Submit Planning	0 days	0%	NA	NA	Fri 13/10/17	Fri 13/10/17
70		**Geotech**	**100 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 08/03/17**
71		**PSSR**	**35 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 30/11/16**
72		Review Existing Information	1 wk	0%	NA	NA	Thu 27/10/16	Wed 02/11/16
73		Engineering Assessment of earthworks	2 wks	0%	NA	NA	Thu 27/10/16	Wed 09/11/16
74		GRR	1 wk	0%	NA	NA	Thu 13/10/16	Wed 19/10/16
75		3rd Party Reports Envirocheck , mining reports etc	2 wks	0%	NA	NA	Thu 13/10/16	Wed 26/10/16
76		Prepare report	2 wks	0%	NA	NA	Thu 17/11/16	Wed 30/11/16
77		Outline drawings	1 wk	0%	NA	NA	Thu 10/11/16	Wed 16/11/16
78		**GIR**	**100 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 08/03/17**
79		**Geotechnical Investigation**	**80 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 08/02/17**
80		Prepare Gi Contract Documents	2 wks	0%	NA	NA	Thu 13/10/16	Wed 26/10/16
81		Tender	1 wk	0%	NA	NA	Thu 27/10/16	Wed 02/11/16
82		Contractor to Price	3 wks	0%	NA	NA	Thu 03/11/16	Wed 23/11/16
83		Award	0 days	0%	NA	NA	Wed 23/11/16	Wed 23/11/16
84		Mobilise	3 wks	0%	NA	NA	Thu 24/11/16	Wed 14/12/16
85		Gi Start	0 days	0%	NA	NA	Wed 14/12/16	Wed 14/12/16
86		Contract period	3 wks	0%	NA	NA	Thu 15/12/16	Wed 11/01/17
87		Receive data for reports (+4 weeks)	0 wks	0%	NA	NA	Wed 08/02/17	Wed 08/02/17
88		**Site supervision**	**15 days**	**0%**	**NA**	**NA**	**Thu 15/12/16**	**Wed 11/01/17**
89		Supervision of GI and contract management	3 wks	0%	NA	NA	Thu 15/12/16	Wed 11/01/17
90		**H022 GIR**	**20 days**	**0%**	**NA**	**NA**	**Wed 08/02/17**	**Wed 08/03/17**
91		Lab Report	0 days	0%	NA	NA	Wed 08/02/17	Wed 08/02/17
92		Ground Modelling	2 wks	0%	NA	NA	Thu 09/02/17	Wed 22/02/17
93		Reporting	2 wks	0%	NA	NA	Thu 23/02/17	Wed 08/03/17
94		**Structures**	**125 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 12/04/17**
95		**SO1 - Retaining Wall Chainage 400**	**115 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 29/03/17**
96		Review information	2 wks	0%	NA	NA	Thu 13/10/16	Wed 26/10/16
97		Outline design / layout	8 wks	0%	NA	NA	Thu 22/12/16	Wed 22/02/17
98		Preliminary size wall	3 wks	0%	NA	NA	Thu 23/02/17	Wed 15/03/17
99		Production AIP	2 wks	0%	NA	NA	Thu 16/03/17	Wed 29/03/17
100		**SO2 - Retaining Wall Chainage 200**	**110 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 22/03/17**
101		Review information	2 wks	0%	NA	NA	Thu 13/10/16	Wed 26/10/16
102		Outline design / layout	6 wks	0%	NA	NA	Thu 22/12/16	Wed 08/02/17
103		Preliminary size wall	2 wks	0%	NA	NA	Thu 09/02/17	Wed 22/02/17
104		Production AIP	2 wks	0%	NA	NA	Thu 09/03/17	Wed 22/03/17
105		**SO3 - Retaining wall at access to car sales property**	**55 days**	**0%**	**NA**	**NA**	**Thu 13/10/16**	**Wed 04/01/17**
106		Review information	1 wk	0%	NA	NA	Thu 13/10/16	Wed 19/10/16
107		Outline design / layout	2 wks	0%	NA	NA	Thu 20/10/16	Wed 02/11/16
108		Preliminary size wall	1 wk	0%	NA	NA	Thu 22/12/16	Wed 04/01/17
109		GA / Planning drawing SO1 - SO3	2 wks	0%	NA	NA	Thu 30/03/17	Wed 12/04/17
110		**Ecology**	**340 days?**	**0%**	**NA**	**NA**	**Fri 10/06/16**	**Fri 06/10/17**
111		Hazel Tree/Nut Search to determin the risk of door m	5 days	0%	NA	NA	Thu 24/11/16	Wed 30/11/16
112		**Bat Surveys**	**170 days**	**0%**	**NA**	**NA**	**Mon 06/02/17**	**Fri 29/09/17**
113		Actiity surveys - 2 visits per month (5 months, 2 transects - 4 people)	5 mons	0%	NA	NA	Mon 08/05/17	Fri 22/09/17
114		static anabat placement and replacement	2 days	0%	NA	NA	Tue 09/05/17	Wed 10/05/17
115		data analysis	1 wk	0%	NA	NA	Mon 25/09/17	Fri 29/09/17
116		Bat Roost Assessment	1 mon	0%	NA	NA	Mon 06/02/17	Fri 03/03/17
117		**Dormouse surveys (Assumed Not Reqired at this stage)**	1 day?	0%	NA	NA	Fri 10/06/16	Fri 10/06/16
118		**Reptile survey**	**120 days**	**0%**	**NA**	**NA**	**Fri 31/03/17**	**Thu 14/09/17**
119		Survey x 7 and setting out tins	6 mons	0%	NA	NA	Fri 31/03/17	Thu 14/09/17
120		**Otter survey**	1 mon	0%	NA	NA	Mon 03/04/17	Fri 28/04/17
121		**Invasive species mapping**	1 mon	0%	NA	NA	Tue 02/05/17	Mon 29/05/17
122		**Scoping and SINC Consultation with County Ecologist**	1 mon	0%	NA	NA	Thu 13/10/16	Wed 09/11/16
123		**Badger survey**	3 mons	0%	NA	NA	Mon 09/01/17	Fri 31/03/17
124		**Reports**	**155 days**	**0%**	**NA**	**NA**	**Mon 06/03/17**	**Fri 06/10/17**
125		Bat Roost Assessment Report	1 wk	0%	NA	NA	Mon 06/03/17	Fri 10/03/17
126		Bat Activity Survey Report	2 wks	0%	NA	NA	Mon 25/09/17	Fri 06/10/17
127		Otter Report	1 wk	0%	NA	NA	Mon 01/05/17	Fri 05/05/17
128		Invasive Species Report	1 wk	0%	NA	NA	Tue 30/05/17	Mon 05/06/17
129		Badger Report	1 wk	0%	NA	NA	Mon 03/04/17	Fri 07/04/17
130		**EIA Screening**	**10 days**	**0%**	**NA**	**NA**	**Mon 06/02/17**	**Fri 17/02/17**
131		Produce Screening Report for agreement of planning authority	2 wks	0%	NA	NA	Mon 06/02/17	Fri 17/02/17



CAPITA

STRONG HERITAGE | STRONG FUTURE
RHONDDA CYNON TAF
TREFTADAETH GADARN | DYFODOL SICR

Appendix D – Ecology Assessment

Capita Property and Infrastructure Ltd
St David's House
Pascal Close
St Mellons
Cardiff
CF3 0LW

Tel +44 (0) 29 2080 3500
Fax+44 (0) 29 2036 6199

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CAPITA

A4119 Dualling Preliminary Ecological Assessment

September 2016

Quality Management

Job No	GC/002498		
Project	A4119 Dualling		
Location	Talbot Green		
Title	Preliminary Ecological Assessment		
Document Ref		**Issue / Revision**	
File reference			
Date	September 2016		
Prepared by	Holly Lewis Senior Ecologist BSc (Hons), ACIEEM		Date
Checked by	Geraint Pitman Director, Associate Environment BSc. MA CMLI		Date
Authorised by	Geraint Pitman Director, Associate Environment BSc. MA CMLI		Date

Revision Status / History

Rev	Date	Issue / Purpose/ Comment	Prepared	Checked	Authorised

Contents

Drawings

GC002498-CAP-74-XX-DR-C-0007-P01.1 – Preliminary Proposals with Footways

GC002498-CAP-74-XX-DR-L00002 – Statutory and Non-statutory Sites

GC002498-CAP-74-XX-DR-L00001 - Phase 1 Habitat Survey

Appendices

Non-Technical Summary

Site Location	**A section of the A4119 between Ynysmaerdy and Coed Ely. Central British National Grid Reference: ST026849.**
Proposed Development	Dualling of the A4119.
Purpose of survey/s	To identify possible ecological constraints to development.
Dates of survey and names of surveyors	• Holly Lewis (ACIEEM) Senior Ecologist: 7th July 2016. • Holly Lewis and Rebecca Howells Graduate Ecologist: 8th August 2016.
Overview of Results	• Two SSSI's exist within 2 km of the proposed site. • The southern end of the scheme runs directly adjacent to the River Ely SINC. Seven additional SINCs exist within 2 km of the site. • Habitats recorded on site included: semi-natural broad-leaved woodland, broad-leaved plantation woodland, mixed plantation woodland, scattered trees, dense scrub, poor semi-improved grassland and improved grassland. • Bat roosting potential was noted in trees on site and in nearby buildings. • Otter potential was identified within the River Ely and other watercourses adjacent to the site. • Woodland, scrub and hedgerows have the potential to support low numbers of dormice. • Breeding bird potential existed in woodland, trees and scrub habitats on site. • Reptile potential was identified within road verges on site. • Japanese knotweed, Himalayan balsam and cotoneaster were noted on site.
Further Surveys / Action Required	• Protection of the River Ely SINC. • Hedgerow survey (to inform requirement for Removal Notice). • Hedgerow retention/reinstatement. • Further bat assessment (buildings, retaining wall, culverts, and trees). • Bat activity surveys. • Dormouse nut search (to inform need for method statement and/or further survey). • Otter survey. • Badger survey. • Reptile survey. • Invasive species mapping and method statement. • Maintain habitat connectivity. • Avoid night working (where possible) and lighting of watercourses. • Sensitive vegetation clearance with respect to dormice, reptiles and breeding birds. • Prevent water pollution during and following construction.
Opportunities for enhancement	• Improvement of habitat connectivity. • Enhancement of culverts for otters and bats. • Planting of species to benefit wildlife.

	• Additional opportunities will be dependent on the results of further surveys.

1. Introduction

Capita was commissioned by Rhondda Cynon Taf County Borough Council (RCTCBC) to undertake Preliminary Ecological Assessment (PEA) for a potential dualling scheme along the A4119, Talbot Green (central Grid Reference (BNG) ST026849). The survey was carried out to identify any ecological constraints to the proposed scheme and to identify the scope for further ecological assessment/surveys.

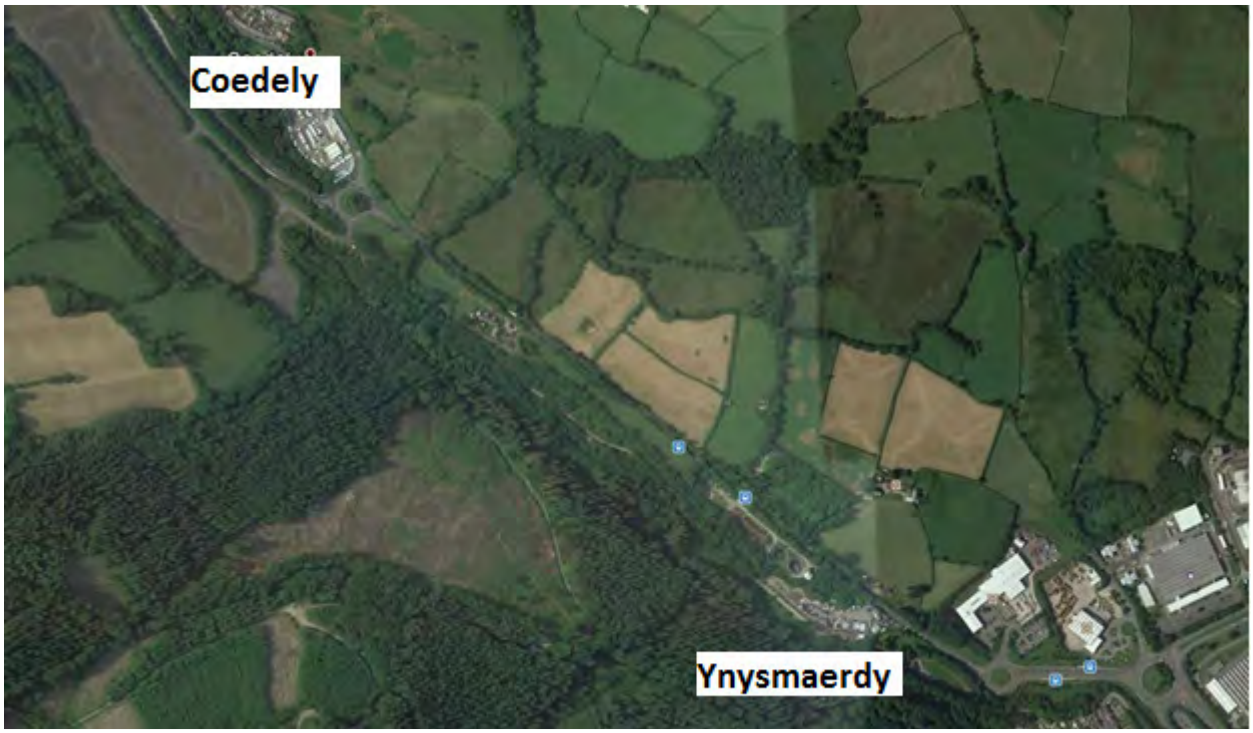
This report includes details of the survey methodologies, results and discussion and contains recommendations for further survey/mitigation where appropriate.

1.1 Site Description

This section of the A4119 Ely Valley Road runs between at Coedely and Ynysmaerdy.

The vast majority of the surrounding area consists of agricultural land, woodlands and hedgerows. The River Ely runs parallel to the west of the site. The South Wales Fire and Rescue Service, industrial units and car dealerships are located to the south of the site and a caravan dealership to the north.

Figure 1: Site Location (Google Earth, 2016).



The potential development site is shown on Drawing GC002498-CAP-74-XX-DR-C-0007-P01.1.

2. Methodology

2.1 Desktop Study

The following organisations/persons were consulted for ecological information about the site and surrounding areas:

- South East Wales Biodiversity Records Centre (SEWBReC, 2016);
- Multi-Agency Geographic Information System (MAGIC, 2016);
- Rhondda Cynon Taf County Ecologist (*Pers Comm*, 2016a).

A request was made for information on any ecologically designated sites and protected/notable species within a 2km radius of the site (5km for bats) and dated within the last ten years.

2.2 Phase 1 Habitat Survey

Experienced Capita surveyors conducted the survey based on Extended Phase 1 habitat survey techniques (JNCC, 2010) on the 7th July and the 8th August 2016. The survey consisted of a thorough walkover of the survey area, mapping the habitat types present and listing floral species within each habitat type. Species nomenclature follows Stace (2010).

2.3 Constraints

Due to health and safety concerns relating to fast traffic and lack of pavement along the eastern side of the A4119 not all of the habitat was fully assessed. The surrounding habitat to the north of the scheme is privately owned and could also therefore not be accessed. Where this occurred the surveyors used binoculars to identify species from the western side of the road. The overall results of the survey are not expected to have been impacted.

3. Desktop Study Results

3.1 Statutory Sites

3.1.1 Sites of Special Scientific Interest

Two SSSI's exist within 2km of the scheme and are detailed below:

Llantrisant Common and Pastures SSSI is 113.2 ha and is located approximately 670 m south-east of the proposed development site. It is designated for its extensive area of predominantly acidic marshy grassland in a lowland setting and for smaller areas of species-rich neutral and acidic grassland and soligenous flush. It is also of special interest for its populations of the nationally rare liverwort (*Scapania paludicola)* and the nationally scarce cornish moneywort (*Sibthorpia europaea)* plant species.

Rhos Tonyrefail SSSI is 224. 7 ha in size and consists of a network of seven groups of fields around Tonyrefail, the nearest of which is located approximately 325 m east of the site. The site is a large lowland site of special interest for its marshy grassland, acid flush, species-rich neutral grassland, acid grassland, wet heath and blanket mire which are associated with areas of woodland. The site is also of special interest for its population of marsh fritillary butterfly (*Euphydryas aurinia*).

3.2 Non-statutory sites

3.2.1 Sites of Importance for Nature Conservation

A total of 8 SINCs were identified within 2 km of the three sites, the nearest and most relevant of which are discussed below:

The River Ely SINC (50.33 ha) lies directly adjacent to the southern end of the site. The River Ely is a prime wildlife corridor and the SINC includes the river, and associated bank side habitats, between Tonyrefail and Talbot Green. The Ely, although previously polluted, has now recovered to generally good water quality. It is a key river for otter (*Lutra lutra*), and it supports kingfisher (*Alcedo atthis*) dipper (*Cinclus cinclus*) and grey wagtail (*Motacilla cinerea*). Brown trout (*Salmo trutta)* and salmon (*Salmo salar*) both breed within its length. The river supports wooded banks, with alder the primary tree and associated areas of wet alder woodland. Monkshood (*Aconitum napellus*), is a speciality of the wooded banks of the River Ely.

Llantrisant Forestry and Craig Melyn SINC (306.928 ha) is located approximately 50 m south of the Ynysmaredy roundabout. Llantrisant Forest is the oldest Forestry Commission conifer forest in Wales. It is an extensive (several hundred hectares) mixed conifer plantation, which includes areas of replanted ancient woodland at Coed Melyn and Coedynysmaerdy. Both woods retain areas of relic semi-natural woodland including oak (*Quercus robor*), alder (*Alnus glutinosa*) and hazel (*Corylus avellana*) woodland with elements of ancient woodland ground floras (bluebell (*Hyacinthoides non-scripta*) and wood anemone (*Anemone nemorosa*)).

Rhiwfelin Fawr SINC (6.912 ha) is located approximately 160 m west of the site. It is a mosaic of marshy grassland and woodland habitat, which lies within the wider complex of the Rhos Tonyrefail SSSI. Although much of the grassland has been modified by agricultural improvement, the site represents an important wet grassland resource. The SINC supports a mosaic of soft rush (*Juncus effusus*) and purple moor-grass (*Molinia caerulea*) dominated

marshy grassland (National Vegetation Classifications M23 and M25) with sharp-flowered rush (*Juncus acutiflorus*), marsh bedstraw (*Galium palustre*), greater bird's-foot trefoil (*Lotus pedunculatus*), tormentil (*Potentilla erecta*), cross-leaved heath (*Erica tetralix*), yellow sedge (*Carex demissa*), and carnation sedge (*Carex panicea*). The SINC supports marsh fritillary (*Eupydryas aurinia*) habitat and devil's-bit scabious (*Succisa pratensis*) is locally common.

Nant Muchudd SINC (28.80 ha) is located approximately 300m to the west of the southern end of the site. The Nant Muchudd is a clean, fast flowing, shallow stream, with gravel shoals, undercut banks, and variously braided channels. The stream supports salmon, brown trout, otter, dipper, and grey wagtail. The steam banks are predominantly wooded. Much of the wooded valley is ancient woodland, including Rhiwfelen-fach Woodland. Typical composition includes alder woodland along the riverbank and valley bottom, and more mixed oak, ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), wych elm (*Ulmus glabra*) and sycamore (*Acer pseudoplatanus*) on drier valley side. The woodlands have generally good structure, and represent important woodland bird habitat.

Tonyrefail Mountains SINC (198.4 ha) is located approximately 700 m north-east of the northern end of the site. The SINC is an extensive area of un-enclosed upland habitat associated with Mynydd Maendy, Mynydd Hugh and Mynydd Portref, to the south of Tonyrefail. The SINC is a mosaic of wet heath, marshy grassland, acid grassland, acid flush and valley and basin mire. The mosaic of upland wet habitat supports a characteristic upland bird assemblage with meadow pipit (*Anthus pratensis*), skylark (*Alauda arvensis*), stonechat (*Saxicola tortquata*), reed bunting (*Emberiza Schoeniclus*), linnet (*Carduelis cannabina*) and wheatear (*Oeanthe oenanthe*) all recorded. Great crested newt (*Triturus cristatus*) has been recently recorded in ponds on the Coed Ely land reclamation site. Brown hare (*Lepus europaeus*) occur in the mosaics of wetlands and short grassland. Dark green fritillary butterflies (*Argynnis aglaja*) have also been recorded.

The locations of the non-statutory sites are illustrated on GC002498-CAP-74-XX-DR-L00001.

3.3 Tree Preservation Order (TPO)

An individual TPO tree and a mixed woodland TPO area exist immediately north of the Coedely roundabout, alongside the eastern carriageway of the A4119.

3.4 Species

Appendix A lists protected or priority species within a 2km radius of the site (5km for bats) within the last 10 years. A summary of the records is detailed below. Relevant legislation is outlined in Appendix B.

3.4.1 European Protected Species

Bats

The data searched identified 44 records of bats within 2 km and 553 records within 5 km of the site. Records include noctule, serotine (*Eptesicus serotinus*), lesser horseshoe (*Rhinolophus hipposideros*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle, Natterer's (*Myotis nattereri*) and brown long-eared bat (*Plecotus auritus*). The closest record was a whiskered bat found on a wall directly adjacent to site. The record is located towards the north of the site along the western side of carriageway. The nearest confirmed bat roost (species unknown) has been recorded within a property in Stirling Drive located approximately 250 m from the site.

Otters

One otter record was identified in the search area. An otter was recorded swimming within a watercourse located approximately 1.5 km west of the site.

Otters are known to be present within the River Ely (see Section 3.2.1) which runs parallel to the site.

Dormice

Although no records of dormouse exist within the search area several dormouse (*Muscardinus avellanarius*) records exist within Coed Trecastell woodland which is located approximately 2.3 km south of the southern end of the site. There is connectivity, though limited, between this woodland and the woodland mapped along the western carriageway of the site.

3.4.2 UK Protected/Priority Species

Badgers

No records of badgers exist within 2 km of the site.

Reptiles

A total of 32 records of reptiles were identified within 2 km of the site including adder, grass snake (*Natrix natrix*), slow worm and common lizard. The nearest record is of a common lizard located approximately 500m west of the site.

Birds

SEWBReC held 44 records of protected and priority bird species within the 2km radius area of search including Schedule 1 species such as goshawk (*Accipiter gentilis*) hobby (*Falco subbuteo*). The records (Appendix A) are presented as provided by SEWBReC.

Amphibians

Eight records of common frog and one record of palmate newt exist within the search area. The nearest record is for palmate newt which have been recorded within Coedely conservation ponds located approximately 30 m south of Coedely roundabout.

Fish

SEWBReC did not provide any records of protected or priority fish species within 2km in the last 10 years, however the River Ely and Nant Muchadd are known to support protected and priority fish species. Species such as salmon and brown trout are included within the SINC designation descriptions for these habitats (see Section 3.2.1).

Invertebrates

Records of invertebrates identified within the 2km search area include the dingy skipper (*Erynnis tages*) located approximately 500 m west of the northern end of the scheme and white-spotted sable (*Anania funebris*) located approximately 1.1 km south of the site.

Small Mammals

Records of hedgehog (*Erinaceus europaeus*), polecat (*Mustela putorius*), brown hare and weasel (*Mustela nivalis*) exist within the search area. The closest record is of a polecat road traffic causality noted within the site boundary.

Plants and Fungi

There are records of 3 priority and protected plant and fungi species within 2 km of the scheme (bluebell *(Hyacinthoides non-scripta)* violet coral *(Clavaria zollingeri)* and olive earth-tongue *(Microglossum olivaceum*). The nearest record is for bluebells which were recorded approximately 400 m south-west of Ynysmaedy roundabout within Llantrisant Forest.

Invasive Species

A total of nine invasive species have been recorded within 2 km of the three sites including Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and montbrecia (*Crocosmia pottsii x aurea = C. x crocosmiiflora*).

4. Phase 1 Habitat Survey Results

4.1 Habitats

The results of the site survey are shown on drawing GC002498-CAP-74-XX-DR-L00001. A botanical species list is provided in Appendix B and additional target notes (TN) are detailed in Appendix C.

4.1.1 Semi-natural broad-leaved woodland

Semi-natural broad-leaved woodland (TN 1) was mapped within the scheme footprint along the southern carriageways of the A4119 which were connected to larger areas of woodland (e.g. woodland mapped along the River Ely). Sycamore and ash were the dominant canopy species and ancient woodland ground flora species such as hart's-tongue fern (*Asplenium scolopendrium*) and herb Robert (*Geranium robertianum*) were recorded. Alder was present within the canopy towards the wetter habitats associated with the river. Himalayan balsam was locally abundant and Japanese knotweed occasional within woodland that falls within the site boundary.

Semi-natural broad-leaved woodland was also mapped in the wider area (TN 3). Species noted included sycamore, ash, alder, hazel and hawthorn (*Crataegus monogyna*). Large extents of Himalayan balsam and Japanese knotweed were also recorded (particularly along the banks of the River Ely).

4.1.2 Broad-leaved plantation woodland

Broad-leaved plantation woodland (TN 2) was mapped along both sides of the A4119. Canopy species included ash, sycamore, hazel, hawthorn and bramble (*Rubus fruticosus agg*) were dominant in the understorey and ground flora species included broad-leaved dock (*Rumex obtusifolius*) and goosegrass (*Galium aparine*). Bracken (*Pteridium aquilinum*) and Himalayan balsam were locally abundant.

Broad-leaved plantation woodland (TN 4) was mapped to the southern end of the scheme (associated with the fire station). Species noted included dogwood (*Cornus sanguinea*), pine (*Pinus* sp.), dog rose (*Rosa canina*), blackthorn (*Prunus spinosa*), silver birch (*Betula pendula*) and bramble.

4.1.3 Mixed plantation woodland

A large area of well-established mixed conifer plantation (TN 8) was mapped in the wider area (to the south of the River Ely) which forms part of the Llantrisant Forestry and Craig Melyn SINC. Further detail is included within Section 3.2.1.
Mixed plantation woodland (TN 18) was mapped on Coedly roundabout. Species included pine, hawthorn and bramble.

A small area of mixed plantation woodland (TN 19) was mapped to the southern end of the scheme along the eastern carriageway. Larch (*Larix* sp) was the abundant species and sycamore was common.

4.1.4 Scattered broad-leaved trees

Thirteen scattered planted broad-leaved trees (TN 5) were mapped on the eastern side of Coedely roundabout. Species included rowan (*Sorbus aucuparia*), lime (*Tilia x europaea*), horse chestnut (*Aesculus hippocastanum*) and cherry (*Prunus avium*).

A large ash tree (*Fraxinus excelsior*) (TN 23) was mapped along the eastern carriageway adjacent to a small road that leads to farmland buildings.

Three immature silver birch trees (TN 7) were mapped within semi-improved grassland adjacent to the Ynysmaerdy roundabout.

4.1.5 Scattered coniferous trees

Pine trees (*Pinus* sp.) (TN 9) were mapped at the back of a plot on the eastern carriageway. The trees were adjacent to a small road that leads to farmland buildings and are likely to have been planted for noise/visual buffering.

4.1.6 Dense scrub

A small area of dense scrub (TN 10) was mapped to the south-west of Coed Ely roundabout (adjacent to the western carriageway). Species included rosebay willowherb (*Chamerion angustifolium*), bramble, Japanese knotweed and Himalayan balsam.

An area of dense scrub (TN 11) lined the southern boundary of an improved grassland field to the east of Coed Ely roundabout. Species recorded included bramble, bracken, meadow vetchling (*Lathyrus pratensis*) and field horsetail (*Equisetum arvense*).

Dense scrub (TN 12) was also mapped approximately central to the scheme along the eastern carriageway. Bramble and bracken were the abundant species with hazel and hawthorn common and false oatgrass (*Arrhenatherum elatis*) frequent.

A small area of dense scrub (TN 13) was mapped adjacent to the entrance of the scrap yard located along the western carriageway. Species included buddleia (*Buddleia davidii*), rosebay willowherb, ash and bramble.

4.1.7 Recently felled mixed woodland

An area of recently felled mixed woodland (TN 21) was mapped within the Llantrisant Forestry and Craig Melyn SINC (detailed in Section 3.2.1).

4.1.8 Semi-improved neutral grassland

A sloped verge of semi-improved neutral grassland (TN 14) was mapped to the south of the Coedely roundabout at the top of the western carriageway. Species included cock's-foot (*Dactylis glomerata*), common knapweed (*Centaurea nigra*), bird's-foot trefoil (*Lotus corniculatus*), tufted vetch (*Vicia cracca*) and mouse ear (*Cerastium fontanum*).

4.1.9 Poor-semi improved grassland

Poor-semi improved grassland (TN 6, 15) was mapped along the verges of the A4119 and the Coed Ely and Ynysmaerdy roundabouts. Species included Yorkshire fog (*Holcus lanatus*), dandelion (*Taraxacum agg*), fescue (*Festuca* sp.), ribwort plantain (*Plantago lanceolata*), yarrow (*Achillea millefolium*) and creeping buttercup (*Ranunculus repens*). These areas appeared to be mown regularly.

4.1.10 Improved grassland

A number of improved grassland fields were mapped adjacent to the A4119. Species noted from the perimeter of the fields included creeping buttercup, ribwort plantain and Yorkshire fog. Rush (*Juncus* sp.) species were often occasional but locally dominant.

4.1.11 Introduced species

A small section of introduced species (TN 16) were mapped along the western carriageway near to Pantglas house. Leyland Cypress (*Cupressus x leylandii*) dominated but bamboo and cotoneaster (*Cotoneaster sp.*) were also recorded.

4.1.12 Hedgerows

Numerous hedgerows were mapped in the wider area bordering agricultural fields adjacent to the A4119. At least some of the hedgerows appeared to be species-rich but could not properly be assessed due to access issues (see Section 2.3).

4.1.13 Wall

A stone retaining wall (approximately 6 m high) (TN 17) was mapped near to the southern end of the scheme along the eastern carriageway. Ivy (*Hedera helix*) and buddleia were recorded growing out of the structure and plantation broad-leaved woodland was mapped in front.

4.1.14 Running water

The River Ely (TN 22) flows parallel to the western carriageway and two tributaries are culverted underneath the A4119 itself.

4.2 Species

4.2.1 European Protected Species

Bats

Trees, culverts, buildings and a retaining wall located alongside the A4119 have the potential to support bat roosts within suitable features such as cracks and crevices and behind dense ivy cover.

Woodland, scrub and tall ruderal habitats mapped alongside the road are considered to be suitable for foraging and commuting routes for bats.

Otters

The River Ely is known to support otters (see Section 3.4.1) which runs parallel to the scheme (closest distance is 5 m from the A4119). Otters are highly likely to be present within this section of the river.

Two tributaries of the River Ely pass underneath the road and are also considered to be suitable for otters.

Great crested newts

Conservation ponds exist approximately 30 m south-west of the Coed Ely roundabout where palmate newts and common frogs have been recorded previously (see Section 3.4.1). The

waterbodies could also have the potential to support great crested newts but are separated from the site by the River Ely which would act as a barrier for dispersal of the species.

Dormice

The Mynydd Garth Maelwg woodland located along the western carriageway of the A4119 is a large woodland likely to be suitable for dormouse although the adjacent long established but primarily conifer forest (Llantrisant Forestry and Craig Melyn SINC (approx. 50 m south of the scheme)) reduces the suitability slightly. No records exist within 2km of the scheme (see Section 3.4.1) but is some connectivity to known dormouse population within Coed Trecastell woods (albeit limited).

4.2.2 UK Protected/Priority Species

Birds

There is potential for breeding birds in woodland, scattered trees, scrub and tall ruderal habitats mapped on site.

Reptiles

There was potential in areas of poor semi-improved grassland for small numbers of reptiles.

Invertebrates

There was no potential for specially protected invertebrate species.

4.2.3 Other

Badgers

Woodland and agricultural fields mapped on site may have the potential to support badgers.

Fish

The River Ely and other watercourses adjacent to the A4119 are likely to support fish species such as salmon, brown trout and European eel.

4.2.4 Invasive Species

Japanese knotweed, Himalayan balsam and cotoneaster were recorded during the survey.

5. Discussion

5.1 SINC

The River Ely SINC runs parallel to the western carriageway A4119 and is directly adjacent to the southern end of the scheme (see drawing GC2498-CAP-74-XX-DR-L-0002). The SINC will require protection during the works to avoid pollution and light spillage and habitat loss will need to be kept to a minimum. Further detail can be found in Sections 7.1, 7.11 and 7.14.

5.2 Bats

Habitat on site appears to be suitable for foraging and commuting routes including tree lines, woodland, hedgerows and watercourses. Trees, buildings and culverts in or directly adjacent to the site may also have bat roost potential and further assessment will be required. European legislation relating to bats is detailed in Appendix C.

5.3 Otters

Otters are likely to be present within the section of the River Ely that runs parallel to site as well as associated tributaries that run underneath the A4119.

It will be necessary to avoid impacting on otters during the works and otter surveys will be required to establish if there are any holts nearby.

5.4 Dormice

Hedgerows and woodland exist within the site which could be suitable for low numbers of dormice due to pre-existing records of the species within the wider area and connectivity to larger, more suitable woodlands (see Section 4.2.1). European legislation relating to dormice is detailed in Appendix C.

5.5 Great crested newts

Conservation ponds within 30 m of the scheme are separated from the site by the River Ely. The river would prevent great crested newts from accessing the site and therefore the species will not be considered any further.

5.6 Breeding birds

Suitable bird nesting habitat was noted throughout the site in habitats such as woodland, scrub and scattered trees. Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended) (detailed in Appendix C).

5.7 Reptiles

Semi-improved grassland and scrub habitats located alongside the A4119 are suitable to support low numbers of reptiles such as common lizard and slow worm.

Common reptiles receive protection under the Wildlife and Countryside Act (1981), as amended, from killing and injury, and are considered to be priority species for the Conservation of Biodiversity, the local authority has a duty to consider the conservation of these species.

5.8 Fish

A number of protected fish species are likely to be present in watercourses adjacent to site such as the River Ely.

Measures will need to be undertaken to avoid polluting these watercourses during the works and impacting upon fish (see Section 7.12).

5.9 Invasive species

Japanese knotweed and Himalayan balsam mapped on site are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Further survey and mitigation will be required to avoid spreading the invasive species into the local area.

6. Conclusion

The southern end of the scheme lies directly adjacent to the River Ely SINC which has been designated for the watercourse and its wooded banks.

The site has the potential to support numerous protected species such as bats, otters, dormice, breeding birds, badgers and reptiles.

7. Recommendations

7.1 SINC Protection

The River Ely SINC will require protection throughout the duration of the works. Habitat loss will need to be kept to a minimum, lighting of the river channel restricted (see Section 7.12) and measures will need to be in place to prevent pollution (see Section 7.15).

7.2 Hedgerow survey

It will be necessary to identify the quality of the hedgerows that are likely to be directly affected by the scheme. The hedgerows should be surveyed between May and August. Dependent on the results of the survey and the extent of the works Hedgerow Removal Notices may be required from the Local Planning Authority.

7.3 Hedgerow retention/reinstatement

The loss of potentially species-rich hedgerows which adjoin the habitats along the A4119 (see Section 4.1.12) will need to be kept to a minimum. Where possible hedgerows should be retained and used to maintain connectivity during and after the works are complete. In particular any hazel within the footprint of the scheme should be coppiced and replanted to benefit dormice which may be present on site (see Section 5.4).

7.4 Bat assessment survey

Once the extent of the proposed works has been confirmed an ecologist can assess the level of impact to roosting bats. It is likely that due to the loss of suitable habitat on site (buildings, culverts, retaining wall) further survey and/or mitigation will be required.

An initial assessment can be undertaken at any time of year.

7.5 Bat activity surveys

Bat activity surveys are required along transects within high value habitats throughout the site. The surveys will determine if and how the bats are using the site and the species assemblage across the site.

Two bat activity surveys should be completed per transect each month between May-September in accordance with current guidelines (BCT, 2016) and static recorders will also be set up across the site.

7.6 Dormouse Survey (hazel nut search)

A hazel nut search should be carried out on site. This involves collecting samples of gnawed hazel nuts and checking for tooth marks characteristic of dormice to help determine presence/likely absence.

As the loss of woodland on site suitable for the species is fairly minimal if this survey method produces negative results then a method statement is likely be sufficient for the works to be carried out (*Pers, Comm*. 2016b). The need for further survey will be determined following the collation of the results.

The hazel nut search should be carried out on site between mid-August and December.

7.7 Otter survey

An otter survey will be required to check for otter holts within the vicinity of the scheme as well as other signs of otter presence. Following the survey an ecologist will also be able to advise of any additional constraints that may be posed.

7.8 General Otter Mitigation

- The site compound (and all machines and materials) if required should be located away from the watercourse. A suitable location for the compound should be agreed with an ecologist to ensure that this doesn't conflict with other ecological considerations.
- Materials and machinery should be locked away in the site compound when not in use, day, night or weekends.
- Watercourses should be left open as much as possible during the night. Fencing should not occupy or obstruct the watercourses, leaving a safe passage for otters and bats at all times during the works.
- Any excavations should be securely fenced off and covered over at the end of the working period, at weekends or when not in use.
- If otters or any excavations/holts within the river channel are observed at any time all works must stop immediately and an ecologist must be notified.

7.9 Sensitive vegetation clearance

Sensitive vegetation clearance is likely to be required to avoid impacting on dormice, reptiles and breeding birds. This may involve restrictions on the seasonal timings of clearance (e.g. avoid bird breeding season (March-August inclusive)), 2-stage cutting methods and/or ecological supervision. The requirements can be fully determined following targeted species surveys.

7.10 Reptile Survey

It will be necessary to carry out a series of seven reptile surveys (in accordance with best practice guidelines) between March and September. Artificial Cover Objects (ACO's) will be placed within areas of suitable habitat identified along the route and checked in order to establish presence/likely absence of reptiles.

7.11 Invasive species

Invasive species on site will need to be mapped and a site-specific management plan will be required.

The plan will need to address methods of clearance of invasive species, movement/treatment of soil which may contain Japanese knotweed rhizomes and/or Himalayan balsam seeds and longer-term management of invasive species within the site.

7.12 Lighting

The specification and layout of any new lighting that may be included within the design should be agreed with an experienced ecologist at the design stage.

Night-time working should be avoided and no artificial lighting should be used around River Ely SINC and associated watercourses to avoid disturbing species such as bats, otters and fish.

7.13 Maintaining/enhancing connectivity

Maintaining habitat connectivity along the woodland and hedgerows on site is required during and after the works and should be discussed with the ecologist throughout the feasibility and design stages. This is to ensure bat flight lines and wildlife corridors are retained at all times.

Enhancement could be achieved by reducing gaps within the canopy and planting native and diverse species that would benefit a wide range of species.

7.14 Enhancing culverts for otters and bats

It is likely that culverts on site will be extended/replaced which presents opportunities to enhance them for bats and otters.

Bat boxes could be installed to encourage bats to roost within the structure. Further information can be provided following the targeted surveys (see Section 6.3).

There are also opportunities to enhance the site for otters by incorporating an otter ledges into the design of any new culverts. Otter ledges would aim to encourage otters to still use the culverts in times of spate and deter them from crossing the road above.

7.15 Water Pollution Prevention

Pollution prevention measures should be followed to avoid impacting water quality and prevent impacting species such as otters, fish and freshwater invertebrates.

To avoid polluting the watercourse during the works the following recommendations should be adhered to:

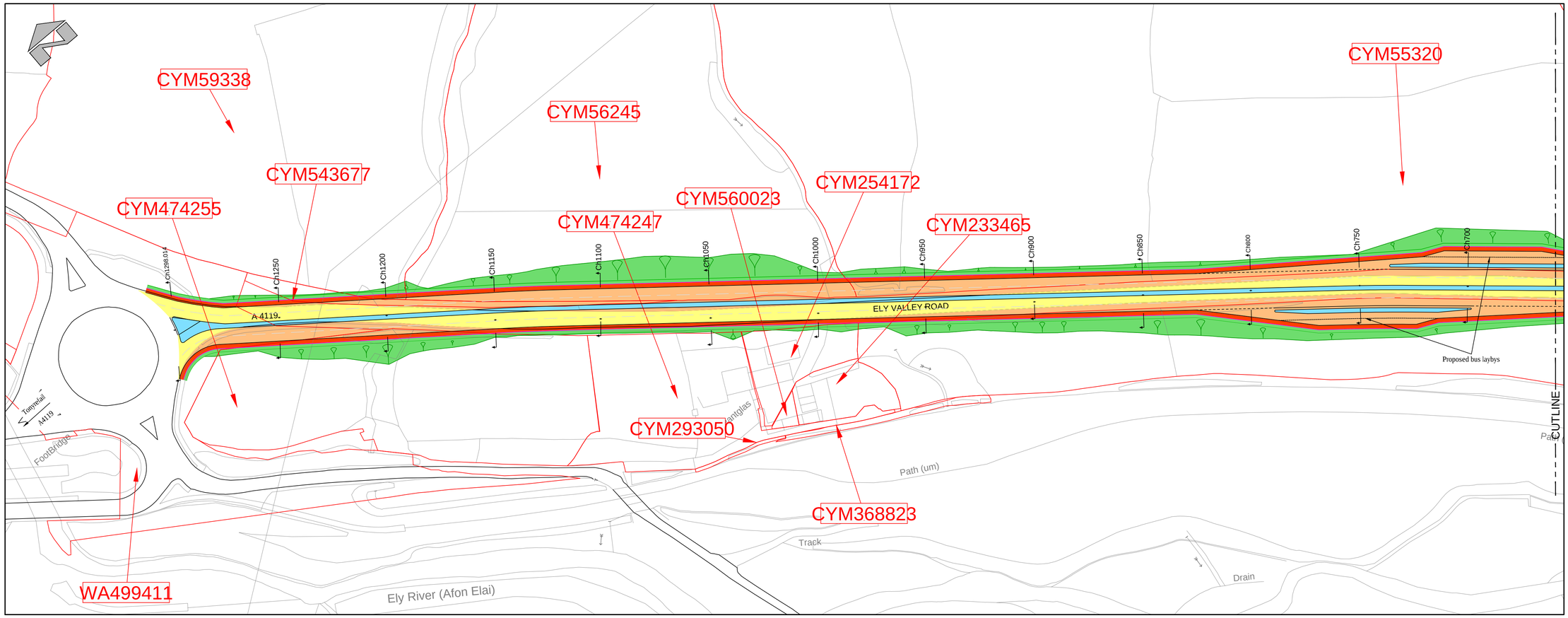
- All materials (especially if hazardous or toxic) should be stored at least 7m away from the watercourse;
- All static machinery should be placed drip-trays or oil absorbent nappies. Trays should be emptied regularly to ensure that they contain any spills.
- Silt fences should be erected where appropriate

8. References

- Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford.
- JNCC. 2010. Handbook for Phase 1 habitat survey. A technique for environmental audit. Joint Nature Conservation Committee
- Personal Communication (*Pers Comm,* 2016a. Email from Richard Wistow received on 22nd July 2016.
- Personal Communication (*Pers Comm,* 2016b. Email confirmation from Richard Wistow received on 7th September 2016.
- Stace, C. A., (2010). (3rd Edition) New Flora of the British Isles, Cambridge University Press
- Wildlife and Countryside Act 1981 (as amended)

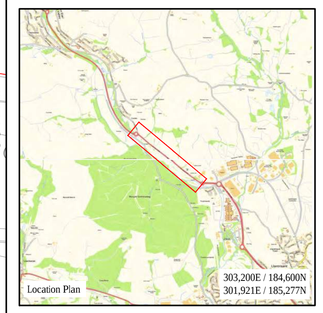
Drawings

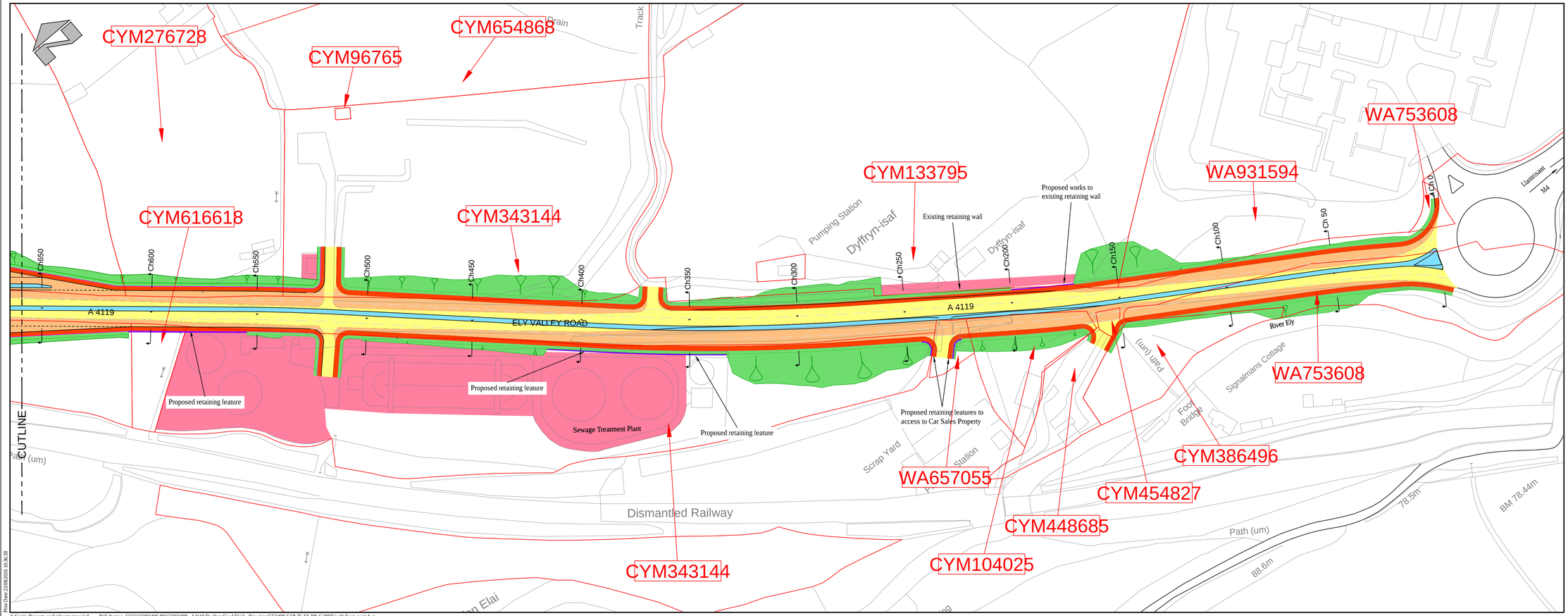
- GC002498-CAP-74-XX-DR-C-0007-P01.1 – Preliminary Proposals with Footways
- GC2498-CAP-74-XX-DR-L-0002 – Statutory and Non-Statutory Sites
- GC2498-CAP-74-XX-DR-L-0001 – Phase 1 Habitat Survey



Key

- New road
- Revised/raised road
- New 2m wide footway
- New/revised verge and embankment
- Site Constraints
- Central reservation





Rev	Dwn	Chk'd	Appr'd	Description	Date

Purpose of Issue
S2 - Suitable for Information

Classification
Commercial in Confidence

Client
Rhondda Cynon Taf
County Borough Council

Project
A4119 Ely Valley Road Dualling

Drawing
Preliminary Proposals
with Footways

Scale @ A1	Drawn	Checked	Approved
1:1,000	HT	NM	

Project No.: GC/002498
Date: July 2016

Drawing Identifier (Project - Originator - Zone - Level - File Type - Role - Number): GC2498-CAP-76-XX-DR-C-0007
BS1192 Compliant revision: P01.1

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DRAFT 23/08/2016

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Pant-y-Ddraenen SINC

Garth-Grabban Slopes SINC

Tonyrefail Mountains SINC

Rhiwfelin Fawr SINC

River Ely SINC

Rhos Tonyrefail SSSI

Mynydd Meiros/Upper Ewenny Fach SINC

Llantrisant Common and pastures SINC

Y Graig SINC

Llantrisant Forestry and Craig Melyn SINC

SITE LOCATION

1:2,000

Key

Non-Statutory Sites

Statutory Sites

2km Buffer Zone

Rev	Drwn	Chk'd	App'd	Description	Date

Purpose of Issue

Reference Plan

Classification

Commercial in Confidence

Client

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County Borough Council

Project

A4119 Ely Valley Road Dualling

Drawing

Ecology
Statutory and Non Statutory Sites

Scale @ A1	Drawn	Checked	Approved
As Shown	SW	JS	AF

Project No.	Date
GC/002498	June 2016

Drawing Identifier
Project - Originator - Zone - Level - File Type - Role - Number

GC2498-CAP-74-XX-DR-L-0002

BS1192 Compliant revision

P01

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029 2080 3500
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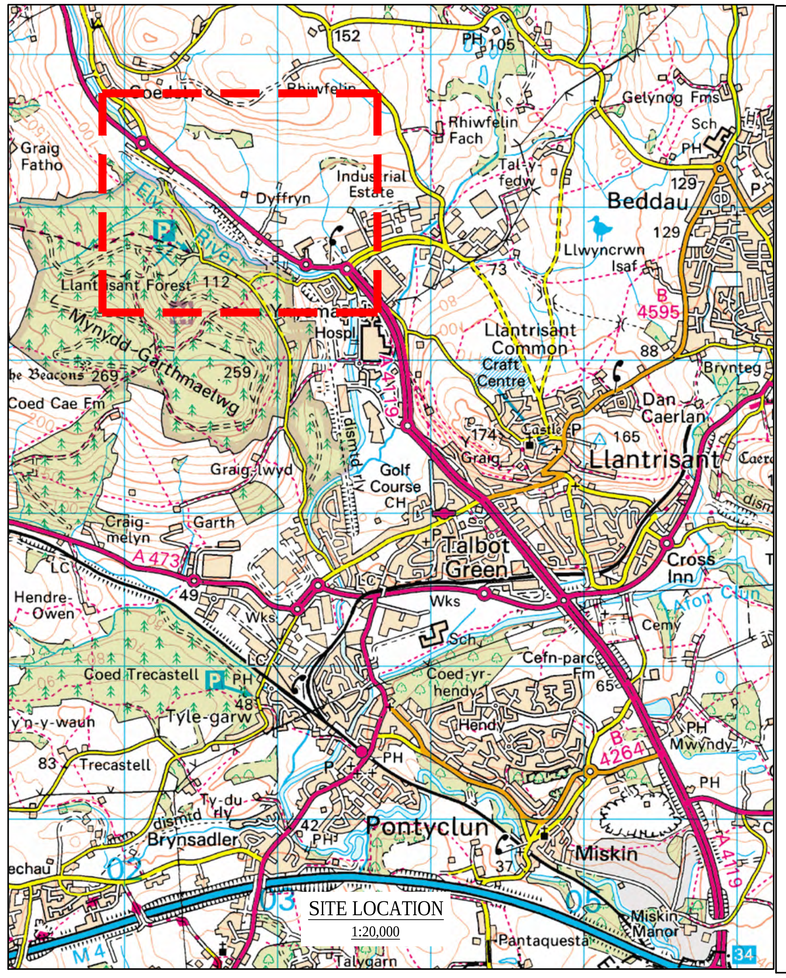

Key

- Semi-natural Broad-leaved Woodland
- Plantation Coniferous Woodland
- Dense / Continuous Scrub
- Tall Ruderal
- Buildings / Hard Standing
- Scattered Trees (coniferous)
- Scattered Trees (broad-leaved)
- Marsh / Marshy Grassland
- Poor Semi Improved Grassland
- Improved Grassland
- Plantation Mixed Woodland
- Wall
- Running Water
- Scattered Scrub
- Plantation Broad-leaved Woodland
- Standing Water
- Introduced Shrub
- Spoil
- Recently-Felled Woodland (mixed)
- Target Note

Rev	Drwn	Chk'd	App'd	Description	Date

Purpose of Issue
Reference Plan

Classification
Commercial in Confidence

Client
Rhondda Cynon Taf
County Borough Council

Project
A4119 Ely Valley Road Dualling

Drawing
Ecology
Phase 1 Habitat Plan

Scale @ A1	Drawn	Checked	Approved
As Shown	GB	JS	AF

Project No.	Date
GC/002498	June 2016

Drawing Identifier
Project - Originator - Zone - Level - File Type - Role - Number
GC2498-CAP-74-XX-DR-L-0001

BS1192 Compliant revision
P01

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Appendix A- SEWBReC Data

A.1 Protected and Priority Species within 5 km (bats only)

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Bats	*Chiroptera*	EPS, WCA5, S42, LBAP (ANG, DEN, FLI, RCT, SNP, TRA, TRF)	50	June 2015
Serotine	*Eptesicus serotinus*	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (GWY, POW, TRA, TRF)	4	July 2014
Unidentified Bat	*Myotis*	EPS, HDir, WCA5, Bonn, Bern, LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	76	July 2014
Daubenton's Bat	*Myotis daubentonii*	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)	1	June 2006
Whiskered Bat	*Myotis mystacinus*	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, DEN, FLI, GWY, POW, SNP, TRA, TRF)	1	September 2015
Natterer's Bat	*Myotis nattereri*	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)	1	August 2012
Nyctalus Bat species	*Nyctalus*	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA)	4	July 2012
Lesser Noctule	*Nyctalus leisleri*	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	5	October 2011
Noctule Bat	*Nyctalus noctula*	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	54	June 2015
Pipistrelle Bat species	*Pipistrellus*	EPS, WCA5, LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	72	May 2016
Nathusius's Pipistrelle	*Pipistrellus nathusii*	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	9	October 2011
Common Pipistrelle	*Pipistrellus pipistrellus*	EPS, HDir, WCA5, S42, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	193	September 2015
Pipistrelle	*Pipistrellus pipistrellus* agg.	EPS, HDir, WCA5, S42, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	3	October 2012
Soprano Pipistrelle	*Pipistrellus pygmaeus*	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CLY, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	153	July 2015
Brown Long-eared Bat	*Plecotus auritus*	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	27	July 2015
Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD1 (UK), RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CRM, DEN, FLI, MON, PEM, POW, SNP, TRA, TRF, VOG)	3	October 2011
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRA, TRF, VOG, WRE)	12	September 2010
Bats	*Vespertilionidae*	EPS, WCA5, Bonn, RD2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	34	October 2011

A.2 Protected and Priority Species within 2 km (excluding bats)

Common Name	Scientific Name	Legislation/conservation status	Number of records	Most recent record
Adder	*Vipera berus*	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	6	May 2016
Bluebell	*Hyacinthoides non-scripta*	WCA8, LBAP (ANG, CLY, CON, FLI, SNP, TRA, TRF)	18	June 2016
Broom Moth	*Ceramica pisi*	S42, UKBAP, LBAP (GWY, VOG)	4	August 2015
Brown Hare	*Lepus europaeus*	S42, UKBAP, Bern, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG)	1	June 2016
Brown-banded Carder-bee	*Bombus (Thoracobombus) humilis*	S42, UKBAP, LBAP (CER, CON, FLI, GWY, PEM, POW, VOG)	1	May 2016
Buff Ermine	*Spilosoma lutea*	S42, UKBAP, LBAP (GWY, VOG)	1	July 2013
Bullfinch	*Pyrrhula pyrrhula*	S42, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB), UKBAm(RSPB)	1	April 2014
Common Crossbill	*Loxia curvirostra*	WCA1.1, Bern, LBAP (CON, POW), LI(VC43)	2	October 2013
Common Frog	*Rana temporaria*	HDir, WCA5, Bern, LBAP (ANG, CLY, CON, FLI, POW, TRA)	8	February 2016
Common Lizard	*Zootoca vivipara*	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	23	June 2016
Common Toad	*Bufo bufo*	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, TRA, VOG)	2	May 2011
Dingy Skipper	*Erynnis tages*	S42, UKBAP, RD1 (UK), LBAP (BGW, BRG, CON, FLI, GWY, SWN, VOG), LI(SEWBReC)	2	May 2016
Dunnock	*Prunella modularis*	S42, UKBAP, Bern, RD2 (UK), LBAP (CON, POW, VOG), UKBAm(RSPB)	4	May 2014
Goshawk	*Accipiter gentilis*	WCA1.1, WCA9, Bonn, CITES, LBAP (CLY, CON, POW, VOG)	1	April 2007
Grass Snake	*Natrix natrix*	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG)	2	May 2014
Hawfinch	*Coccothraustes coccothraustes*	S42, UKBAP, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1	May 2013
Hobby	*Falco subbuteo*	WCA1.1, Bonn, Bern, CITES, LBAP (CON, GWY, POW, VOG), WBAm(RSPB), LI(VC43)	1	June 2014
House Sparrow	*Passer domesticus*	S42, UKBAP, Bern, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)	1	May 2009
Kestrel	*Falco tinnunculus*	S42, Bonn, Bern, CITES, WBR(RSPB), LBAP (ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), LI(VC43), UKBAm(RSPB)	2	July 2015

Common Name	Scientific Name	Legislation/conservation status	Number of records	Most recent record
Lesser Redpoll	*Acanthis cabaret*	S42, UKBAP, WBR(RSPB), LBAP (CON), LBAP (DEN, POW, VOG), UKBR(RSPB), UKBAm(RSPB)	2	October 2013
Linnet	*Linaria cannabina*	S42, Bern, WBR(RSPB), LBAP (ANG, BBNP, CER, CLY, DEN, FLI, PEM, VOG), LBAP (CON, GWY), UKBR(RSPB)	3	May 2015
Marsh Fritillary	*Euphydryas aurinia*	EPS, HDir, WCA5, S42, UKBAP, Bern, RD1 (UK), RD2 (UK), LBAP (ANG, BBNP, CER, CON, CRM, GWY, PEM, POW, SNP, TRA, VOG), LI(SEWBReC)	1	April 2006
Merlin	*Falco columbarius*	BDir1, WCA1.1, Bonn, Bern, CITES, LBAP (CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	1	November 2009
Olive Earthtongue	*Microglossum olivaceum*	S42, UKBAP, LBAP (BBNP, CER, MON, POW)	3	October 2006
Palmate Newt	*Lissotriton helveticus*	WCA5, Bern, LBAP (ANG, CLY, CON, DEN, FLI, POW, TRA), LI(BIS)	1	March 2016
Polecat	*Mustela putorius*	HDir, S42, UKBAP, Bern, RD2 (UK), LBAP (BGW, BRG, CON, FLI, GWY, NEW, POW, SNP, VOG)	1	September 2010
Redwing	*Turdus iliacus*	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	4	December 2013
Reed Bunting	*Emberiza schoeniclus*	S42, UKBAP, Bern, LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	2	April 2010
Rustic	*Hoplodrina blanda*	-	1	July 2013
Slow-worm	*Anguis fragilis*	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG)	1	Summer 2011
Small Pearl-bordered Fritillary	*Boloria selene*	WCA5, S42, UKBAP, RD1 (UK), RD2 (UK), LBAP (BBNP, CER, CON, DEN, FLI, PEM, POW), LI(SEWBReC), LI(VC43)	5	July 2015
Song Thrush	*Turdus philomelos*	BDir22, S42, UKBAP, Bern, RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)	9	May 2014
Spotted Flycatcher	*Muscicapa striata*	S42, UKBAP, Bonn, Bern, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), UKBR(RSPB)	1	May 2014
Starling	*Sturnus vulgaris*	BDir22, S42, UKBAP, Bern, RD2 (UK), WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)	4	May 2014
Tree Pipit	*Anthus trivialis*	S42, UKBAP, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1	May 2014
Violet Coral	*Clavaria zollingeri*	S42, LBAP (CON, FLI, POW)	1	October 2006
Weasel	*Mustela nivalis*	NRW, Bern, LBAP (ANG, BGW, BRG, CON, FLI, NEW, POW)	1	April 2008
West European Hedgehog	*Erinaceus europaeus*	S42, UKBAP, Bern, LBAP (ANG, BGW, BRG, CON, FLI, GWY, NEW, POW, RCT, VOG)	2	September 2015
White-spotted Sable	*Anania funebris*	S42, UKBAP, RD2 (UK)	5	May 2014

Common Name	Scientific Name	Legislation/conservation status	Number of records	Most recent record
Wood Warbler	*Phylloscopus sibilatrix*	S42, UKBAP, WBR(RSPB), LBAP (CON, GWY, SNP, VOG), UKBR(RSPB), UKBAm(RSPB)	4	May 2014

A.3 Other species of conservation concern

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Monk's-hood	*Aconitum napellus*	RD2 (UK), LBAP (CDF, RCT, VOG), LI(BIS), LI(SEWBReC), WVP	1	14th August 2015
Long-tailed Tit	*Aegithalos caudatus*	WBAm(RSPB)	6	10th February 2016
Mallard	*Anas platyrhynchos*	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	1	26th February 2016
Meadow Pipit	*Anthus pratensis*	Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	7	31st March 2016
Little Thorn	*Cepphis advenaria*	RD2 (UK), LBAP (BGW, CLY)	1	16th May 2014
Dipper	*Cinclus cinclus*	Bern, LBAP (BRG, CLY, CON, MTR, POW, RCT, TRA), WBAm(RSPB)	3	31st May 2013
House Martin	*Delichon urbicum*	Bern, LBAP (BRG, CON, POW, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	3	5th October 2013
Alder Kitten	*Furcula bicuspis*	RD2 (UK), LBAP (NPT), LI(BIS)	1	21st May 2014
Common Snipe	*Gallinago gallinago*	BDir21, Bonn, LBAP (ANG, CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	2	March 2001 - May 2011
Snipe	*Gallinago gallinago*	BDir21, Bonn, LBAP (ANG, CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	3	28th June 2014
Petty Whin	*Genista anglica*	RD1 (UK), LBAP (GWY), LI (VC43)	1	11th January 2014
Sedge Fanner	*Glyphipterix forsterella*	RD2 (UK)	1	4th June 2012
Crane	*Grus grus*	BDir1, WCA9, Bonn, Bern, CITES, RD2 (UK), UKBAm(RSPB)	1	19th April 2015
Swallow	*Hirundo rustica*	Bern, LBAP (ANG, CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	8	26th September 2015
Devon Carpet	*Lampropteryx otregiata*	RD2 (UK), LBAP (BRG, CLY, NPT), LI(BIS)	1	21st May 2014
Lesser Black-backed Gull	*Larus fuscus*	BDir22, Bonn, Bern, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	1	30th May 2015
Brown Birch Bolete	*Leccinum scabrum*	RD1 (UK)	1	9th September 2015
Grey Wagtail	*Motacilla cinerea*	Bern, RD2 (UK), LBAP (CLY, CON, POW, TRA), UKBAm(RSPB)	1	27th October 2010
Double-line	*Mythimna turca*	RD2 (UK), LBAP (BBNP, CER, POW)	1	13th July 2013
Overleaf Pellia	*Pellia epiphylla*	RD2 (UK)	7	18th June 2016
Coal Tit	*Periparus ater*	Bern, LBAP (CON, POW), WBAm(RSPB)	15	17TH March 2016
Willow Warbler	*Phylloscopus trochilus*	WBR(RSPB), LBAP (CON), UKBAm(RSPB)	6	4th May 2015
Green Woodpecker	*Picus viridis*	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	5	11th March 2016
Goldcrest	*Regulus regulus*	Bern, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	7	5th October 2013
Stonechat	*Saxicola rubicola*	Bern, RD2 (UK), LBAP (ANG, DEN, FLI, PEM, POW), LBAP (CON, GWY), UKBAm(RSPB)	3	3rd May 2016
Cornish Moneywort	*Sibthorpia europaea*	RD2 (UK), LBAP (BGW, CDF, CLY, RCT), LI(SEWBReC)	1	11th January 2014
Whitethroat	*Sylvia communis*	LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	2	4th May 2015
Mistle Thrush	*Turdus viscivorus*	BDir22, Bern, RD2 (UK), UKBAm(RSPB)	9	16th May 2014

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Ivy-leaved Bellflower	*Wahlenbergia hederacea*	RD1 (UK), LBAP (DEN)	1	11th January 2014

A.4 Species of local conservation concern

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Short-winged Cone-head	*Conocephalus dorsalis*	LBAP (BRG, TRF), LI(SEWBReC)	3	27th August 2015
Golden-ringed Dragonfly	*Cordulegaster boltonii*	LBAP (CLY, SNP), LI(BIS), LI(SEWBReC)	1	8th August 2013
Many-stalked Spike-rush	*Eleocharis multicaulis*	LBAP (BGW), LI(SEWBReC), LI(VC47)	2	9th June 2012 – 11th June 2012
Alder Buckthorn	*Frangula alnus*	LBAP (GWY, NEW), LI(SEWBReC), LI(VC47)	3	21st July 2015
Emerald Damselfly	*Lestes sponsa*	LBAP (CLY, SNP), LI(SEWBReC)	1	16th August 2013
Bee Orchid	*Ophrys apifera*	CITES, LBAP (CLY, GWY, TRA, TRF), LI(SEWBReC), LI(VC47)	1	2nd June 2008
Keeled Skimmer	*Orthetrum coerulescens*	LBAP (BGW, BRG, CLY, SNP), LI(BIS), LI(SEWBReC)	2	10th August 2015
Royal Fern	*Osmunda regalis*	LI (VC43), LI(SEWBReC), LI(VC47), LI(VC52)	1	21st July 2015

Appendix B – Botanical Species List

Common Name	Scientific Name	ACFOR
Plantation woodland (TN 2)		
Ash	*Fraxinus excelsior*	A
Bramble	*Rubus fruticosus* agg	F
Hart tongue fern	*Asplenium scolopendrium*	O
Hawthorn	*Crataegus monogyna*	A
Ivy	*Hedera helix*	C
Sycamore	*Acer pseudoplatanus*	A
Broad-leaved dock	*Rumex obtusifolius*	O
Broad-leaved willowherb	*Epilobium montanum*	R
False oatgrass	*Arrhenatherum elatius*	F
Male fern	*Dryopteris filix-mas*	O
Common knapweed	*Centaurea nigra*	R
Colt's-foot	*Tussilago farfara*	R
Yarrow	*Achillea millefolium*	R
Hogweed	*Heracleum sphondylium*	O
Hazel	*Corylus avellana*	C
Herb Robert	*Geranium robertianum*	O
Holly	*Ilex aquifolium*	O
Cotoneaster	*Cotoneaster* sp.	R
Oak	*Quercus robur*	R
Dog rose	*Rosa canina*	R
Elder	*Sambucus nigra*	R
Nettle	*Urtica dioica*	R
Himalayan balsam	*Impatiens glandulifera*	OLA
Goosegrass	*Galium aparine*	O
Bracken	*Pteridium aquilinum*	R
Field horsetail	*Equisetum arvense*	R
Cow parsley	*Anthriscus sylvestris*	R
Goat willow	*Salix caprea*	R
Male fern	*Dryopteris filix-mas*	R
Blackthorn	*Prunus spinosa*	R
Alder	*Alnus glutinosa*	R
Japanese knotweed	*Fallopia japonica*	R
Broad-leaved woodland (TN 1)		
Ash	*Fraxinus excelsior*	C
Hart tongue fern	*Asplenium scolopendrium*	F
Bramble	*Rubus fruticosus*	O
Cleavers	*Galium aparine*	R
Foxglove	*Digitalis purpurea*	R
Bracken	*Pteridium aquilinum*	C
Hawthorn	*Crataegus monogyna*	O
False oatgrass	*Arrhenatherum elatius*	O

Holly	*Ilex aquifolium*	O
Ivy	*Hedera helix*	F
Broad-leaved willowherb	*Epilobium montanum*	R
Himalayan balsam	*Impatiens glandulifera*	OLA
Sycamore	*Acer pseudoplatanus*	A
Oak	*Quercus robur*	R
Hogweed	*Heracleum sphondylium*	O
Herb Robert	*Geranium robertianum*	O
Laurel	*Lauraceae sp.*	R
Common nipplewort	*Lapsana communis*	O
Poor semi improved grassland roundabout (TN 15)		
Bird's-foot trefoil	*Lotus corniculatus*	-
Red clover	*Trifolium pratense*	-
Creeping buttercup	*Ranunculus repens*	-
Ragwort	*Senecio jacobea*	-
Field horsetail	*Equisetum arvense*	-
Daisy	*Bellis perennis*	-
Dandelion	*Taraxacum agg.*	-
Self-heal	*Prunella vulgaris*	-
Common mouse-ear	*Cerastium fontanum*	-
Spear thistle	*Cirsium vulgare*	-
Red fescue	*Festuca rubra*	-
Ribwort plantain	*Plantago lanceolata*	-
Yorkshire fog	*Holcus lanatus*	-
Sedge	*Carex sp.*	-
Tufted vetch	*Vicia cracca*	-
Annual meadowgrass	*Poa annua*	-
Semi-improved neutral grassland bank (south-west of Coedely roundabout) (TN 14)		
Rosebay willowherb	*Chamelion angustifolium*	-
Cock's-foot	*Dactylis glomerata*	-
Bird's-foot trefoil	*Lotus corniculatus*	-
Creeping buttercup	*Ranunculus repens*	-
Yorkshire fog	*Holcus lanatus*	-
Tufted vetch	*Vicia cracca*	-
Dandelion	*Taraxacum sp.*	-
Mouse ear	*Cerastium fontanum*	-
Common knapweed	*Centaurea nigra*	-
Hedge bedstraw	*Galium album*	-
Broad-leaved dock	*Rumex obtusifolius*	-
False oatgrass	*Arrhenatherum elatis*	-
Self-heal	*Prunella vulgaris*	-
Bramble	*Rubus fruticosus*	-
Silverweed	*Argentina anserina*	-
Common bent	*Agrostis capillaris*	-
Zig-zag clover	*Trifolium medium*	-
Dense scrub (south-west of Coedely roundabout) (TN 10)		

Rosebay willowherb	*Chamerion angustifolium*	A
Bramble	*Rubus fruticosus*	F
Himalayan balsam	*Impatiens glandulifera*	C
Hogweed	*Heracleum mantegazzianum*	O
Nettle	*Urtica dioica*	O
Creeping thistle	*Cirsium arvense*	F
Square-stemmed St. John's-wort	*Hypericum tetrapterum*	R
Ash	*Fraxinus excelsior*	O
Japanese knotweed	*Fallopia japonica*	O
Oak	*Quercus robur*	R
Hazel	*Corylus avellana*	R
Hemp agrimony	*Eupatorium cannabinum*	R
Willowherb sp	*Epilobium sp.*	R
Bracken	*Pteridium aquilinum*	R
Hedge bindweed	*Calystegia sepium*	R
Field horsetail	*Equisetum arvense*	R
Introduced species (TN 16)		
Leyland cypress	*Cupressus x leylandii*	A
Cotoneaster	*Cotoneaster* sp.	C
Bamboo	Bambusoideae sp	O
Broad-leaved scattered trees (adjacent to Coed Ely roundabout) (TN 5)		
Sycamore	*Acer pseudoplatanus*	F
Horse chestnut	*Aesculus hippocastanum*	F
Cherry	*Prunus avium*	R
Rowan	*Sorbus aucuparia*	R
Lime	*Tilia x europaea*	O
Wall (TN 17)		
Buddleia	*Buddleia davidii*	O
Ivy	*Hedera helix*	O
Dense scrub (along eastern carriageway) (TN 12)		
Hazel	*Corylus avellana*	C
Bramble	*Rubus fruticosus*	A
Hawthorn	*Crataegus monogyna*	C
False oatgrass	*Arrhenatherum elatis*	F
Ragwort	*Senecio jacobea*	O
Bracken	*Pteridium aquilinum*	A
Hogweed	*Heracleum mantegazzianum*	O
Ash	*Fraxinus excelsior*	O
Common vetch	*Vicia sativa*	O
Poor semi-improved grassland (along A4119) (TN 6)		
Ribwort plantain	*Plantago lanceolata*	F
Herb Robert	*Geranium robertianum*	R
Dog violet	*Viola rivinana*	R
Ivy	*Hedera helix*	O
Hogweed	*Heracleum mantegazzianum*	O
Red fescue	*Festuca rubra*	C

Semi-natural broad-leaved woodland (along River Ely) (TN 3)		
Ash	*Fraxinus excelsior*	F
Hawthorn	*Crataegus monogyna*	O
Himalayan balsam	*Impatiens glandulifera*	OLA
Alder	*Alnus glutinosa*	F
Oak	*Quercus robur*	O
Hazel	*Corylus avellana*	F
Japanese knotweed	*Fallopia japonica*	OLA
Dense scrub (eastern side of Coedely roundabout) (TN 11)		
Bracken	*Pteridium aquilinum*	C
Bramble	*Rubus fruticosus*	C
Hedge bindweed	*Calystegia sepium*	F
Hogweed	*Heracleum mantegazzianum*	O
Ash	*Fraxinus excelsior*	O
Great willowherb	*Epilobium hirsutum*	O
Bird's-foot trefoil	*Lotus corniculatus*	O
Ragwort	*Senecio jacobea*	O
Nettle	*Urtica dioica*	O
Meadow vetchling	*Lathyrus pratensis*	O
Field horsetail	*Equisetum arvense*	O
Tufted vetch	*Vicia cracca*	O
Creeping thistle	*Cirsium arvense*	O
Plantation woodland (surrounding fire station) (TN 4)		
Dogwood	*Cornus sanguinea*	A
Silver birch	*Betula pendula*	C
Pine	*Pinus* sp.	O
Bramble	*Rubus fruticosa* agg.	F
Ash	*Fraxinus excelsior*	F
Hazel	*Corylus avellana*	O
Blackthorn	*Prunus spinosa*	C
Dog rose	*Rosa canina*	R
Hawthorn	*Crataegus monogyna*	R
Nettle	*Urtica dioica*	O
Creeping thistle	*Cirsium arvense*	R
Bracken	*Pteridium aquilinum*	O
Cherry	*Prunus* sp.	R
Scattered Broad-leaved trees (TN 7)		
Silver birch	*Betula pendula*	O
Mixed plantation woodland (TN 8)		
Conifers	-	A
Sycamore	*Acer pseudoplatanus*	O
Oak	*Quercus robur*	O
Mixed plantation woodland (TN 19)		
Larch	*Larix sp*	A
Sycamore	*Acer pseudoplatanus*	C
Ash	*Fraxinus excelsior*	O
Bramble	*Rubus fruticosa* agg.	O

Coniferous scattered trees (TN 9)		
Pine	*Pinus* sp.	O
Mixed plantation woodland (on Coedely roundabout) (TN 18)		
Pine	*Pinus sp*	C
Hawthorn	*Crataegus monogyna*	F
Cherry	*Prunus* sp.	O
Bramble	*Rubus fruticosa* agg.	O
Blackthorn	*Prunus spinosa*	O

Appendix C – Additional Target Notes

TN 20 – Colliery spoil
TN 21 – Recently felled conifer plantation
TN 22 – River Ely
TN 23 – Large ash tree
TN 24 - Pond

Appendix D Legislation

European Protected Species

European Protected Species are species listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). The list includes many species, including all species of bats, dormouse, great crested newts and otter. The species listed on Schedule 2 are afforded protection against:

- deliberate capture, injury or killing;
- deliberate disturbance;
- deliberate taking or destruction of the eggs;
- damage or destruction of a breeding site or resting place of such an animal.

Where a European protected species is present, a development may only proceed, under a licence issued by Natural Resources Wales. The above species are fully protected under the Wildlife and Countryside Act 1981 (as amended).

UK Protected Species: Birds

All naturally occurring British bird species are protected under the Wildlife and Countryside Act 1981 (as amended). The legislation protects all birds, their nests and eggs and it is an offence to:

- intentionally kill, injure and take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- intentionally take or destroy the egg of any wild bird.

Birds listed on Schedule 1 of the above legislation (e.g. barn owl) are afforded further protection and it is an offence to:

- intentionally or recklessly disturb the bird while nest building or while at (or near) a nest with eggs or young; or
- disturb the dependent young of such a bird.

UK Protected Species: Reptiles

All common reptiles (e.g. common lizard, grass snake, slow worm and adder) receive partial protection under the Wildlife and Countryside Act 1981 (as amended). This legislation protects these species from intentional killing or injury, however does not extend to the protection of habitats used by reptiles.

UK Protected Species: Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992; the Act makes it an offence to:

- Kill, injure, take or attempt to kill, injure or take a badger; or
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett, or disturb a Badger whilst it is occupying a sett.

Any works which directly affect badgers setts can only be carried out under a licence issued by Natural Resources Wales.

Appendix E – Transportation Assessment

Capita Property and Infrastructure Ltd
St David's House
Pascal Close
St Mellons
Cardiff
CF3 0LW

Tel +44 (0) 29 2080 3500
Fax+44 (0) 29 2036 6199

www.capita.co.uk

CAPITA

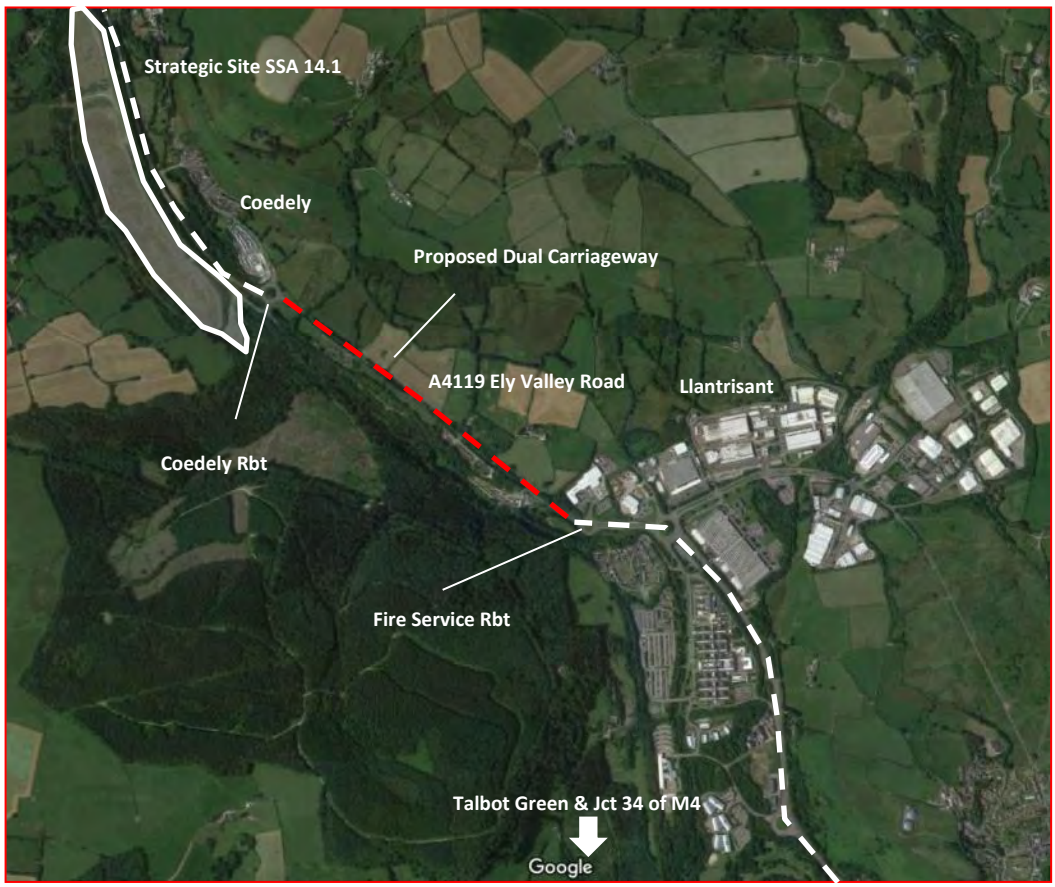
Technical Note A4119 Ely Valley Road Dualling

August 2016

1. INTRODUCTION

This technical note considers proposals to dual the A4119 Ely Valley Road between Llantrisant and Coedely in Tonyrefail as illustrated in figure 1.1.

Figure 1.1 A4119 Ely Valley Road Dual Proposal



The A4119 is a key component of the highway network in Rhondda Cynon Taf and provides connection between the M4 motorway to the south and the Rhondda valleys to the north. The A4119 also accommodates a large amount of traffic movement within the County Borough between towns such as Talbot Green and Porth. The A4119 is currently a dual carriageway between junction 34 of the M4 and the Fire Service roundabout highlighted in figure 1.1. North of this point the A4119 is mainly single carriageway.

Rhondda Cynon Taf County Borough Council (RCTCBC) has advised that this section of single carriageway road along the A4119 currently suffers from congestion. It has also been indicated that this section of the A4119 would accommodate a significant amount of traffic generated by strategic development site SSA 14.1 located adjacent to Coedely roundabout should it be developed.

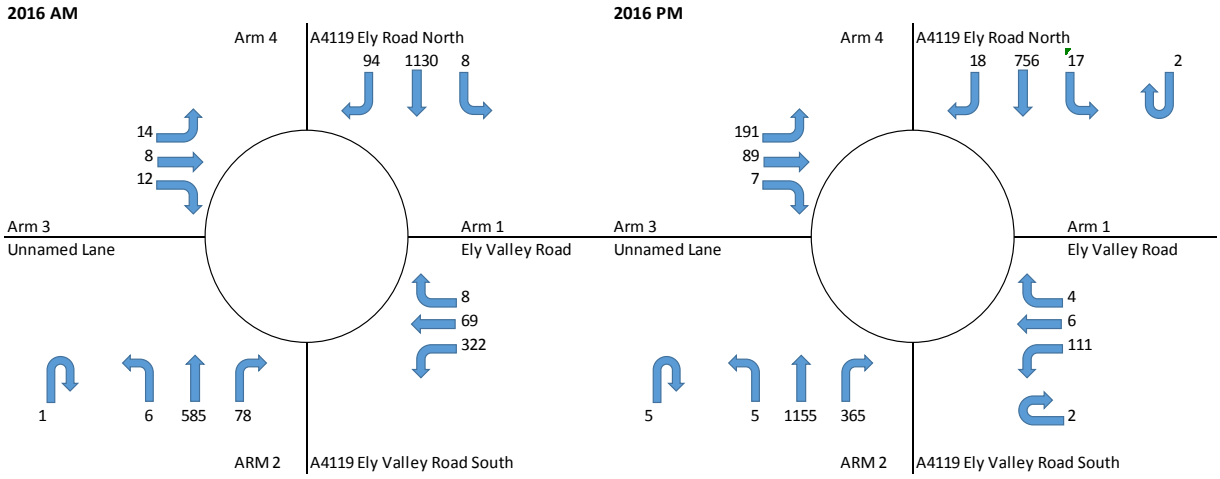
RCTCBC have commissioned Capita to undertake an initial assessment of the A4119 at this location. This includes a capacity assessment of the Coedely roundabout and consideration of any wider area modelling required. An estimate of traffic generation at the strategic site has also been undertaken in order to evaluate how the existing section of the A4119, and any improvements to the highway, will operate in the future. A high level analysis limited to assessment of the Coedely roundabout has been undertaken at this stage as it is likely that a more sophisticated wide area assessment will be required, as discussed further in Section 6.

2. SURVEY ANALYSIS

A junction classified turning count survey was undertaken at the Coedely Roundabout on the 28th June 2016, and an automatic traffic count survey was undertaken on the A4119 Ely Valley Road approximately 200 metres south of the roundabout, between the 22nd June and the 28th June 2016.

The traffic volumes on the 28th June (date of the turning count survey) were compared to the average traffic volumes as identified within the ATC survey. The turning count survey was then adjusted accordingly. Resulting turning movements are illustrated in figure 2.1.

Figure 2.1 Coedely Roundabout Turning Movements (Vehicles)



Queue surveys were also undertaken on the 28th June. The queue survey results for the peak hours are provided in table 2.1.

Table 2.1 Coedely Roundabout Queue Survey Results (Vehicles)

Arm	AM Peak		PM Peak	
	Average	Maximum	Average	Maximum
Ely Valley Road	14	29	2	4
A4119 Ely Valley Road (South)	4	15	8	31
Unnamed Road	1	8	7	16
A4119 Ely Valley Road (North)	17	31	12	22

3. COEDELY ROUNDABOUT CAPACITY ASSESSMENT - EXISTING

A capacity assessment has been undertaken using the Transport Research Laboratory (TRL) software Junctions 8 ARCADY. This is an industry standard software package that is used to assess the operational capacity of a roundabout and provides results in terms of the ratio of flow to capacity (RFC), delay and queues. An RFC of 0.85 and below is generally considered to indicate that a junction is operating within capacity and an RFC above 0.85 is generally considered to indicate the junction is operating above capacity. Delay and queues are expected to increase exponentially above 0.85. Delay is the average delay per arriving vehicle and queues are the maximum queue generated within the time period analysed.

The current operational capacity of the junction is summarised in table 2.1.

Table 3.1 Coedely Roundabout: Summary of Existing Operational Capacity Analysis

Arm	AM Peak			PM Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
Ely Valley Road	1	6	0.41	0	3	0.10
A4119 Ely Valley Road (South)	1	3	0.40	6	13	0.86
Unnamed Road	0	3	0.03	1	8	0.40
A4119 Ely Valley Road (North)	2	6	0.70	1	4	0.51

The ARCADY model indicates that the roundabout is currently near capacity in the AM peak with a maximum RFC of 0.70 on the A4119 Ely Valley Road (North) arm, and a moderate RFC on the Ely Valley Road and A4119 Ely Valley Road (South) arms.

During the PM peak the ARCADY model indicates that the roundabout is marginally over capacity with an RFC of 0.86 on the A4119 Ely Valley Road (South) arm, and a moderate RFC on the A4119 Ely Valley Road (North) and unnamed road arms.

Comparison of observed and modelled queues shows some disparity between the two. This is due to limitations inherent within the ARCADY programme where total entry width is assumed to accommodate all traffic movements. Whereas in reality, only one of the lanes is used for a large proportion of movements within the junction. It could also be due to queues generated elsewhere on the network causing a reduction in the operational performance of the Coedely roundabout.

Further investigation into the operation of the junction has been undertaken using the 'Entry Lane Simulation' (ELS) feature within ARCADY. ELS allows the turning movements on each arm of a junction to be specified thereby providing the correct capacity at entry to a junction. It should be noted however that ELS is an investigative tool that should be used with judgment to provide an indication of junction capacity.

The ELS capacity assessment results are summarised in table 2.2.

Table 3.2 Coedely Roundabout: Summary of Entry Lane Simulation Analysis

Arm	AM Peak			PM Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
Ely Valley Road	4	30	N/A	0	3	N/A
A4119 Ely Valley Road (South)	1	4	N/A	67	125	N/A
Unnamed Road	0	0	N/A	0	5	N/A
A4119 Ely Valley Road (North)	55	127	N/A	3	10	N/A

Table 2.2 shows that with the entry lane movements specified larger queues and delays are generated. During the AM peak the A4119 experiences queues of 55 vehicles and delays of 127 seconds, and the Ely Valley Road arm experiences queues four vehicles long and delays of 30 seconds. In the PM peak the A4119 Ely Valley Road (South) arm experiences queues of 67 vehicles and delays of 125 seconds.

The ELS results do not match the observed results, however they do suggest that the roundabout operates at a higher ratio of flow to capacity, resulting in greater queues and delays, than the initial assessment indicated. This should be taken account of when considering future capacity assessment results of the roundabout.

4. Strategic Site SSA 14.1 – Trip Generation, Distribution and Growth

Trip Generation

In order to estimate the traffic generated by strategic development site SSA14.1 a comparative assessment has been undertaken using the TRICS database programme. TRICS is the national standard system of trip generation and analysis in the UK and provides an estimate of potential levels of trip generation for a wide range of land uses and locations.

Strategic development site SSA 14.1 is a development site within the RCTCBC Local Development Plan that is allocated for 14.32 hectares of B1 and B2 land-uses. As such, based on a review of 18 Industrial Estate sites within the TRICS database of B1/B2 use, surveyed on a weekday since 1st January 2008 and ranging in size between 2 and 40 hectares, the following trip rates were calculated:

Table 4.1 Vehicle Trip Rates (per hectare)

Time Period	**All Vehicles**		**OGV + PSV**	
	Arrivals	Departures	Arrivals	Departures
07:30-08:30	11.445	3.962	0.423	0.53
16:30-17:30	4.183	10.643	0.227	0.278

The trip rates shown above were applied to the strategic development site area of 14.32 hectares. The resulting vehicle flows are shown in table 4.2.

Table 4.2 Vehicle Flows

Time Period	**All Vehicles**		**OGV + PSV**	
	Arrivals	Departures	Arrivals	Departures
07:30-08:30	164	57	6	8
16:30-17:30	60	152	3	4

Trip Distribution

Trip distribution has been based on movements to and from Coed Ely Road as movements on the existing un-named road proposed to access the site resulted in significant movements to/from Coed Ely Road which are unlikely to occur as this is against the observed main traffic flow. In the AM peak the movements from Coed Ely Road to the A4119 (North) and the un-named road have been transposed and in the PM peak the same movements have been transposed from the site as flows to and from Coed Ely Road are expected to be minimal. As a worst case, all vehicles to and from the site have been assumed to travel through the roundabout. The resulting vehicle distribution is provided in table 4.3.

Table 4.3 Vehicle Distribution To/From Strategic Development Site SSA 14.1

Movement	AM Peak		PM Peak	
	All Vehicles	OGV+PSV	All Vehicles	OGV+PSV
Site to A4119 (N)	10	1	4	0
Site to Coed Ely Rd	1	0	8	0
Site to A4119 (S)	46	7	140	4
A4119 (N) to Site	15	1	11	1
Coed Ely Rd to Site	15	1	2	0
A4119 (S) to Site	134	4	47	2

Traffic Growth

The roundabout has been assessed in 2018 (estimated opening year for strategic site SSA 14.1) and in 2033 (opening year + 15 years). The Trip End Model Presentation Program (TEMPro) has been used to produce growth rates for the future assessment years analysed. Traffic growth rates for Tonyrefail on urban principal roads were produced.

Table 4.4 Traffic Growth Rates

Year	AM Peak	PM Peak
2016 - 2018	1.029	1.029
2016 - 2033	1.235	1.236

5. COEDELY ROUNDABOUT CAPACITY ASSESSMENT - *FUTURE JUNCTION OPERATION*

Capacity assessments of the roundabout have been undertaken for a 2018 and 2033 future assessment year with and without strategic development traffic. The roundabout has been assessed with its existing configuration and with a dual carriageway approach at the southernmost A4119 arm.

Existing Junction Configuration

Table 5.1 provides the capacity assessment results for the existing junction layout for 2018 with and without development traffic flows. Table 5.2 provides the capacity assessment results for 2033.

Table 5.1 Future Junction Operation – Existing Layout (2018)

Arm	AM Peak			PM Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2018 No Development						
Ely Valley Road	1	6	0.43	0	3	0.10
A4119 Ely Valley Road (South)	1	3	0.42	7	16	0.88
Unnamed Road	0	3	0.03	1	8	0.42
A4119 Ely Valley Road (North)	3	7	0.72	1	5	0.53
2018 + Development Traffic						
Ely Valley Road	1	7	0.47	0	3	0.11

A4119 Ely Valley Road (South)	1	4	0.53	10	21	0.92
Unnamed Road	0	3	0.08	2	13	0.63
A4119 Ely Valley Road (North)	3	7	0.74	1	5	0.57

Table 5.1 shows that with traffic growth applied the roundabout is forecast to continue to operate near capacity in the AM peak with an RFC of 0.72, and marginally over capacity in the PM with an RFC of 0.88. With the addition of traffic associated with the strategic development site the junction is forecast to operate at a marginally higher RFC of 0.74 in the AM peak and 0.94 in the PM peak. Queues and delay are forecast to increase in line with the increase to RFC with a marginal increase forecast in both peak periods.

Table 5.2 Future Junction Operation – Existing Layout (2033)

Arm	**AM Peak**			**PM Peak**		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2033						
Ely Valley Road	2	11	0.62	0	3	0.14
A4119 Ely Valley Road (South)	1	4	0.51	79	121	1.07
Unnamed Road	0	3	0.04	2	14	0.60
A4119 Ely Valley Road (North)	7	15	0.88	2	6	0.66
2033 + Development Traffic						
Ely Valley Road	2	13	0.66	0	4	0.15
A4119 Ely Valley Road (South)	2	6	0.62	111	166	1.10
Unnamed Road	0	3	0.09	4	27	0.81
A4119 Ely Valley Road (North)	8	18	0.90	2	8	0.70

Table 5.2 shows that in 2033 the junction is forecast to operate over capacity in both the AM and the PM with a maximum RFC of 0.88 and 1.07 respectively. This results in a maximum queue of seven vehicles and a maximum delay of 15 seconds in the AM peak, and 79 vehicles and 121 seconds in the PM peak. During the PM peak queues and delays are forecast to be significantly increased as the junction is over theoretical capacity where queues and delays increase exponentially.

With the addition of development traffic the junction is forecast to operate at a marginally higher RFC at 0.90 in the AM peak and 1.10 in the PM peak. Queues and delay are forecast to increase marginally during the AM peak, however the increases are exponentially greater in the PM peak.

Existing and Dual Carriageway Configuration Comparison

The capacity assessment results for the Coedely roundabout with a dual carriageway configuration at the A4119 Ely Valley Road (South) arm are compared to the results of the assessment with the existing roundabout configuration. This is done with and without development traffic in 2018 and 2033 in table 5.3 and 5.4 respectively.

Table 5.3 Future Junction Operation Comparison (2018)

Arm	AM Peak			PM Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2018 - Existing Configuration						
Ely Valley Road	1	6	0.43	0	3	0.10
A4119 Ely Valley Road (South)	1	3	0.42	7	16	0.88
Unnamed Road	0	3	0.03	1	8	0.42
A4119 Ely Valley Road (North)	3	7	0.72	1	5	0.53
2018 - Dual Carriageway Layout						
Ely Valley Road	1	6	0.43	0	3	0.10
A4119 Ely Valley Road (South)	0	2	0.30	2	4	0.64
Unnamed Road	0	3	0.03	1	8	0.42
A4119 Ely Valley Road (North)	3	7	0.72	1	5	0.53
2018 + Development - Existing Configuration						
Ely Valley Road	1	7	0.47	0	3	0.11
A4119 Ely Valley Road (South)	1	4	0.53	10	21	0.92
Unnamed Road	0	3	0.08	2	13	0.63
A4119 Ely Valley Road (North)	3	7	0.74	1	5	0.57
2018 + Development - Dual Carriageway Layout						
Ely Valley Road	1	7	0.47	0	3	0.11
A4119 Ely Valley Road (South)	1	2	0.38	2	4	0.66
Unnamed Road	0	3	0.08	2	13	0.63
A4119 Ely Valley Road (North)	3	7	0.74	1	5	0.57

Table 5.3 shows that the implementation of a dual carriageway on the A4119 Ely Valley Road (South) is forecast to reduce the maximum RFC on this arm by 12% in the AM peak and 24% in the PM peak without development traffic in 2018. This results in a relative reduction in queues and delay in the AM peak, however a significant reduction is forecast in the PM peak. This is due to the fact that the junction is forecast to operate over capacity in the PM peak. With development traffic a reduction in RFC of 15% is forecast for the AM peak and 26% in the PM peak. This again results in a relative reduction in queues and delays in the AM peak, but a significant reduction in the PM peak.

Table 5.4 Future Junction Operation Comparison (2033)

Arm	AM Peak			PM Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2033 - Existing Configuration						
Ely Valley Road	2	11	0.62	0	3	0.14
A4119 Ely Valley Road (South)	1	4	0.51	79	121	1.07
Unnamed Road	0	3	0.04	2	14	0.60
A4119 Ely Valley Road (North)	7	15	0.88	2	6	0.66
2033 - Dual Carriageway Layout						
Ely Valley Road	2	11	0.62	0	3	0.14
A4119 Ely Valley Road (South)	1	2	0.36	3	6	0.77
Unnamed Road	0	3	0.04	2	19	0.68
A4119 Ely Valley Road (North)	7	15	0.88	2	7	0.66
2033 + Development - Existing Configuration						
Ely Valley Road	2	13	0.66	0	4	0.15
A4119 Ely Valley Road (South)	2	6	0.62	111	166	1.10
Unnamed Road	0	3	0.09	4	27	0.81
A4119 Ely Valley Road (North)	8	18	0.90	2	8	0.70
2033 + Development - Dual Carriageway Layout						
Ely Valley Road	2	13	0.66	0	4	0.15
A4119 Ely Valley Road (South)	1	3	0.44	4	7	0.8
Unnamed Road	0	3	0.09	12	78	0.96
A4119 Ely Valley Road (North)	8	18	0.90	2	8	0.71

Table 5.4 shows that the implementation of a dual carriageway on the A4119 Ely Valley Road (South) in 2033 is forecast to reduce the maximum RFC on this arm by 15% in the AM peak and 30% in the PM peak without development traffic. It should be noted however that the A4119 Ely Valley Road (North) is forecast to continue to operate marginally over capacity with a predicted RFC of 0.88, and the unnamed road (potential strategic development site access) is forecast to operate at a higher level of capacity in the PM peak (+8%). The dual carriageway results in relatively minor reductions in queues and delay during the AM peak, however a significant reduction in queues and delay on the A4119 Ely Valley Road (South) are forecast during the PM peak.

With development traffic a reduction in RFC of 18% is forecast for the AM peak and 30% in the PM peak. However it should be noted that the A4119 Ely Valley Road (North) is forecast to continue to operate over capacity in the AM peak with an RFC of 0.90 resulting in moderate queues and delay, and the unnamed road (potential strategic site access) is forecast to operate over capacity with an RFC of 0.96 in the PM peak. This results in a moderate level of queuing but a significant amount delay.

Notwithstanding the analysis described above, it should be noted that although the initial modelling shows that the implementation of a dual carriageway on the A4119 Ely Valley Road provides benefit a more sophisticated assessment is required.

6. FURTHER WIDER AREA ANALYSIS

Capacity assessment of the Coedely roundabout shows that the junction is currently operating near to over capacity, with extended delay and queues generated on the A4119 arms of the roundabout, and the Ely Valley Road arm.

As discussed in Section 3 there are limitations inherent within the ARCADY modelling programme. These include where total entry width to a junction is assumed to accommodate all traffic movements, and where the capacity on an arm within the junction is reduced as a result of a reduction in capacity elsewhere in the network.

Analysis of traffic movements provided in Section 2 shows that there is a significant traffic flow movement through the roundabout, from the A4119 north to south and vice versa. It is likely that ARCADY is overestimating the capacity available to this movement as only one lane is used to make this movement, whereas ARCADY assumes the entire entry width is available.

In light of the above it is recommended that further analysis of the roundabout is undertaken using more sophisticated modelling software and techniques such as VISSIM microsimulation that take into account entry lane usage.

A review of typical traffic speeds in the area using Google has been undertaken as illustrated in figure 6.1.

Figure 6.1 PM Peak Typical Traffic Speeds

Figure 6.1 shows that there is slow moving traffic on the A4119 northbound approach to the A4093/A4119 roundabout. This junction is likely to be the cause of the slow moving traffic and given its close proximity to the development it is recommended that a capacity assessment of this junction is undertaken to establish the impact of development traffic.

The development generates a significant number of trips heading south during the PM peak hour. Figure 6.1 shows that significant congestion occurs at the southbound approach to the A4119/B4595 junction and this additional development traffic could have a significant impact. It is therefore recommended that this junction is included in a capacity assessment.

The A4119 / A473 Talbot Green roundabout has a junction improvement scheme proposed and is therefore not recommended being included in a capacity assessment. Junctions further south on the A4119 tend to experience congestion in the opposite direction to the main development generated traffic and are therefore recommended not to be included in a capacity assessment.

Figure 6.1 also shows that there is slow moving traffic on the A4119 Ely Valley Road between the Fire Service roundabout and the Coedely roundabout in a northbound direction. This does not appear to be caused by a specific junction and could be indicative of a link capacity issue. Traditional junction capacity models would therefore not assist in the assessment of this issue so VISSIM microsimulation is recommended

In light of the wider area issues highlighted it is recommended that a microsimulation model assessment of the A4119 is undertaken with model extents between the A4093/A4119 roundabout to the north and the A4119/B4595 crossroads to the south. Trafficmaster GPS data will be used to inform model journey times. It is also proposed that a more accurate traffic distribution for the strategic development site be acquired using a survey of the A4119/Heol y Sarn roundabout and the Royal Mint employment area. The microsimulation assessment should look at the operation of the corridor currently and provide an evaluation of the forecast impact of a dual carriageway on the A4119 Ely Valley Road between Fire Station roundabout and the Coedely roundabout. The following additional surveys are required to develop the A4119 corridor VISSIM microsimulation model:

- A4093/A4119 Roundabout
- A4119 / Heol Y Sarn Roundabout
- A4119 British Airways Engineering Roundabout
- A4119 / B4595 Traffic Signals

7. SUMMARY

RCTCBC have advised that the A4119 Ely Valley Road between the Fire Service roundabout and the Coedely roundabout currently suffers from congestion and may benefit from road widening from single carriageway to dual carriageway. It has also been indicated that Strategic Development Site SSA 14.1 would generate a significant amount of traffic to this section of the A4119 Ely Valley Road which is likely to exacerbate the existing congestions issue.

This note endeavours to provide a high level feasibility study to assess the current and future operation of the A4119 Ely Valley Road as well as an assessment of further modelling requirements.

Capacity assessment of the Coedely roundabout indicated that the roundabout is near capacity in the AM peak with a maximum RFC of 0.70 which occurs on the A4119 Ely Valley Road (North) arm, and over capacity in the PM peak with a maximum RFC of 0.86 which occurs on the A4119 Ely Valley Road (South) arm.

Assessment of the existing roundabout layout in 2018 found that the junction is forecast to continue to operate within capacity in the AM peak, and over capacity in the PM peak with a maximum RFC of 0.72 and 0.88 respectively. This increased marginally with the addition of strategic development traffic. With 2033 traffic flows the existing junction is forecast to operate over capacity in the AM peak and the PM peak with a maximum RFC of 0.88 and 1.07 respectively. This increased marginally with the addition of strategic development traffic in the AM, and more significantly during the PM, due to the already high level of RFC.

The addition of a dual carriageway on the A4119 Ely Valley Road (South) arm of the junction was found to increase the capacity of the roundabout and resulted in a reduction in the RFC on the A4119 South arm by up to 15% in the AM peak and 26% in the PM peak with 2018 traffic flows. With 2033 traffic demand the addition of a dual carriageway reduced the RFC of the A4119 by up to 18% in the AM and 30% in the PM. However the A4119 Ely Valley Road (North) is forecast to continue to operate marginally over capacity with an RFC of up to 0.90. In 2033 with the strategic development flows added the unnamed road (potential strategic development site access) is also forecast to operate over capacity with an RFC of 0.96 (+8%) in the PM peak.

An evaluation of the high level traffic modelling approach used has been undertaken. It was found that there are drawbacks associated with the initial junction modelling approach used. These include the fact that lane usage is not specified within the ARCADY junction modelling program and it is therefore likely to overestimate the capacity of the roundabout, and that junction modelling does not take into account issues with capacity elsewhere in the network. In light of this, it is recommended that a more sophisticated and wider area modelling approach is implemented.

Review of typical traffic speeds in the area using Google indicated that there is slow moving traffic on the A4119 between the Fire Station roundabout and Coedely roundabout. It also showed that there is slow moving traffic on the A4119 to the north up to the A4093/A4119 roundabout, and south down to the A41119/B4595 signalised crossroads. In light of this it is recommended that a Vissim microsimulation assessment is undertaken with model extents between the A4093/A4119 roundabout to the north and the A4119/B4595 crossroads to the south. The microsimulation assessment should look at the operation of the corridor currently and provide an evaluation of the forecast impact of a dual carriageway on the A4119 Ely Valley Road between the Fire Station roundabout and Coedely roundabout.

Appendix F – Preliminary Scheme Estimate

Capita Property and Infrastructure Ltd
St David's House
Pascal Close
St Mellons
Cardiff
CF3 0LW

Tel +44 (0) 29 2080 3500
Fax+44 (0) 29 2036 6199

www.capita.co.uk

	A4119 ELY VALLEY ROAD DUALLING	Amount
	Description	**Amount**
	Page : 1: PRELIMINARIES	see below
	Page : 2: SITE CLEARANCE	£37,832.70
	Page : 3: FENCING	£54,490.00
	Page : 4: ROAD RESTRAINTS	£112,227.50
	Page : 5: DRAINAGE	£290,639.39
	Page : 6: EARTHWORKS	£880,790.90
	Page : 7: PAVEMENTS	£1,198,526.00
	Page : 8: KERBS AND FOOTWAYS	£332,494.00
	Page : 9: TRAFFIC SIGNS AND ROAD MARKINGS	£15,021.29
	Page : 10: ROAD LIGHTING COLUMNS	£57,456.00
	Page : 11: ELECTRICAL WORK FOR ROAD LIGHTING	£50,921.00
	Page : 12: STRUCTURAL CONCRETE	£372,600.00
	Page : 13: LANDSCAPE AND ECOLOGY	£99,790.80
	Sub Total - Measured works (excluding the sections listed below)	**£3,502,789.58**
	Preliminaries (Allowance)	£750,000.00
	Traffic management (Allowance	£876,000.00
	Accommodation works (Allowance)	£175,000.00
	Statutory Undertakers (allowance)	£519,057.77
	Night time working on 10% of pavement	£119,852.60
	Sub Total (excluding contingency and optimism bias)	**£5,942,699.95**
	Add optimism bias at 44%	£2,614,787.98
	Sub Total (Main works and OB)	£8,557,487.93
	Land Costs	£78,000.00
	Design Fee - Stage Gate 1 (Feasibility)	£33,492.00
	Stage gate 2 - Preliminary Design / Planning (Inc PD Role)	£143,906.00
	Stage Gate 3 - Detailed Design	£95,000.00
	Stage Gate 4 - CPO/ Precon	£50,000.00
	Stage Gate 5 - Construction Supervision	£160,000.00
	Estimated 3rd Party Survey costs	£79,000.00
	Estimated 3rd Party costs : solicitors, cpo , advertising etc	£40,000.00
	Risk - See Scheme Risk Register	£366,500.00
	Total scheme cost	**£9,603,385.93**

Ref	Description	Unit	Qty	Rate	Amount
	PRELIMINARIES **PRELIMINARIES** See Summary				
	Page : 1			To Summary	

Ref	Description	Unit	Qty	Rate	Amount
	SITE CLEARANCE				
	General site clearance carriageways	ha	0.94	500.00	£468.00
	General site clearance heavily density wooded	ha	1.30	2500.00	£3,250.00
	General site clearance; open field	ha	2.01	1000.00	£2,014.00
	TAKE UP OR DOWN AND SET ASIDE FOR REUSE OR REMOVE TO STORE OR TIP OFF SITE				
	Take up or down and remove to tip off Site precast concrete kerbs	m	2600.00	4.00	£10,400.00
	Take up or down and remove to tip off site concrete edgings	m	2600.00	4.00	£10,400.00
	Take up or down and remove to tip off Site gully grating and frame	no	17.00	20.00	£340.00
	Take up or down and remove to top off site lighting column, high	no	30.00	200.00	£6,000.00
	Take up or down and remove to tip off Site double sided corrugated beam	m	102.14	5.00	£510.70
	Take up or down and remove to tip off Site mh cover and frame	no	10.00	25.00	£250.00
	take up or down wire fence (allow 500m)	m	500.00	4.00	£2,000.00
	Take up or down feeder pillar	no	1.00	200.00	£200.00
	take up or down signs and post (rogue)	no	14.00	80.00	£1,120.00
	take up or down signs and post (rogue) 5m2	n	3.00	160.00	£480.00
	Take up or down telegraph pole	no	4.00	200.00	£400.00
	Page : 2			To Summary	£37,832.70

Ref	Description	Unit	Qty	Rate	Amount
	FENCING				
	FENCING, GATES AND STILES				
	Temporary fence	m	2600.00	7.75	£20,150.00
	Post and rail fence (allow 1300m)	m	1300.00	23.30	£30,290.00
	Excavation in hard material	m3	30.00	135.00	£4,050.00
	Page : 3			To Summary	£54,490.00

Ref	Description	Unit	Qty	Rate	Amount
	ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN)				
	PEDESTRIAN PARAPETS, GUARDRAILS AND HANDRAILS				
*	Double sided corrugated beam (c/reserve)	m	1,300.00	73.33	£95,322.50
	Terminals	no	5.00	3381.00	£16,905.00
	open box beam	no	0.00	50.00	£0.00
	Page : 4			To Summary	£112,227.50

Ref	Description	Unit	Qty	Rate	Amount
	<u>DRAINAGE AND SERVICE DUCTS</u>				
	<u>DRAINS AND SERVICE DUCTS (EXCLUDING FILTER DRAINS, NARROW FILTER DRAINS AND FIN DRAINS)</u>				
	225 mm internal diameter drain not exceeding 2 metres average depth to invert 1.500 metres	m	2600.00	72.00	£187,200.00
	150 mm internal diameter drain not exceeding 2 metres average depth to invert 0.75 metres	m	264.00	63.00	£16,632.00
	<u>CHAMBERS AND GULLIES</u>				
	Chamber	no	33	1819.57	£59,136.03
	Precast concrete trapped gully with D400 cover and cover and frame	no	132.00	197.08	£26,014.56
	<u>EXCAVATION IN HARD MATERIAL</u>				
	Extra over any item of drainage for excavation in hard material	m3	40.00	41.42	£1,656.80
	culverts (not included)				
				To Summary	£290,639.39

Ref	Description	Unit	Qty	Rate	Amount
	EARTHWORKS				
	EXCAVATION				
	Excavation of acceptable material	m3	37,179.81	£3.00	£111,539.43
	Excavation of unacceptable	m3	2,456.19	£3.00	£7,368.57
	EXCAVATION IN HARD MATERIAL				
	Extra over excavation for excavation in hard material in cutting and other excavation	m3	2,456.19	£8.00	£19,649.52
	DEPOSITION OF FILL				
	Deposition of acceptable material	m3	6,123.00	£3.00	£18,369.00
	Compaction of acceptable material	m3	6,123.00	£0.50	£3,061.50
	DISPOSAL OF MATERIAL				
	Disposal of acceptable material	m3	37,179.81	£18.00	£669,236.58
	Disposal of unacceptable material Class U1B	m3	2,456.19	£20.00	£49,123.80
	COMPLETION OF FORMATION AND SUBFORMATION				
	Completion of formation on acceptable material (6.0315)	m2	24,425.00	£0.10	£2,442.50
					£0.00
	Page : 6			To Summary	£880,790.90

Ref	Description	Unit	Qty	Rate	Amount
	PAVEMENTS				
	SUB-BASE				
	Type 1 sub-base in carriageway hardshoulder and hardstrip	m3	4,262.00	24.00	£102,288.00
	PAVEMENT				
	AC 32 HDM BIN 40/60 REC with 32 mm aggregate base course 170 mm thick in carriageway hardshoulder and hardstrip	m2	21,310.00	29.00	£617,990.00
	AC 20 HDM BIN 40/60 REC with 20 mm aggregate bindercourse 60 mm thick in carriageway hardshoulder and hardstrip	m2	21,310.00	10.80	£230,148.00
	Surface course comprising AC 10 close surf 100/150 des with min PSV55, 40mm thick (BS EN 13108-4: PD 6691 Annex C).	m2	21,310.00	10.00	£213,100.00
	Bus Stops				
	Allowance for Bus Stops	No	2.00	17500.00	£35,000.00
				To Summary	£1,198,526.00

Ref	Description	Unit	Qty	Rate	Amount
	KERBS AND FOOTWAYS				
	kerbs central reserve	m	2984	20.00	£59,680.00
	Kerbs on footway	m	2714	20.00	£54,280.00
	Edgings	m	2714	11.00	£29,854.00
	Paved area in central reserve	m2	3115	17.00	£52,955.00
	Footway	m2	5429	25.00	£135,725.00
	Page : 8			To Summary	£332,494.00

Ref	Description	Unit	Qty	Rate	Amount
	TRAFFIC SIGNS AND ROAD MARKINGS (Cont'd)				
	Lit signs med	no	12.00	380.00	£4,560.00
	lit signs large	no	4.00	1580.00	£6,320.00
	ROAD MARKINGS				
	Intermittent lines	no	1742.00	0.63	£1,097.46
	ROAD STUDS				
	Road studs	no	290	10.50	£3,043.83

To Summary £15,021.29

Ref	Description	Unit	Qty	Rate	Amount
	ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS				
	ROAD LIGHTING COLUMNS AND BRACKETS, WALL MOUNTINGS, CCTV MASTS AND CANTILEVER MASTS				
	Aluminium road lighting column of 12 m nominal height with planted base and with single bracket arm having a projection of 1.0 m	no	42.00	1368.00	£57,456.00
	Page : 10			To Summary	£57,456.00

Ref	Description	Unit	Qty	Rate	Amount
	ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGN				
	TRENCH FOR CABLE OR DUCT				
	Trench for duct not exceeding 300 mm wide depth not exceeding 1.5 metres in cariageways, footways and paved areas	m	2600.00	14.00	£36,400.00
	CABLE AND DUCT				
	6mm2 3 core XLPE/SWA/XLPE cable in duct (14.0125)	m	2706.0	3.50	£9,471.00
	CABLE JOINTS AND TERMINATIONS				
	Single way cut out termination to 6mm2 3 core XLPE/SWA/XLPE cable in lighting columns	no	53.00	50.00	£2,650.00
	Feeder pillar	no	4.00	600.00	£2,400.00
				To Summary	£50,921.00

Ref	Description	Unit	Qty	Rate	Amount
	STRUCTURAL CONCRETE				
	reinforced concrete retaining wall	m2	540.00	690.00	£372,600.00
	Page : 12			To Summary	£372,600.00

Ref	Description	Unit	Qty	Rate	Amount
	LANDSCAPING AND ECOLOGY				
	Hedges	m	2600.00	£4.21	£10,946.00
	tree plants	no	1000.00	£30.00	£30,000.00
	subsoil treatment to surfaces <10	m2	5429.00	£0.40	£2,171.60
	final prep of soils<10	m2	5429.00	£0.25	£1,357.25
	final cult of soils<10	m2	5429.00	£0.25	£1,357.25
	grass seeding<10	m2	5429.00	£0.40	£2,171.60
	subsoil treatment to surfaces >10	m2	9067.00	£0.40	£3,626.80
	final prep of soils<10	m2	9067.00	£0.25	£2,266.75
	final cult of soils>10	m2	9067.00	£0.25	£2,266.75
	grass seeding<10	m2	9067.00	£0.40	£3,626.80
	Ecology Mitigation Measures (allow additional)	Sum			£40,000.00
	Page : 13			To Summary	£99,790.80

Appendix G - Stage 2 Brief and Commissioning Document.

Capita Property and Infrastructure Ltd
St David's House
Pascal Close
St Mellons
Cardiff
CF3 0LW

Tel +44 (0) 29 2080 3500
Fax+44 (0) 29 2036 6199

www.capita.co.uk

CAPITA

A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

Briefing and Commissioning Document

DRAFT

Capita Property & Infrastructure

Date: 01 August 2016

We | Listen Create Deliver

Contents

CAPITA
GLAMORGAN CONSULTANCY

Project Charter for Briefs

1. All Client instructions / Service Agreements should have a Brief which covers the essentials.

2. The essentials are to be set out in a standard pro forma template (the must haves).

3. The Brief must be discussed and agreed between both parties (signed).

4. Works cannot be expected to start without an agreed Brief or an Interim Service Agreement

5. The preparation of the Brief is a chargeable project cost

6. The Brief always includes an initial costed risk register

7. The Brief shall be jointly assessed (client & consultant) as a Quality KPI

Bridgend CBC

Merthyr Tydfil CBC

Rhondda Cynon Taf CBC

Capita Glamorgan

Merthyr Tydfil County Borough Council

STRONG HERITAGE | STRONG FUTURE
RHONDDA CYNON TAF
TREFTADAETH GADARN | DYFODOL SICR

CAPITA SYMONDS
successful people, projects and performance

CAPITA

Commissioning Details
Section 1

Provider:	Mr Lee Selway	**Client:**	Lindsay Gauntlett
Address:	Capita Property and infrastructure Capita, St Davids House, Pascal Close, St Mellons, CF3 0LW	**Address**	Rhondda Cynon Taf County Borough Council Sardis House, Sardis Road, Pontypridd, CF37 1DU

Project / Service Details

Scheme Title:	A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning	**Scheme Ref:**	GC/002498
Location:	**A4119 between Coed Ely Roundabout and Fire Station Roundabout**	**Date:**	01/08/2016

Terms of Engagement (Contract Type - NEC3, ACE, Other)	**Budget Estimate**	**Fee Proposal**	**DRAFT**	**FINAL**
JV NEC Contract	✓		✓	

Description / Scope (including requirements, objectives and quality criteria for product or service)

This Brief and Commissioning document allows for the anticipated professional services for the **preliminary design and submission of a planning application** of the proposed dualling of the A4119 at Coed Ely. The scope of services has been derived from the initial feasibility design undertaken and includes for;
- Highways and Infrastructure Design - Preliminary highways design to submission of the planning application
- Ecology – Ecology surveys and reporting necessary for planning
- Geotechnical design and supervision of geotechnical site investigation
- Initial structures design and assessment
- Supplementary transportation assessments
- Land matters – preparation of land and CPO plans
- Updating the cost estimates
- Submission of the planning application.

For a detailed breakdown of service, please see attached Cost Time and Resource schedules in section 3.

NOTE: The Stage Gate 2 design fee allows for the 'Do Minimum' in order to gain planning permission. It excludes detailed design and there is a risk that the successful grant of permission may attract additional conditions that will need to be discharged as part of the next phase. This is a time charged fee proposal and the actual hours worked will be charged. The fee may increase or decrease.

Client Supplied Data:
note that unless specifically accounted for in the estimate, this information is assumed to be correct and will not be checked

1	Licenses to enter land for ecological , geotechnical, topographical surveys etc (Mid October)
2	
3	
4	
5	

	Commission Stages / Activities	**Fee Basis**	**Value**
1	Highways and Infrastructure	Time	£41,900
2	Ecology and Enviro	Time	£28,659
3	Geotechnical	Time	£30,739
4	Structures	Time	£11,301
5	Transportation	Time	£14,415
6	CPO and Land	Time	£6,760
7	Planning Application	Time	£8,406
8	Cost Estimate	Time	£1,727
9		Time	
10		Time	
		FEE ESTIMATE	**£143,906**

	External Services Procured Directly By Client		
1	Topographical Survey ** Estimated***		£15,000
2	GI **Estimated**		£50,000
3	CCTV Drainage Survey *** Estimated - Network is currently unknown***		£8,000
4	Traffic Surveys		£6,000
		EXTERNAL SERVICES ESTIMATE	**£79,000**

Risk Allocations (From Initial Risk Register)		**High Risk**	**Risk Estimate**
Refer to Initial risk register on page 3 for details	**RISK ESTIMATE**	**£165,000**	**£38,750**

Client's Suggested Budget Allocation		**Total**
This includes for the estimated consultancy fee, external services procured directly by the client and the design risk premium	**TOTAL ESTIMATE**	**£261,656**

Above details agreed

Provider:	**Capita Property and infrastructure**	**Client:**	**Rhondda Cynon Taf County Borough Council**
Project Manager:	Mr Lee Selway	Main Contact:	Lindsay Gauntlett
Signed:		Signed:	
Date:		Date:	
Project Director:	Mr Andrew Flook	Approving Officer:	Andrew Griffiths
Signed:		Signed:	
Date:		Date:	

NOTES: **Any Changes to the Brief will be communicated through and managed by the Client Main Contact and Capita Glamorgan Project Manager**

CAPITA

Commissioning Details
Section 2

Project / Service Details	
Title:	A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning
Stage:	

	Deliverables/Tasks:
1	Preliminary drawings
2	Design and Access Statement
3	EIA Screening
4	Ecology Reports to supplement planning
5	Cost Estimate
6	
7	
8	
9	
10	

	Constraints / Targets (Cost / Programme):
1	Survey dates - These will be added to the programme. We will need the necessary licences in place prior to any surveys
2	
3	
4	
5	
6	
7	
8	
9	
10	

	Key Programme Dates:
1	See attached Programe
2	
3	
4	
5	
6	
7	
8	
9	
10	

	Exclusions / Assumptions:
1	Detailed design excluded
2	It is assumed that RCT willl organise the necessary access to land for surveys
3	Assumed EIA will not be required
4	Assumed all third party work/costs will be instructed by RCT
5	No allowance made for planning queries, a separate comm doc will be provided for - Stage Gate 3 Submission of Planning - Detailed design
6	
7	
8	
9	
10	
11	

CAPITA

Commissioning Details
Section 3

Client Key Personnel

Name	Organisation	Role	Tel No.
Lindsay Gauntlett	Rhondda Cynon Taf County Borough Council		
Andrew Griffiths	Rhondda Cynon Taf County Borough Council		

Client Personnel Notes:

Key Resources

Name		Role	Tel No.
Mr Andrew Flook	Capita Property and infrastructure	Cost Centre Manager	02920 803650
Mr Lee Selway	Capita Property and infrastructure	Associate	02920 803642
Mr Neil Morris	Capita Property and infrastructure	Principal Engineer	02920 803653
Mr Craig Fletcher	Capita Property and infrastructure	Engineer	
Mrs Julie Stacey	Capita Property and infrastructure	Senior Technician	
Miss Gemma Bilenki	Capita Property and infrastructure	Tech Admin	02920 803633
Mr Stuart Warburton	Capita Property and infrastructure	Apprentice Engineer	
Mr Mark Bray	Capita Property and infrastructure	Business Manager	02920 803607
Miss Holly Lewis	Capita Property and infrastructure	Senior Ecologist	

Resources Notes:

Use of Other Capita Offices / Sub Consultants / Specialist Advisors

Organisation	Role
None	

Risk Register and Allocation (Risks relating to delivery of this service) - THESE ARE NOT PROJECT RISKS SEE RISK REGISETR

Ref	Risk Description	Estimate	Probability	Risk Premium
1	Scope Creep - This depends on the results from the surveys	£10,000.00	50%	£5,000
2	Utility Diversions Required - Additional (Re design work fee only)	£20,000.00	50%	£10,000
3	Additional GI costs Supervision Costs - Main works included within the scheme risk register	£5,000.00	75%	£3,750
4	Additional surveys (Ecology) - Potential for additional surveys after initial scoping	£20,000.00	50%	£10,000
5	EIA required after results of screening	£100,000.00	5%	£5,000
6	Supervision of GI by Ecology team	£10,000.00	50%	£5,000
7				£0
8				£0
9				£0
10				£0
Suggested Client Risk Allowance	**HIGH:**	**£165,000.00**	**RISK EST:**	**£38,750**

CAPITA

Commissioning Details
Section 4

1. CONTRACT DATA

1.1 Part one – Data provided by the *Employer*

1. General

- The conditions of contract are the core clauses and the clauses for main Option **A** dispute resolution Option **W2** and secondary Options **X2, Y(UK)2, Y(UK)3** of the NEC3 Professional Services Contract June 2005 (with amendments June 2006 and September 2011).
- The Employer is :

  Name: Rhondda Cynon Taf County Borough Council

  Address: Sardis House, Sardis Road, Pontypridd, CF37 1DU
- The ***Adjudicator*** is **to be nominated**
- The services are **those set out [within Section 1 & 2] of these Commission Details.**
- The Scope is **set out [within Section 1 & 2] of these Commission Details.**
- The language of this contract is **English**
- The law of the contract is the law of **England and Wales, as it applies in Wales and subject to the jurisdiction of the Courts of England and Wales.**
- The period for reply is **2** weeks.
- The period for retention is **6** years following Completion or earlier termination.
- The Adjudicator nominating body is **The Institution of Civil Engineers.**
- The tribunal is **Litigation.**
- The following matters will be included in the Risk Register:
- **In addition to the risks contained within the Risk Register on Section 3 of the Commission Details); further matters may be discussed, agreed and incorporated.**

2. The Parties' main responsibilities

- The Employer provides access to the following persons, places and things:

  Access To:

  Access Date:

3. Time

- The starting date is Within **[seven days] of agreement of the SSCA.**
- The Consultant submits revised programmes at intervals no longer than a calendar month

4. Quality

- The quality policy statement and quality plan are provided within [2 weeks] of the Contract Date.
- The defects date is 52 weeks after Completion of the whole of the services.

5. Payment

- The assessment interval is **a calendar month**
- The currency of this contract is pounds sterling
- The interest rate is 8% per annum above the base lending rate of the Bank of England.
- The amounts of insurance and the periods for which the Consultant maintains insurance are

6. Indemnity, insurance and liability

Event	**Cover**	**Period following Completion of the whole of the services or earlier termination**
Failure of the Consultant to use the skill and care normally used by professionals providing services similar to the services	**£5,000,000** in respect of each claim and in the aggregate.	**6 Years**
Death of or bodily injury to a person (not an employee of the Consultant) or loss of or damage to property resulting from an action or failure to take action by the Consultant	**£10,000,000** in respect of each claim, without limit to the number of claims	**6 Years**
Death of or bodily injury to employees of the Consultant arising out of and in the course of their employment in connection with this contract	**£10,000,000** in respect of each claim, without limit to the number of claims	**6 Years**

- The Employer provides the following insurances **None**
- The Consultant's total liability to the Employer for all matters arising under or in connection with this contract, other than the excluded matters, is limited to the **lesser** of: a) 10 times the value of the fee (as set out on page 1 of the Commissioning Details) or b) **£10,000,000**.

1.2 Part two - Data provided by the *Consultant*

Statements given in all contracts

The Consultant is:

- Name : Capita Property and infrastructure
- Address: Capita, St Davids House, Pascal Close, St Mellons, CF3 0LW

- The key persons are:

1 Name: Mr Andrew Flook
Job Title: Associate Director
Responsibilities: Project Director as stated in scope
Qualifications: BEng CEng MICE FCIHT

2 Name: Mr Lee Selway
Job Title: Associate
Responsibilities: Project Manager
Qualifications: I.Eng FIHE IMaPS

- The following matters will be included in the Risk Register

In addition to the risks contained within the Risk Register on Page 3 of the Commission Details); further matters may be discussed, agreed and incorporated.

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A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

GC/002498

Cost, Time and Resource Schedule - PM and Highways

Date : 01/08/2016
Project Fee Basis : Time

Cardiff PM : Mr Lee Selway
Tel : 02920 803642
Email : lee.selway@capita.co.uk

Client PM : Lindsay Gauntlett
Tel : 01443 494829
Email : lindsay.a.gauntlett@rhondda-cynon-taff.gov.uk

Number	Staff Name	Cost Centre	Job Title	Discipline
1	Mr Andrew Flook	ZCGC	Cost Centre Manager	Infrastructure
2	Mr Lee Selway	ZCGC	Associate	Infrastructure
3	Mr Neil Morris	ZCGC	Principal Engineer	Infrastructure
4	Mr Craig Fletcher	ZCGC	Engineer	Infrastructure
5	Mrs Julie Stacey	ZCGC	Senior Technician	Infrastructure
6	Miss Gemma Bilenki	ZCGC	Tech Admin	Ecology
7	Mr Stuart Warburton	ZCGC	Apprentice Engineer	Infrastructure
8	Mr Mark Bray	ZCGC	Business Manager	Street Lighting
9	Mr Wayne Palmer	ZCGC	Associate Director	Infrastructure
10				
11				
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* • DON'T DELETE ROWS – simply hide the ones that you are not going to use.

WBS	Activity	Staff Hours															Staff Revenue	3rd Party Costs (Manual)	Total Revenue	Start Month (Manual)	End Month (Manual)	Duration (Months)	Additional Comments
	Staff Labour - normal hours	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15							
GC/002498	**A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning**																**£41,899.56**	**£0.00**	**£41,899.56**	**Jul-16**	**Jul-16**	**1**	
		Mr Andrew Flook	Mr Lee Selway	Mr Neil Morris	Mr Craig Fletcher	Mrs Julie Stacey	Miss Gemma Bilenk	Mr Stuart Warburto	Mr Mark Bray	Mr Wayne Palmer												
1	**Project Management, Governance and Reporting**																**£15,293.82**	**£0.00**	**£15,293.82**	**Jul-16**	**Jul-16**	**1**	
	Brief development and evaluation	4	6		4		2			5							£1,294.36		£1,294.36	Jul-16	Jul-16	1	
	Project Management, forecasting, invoicing, financial reporting	15	60		100		10										£10,252.82		£10,252.82			1	LS -PM allow 0.5day per week over 8mnths CF APM - 1 day per wk
	Meetings		32		32												£3,746.65		£3,746.65			1	Allow 0.5 days per mnth
2	**Land Access and Surveys**																**£3,941.07**	**£0.00**	**£3,941.07**	**Jul-16**	**Jul-16**	**1**	
	Prepare licence plans for entry onto land for surveys				20	2		40									£1,585.45		£1,585.45	Jul-16	Jul-16	1	
	Preparation of contract document for topo survey		5		20												£1,294.35		£1,294.35			1	
	Let tender and tender asessment					16											£653.09		£653.09			1	
	Survey review					10											£408.18		£408.18			1	
3	**Prelim Highways Design**																**£19,270.31**	**£0.00**	**£19,270.31**	**Jul-16**	**Jul-16**	**1**	
	Geometric design		10	40	40	100		40									£9,592.19		£9,592.19	Jul-16	Jul-16	1	
	Fencing and VRS				37												£1,748.72		£1,748.72			1	
	Drainage				50												£2,363.14		£2,363.14			1	
	Pavement				10												£472.63		£472.63			1	
	signing and lining					20		30									£1,235.28		£1,235.28			1	
	Client liaison		4		8												£657.38		£657.38			1	
	streetlighting							20	30								£2,116.08		£2,116.08			1	
	Stats liaison				20			10									£1,084.89		£1,084.89			1	
4	**Preliminary Design Drawings**																**£3,394.36**	**£0.00**	**£3,394.36**	**Jul-16**	**Jul-16**	**1**	
	Preparation of drawings						15	40									£993.63		£993.63	Jul-16	Jul-16	1	Assume 10 layout drawings will be required for planning
	Checking		5						5	20							£2,051.63		£2,051.63			1	
	Approval	5															£349.10		£349.10			1	
																						1	
																						1	
5	**Activity 5**																**£0.00**	**£0.00**	**£0.00**	**Jul-16**	**Jul-16**	**1**	
6	**Activity 6**																**£0.00**	**£0.00**	**£0.00**	**Jul-16**	**Jul-16**	**1**	
																				Jul-16	Jul-16	1	
																						1	
7	**Activity 7**																**£0.00**	**£0.00**	**£0.00**	**Jul-16**	**Jul-16**	**1**	
																				Jul-16	Jul-16	1	
8	**Activity 8**																**£0.00**	**£0.00**	**£0.00**	**Jul-16**	**Jul-16**	**1**	
																				Jul-16	Jul-16	1	
9	**Activity 9**																**£0.00**	**£0.00**	**£0.00**	**Jul-16**	**Jul-16**	**1**	
																				Jul-16	Jul-16	1	
10	**Activity 10**																**£0.00**	**£0.00**	**£0.00**	**Jul-16**	**Jul-16**	**1**	
																				Jul-16	Jul-16	1	
	Totals	**24**	**122**	**40**	**341**	**148**	**27**	**180**	**35**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**£41,899.56**	**£0.00**	**£41,899.56**				
																TOTAL REVENUE	**£41,900**						

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CAPITA

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A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

GC/002498

Cost, Time and Resource Schedule - Ecology

Date : 01/08/2016
Project Fee Basis : Time

Cardiff PM : Mr Lee Selway
Tel : 02920 803642
Email : lee.selway@capita.co.uk

Client PM : Lindsay Gauntlett
Tel : 01443 494829
Email : lindsay.a.gauntlett@rhondda-cynon-taff.gov.uk

Number	Staff Name	Cost Centre	Job Title	Discipline
1	Mr Geraint Pitman	ZCHI	Associate Director	Ecology & Environment
2	Miss Holly Lewis	ZCGC	Senior Ecologist	Ecology
3	Mr Neil Price	ZCGC	Senior Ecologist	Ecology
4	Ms Megan Price	ZCGC	Ecologist (agency zero hours)	Ecology
5	Mrs Rebecca Howells	ZCGC	Ecologist	Ecology
6	Miss Gemma Bilenki	ZCGC	Tech Admin	Ecology
7	Dr Richard Birch	ZBNI	Principal Ecologist	Ecology & Countryside
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* • DON'T DELETE ROWS – simply hide the ones that you are not going to use.

WBS	Activity	Staff Hours															Staff Revenue	3rd Party Costs (Manual)	Total Revenue	Start Month (Manual)	End Month (Manual)	Duration (Months)	Additional Comments
	Staff Labour - normal hours	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15							
GC/002498	A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning																£27,678.56	£980.00	£28,658.56	Mar-16	Nov-16	9	
		Mr Geraint Pitman	Miss Holly Lewis	Mr Neil Price	Ms Megan Price	Mrs Rebecca Howel	Miss Gemma Bilenk	Dr Richard Birch															
1	Task Management, Governance and Reporting																£986.35	£0.00	£986.35	Jul-16	Jul-16	1	
	Brief development and evaluation		4														£189.05		£189.05	Jul-16	Jul-16	1	
	Task Management, forecasting, invoicing, financial reporting	2	6														£419.19		£419.19			1	
	Meetings		8														£378.10		£378.10			1	
2	Bat Surveys																£12,181.99	£220.00	£12,401.99	Apr-16	Sep-16	6	
	Actiity surveys - 2 visits per month (5 months, 2 transects - 4 people)		60	60	60	60	8										£9,641.62	£200.00	£9,841.62	May-16	Sep-16	5	
	static anabat placement and replacement			10	10												£784.13		£784.13	May-16	Sep-16	5	
	data analysis				37.5												£1,168.14		£1,168.14	May-16	Sep-16	5	
	Bat Roost Assessment			7.5		7.5											£588.10	£20.00	£608.10	Apr-16	Apr-16	1	
																						1	
3	Dormouse surveys																£784.13	£580.00	£1,364.13	Mar-16	Nov-16	9	
	Habitat suitability search (Hazelnut)		10		10												£784.13	£40.00	£824.13	Mar-16	Mar-16	1	
4	Reptile survey																£1,584.91	£120.00	£1,704.91	Apr-16	Sep-16	6	
	Survey x 7 and setting out tins				16	16											£996.81	£60.00	£1,056.81	May-16	Sep-16	5	
	order reptile tins																	£60.00	£60.00	Apr-16	Apr-16	1	
	Otter Surveys		7.5			7.5											£588.10		£588.10			1	
5	Arboricultural Surveys																£3,049.99	£20.00	£3,069.99	Jun-16	Jul-16	2	
	Site Visit		7.5					7.5									£686.75	£20.00	£706.75	Jun-16	Jul-16	2	
	Preparation of plans						10										£290.04		£290.04			1	
	Reporting							40									£1,772.16		£1,772.16			1	
6	Invasive species mapping																£588.10	£20.00	£608.10	Jun-16	Jul-16	2	
			7.5			7.5											£588.10	£20.00	£608.10	Jun-16	Jul-16	2	
7	SINC Consultation & Scoping withCounty Ecologist																£189.05	£0.00	£189.05	Jun-16	Jul-16	2	
			4														£189.05		£189.05	Jun-16	Jul-16	2	
8	Badger survey																£588.10	£20.00	£608.10	Mar-16	Apr-16	2	
				7.5	7.5												£588.10	£20.00	£608.10	Mar-16	Apr-16	2	
9	Reports																£6,747.10	£0.00	£6,747.10	Mar-16	Nov-16	9	
	Bat Roost Assessment Report	1		2	22.5		4										£979.24		£979.24	Mar-16	Nov-16	9	
	Bat Activity Survey Report	1		2	37.5		8										£1,562.51		£1,562.51	Mar-16	Nov-16	9	
	Otter Report	1			16		4										£682.23		£682.23	Mar-16	Nov-16	9	
	Dormouse Report	1	37.5				4										£1,956.18		£1,956.18	Mar-16	Nov-16	9	
	Invasive Species Report	1			16		4										£682.23		£682.23	Mar-16	Nov-16	9	
	Badger Report	1			22.5		4										£884.71		£884.71	Mar-16	Nov-16	9	
10	EIA Screening																£978.83	£0.00	£978.83	Mar-16	Nov-16	9	
	Produce Screening Report for agreement of planning authority	2	16				3										£978.83		£978.83	Mar-16	Nov-16	9	
																						1	
																						1	
Totals		12	171.5	89	255.5	98.5	49	47.5	0	0	0	0	0	0	0	0	£27,678.56	£980.00	£28,658.56				
															TOTAL REVENUE		£28,659						

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A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

GC/002498

Cost, Time and Resource Schedule - Geotech

Date : 01/08/2016
Project Fee Basis : Time

Cardiff PM : Mr Lee Selway
Tel : 02920 803642
Email : lee.selway@capita.co.uk

Client PM : Lindsay Gauntlett
Tel : 01443 494829
Email : lindsay.a.gauntlett@rhondda-cynon-taff.gov.uk

Number	Staff Name	Cost Centre	Job Title	Discipline
1	Mr Andrew Hale	ZCEN	Technical Director	Geotechnics
2	Mr Graham Butt	ZCEN	Associate	Geotechnics
3	Mr Levent Dogan	ZCEN	Senior Engineer	Geotechnics
4	Mr Gareth Williams	ZCEN	Assistant Engineer	Geotechnics
5	Mr Kristian Mackerness	ZCEN	Graduate Engineer	Structures
6	Mr Liam Bailey	ZCEN	Technician	Structures
7	Miss Natalie Pyatt	ZCHI	IST	Integrated Services Team
8				
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WBS	Activity	Staff Hours															Staff Revenue	Manual 3rd Party Costs	Total Revenue	Manual Start Month	Manual End Month	Duration (Months)	Additional Comments
	Staff Labour - normal hours	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15							
GC/002498	A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning																£29,238.61	£1,500.00	£30,738.61	Jul-16	Jul-16	1	
		Mr Andrew Hale	Mr Graham Butt	Mr Levent Dogan	Mr Gareth Williams	Mr Kristian Mackern	Mr Liam Bailey	Miss Natalie Pyatt															
1	PSSR																£8,882.29	£1,500.00	£10,382.29	Jul-16	Jul-16	1	
	Task Management	2	3		2												£389.70		£389.70	Jul-16	Jul-16	1	
	Review Existing Information	1	2	8	2												£549.97		£549.97			1	
	Engineerining Assessment of earthworks		6	10	30												£1,831.55		£1,831.55			1	
	GRR		6		8												£650.05		£650.05			1	
	3rd Party Reports Envirocheck , mining reports etc					8											£239.49	£1,500.00	£1,739.49			1	
	Prepare report			40	33	20		40									£4,307.46		£4,307.46			1	
	Outline drawings				5	10	30										£914.08		£914.08			1	
2	GIR																£14,402.72	£0.00	£14,402.72	Jul-16	Jul-16	1	
	Procure geotechnical investigation	5		10	30			10									£2,086.96		£2,086.96	Jul-16	Jul-16	1	
	Task management		2	2	15												£748.99		£748.99			1	
	HD22 Gir		20	48	60	60	20	25									£7,870.03		£7,870.03			1	
	Lab schedules		3														£175.78		£175.78			1	
	Ground Modelling		10	40	40												£3,520.96		£3,520.96			1	
3	Site supervision																£5,953.60	£0.00	£5,953.60	Jul-16	Jul-16	1	
	Supervision of GI and contract management	15	10		100	15	10										£5,953.60		£5,953.60	Jul-16	Jul-16	1	
																						1	
4	Activity 4																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
																						1	
5	Activity 5																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
6	Activity 6																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
7	Activity 7																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
8	Activity 8																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
9	Activity 9																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
10	Activity 10																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
	Totals	23	62	158	325	113	60	75	0	0	0	0	0	0	0	0	£29,238.61	£1,500.00	£30,738.61				
																TOTAL REVENUE	£30,739						

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A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

GC/002498

Cost, Time and Resource Schedule - Structures

Date : 01/08/2016
Project Fee Basis : Time

Cardiff PM : Mr Lee Selway
Tel : 02920 803642
Email : lee.selway@capita.co.uk

Client PM : Lindsay Gauntlett
Tel : 01443 494829
Email : lindsay.a.gauntlett@rhondda-cynon-taff.gov.uk

Number	Staff Name	Cost Centre	Job Title	Discipline
1	Mr Neil Mogford	ZCEN	Cost Centre Manager	Structures
2	Mr Kevin Heard	ZCEN	Engineer	Structures
3	Mr Peter Webb	ZCEN	Graduate Engineer	Structures
4	Mr Kristian Mackerness	ZCEN	Graduate Engineer	Structures
5				
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* • DON'T DELETE ROWS – simply hide the ones that you are not going to use.

WBS	Activity / Staff Labour - normal hours	Staff Hours 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Staff Revenue	3rd Party Costs (Manual)	Total Revenue	Start Month (Manual)	End Month (Manual)	Duration (Months)	Additional Comments
GC/002498	**A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning**																£11,301.38	£0.00	£11,301.38	Jul-16	Jul-16	1	
		Mr Neil Mogford	Mr Kevin Heard	Mr Peter Webb	Mr Kristian Mackern																		
1	**Project Management, Governance and Reporting**																£1,663.94	£0.00	£1,663.94	Jul-16	Jul-16	1	
	Brief development and evaluation	2															£143.87		£143.87	Jul-16	Jul-16	1	
	Project Management, forecasting, invoicing, financial reporting	2	8														£524.03		£524.03			1	
	Meetings	4	8	8	4												£996.03		£996.03			1	
2	**Retaining Wall Chainage 400**																£3,649.98	£0.00	£3,649.98	Jul-16	Jul-16	1	
	Review information		2	4	4												£318.98		£318.98	Jul-16	Jul-16	1	
	Outline design / layout			4	16												£583.17		£583.17			1	
	Preliminary size wall		4	16													£606.85		£606.85			1	
	Production AIP	2	4	24	36												£2,036.80		£2,036.80			1	
3	**Retaining Wall Chainage 200**																£3,321.86	£0.00	£3,321.86	Jul-16	Jul-16	1	
	Review information		2	4	4												£318.98		£318.98	Jul-16	Jul-16	1	
	Outline design / layout			4	16												£583.17		£583.17			1	
	Preliminary size wall		4	16													£606.85		£606.85			1	
	Production AIP	2	4	20	32												£1,812.86		£1,812.86			1	
4	**Retainin wall at access to car sales property**																£2,665.60	£0.00	£2,665.60	Jul-16	Jul-16	1	
	Review information		2	4	4												£318.98		£318.98	Jul-16	Jul-16	1	
	Outline design / layout			4	16												£583.17		£583.17			1	
	Preliminary size wall		4	12													£502.66		£502.66			1	
	GA / Planning drawing	2	4	8	24												£1,260.80		£1,260.80			1	
																						1	
5	**Activity 5**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
6	**Activity 6**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
7	**Activity 7**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
																						1	
8	**Activity 8**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
9	**Activity 9**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
10	**Activity 10**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
	Totals	14	46	132	156	0	0	0	0	0	0	0	0	0	0	0	£11,301.38	£0.00	£11,301.38				
																	TOTAL REVENUE		**£11,301**				

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A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

GC/002498

Cost, Time and Resource Schedule - Transport

Date : 01/08/2016
Project Fee Basis : Time

Cardiff PM : Mr Lee Selway
Tel : 02920 803642
Email : lee.selway@capita.co.uk

Client PM : Lindsay Gauntlett
Tel : 01443 494829
Email : lindsay.a.gauntlett@rhondda-cynon-taff.gov.uk

Number	Staff Name	Cost Centre	Job Title	Discipline
1	Mr Daniel Davies	ZCEN	Graduate Transport Planner	Transportation
2	Mr Paul Turner	ZCEN	Principal Transport Planner	Transportation
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* • DON'T DELETE ROWS – simply hide the ones that you are not going to use.

WBS	Activity / Staff Labour - normal hours	Staff Hours 1 (Mr Daniel Davies)	2 (Mr Paul Turner)	3	4	5	6	7	8	9	10	11	12	13	14	15	Staff Revenue	3rd Party Costs (Manual)	Total Revenue	Start Month (Manual)	End Month (Manual)	Duration (Months)	Additional Comments
GC/002498	**A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning**																£14,364.67	£50.00	£14,414.67	Jul-16	Jul-16	1	
1	**Project Management, Governance and Reporting**																£1,752.77	£50.00	£1,802.77	Jul-16	Jul-16	1	
	Brief and survey specification	6	2														£311.23		£311.23	Jul-16	Jul-16	1	
	Project Management, forecasting, invoicing and reporting	10	8														£755.71		£755.71			1	
	Meetings	8	8														£685.82		£685.82			1	
	Mileage																	£50.00	£50.00			1	
2	**Survey Analysis & Site Visit**																£3,581.95	£0.00	£3,581.95	Jul-16	Jul-16	1	
	Survey analysis + Matrix development	24	8														£1,244.93		£1,244.93	Jul-16	Jul-16	1	
	Site visit	8	8														£685.82		£685.82			1	
	TrafficMaster data analysis	24	16														£1,651.20		£1,651.20			1	
3	**Model Development**																£6,444.10	£0.00	£6,444.10	Jul-16	Jul-16	1	
	Base Model Development	60	16														£2,909.18		£2,909.18	Jul-16	Jul-16	1	
	Model calibration and validation	60	16														£2,909.18		£2,909.18			1	
	Junction Modelling	15	2														£625.73		£625.73			1	
4	**Dual Carriageway Option Testing**																£2,585.86	£0.00	£2,585.86	Jul-16	Jul-16	1	
	Model development	34															£1,188.10		£1,188.10	Jul-16	Jul-16	1	
	Model testing	16															£559.10		£559.10			1	
	Report writing	24															£838.66		£838.66			1	
5	**Activity 5**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
6	**Activity 6**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																						1	
7	**Activity 7**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																						1	
8	**Activity 8**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
9	**Activity 9**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
10	**Activity 10**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
Totals		**289**	**84**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**£14,364.67**	**£50.00**	**£14,414.67**				
																	TOTAL REVENUE		**£14,415**				

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A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

GC/002498

Cost, Time and Resource Schedule - CPO and Land

Date : 01/08/2016
Project Fee Basis : Time

Cardiff PM : Mr Lee Selway
Tel : 02920 803642
Email : lee.selway@capita.co.uk

Client PM : Lindsay Gauntlett
Tel : 01443 494829
Email : lindsay.a.gauntlett@rhondda-cynon-taff.gov.uk

Number	Staff Name	Cost Centre	Job Title	Discipline
1	Mr Neil Morris	ZCGC	Principal Engineer	Infrastructure
2	Mrs Julie Stacey	ZCGC	Senior Technician	Infrastructure
3	Mr Stuart Warburton	ZCGC	Apprentice Engineer	Infrastructure
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* • DON'T DELETE ROWS – simply hide the ones that you are not going to use.

WBS	Activity	Staff Hours															Staff Revenue	Manual 3rd Party Costs	Total Revenue	Manual Start Month	Manual End Month	Duration (Months)	Additional Comments
	Staff Labour - normal hours	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15							
GC/002498	**A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning**																£6,760.18	£0.00	£6,760.18	Jul-16	Jul-16	1	
		Mr Neil Morris	Mrs Julie Stacey	Mr Stuart Warburto																			
1	**Task Management**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
	Task Management																			Jul-16	Jul-16	1	
2	**Land Interest and CPO**																£6,760.18	£0.00	£6,760.18	Jul-16	Jul-16	1	
	Prepare Land Interest Plans	22.5	20	60													£2,983.46		£2,983.46	Jul-16	Jul-16	1	Based on 18 affected propoerties
	Prepare CPO Plan	8	8	24													£1,134.31		£1,134.31			1	
	Prepare CPO Schedules	24	30														£2,642.42		£2,642.42			1	
																						1	
3	**Activity 3**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
4	**Activity 4**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
																						1	
5	**Activity 5**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
																						1	
6	**Activity 6**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
7	**Activity 7**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
8	**Activity 8**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
9	**Activity 9**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
10	**Activity 10**																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
																						1	
	Totals	54.5	58	84	0	0	0	0	0	0	0	0	0	0	0	0	£6,760.18	£0.00	£6,760.18				
																TOTAL REVENUE	**£6,760**						

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A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

GC/002498

Cost, Time and Resource Schedule - Planning

Date : 01/08/2016
Project Fee Basis : Time

Cardiff PM : Mr Lee Selway
Tel : 02920 803642
Email : lee.selway@capita.co.uk

Client PM : Lindsay Gauntlett
Tel : 01443 494829
Email : lindsay.a.gauntlett@rhondda-cynon-taff.gov.uk

Number	Staff Name	Cost Centre	Job Title	Discipline
1	Mr Lee Selway	ZCGC	Associate	Infrastructure
2	Mr Neil Morris	ZCGC	Principal Engineer	Infrastructure
3	Mr Craig Fletcher	ZCGC	Engineer	Infrastructure
4	Mr Stuart Warburton	ZCGC	Apprentice Engineer	Infrastructure
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* • DON'T DELETE ROWS – simply hide the ones that you are not going to use.

WBS	Activity	Staff Hours															Staff Revenue	Manual 3rd Party Costs	Total Revenue	Manual Start Month	Manual End Month	Duration (Months)	Additional Comments
	Staff Labour - normal hours	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15							
GC/002498	A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning																£8,406.32	£0.00	£8,406.32	Jul-16	Jul-16	1	
		Mr Lee Selway	Mr Neil Morris	Mr Craig Fletcher	Mr Stuart Warburto																		
1	Planning Application																£8,406.32	£0.00	£8,406.32	Jul-16	Jul-16	1	
	Complete Application Forms			8													£378.10		£378.10	Jul-16	Jul-16	1	
	Design and Access Statement	20	50	16													£5,106.52		£5,106.52			1	
	Prepare Planning Drawings			20	40												£1,503.81		£1,503.81			1	
	Collate Planning Supporting Information			30													£1,417.88		£1,417.88			1	
2	Activity 2																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
																						1	
3	Activity 3																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
4	Activity 4																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
5	Activity 5																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
6	Activity 6																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
7	Activity 7																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
8	Activity 8																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
9	Activity 9																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
10	Activity 10																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
Totals		20	50	74	40	0	0	0	0	0	0	0	0	0	0	0	£8,406.32	£0.00	£8,406.32				
																TOTAL REVENUE	£8,406						

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A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning

GC/002498

Cost, Time and Resource Schedule - Planning

Date : 01/08/2016
Project Fee Basis : Time

Cardiff PM : Mr Lee Selway
Tel : 02920 803642
Email : lee.selway@capita.co.uk

Client PM : Lindsay Gauntlett
Tel : 01443 494829
Email : lindsay.a.gauntlett@rhondda-cynon-taff.gov.uk

Number	Staff Name	Cost Centre	Job Title	Discipline
1	Mr Michael Asprou	ZCGC	Principal QS	Quantity Surveying
2	Mr Andrew Flook	ZCGC	Cost Centre Manager	Infrastructure
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* • DON'T DELETE ROWS – simply hide the ones that you are not going to use.

WBS	Activity	Staff Hours															Staff Revenue	3rd Party Costs (Manual)	Total Revenue	Start Month (Manual)	End Month (Manual)	Duration (Months)	Additional Comments
	Staff Labour - normal hours	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15							
GC/002498	A4119 Dualling - Coed Ely - Stage 2 Preliminary Design to Planning																£1,726.70	£0.00	£1,726.70	Jul-16	Jul-16	1	
		Mr Michael Asprou	Mr Andrew Flook																				
1	Update Cost Estimate																£1,726.70	£0.00	£1,726.70	Jul-16	Jul-16	1	
	Update Cost Estimate	22.5	5														£1,726.70		£1,726.70	Jul-16	Jul-16	1	
2	Activity 2																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
3	Activity 3																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
4	Activity 4																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
5	Activity 5																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
6	Activity 6																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
7	Activity 7																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
8	Activity 8																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
9	Activity 9																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
																						1	
																						1	
10	Activity 10																£0.00	£0.00	£0.00	Jul-16	Jul-16	1	
																				Jul-16	Jul-16	1	
																						1	
Totals		22.5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	£1,726.70	£0.00	£1,726.70				
															TOTAL REVENUE		£1,727						

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Appendix 1.2

Coedely: Impacts Assessment Report

Strategic Outline Case

Stakeholders' Workshop Report

The Stakeholders' Workshop for Llanharan was held on the morning of Wednesday 20 September, 2017 at the Rhondda Cynon Taf County Borough Council Offices at Sardis House, Pontypridd. The attendees were as follows:

Name	Organisation/Role
Andrew Griffiths	Rhondda Cynon Taf County Borough Council
Souren Zeinali	Rhondda Cynon Taf County Borough Council
Jessica Lonergan	Rhondda Cynon Taf County Borough Council
Lindsay Gauntlett	Rhondda Cynon Taf County Borough Council
Adrian Morgan	Rhondda Cynon Taf County Borough Council
Rachel Edmunds	Rhondda Cynon Taf County Borough Council
Tim Phillips	Rhondda Cynon Taf County Borough Council
Rebecca Smith	Rhondda Cynon Taf County Borough Council
Charlie Nelson	Rhondda Cynon Taf County Borough Council
Dave Afia	Rhondda Cynon Taf County Borough Council
Rhodri Griffin	Rhondda Cynon Taf County Borough Council
Simon Pritchard	Rhondda Cynon Taf County Borough Council
Anthony Richardson	Rhondda Cynon Taf County Borough Council
DM	Rhondda Cynon Taf County Borough Council
Paul Sullivan	REDSTART, Project Manager
Dave Bennett	REDSTART, Senior Engineer - facilitator
Neil Morris	REDSTART, Senior Engineer - facilitator

Aims of the Workshop

1. To determine what problems or issues there are within the Study Area, opportunities that addressing these could bring, and any constraints that may limit the ability to address the problems or issues.
2. To develop objectives that possible solutions to the problems or issues can be appraised against. These can be wide ranging but they should be specific to the problems or issues that have been identified.
3. To develop a long list of possible solutions that will seek to address the problems or issues that have been identified.
4. Following the workshop, REDSTART will take all the information gathered, and combine it with other relevant information.

WelTAG 2017

WelTAG 2017 was briefly described, including the five stages, Strategic Outline Case (Stage 1), Outline Business Case (Stage 2), Full Business Case (Stage 3), Implementation (Stage 4), and Post-Implementation (Stage 5). It was stated that the Coedely project was to be taken to the end of Stage 1, the identification of a short-list of options, followed by Stage 2 where these would be considered in greater detail.

Workshop Groups

The attendees were split into three groups for the undertaking of three tasks. The composition of the groups was as follows;

Group 1	Group 2	Group 3
Souren Zeinali	Lindsay Gauntlett	Rachel Edmunds
Jessica Lonergan	Adrian Morgan	Tim Phillips
David Afia	Rebecca Smith	Andrew Griffith
Paul Sullivan	Rhodri Griffin	Antony Richardson
Charlie Nelson	Simon Pritchard	DM

Workshop Programme

Task 1: Identification of Problems, Opportunities and Constraints within the Study Area (see below for a plan of the Study Area).

Task 2: Development of Objectives.

Task 3: Development of Solutions/Options.

Each task lasted approximately 15 minutes, which was followed by 15/20 discussion of the output from each group.

Workshop Output

Task 1: Appendix 1.3 (Worksheet 1) in this Impacts Assessment Report lists the output from all three groups from Task 1.

Task 2: Appendix 1.4 (Worksheet 2) in this Impacts Assessment Report lists the output from all three groups from Task 2.

Task 3: Appendix 1.5 (Worksheet 3) in this Impacts Assessment Report lists the output from all three groups from Task 3.

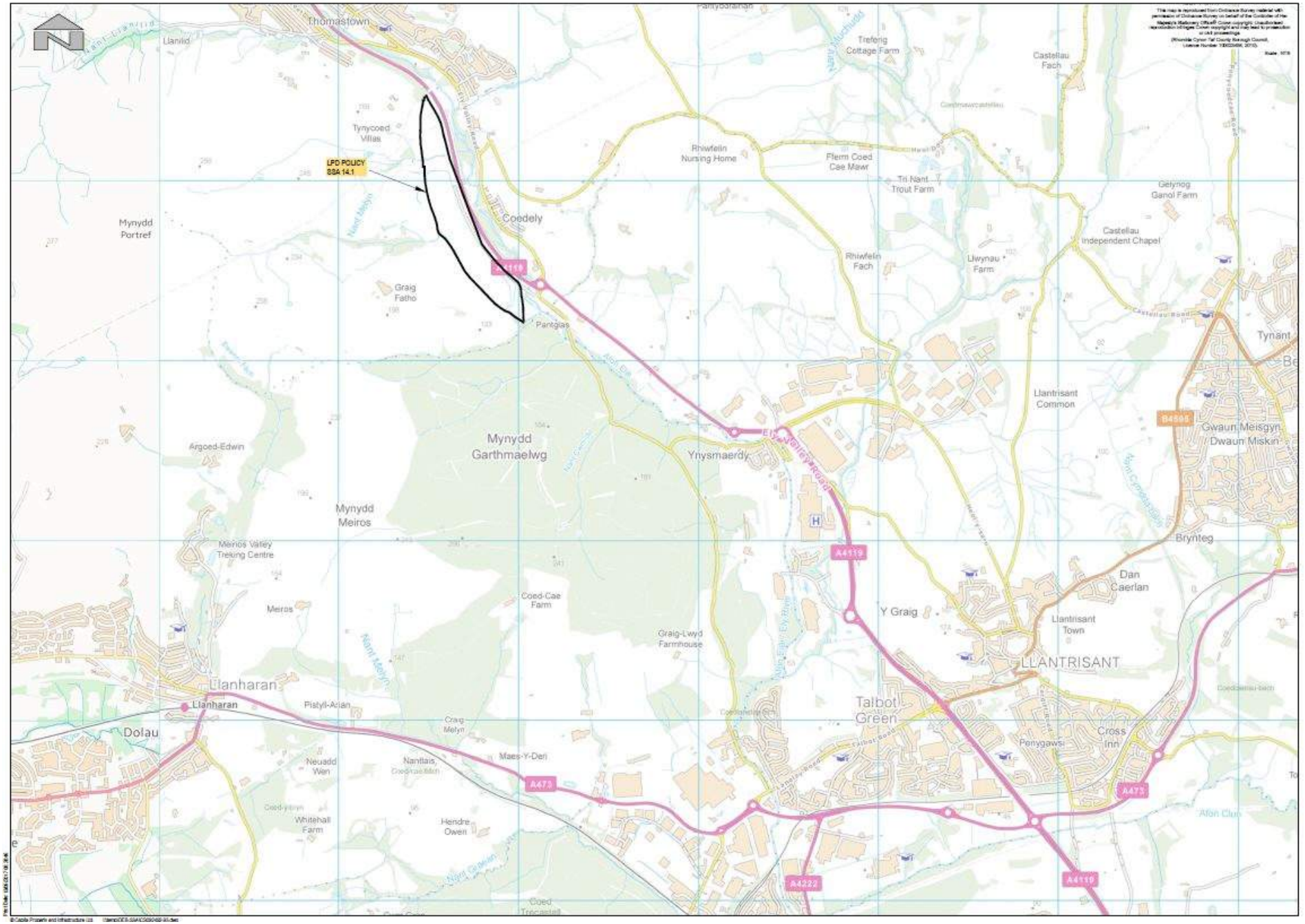
Images from Workshop

Group 1

Group 2

Group 3

Llanharan Study Area



Appendix 1.3 Worksheet 1: Problems, Opportunities and Constraints

Ref	Theme	Description	Source	Problem	Opportunity	Constraint	Existing	Future
1	Traffic flow/Congestion	Traffic congestion tails back to Coedely roundabout	Workshop 20/09/17	✓			✓	✓
2	Safety/Accidents	Accidents - severity	Workshop 20/09/17	✓				
3	Traffic flow/Congestion	Impact of J34 congestion tails back to A473	Workshop 20/09/17	✓			✓	
4	Active Travel	Gap in Active Travel provision between hospital and Talbot Green	Workshop 20/09/17	✓	✓		✓	
5	Future Development	Impact of future committed development on traffic levels	Workshop 20/09/17	✓				✓
6	Public Transport	Delays to public transport services	Workshop 20/09/17	✓			✓	
7	Traffic flow/Congestion	Delays to emergency services	Workshop 20/09/17	✓			✓	
8	Traffic flow/Congestion	Stifles development (poor accessibility)	Workshop 20/09/17	✓				✓
9	Traffic flow/Congestion	Shift traffic problem elsewhere	Workshop 20/09/17	✓				✓
10	Route Efficiency	Diversion route difficulties	Workshop 20/09/17	✓		✓		✓
11	Traffic flow/Congestion	Existing speed limit (40mph)	Workshop 20/09/17	✓	✓		✓	
12	Safety/Accidents	Accident problems	Workshop 20/09/17	✓			✓	
13	Traffic flow/Congestion	Traffic congestion at Talbot Green	Workshop 20/09/17	✓			✓	
14	Traffic flow/Congestion	Traffic signals	Workshop 20/09/17	✓			✓	
15	Future Development	House building	Workshop 20/09/17	✓	✓			✓
16	Traffic flow/Congestion	Congestion (A4119)	Workshop 20/09/17	✓			✓	
17	Standards	Road width	Workshop 20/09/17	✓		✓	✓	
18	Route Efficiency	Number of junctions – too many, roundabouts	Workshop 20/09/17	✓	✓		✓	
19	Traffic flow/Congestion	Poor journey times	Workshop 20/09/17	✓			✓	
20	Future Development	Additional development traffic	Workshop 20/09/17	✓				✓
21	Traffic flow/Congestion	One of two main routes into Rhondda Fawr	Workshop 20/09/17	✓		✓	✓	✓
22	Social	Social economic issues	Workshop 20/09/17	✓	✓		✓	
23	Safety/Accidents	Collisions	Workshop 20/09/17	✓			✓	
24	Public Transport	Bus frequency increasing from 3/hour to 4/hour from November 2017 on Service 122	Workshop 20/09/17		✓			✓
25	Future Development	Unlock development/ employment opportunities	Workshop 20/09/17		✓			✓
26	Funding	Funding targeted at A4119 corridor – LTF, LTNF, MBU	Workshop 20/09/17		✓	✓		✓
27	Access	Improved access to hospital	Workshop 20/09/17	✓	✓			✓
28	Future Development	Development of Strategic Opportunity Area to deliver economic growth	Workshop 20/09/17		✓			✓
29	Route Efficiency	Lose lower roundabout (SWFRS)	Workshop 20/09/17		✓			✓
30	Future Development	Housing expansion	Workshop 20/09/17		✓			✓
31	Public Transport	Metro – north west corridor	Workshop 20/09/17		✓			✓
32	Active Travel	Improve Active Travel	Workshop 20/09/17		✓		✓	✓
33	New Highways	Talbot Green Bypass (Ynysmaerdy to Coedcae Lane)	Workshop 20/09/17		✓			✓

34	Route Efficiency	Additional capacity to A4119 south	Workshop 20/09/17		✓		✓	✓
35	Public Transport	Investigation of bus lane provision	Workshop 20/09/17		✓			✓
36	Funding	City deal	Workshop 20/09/17		✓			✓
37	Funding	WG funding	Workshop 20/09/17		✓			✓
38	Funding	RCT funding	Workshop 20/09/17		✓			✓
39	Funding	CIL	Workshop 20/09/17		✓			✓
40	Future Development	Development	Workshop 20/09/17		✓			✓
41	Land	Land	Workshop 20/09/17			✓		✓
42	Physical/Topography	Topography	Workshop 20/09/17			✓		✓
43	Physical/Topography	Existing uses (farms, sewage works)	Workshop 20/09/17	✓		✓	✓	✓
44	Funding	Funding	Workshop 20/09/17			✓		✓
45	Environment/Ecology	Ecology (bats)	Workshop 20/09/17			✓		✓
46	Traffic flow/Congestion	Construction and keeping traffic flowing	Workshop 20/09/17			✓		✓
47	Utilities	Utilities (especially water and sewage)	Workshop 20/09/17			✓		✓
48	Physical/Topography	Scrap yard	Workshop 20/09/17	✓		✓		✓
49	Physical/Topography	Sewerage plant	Workshop 20/09/17	✓		✓		✓
50	Physical/Topography	Retaining wall	Workshop 20/09/17			✓		✓
51	Land	Land ownership	Workshop 20/09/17			✓		✓
52	Environment/Ecology	Ecology	Workshop 20/09/17			✓		✓
53	Public Transport	Existing bus stops	Workshop 20/09/17	✓		✓		✓
54	Land	Land	Workshop 20/09/17			✓		✓
55	Environment/Ecology	Environmental	Workshop 20/09/17			✓		✓
56	Funding	Funding	Workshop 20/09/17			✓		✓
57	Traffic flow/Congestion	Maintain traffic flow	Workshop 20/09/17			✓		✓
58	Public Transport	No rail access	Workshop 20/09/17	✓		✓	✓	✓
59	Public Transport	Public transport limited	Workshop 20/09/17			✓	✓	

Appendix 1.4 Worksheet 2: Objective Development - Long List of Objectives

Ref	Theme	Objective	Source
PUT01	Public transport	Improve public transport usage/reliability	Workshop 20/09/17
ECN01	Economy	Improve economic growth/employment opportunities	Workshop 20/09/17
EFF01	Efficiency	Reduce congestion/improve access	Workshop 20/09/17
SAF01	Safety/Health	Improve safety	Workshop 20/09/17
ENV01	Environment	Improve air quality/minimises impact on the environment	Workshop 20/09/17
ACT01	Active travel	Increase Active Travel provison/journeys	Workshop 20/09/17
VFM01	Value for Money	Provide a value for money solution	Workshop 20/09/17
EFF02	Efficiency	Rationlise junctions	Workshop 20/09/17
ENV02	Environment	Improve air quality	Workshop 20/09/17
ACT02	Active travel	Improve Active Travel/public transport	Workshop 20/09/17
ECN02	Economy	Make area developable	Workshop 20/09/17
ECN03	Economy	Employment opportunities	Workshop 20/09/17
EFF03	Efficiency	Network more resilient/road safety	Workshop 20/09/17
ECN04	Economy	Economic regeneration of Ely Valley	Workshop 20/09/17
PUT02	Public transport	Facilitate provision for Park & Ride/Park & Share	Workshop 20/09/17
EFF04	Efficiency	Emergency vehicle response times	Workshop 20/09/17
EFF05	Efficiency	Journey time improvements	Workshop 20/09/17
PUT03	Public transport	Improve public transport provision	Workshop 20/09/17
EFF06	Efficiency	Reduction in queue lengths	Workshop 20/09/17
ENV03	Environment	Pollution reduction air quality and noise	Workshop 20/09/17
SAF02	Safety/Health	Collision reduction	Workshop 20/09/17
ECN05	Economy	Increasing social/economic developments	Workshop 20/09/17
ECN06	Economy	Increasing investment	Workshop 20/09/17
EFF07	Efficiency	Social inclusion (better access to social facilities, jobs and leisure)	Workshop 20/09/17
PUT04	Public transport	Modal shift and increase in public transport	Workshop 20/09/17
ACT03	Active travel	Improve Active Travel - walking and cycling for commuting	Workshop 20/09/17
PUT05	Public Transport	Modal shift and increase in public transport	Workshop 20/09/17
HEA01	Health	Improve the health and well-being of the local community	Capita

Appendix 1.5 Worksheet 3: Objective Development - Short-List of Objectives (by theme)

Ref	Long-list ref	Statement/TPO	Comments and relationship to Problems, Opportunities and Constraints (from Worksheet 1)
TPO1	EFF01 to EFF07	To improve highway journey times on the north/south A4119 corridor and improve access to the M4.	All TPOs relating to the more efficient use of the highway network to improve traffic flow for all users. Congestion, queues, improving access, rationalising junctions, resilience, journey time improvements for all users.
TPO2	ECN01 to ECN07	To improve the economic and employment opportunities in the Ely Valley and provide employment and social benefits.	All TPOs relating to the local economy and employment.
TPO3	ACT01 to ACT03	To improve Active Travel routes along the north/south A4119 corridor.	All TPOs relating to improving Active Travel opportunities.
TPO4	ENV01 to ENV03	To improve environmental conditions, including air quality and noise and to minimise the overall impact on the environment within the north/south A4119 corridor.	All TPOs relating to the environment and its improvement.
TPO5	PUT01 to PUT04	To improve the patronage of public transport and improve public transport reliability within the A4119 corridor.	All TPOs relating to public transport, Park & Ride, Park & Share, and modal shift.
TPO6	SAF01 to SAF02	To improve safety and reduce the number of collisions and KSIs on the A4119 between Talbot Green and Coedely.	All TPOs relating to safety.
TPO7	HEA01	Improve the health and well-being of the local community	All TPOs relating to improving health.

Appendix 1.6 Worksheet 4: Objective Development - Refined Short-List of Objectives

Ref	Long-list ref	Statement/TPO	Comments and relationship to Problems, Opportunities and Constraints (from Worksheet 1)
TPO1	EFF01 to EFF07	To improve highway journey times on the north/south A4119 corridor and improve access to the M4.	All TPOs relating to the more efficient use of the highway network to improve traffic flow for all users. Congestion, queues, improving access, rationalising junctions, resilience, journey time improvements for all users.
TPO2	ECN01 to ECN07	To improve the economic and employment opportunities in the Ely Valley and provide employment and social benefits.	All TPOs relating to the local economy and employment.
TPO3	ACT01 to ACT03, & HEA01	To improve Active Travel routes along the north/south A4119 corridor with the aim of improving the health and well-being of the local community.	All TPOs relating to improving Active Travel opportunities. Also health.
TPO4	ENV01 to ENV03	To improve environmental conditions, including air quality and noise and to minimise the overall impact on the environment within the north/south A4119 corridor.	All TPOs relating to the environment and its improvement.
TPO5	PUT01 to PUT04	To improve the patronage of public transport and improve public transoport reliability within the north/south A4119 corridor.	All TPOs relating to public transport, Park & Ride, Park & Share, and modal shift.
TPO6	SAF01 to SAF02	To improve safety and reduce the number of collisions and KSIs on the A4119 between Talbot Green and Coedely.	All TPOs relating to safety.

Appendix 1.7 Worksheet 5: Option Development - Long List of Options (themes)

Ref. No.	Option	Source	Theme
1	Dual Stink Pot Hill	Workshop 20/09/17	(DCW01)
2	Park & Ride/Share - parking within development site	Workshop 20/09/17	(PRS01)
3	Park & Ride/Share - parking within golf course	Workshop 20/09/17	(PRS02)
4	Talbot Green Bypass (LDP scheme)	Workshop 20/09/17	(BPS01)
5	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity	Workshop 20/09/17	(MBU01)
6	Smart solution for Stink Pot Hill - third lane tidal	Workshop 20/09/17	(WSC01)
7	Light rail to Tonyrefail/Rhondda	Workshop 20/09/17	(PTR01)
8	Bus rapid transit to Tonyrefail/Rhondda	Workshop 20/09/17	(PTR02)
9	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin	Workshop 20/09/17	(EWC01)
10	New link - Coedely to Beddau/Gwaun Miskin	Workshop 20/09/17	(ECW02)
11	Alterrnative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin	Workshop 20/09/17	(BPS02)
12	New link from A4119 Ynysmaerdy to Llanharan	Workshop 20/09/17	(ECW03)
13	Talbot Green Bypass (Ynysmaerdy to Talbot Green Relief Road)	Workshop 20/09/17	(BPS03)
14	Removal of at-grade junctions (A4119)	Workshop 20/09/17	(MBU02)
15	Flyover (on A4119)	Workshop 20/09/17	(MBU03)
16	Community route adjacent to A4119	Workshop 20/09/17	(ATR01)
17	Metro link, bus/light rail	Workshop 20/09/17	(PTR03)
18	Platooning traffic	Workshop 20/09/17	(TRA01)
19	Park & Ride expansion and Pontyclun Park & Ride	Workshop 20/09/17	(PRS03)
20	Boris Bike Parks with electric bike provision	Workshop 20/09/17	(CYC01)
21	Dualling (A4119)	Workshop 20/09/17	(DCW02)
22	Light rail/tram link	Workshop 20/09/17	(PTR04)
23	Heavy rail	Workshop 20/09/17	(PRS04)
24	Rapid Bus Transit - guided bus system	Workshop 20/09/17	(PTR05)
25	Priority bus routes/bus lanes	Workshop 20/09/17	(BPL01)
26	Reduction in public transport fares	Workshop 20/09/17	(BPL01)
27	Grade separated route along A4119	Workshop 20/09/17	(MBU04)
28	Road bypass (assumed as to the west of Yntsmaerdy/Talbot Green)	Workshop 20/09/17	(BPS04)
29	Improve Park & Ride system	Workshop 20/09/17	(PRS05)
30	Rationalise number of junctions (on A4119)	Workshop 20/09/17	(MBU05)
31	Car share lanes	Workshop 20/09/17	(CSL01)
32	Do Minimum	Workshop 20/09/17	(MBU06)

Appendix 1.8 Worksheet 6: Option Development - Long List of Options (grouped by theme)

Option No.	Option	Source	Theme
1	Dual single carriageway A4119 (Stink Pot Hill)	Workshop 20/09/17	DCW01 & DCW02
2	Park & Ride/Park & Share facility within SSA 14.1 development site	Workshop 20/09/17	PRS01 & PRS05
3	Park & Ride/Park & Share facility within Llantrisant Golf Course	Workshop 20/09/17	PRS02 & PRS05
4	Ynysmaerdy to Talbot Green Relief Road (LDP scheme)	Workshop 20/09/17	BPS01 & BPS03
5	Third lane tidal (A4119 to south of Coedely Roundabout)	Workshop 20/09/17	WSC01
6	New link from A4119 Ynysmaerdy to Llanharan	Workshop 20/09/17	ECW03
7	New link - Coedely to Beddau/Gwaun Miskin	Workshop 20/09/17	ECW02
8	Alterrnative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin	Workshop 20/09/17	BPS02
9	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity	Workshop 20/09/17	MBU01
10	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin	Workshop 20/09/17	EWC01
11	Active Travel route adjacent to A4119	Workshop 20/09/17	ATR01
12	Road bypass (assumed as to the west of Ynysmaerdy/Talbot Green)	Workshop 20/09/17	BPS04
13	Light rail/bus rapid transit/tram/guided bus/heavy rail/Metro link to Tonyrefail/Rhondda	Workshop 20/09/17	PTR01, PTR02, PTR03, PTR0 & PTR05
14	Removal of at-grade roundabout on the A4119 at the South Wales Fire and Rescue Centre headquarters	Workshop 20/09/17	MBU02 & MBU05
15	Park & Ride expansion north of the study area	Workshop 20/09/17	PRS03
16	Flyover/grade separation on A4119	Workshop 20/09/17	MBU03 & MBU04
17	Platooning traffic	Workshop 20/09/17	TRA01
18	Boris Bike Parks with electric bike provision	Workshop 20/09/17	CYC01
19	Improve public transport infrastructure and provide priority bus routes/bus lanes	Workshop 20/09/17	BPL01
20	Reduction in public transport fares	Workshop 20/09/17	BPL01
21	Car share lanes	Workshop 20/09/17	CSL01
22	Do Minimum	Workshop 20/09/17	MBU06

It should be noted that the option numbers on Worksheet 6 above are not the same as reference numbers on Worksheet 5

Appendix 1.9 Worksheet 7: Option Descriptions

Option No.	Option	Description
1	Dual single carriageway A4119 (Stink Pot Hill)	This will be the dualling of the 1.3 kilometre section of A4119 between Coedely roundabout and the South Wales Fire and Rescue Headquarters roundabout. Also included will be alterations at the two roundabouts to improve traffic capacity.
2	Park & Ride/Park & Share facility within SSA 14.1 development site	Although the site is identified for B1 and B2 use, it could also support a Park & Ride site for either the extensive Talbot Green retail development area or further afield. Ideally this would be at the southern end close to the Coedely roundabout; however, this would also be where development will want to be initially located, for ease of access onto the highway network.
3	Park & Ride/Park & Share facility within the existing Llantrisant and Pontyclun Golf Course.	The identified area is at the northern end of the golf course adjacent to the roundabout on the A4119 that gives access to the Royal Glamorgan Hospital from the south. It was one of the sites considered for a Park & Ride facility when various options were being considered close to the A4119 in 2016.
4	Ynysmaerdy to Talbot Green Relief Road (LDP scheme)	This is is referenced in the RCT LDP as Proposal CS 8(a) (2), the Ynysmaerdy to Talbot Green Relief Road. The following description is taken from the LDP. *The proposed relief road is to provide an alternative route from the Upper Ely Valley, to the west of Talbot Green. The scheme is largely dependant on the scale of new development in the area, and as such will require developers to assst with cost. The alignment shown on the Proposals Map is supported by the Council and is the only route to benefit from a feasibiity study. The Council acknowledges that it may be possible to deliver the proposed new road via an alternative alignment. This is particularly the case at the northern end of the scheme where it may be possible to distance the route from the settlement of Ynysmaerdy. Without prejeudice to any future planning application, should redevelopment proposals at the former Fire Service Headquarters at Lanelay Hall be supported, alternative routes may be viable at the southern end, including the possibility of agreeing a variation of the route in conjunction with any redevelopment scheme. As such, the Council, whilst continuing to seek to protect the feasible route as indicated on the Proposals Map, fully intends to investage alterrnative alignments before it finally adopts a route to take forward to detailed design.*
5	Third lane tidal (A4119 to south of Coedely Roundabout)	This will require less widening of the A4119 between Coedely roundabout and the South Wales Fire and Rescue Headquarters roundabout than would be the case with a dual carriageway, Option 1. However, the carriageway width will have to be increased to 10 metres to accommodate a third lane. It is anticipated that the central lane will be used by southbound traffic during the AM peak period and by northbound traffic during the PM peak period. It will have to be determined as to the arrangements for usage of the central lane at other times of the day (if at all) to ensure that this length of the A4119 operated safely.
6	New link from A4119 Ynysmaerdy to Llanharan	This would be a considerably shorter option for A4119/A473 (west) traffic as it would cut out a number of junctions on the A4119 north and east of Talbot Green. It would commence at the South Wales Fire and Rescue Service headquarters roundabout and would pass to the est and south of Llantrisant Forest before meeting the A473 approximately 1.5 kilometres east of Llanharan. As there are no existing roads between these two locations, no upgrading will be possible and all roads will be new.
7	New link - Coedely to Beddau/Gwaun Miskin	This option will improve east/west journeys between Beddau and the Coedely area, including the SSA 14.1 development site. It would cut out a number of junctions on the A4119. It will require the upgrading of minor roads between these two locations. The roads are generally very narrow and the road linking to Coedely roundabout will be steep.
8	Alternative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin	This would commence at the eastern end of the dual carriageway that passes through llantrisant Business Park. The route would go north following a minor road to the east of the Royal Mint. Between here and Coedely, the road will requiring considerable upgrading as it follows a sinuous alignment. There is a steep approach to Coedely.
9	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity	This is a large traffic signal controlled junction with segregated left turn lanes on three of the four arms. No specific improvements have been suggested but they are likely to involve changes to the signal timings as a means to increase capacity.
10	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin	This will achieve a similar east/west benefit to Option 7 although requiring less upgrading of existing roads and linking to the A4119 further south. It will pass through the eastern part of Llantrisant Business Park.
11	Active Travel route adjacent to A4119	There is already a cycle route that can also be used by pedestrians that follows the alignment of part of the former Llantrisant and Taff Vale Junction railway line. Although not adjacent to the A4119, it broadly follows the same corridor but in a more remote location. There are long term plans to extend this through the SSA 14.1 site although a route already exists and is used. There are also plans to extend the route from the Royal Glamorgan Hospital to the roundabout that serves the hospital from the south. South of here and adjacent to the west side of the A4119, short term plans exist to provide a shared use facility to compliment the cycle route that follows Ely Valley Road to the centre of Talbot Green. A route adjacent to the A4119 will add to this network.
12	Road bypass (assumed as to the west of Ynysmaerdy/Talbot Green)	This will be the upgrading of the minor road that starts on Lanely Road in the western part of Talbot Green. The road continues north, passing through the eastern side of Llantrisant Forest west of Ynysmaerdy to meet Coedely roundabout. This road is generally very narrow with a sinuous alignment throughout. At its northern end, it passes beneath the former railway that is now used as a cycle route (not NCN).
13	Light rail/bus rapid transit/tram/guided bus/heavy rail/Metro link to Tonyrefail/Rhondda	Although more details of the option do not exist, it is likely that this would follow part of the alignment of the former Llantrisant and Taff Vale Junction railway line. It would commence close to Lanelay Road in western Talbot Green and would pass thriugh the eastern side of the SSA 14.1 development site before continuing to Tonyrefail/Rhondda. In places at the southern end, the route has been developed and further north it is a cycle route (not NCN). To be fully integrated with Cardiff Metro, this would have to be provided all the way to Talbot Green from Cardiff.
14	Removal of at-grade roundabout on the A4119 at the South Wales Fire and Rescue Centre headquarters	Some of the roundabouts on the A4119 north of Talbot Green are considered unnecessary, in particular the one that serves the South Wales Fire and Rescue Service headquarters. Removal would improve the flow of north/south traffic on the A4119 although safe means of access will still be required for developments that are currently served from roundabouts. Horizontal alignment standards will have to be maintained.
15	Park & Ride expansion north of the study area.	This is a non-specific proposal having the potential to be attractive to users in the Rhondda Valleys.
16	Flyover/grade separation on A4119	This is a non-specific option but it is assumed that it would involve the grade separation of at least one junction on the A4119. The existing traffic signal junction in Talbot Green would be the most likely candidate. This would improve flow on the A4119 although the impact further north is not known.
17	Platooning traffic	This is a non-specific option. It involves a group of vehicles that travels in close proximity to each other, nose-to-tail, at normal highway speeds. This could be achieved through traffic signals.
18	Boris Bike Parks with electric bike provision	This is a non-specific option. It involves the setting up of a cycle hub to allow hire bikes to be used within a defined area. The only area in which this might be successful is the large retail development in Talbot Green.
19	Improve public transport infrastructure and provide priority bus routes/bus lanes	This is a non-specific option. The A4119 is the main north/south road between the M4 and the Rhondda Valleys and as such is used by buses. It is therefore already a priority route. The addition of bus lanes will benefit public transport and could ease congestion in the Coedely area although they will require carriageway widening. Such a proposal is planned for the A4119 in the Mwyndy area in relation to a proposed Park & Ride site. RCT also has short-term proposals to upgrade bus stops between Tonypandy and Talbot Green (Cardiff Bus Priority Scheme).
20	Reduction in public transport fares	This could have the effect of transferring car trips to public transport. However, consultation with the bus companies that use the A4119 corridor would be required.
21	Car share lanes	As with bus lanes, car share lanes will require carrigeway widened wherever they would be proposed. This would have to be in conjunction with a campaign to promote the benefits of car sharing.
22	Do Minimum	Non specific low cost improvements.

Where necessary, the above descriptions are interpretations of the solutions tht were put forward during the Stakeholders' Workshop.

Appendix 1.10 Worksheet 8: Appraisal of Options against the Wales Transport Strategy Outcomes

Option No.	Option	Wales Transport Strategy Outcomes																
		Social					Economy					Environment						
		Improve access to healthcare	Improve access to education, training and lifelong learning	Improve access to shopping and leisure facilities	Encourage healthy lifestyles	Improve the actual and perceived safety of travel	Improve access to employment opportunities	Improve connectivity within Wales and internationally	Improve the efficient, reliable and sustainable movement of people	Improve the efficient, reliable and sustainable movement of freight	Improve access to visitor attractions	Increase the use of more sustainable materials	Reduce the contribution of transport to greenhouse gas emissions	Adapt to the impacts of climate change	Reduce the contribution of transport to air pollution and other harmful emissions	Improve the impact of transport on the local Environment	Improve the impact of transport on our heritage	Improve the impact of transport on biodiversity
1	Dual single carriageway A4119 (Stink Pot Hill)	+	+	+	0	0	++	+	+	+	+	+	+	+	0	-	0	-
2	Park & Ride/Park & Share facility within SSA 14.1 development site	0	0	0	+	+	0	0	0	0	0	0	+	+	+	0	0	0
3	Park & Ride/Park & Share facility within the existing Llantrisant and Pontyclun Golf Course.	0	0	0	+	+	0	0	0	0	0	0	+	+	+	-	0	-
4	Ynysmaerdy to Talbot Green Relief Road (LDP scheme)	+	+	+	0	0	++	+	++	++	+	+	0	0	-	- -	-	- -
5	Third lane tidal (A4119 to south of Coedely Roundabout)	0	0	0	0	-	+	+	0	0	0	+	-	-	0	-	-	-
6	New link from A4119 Ynysmaerdy to Llanharan	+	+	+	0	-	+	+	++	+	+	+	-	-	-	- -	-	- -
7	New link - Coedely to Beddau/Gwaun Miskin	+	+	+	0	-	+	+	+	+	+	+	-	-	-	- -	-	- -
8	Alterrnative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin	0	0	0	0	-	+	+	+	+	0	+	-	-	-	- -	0	- -
9	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity	+	+	+	0	+	+	0	+	+	+	0	0	0	0	0	0	0
10	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin	0	0	0	0	-	+	+	+	+	0	+	-	-	-	- -	0	- -
11	Active Travel route adjacent to A4119	0	0	0	+++	+	+	+	0	+	0	0	+	+	+	+	0	0
12	Road bypass (assumed as to the west of Ynysmaerdy/Talbot Green)	0	0	0	0	-	++	+	0	+	0	+	-	-	-	- -	-	- -
13	Light rail/bus rapid transit/tram/guided bus/heavy rail/Metro link to Tonyrefail/Rhondda	+	+	+	+	+	++	+	+	0	+	0	+	+	+	-	-	- -
14	Removal of at-grade roundabout on the A4119 at the South Wales Fire and Rescue Centre headquarters	+	+	+	0	+	+	0	+	+	+	0	+	+	0	0	0	0
15	Park & Ride expansion north of the study area	0	0	0	+	+	+	0	0	0	0	0	+	+	+	0	0	0
16	Flyover/grade separation on A4119	+	+	+	0	+	+	+	+	+	+	+	+	+	0	0	0	0
17	Platooning traffic	0	0	0	0	- -	0	0	0	0	0	0	0	0	0	0	0	0
18	Boris Bike Parks with electric bike provision	0	0	0	++	0	0	0	0	0	0	0	+	+	+	+	0	0
19	Improve public transport infrastructure and provide priority bus routes/bus lanes	+	+	+	+	+	+	0	0	0	+	0	+	+	+	0	0	0
20	Reduction in public transport fares	+	+	+	+	0	+	0	0	0	+	0	0	0	+	0	0	0
21	Car share lanes	0	0	0	+	+	+	0	+	0	0	0	+	+	+	0	0	0
22	Do Minimum	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0

Large positive (+ + +)
Moderate positive (+ +)
Slight positive (+)
Neutral (0)
Slight negative (-)
Moderate negative (- -)
Large negative (- - -)

Appendix 1.11 Worksheet 9: Appraisal of Options against the Well-being of Future Generations (Wales) Act 2015 Goals

Option No.	Option	A globally responsible Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A more equal Wales	A healthier Wales	A resilient Wales	A prosperous Wales
1	Dual single carriageway A4119 (Stink Pot Hill)	+ +	+	+	+	0	+	+ +
2	Park & Ride/Park & Share facility within SSA 14.1 development site	+	0	0	+	+	+	0
3	Park & Ride/Park & Share facility within the existing Llantrisant and Pontyclun Golf Course.	+	0	0	+	+	+	0
4	Ynysmaerdy to Talbot Green Relief Road (LDP scheme)	0	0	+	0	0	+	+
5	Third lane tidal (A4119 to south of Coedely Roundabout)	+	+	+	0	0	+	+
6	New link from A4119 Ynysmaerdy to Llanharan	-	0	-	0	0	+	+
7	New link - Coedely to Beddau/Gwaun Miskin	-	0	-	0	0	+	0
8	Alterrnative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin	-	0	-	0	0	+	0
9	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity	+	0	0	0	0	+	+
10	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin	-	0	-	0	0	0	0
11	Active Travel route adjacent to A4119	+ +	+	+	+ +	+ +	+	+
12	Road bypass (assumed as to the west of Ynysmaerdy/Talbot Green)	- -	0	-	0	0	+	+
13	Light rail/bus rapid transit/tram/guided bus/heavy rail/Metro link to Tonyrefail/Rhondda	+ +	+	+	+	+	+	+
14	Removal of at-grade roundabout on the A4119 at the South Wales Fire and Rescue Centre headquarters	-	0	0	0	0	0	0
15	Park & Ride expansion north of the study area	+	0	0	+	+	+	+
16	Flyover/grade separation on A4119	+	0	0	0	0	+	0
17	Platooning traffic	0	0	0	0	0	0	0
18	Boris Bike Parks with electric bike provision	+	0	0	+	+ +	+	+
19	Improve public transport infrastructure and provide priority bus routes/bus lanes	+	0	+	+	0	+	+
20	Reduction in public transport fares	0	+	+	+	0	+	0
21	Car share lanes	+	0	+	+	0	+	+
22	Do Minimum	0	0	0	0	0	0	0

Large positive (+ + +)
Moderate positive (+ +)
Slight positive (+)
Neutral (0)
Slight negative (-)
Moderate negative (- -)
Large negative (- - -)

Appendix 1.12 Worksheet 10: Appraisal of Scheme Options against Transport Planning Objectives (TPOs)

Option No.	Option	Transport Planning Objectives (TPOs)					
		TPO1: To improve highway journey times on the north/south A4119 corridor and improve access to the M4.	**TPO2:** To improve the economic and employment opportunities in the Ely Valley and provide employment and social benefits.	**TPO3:** To improve Active Travel routes with the aim of improving the health and well-being of the local community.	**TPO4:** To improve enviromental conditions, including air quality and noise and to minimise the overall impact on the environment.	**TPO5:** To increase the patronage of public transport and improve public transport reliability.	**TPO6:** To improve safety and reduce the number of collisions and KSIs on the A4119 between Talbot Green and Thomastown.
1	Dual single carriageway A4119 (Stink Pot Hill)	+ + +	+ + +	0	+	+	+
2	Park & Ride/Park & Share facility within SSA 14.1 development site	0	0	0	+	+	0
3	Park & Ride/Park & Share facility within the existing Llantrisant and Pontyclun Golf Course.	0	0	0	+	+	0
4	Ynysmaerdy to Talbot Green Relief Road (LDP scheme)	+ +	+ +	0	-	+	+
5	Third lane tidal (A4119 to south of Coedely Roundabout)	+	+	+	+	0	0
6	New link from A4119 Ynysmaerdy to Llanharan	+ +	+	0	+ +	+	+
7	New link - Coedely to Beddau/Gwaun Miskin	+	+	0	+	0	+
8	Alterrnative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin	+	+	0	+	0	+
9	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity	+	+	0	+	+	+
10	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin	+	+	0	+	0	+
11	Active Travel route adjacent to A4119	0	0	+ +	+	0	0
12	Road bypass (assumed as to the west of Ynysmaerdy/Talbot Green)	+	+	+	- -	+	+
13	Light rail/bus rapid transit/tram/guided bus/heavy rail/Metro link to Tonyrefail/Rhondda	0	0	0	+	+	0
14	Removal of at-grade roundabout on the A4119 at the South Wales Fire and Rescue Centre headquarters	+	+	0	+	+	+
15	Park & Ride expansion north of the study area	0	0	0	+	+	0
16	Flyover/grade separation on A4119	+	+	0	+	+	+
17	Platooning traffic	0	0	0	+	0	0
18	Boris Bike Parks with electric bike provision	0	0	+ +	+	0	0
19	Improve public transport infrastructure and provide priority bus routes/b	0	0	0	+	+	0
20	Reduction in public transport fares	0	0	+	0	+	0
21	Car share lanes	0	0	0	+	0	0
22	Do Minimum	0	0	0	0	0	0

Large positive (+ + +)
Moderate positive (+ +)
Slight positive (+)
Neutral (0)
Slight negative (-)
Moderate negative (- -)
Large negative (- - -)

Appendix 1.13 Worksheet 11: High Level Appraisal of Options (Appraisal Summary Table)

Criteria	Qualitative Assessment																					
	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9	Option 10	Option 11	Option 12	Option 13	Option 14	Option 15	Option 16	Option 17	Option 18	Option 19	Option 20	Option 21	Option 22
Economic																						
Business Users & Reliability Impact	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA
Regeneration	+ +	0	0	+	+	0	+	+	0	+	0	+	+	0	0	0	0	0	0	0	0	0
Wider Impacts	+ +	0	-	+	+	0	+	+	+	+	0	+	+	0	0	0	0	0	0	0	+	0
Environment																						
Noise	0	0	0	+	0	+	+	+	0	+	0	+	-	0	0	0	0	0	0	0	0	0
Air Quality	0	0	0	+	0	+	+	+	0	+	0	+	-	0	0	0	0	0	0	0	0	0
Greenhouse Gases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landscape	0	0	-	-	0	- - -	- - -	- - -	0	- - -	0	- - -	-	0	0	0	0	0	0	0	0	0
Townscape	0	0	0	-	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0
Historic Landscape	0	0	0	0	0	- - -	- -	- -	0	- -	0	- - -	0	0	0	0	0	0	0	0	0	0
Biodiversity	-	0	-	-	-	- - -	- -	- -	0	- -	0	- - -	-	0	0	0	0	0	0	0	0	0
Water Environment	0	0	-	0	0	-	-	-	0	-	0	-	0	0	0	0	0	0	0	0	0	0
Social																						
Commuting and Other Users	+ +	+	+	+	+	+ +	+	+	+	+	+	+	+	0	+	+	+	+	+	+ +	+	0
Reliability Impact on Commuting and Other Users	+ +	+	+	-	+	+ +	+	+	+	+	+	+	-	0	+	+	+	0	+	0	+	0
Physical Activity	0	0	0	0	0	0	0	0	0	0	+ + +	0	0	0	0	0	0	+ + +	0	+	0	0
Journey Quality	+ +	+	+	+ +	+	+ +	+ +	+ +	0	+ +	+	+ +	+ +	+	+	0	-	0	+	0	+	0
Accidents	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA
Security	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA
Access to Services	+	0	0	+ +	+	+ +	+	+	+	+	0	+	+ +	0	0	0	0	+	0	+	0	0
Affordability	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA
Severance	0	0	0	-	0	- -	- -	- -	0	- -	0	- -	-	0	0	0	0	0	0	+	0	0
Option Values	+	0	+	+	0	0	+	+	0	+	0	+	+	0	0	0	0	+	0	0	0	0
Public Accounts																						
Cost to Broad Transport Budget	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA
Indirect Tax Revenues	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA

Large positive (+ + +)
Moderate positive (+ +)
Slight positive (+)
Neutral (0)
Slight negative (-)
Moderate negative (- -)
Large negative (- - -)

Appendix 1.14 Worksheet 12: How the Options will Tackle the Identified Problems, and Other Relevant Issues

Opt. No.	Option	How the Option will Tackle the Identified Problems	Other Commernts
1	Dual single carriageway A4119 (Stink Pot Hill)	This option will widen the existing A4119 to a dual carriageway standard, which will require alterations to the two terminal roundabouts. The dualling will increase link capacity and the roundabout improvements will increase the capacity through the terminal junctions. The improvements will reduce queuing and congestion on this part of the A4119 and will also accommodation additional traffic from the SSA 14.1 development.	It is considered that the lack of a dual carriageway all the way north to Coedely roundabout is reducing the attractiveness of the SSA 14.1 to developers.
2	Park & Ride/Park & Share facility within SSA 14.1 development site	A Park & Ride would have the potential to reduce the number of vehicles on the A4119 to the south of Coedely and in turn reduce queuing and congestion. It could be used for sustainable access to the Talbot Green retail area.	Other than B1 and B2 use, there are no definite plans for the SSA 14.1 site.
3	Park & Ride/Park & Share facility within the existing Llantrisant and Pontyclun Golf Course.	This option could fulfil the same purpose as Option 2. However, as it lies to the south of the single carriageway A4119, there will be no reduction in traffic flows and queuing and congestion will not change.	This site was one of those identified as a potential Park & Ride in the A4119 corridor improvement study, 2016.
4	Ynysmaerdy to Talbot Green Relief Road (LDP scheme)	The intention of this option has always been to bypass Talbot Green. It will reduce the distance for A4119 to A473 (west) traffic and vice versa. And will reduce traffic flows on Talbot Road. Although it will not directly benefit the single carriageway A4119 to the north of Ynysmaerdy, a reduction in traffic flow further south may give some relief. It will require a considerable detour at its southern end. This option will require alterations to the South Wales Fire and Rescue Centre headquarters roundabout.	This option has been in the RCT LDP for some time.
5	Third lane tidal (A4119 to south of Coedely Roundabout)	The introduction of a third lane will increase capacity of the single carriageway A4119. It will effectively provide a two-lane approach to both terminal roundabouts over a distance required to reduce queuing to an acceptable level. Improvements to the roundabout approaches will also be required. It is likely that this option will have a positive effect on queuing and congestion.	The distance between the roundabouts (1.3 kilometres) will also allow 650 metres of overtaking as well.
6	New link from A4119 Ynysmaerdy to Llanharan	This will be not dissimilar to Option 4 but over a greater distance. As a result, it will not benefit the single carriageway A4119 to the north of Ynysmaerdy.	Likely considerable environmental impacts.
7	New link - Coedely to Beddau/Gwaun Miskin	This option will benefit access to the SSA 14.1 site from the east, which in turn will benefit access from the south through less traffic on the A4119. This may reduce queuing and congestion on this road and at the terminal roundabouts.	Considerable upgrading of minor roads required.
8	Alterrnative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin	Although this will allow north and southbound traffic to avoid the A4119 to the immediate south of Coedely, it will be a longer, more tortuous route requiring a diversion to reach it. It will still require improvements to Coedely roundabout.	Considerable upgrading of minor roads required.
9	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity	Although it may be possible to improve capacity for some movements, this is likely to disbenefit others. The benefits on the A4119 are unlikely to extend to Coedely.	All movements will have to pass through the junction at grade.
10	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin	This option will improve east/west movements only and avoid traffic having to go south through Llantrisant. Although this may benefit the A4119 between the main roundabout at Ynysmaerdy and Talbot Road junction, it will have no effect further north at Coedely.	East/west traffic will have to pass through an industrial area. Considerable upgrading of minor roads required.
11	Active Travel route adjacent to A4119	Although this option is unlikely to address the identified problems on the A4119 and Coedely roundabout, it will give greater sustainable travel choice in this part of the Ely Valley, particularly when linked to the completion of the Llantrisant to Tonyrefail Community Route.	There is already an Active Travel Route that follows a former railway to the immediate west of the A4119.
12	Road bypass (assumed as to the west of Ynysmaerdy/Talbot Green)	This option is likely to achieve similar benefits to Option 4 but additionally, it will extend further north to Coedely roundabout thus benefiting the SSA 14.1 development. This will give greater relief to the A4119. It will be a longer, more tortuous route requiring a considerable detour at the southern end to reach it.	Passes through Llantrisant Forest as well as through or close to the Lanelay Hall residential development site.
13	Light rail/bus rapid transit/tram/guided bus/heavy rail/Metro link to Tonyrefail/Rhondda	Although a public transport system direct from Talbot Green to the Rhondda will also benefit the SSA 14.1 site, without the Cardiff Metro extending from the Capital to Talbot Green, the benefits will be considerably less.	Largely relies on Cardiff Metro extending to Talbot Green. The status of this is not known.
14	Removal of at-grade roundabout on the A4119 at the South Wales Fire and Rescue Centre headquarters	It is considered that some junctions on the A4119 are not required as they only give access to organisations such as the South Wales Fire and Rescue Service headquarters. Alterations to particular junctions giving greater priority to A4119 movements could improve traffic flow.	Roundabouts provide convenient changes in direction, which may make north/south priority difficult to achieve within current design standards.
15	Park & Ride expansion north of the study area	This option is well outside the study area. Even though it may be beneficial in the Pontyclun area, there will be no benefit to the Coedely area.	Cannot really be considered an option to address the identified problems.
16	Flyover/grade separation on A4119	With all the junctions on the A4119 being at-grade, there is direct interaction between north/south and east/west traffic. Grade separation of these movements will benefit all users particularly between Talbot Green and the M4. However, with no east/west routes in the Coedely area, benefits will not be realised.	The A4119 is to be the subject of a corridor study to consider all the junctions south of Tonyrefail.
17	Platooning traffic	It is difficult to see how this option would work and even if it could, it is unlikely that it would tackle the identified problems. It may create additional, unforeseen problems.	Would likely require additional input to be able to function.
18	Boris Bike Parks with electric bike provision	This is not really an option that could address the identified problems.	This option is more about very localised transport issues.
19	Improve public transport infrastructure and provide pri	Bus lanes would have to be associated with physically providing an additional lane or fitting additional provision within sections of existing highway. The latter would impact upon vehicle capacity and the benefits are likely to be very small.	The A4119 is already a major north/south bus route through Rhondda Cynon Taf.
20	Reduction in public transport fares	It is difficult to see how such an option would address the identified problems on the A4119 at Coedely.	Requires outside involvement (bus operators) and agreement, which is unlikely to happen.
21	Car share lanes	Car share lanes have the ability to reduce the number of cars on the road but this relies on a number of factors such as car share campaigns, which are unlikely to result in a large take up of car sharing.	Additional traffic lanes required or a reduction in capacity on existing roads (dual carriageways).
22	Do Minimum	Other than ensuring that the A4119 continues to be fit for purpose in maintenance terms, this option will not change the way that the A4119 operates. With no improvements, the situation will	Regular maintenance only.

Appendix 1.15 Worksheet 13: Appraisal of Scheme Options against Deliverability

Option No.	Option	Feasibility	Affordability	Acceptability	Timescale	Risks
1	Dual single carriageway A4119 (Stink Pot Hill)	+ +	+ +	+ +	+	+
2	Park & Ride/Park & Share facility within SSA 14.1 development site	+ +	+ +	+ +	-	0
3	Park & Ride/Park & Share facility within the existing Llantrisant and Pontyclun Golf Course.	-	+	-	-	- -
4	Ynysmaerdy to Talbot Green Relief Road (LDP scheme)	-	- -	0	- -	- -
5	Third lane tidal (A4119 to south of Coedely Roundabout)	+ +	+ + +	+	+ +	-
6	New link from A4119 Ynysmaerdy to Llanharan	- - -	- - -	- -	- - -	- - -
7	New link - Coedely to Beddau/Gwaun Miskin	- - -	-	- - -	- -	- -
8	Alterrnative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin	- -	-	- -	- -	- -
9	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity	+	+ + +	+	+	+ +
10	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin	- -	+	- -	-	- -
11	Active Travel route adjacent to A4119	+ +	+ + +	+	+ +	+ +
12	Road bypass (assumed as to the west of Ynysmaerdy/Talbot Green)	- - -	-	- -	- -	- -
13	Light rail/bus rapid transit/tram/guided bus/heavy rail/Metro link to Tonyrefail/Rhondda	- - -	- - -	- - -	- - -	- - -
14	Removal of at-grade roundabout on the A4119 at the South Wales Fire and Rescue Centre headquarters	- -	0	0	0	0
15	Park & Ride expansion north of the study area	-	+	+ +	0	0
16	Flyover/grade separation on A4119	- - -	- - -	- -	- - -	- - -
17	Platooning traffic	0	0	-	+	0
18	Boris Bike Parks with electric bike provision	- -	+	- -	0	-
19	Improve public transport infrastructure and provide priority bus routes/l	-	0	0	0	- - -
20	Reduction in public transport fares	0	0	+	-	0
21	Car share lanes	-	0	-	-	- - -
22	Do Minimum	0	0	0	0	0

Large positive (+ + +)
Moderate positive (+ +)
Slight positive (+)
Neutral (0)
Slight negative (-)
Moderate negative (- -)
Large negative (- - -)

Scale : NTS

Coed Ely Options

Option 1	Dual single carriageway A4119 (Stink Pot Hill)
Option 2	Park & Ride/Park & Share facility within SSA 14.1 development site
Option 3	Park & Ride/Park & Share facility within the existing Llantrisant and Pontyclun Golf Course.
Option 4	Ynysmaerdy to Talbot Green relief road (LDP scheme)
Option 5	Third lane tidal (A4119 to South of Coedely roundabout)
Option 6	New link from A4119 Ynysmaerdy to Llanharan
Option 7	New link - Coedely to Beddau/Gwaun Miskin
Option 8	Alternative alignment to Stink Pot Hill via Royal Mint and Rhiwfelin
Option 9	Improve Talbot Road junction - better access to/from bus station, better throughput, more left turn/right turn capacity
Option 10	Improve east/west corridors - new link Royal Mint to Beddau/Gwaun Miskin
Option 11	Active travel route adjacent to A4119
Option 12	Road bypass (assumed as to the west of Ynysmaerdy/Talbot Green)
Option 13	Light rail/bus rapid transit/tram/guided bus/heavy rail/Metro link to Tonyrefail/Rhondda
Option 14	Removal of At grade roundabout on the A4119 at the South Wales Fire and Rescue Centre Headquarters

APPENDIX 1.16

REDSTART

St David's House
Pascal Close
St Mellons
Cardiff
CF3 0LW

www.redstartwales.com