

**ITEMS RECEIVED AFTER THE PRODUCTION OF THE REPORT
FOR THE PLANNING COMMITTEE
TO BE HELD ON 14 JANUARY, 2016**

Page	Application	Location	Item No.	Description
26	2014/00282/OUT	Caerleon Road, Dinas Powys	1.	Letter from neighbours
			2.	Email from Community Councillor raising concerns about traffic impact
73	2014/01505/OUT	Land at north west Cowbridge (Darren Farm)	3.	Comments from Welsh Water requesting amendments to condition
			4.	At least 66 letters from numerous residents and letters from Jane Hutt AM and Alun Cairns MP raising concerns about drainage
			5.	Note from Agent addressing drainage concerns, comments from Council's Drainage Engineer and email from National Resources Wales confirming suitable conditions will address detailed drainage scheme
			6.	Council's Ecologist raising concern with regard to ground nesting birds and additional condition to mitigate any possible effects
			7.	Amended Condition 18 relating to approved plans
179	2015/00534/OUT	Land rear of Seaton Hoe, Pen Y Turnpike Road, Dinas Powys	8.	Correction to Condition 6
224	2015/01030/FUL	Court Farm, Bonvilston		Application Withdrawn
243	2015/01215/FUL	Springfield, Graig Penllyn	9.	Comments from the Council's Ecologist – No objection
			10.	Comments from Glamorgan Gwent Archaeological Trust – No objection
			11.	Comments from Planning Consultant on behalf of neighbour and Structural Report
			12.	Comments from Applicant/Agent attaching new site plan and details of retaining wall. Amended Condition 2 and additional Condition 15

①

LATE ITEMS FOR COMMITTEE

COMMITTEE DATE : 14 January 2016

Application No.: 2014/00282/OUT	Case Officer: Mrs. Y. J. Prichard
Location: Caerleon Road, Dinas Powys Proposal: Outline application for residential development (of up to 70 dwellings) and associated works	

From: Neighbours at 11 Tenby Close and 23 Cardigan Close, Dinas Powys

Summary of Comments:

Concerns that highway and train infrastructure cannot cope with additional traffic/rail users.

Payne, Adrienne J

From: Planning & Transportation (Customer Care)
Sent: 10 January 2016 22:17
To: Planning & Transportation (Customer Care)
Subject: New comments for application 2014/00282/OUT

New comments have been received for application 2014/00282/OUT at site address: Caerleon Road, Dinas Powys

from Mr Simon Tomlinson : [REDACTED]

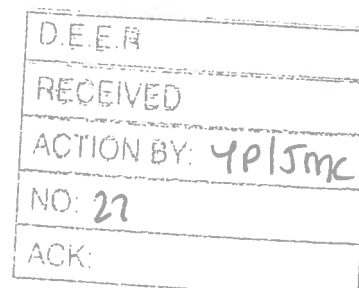
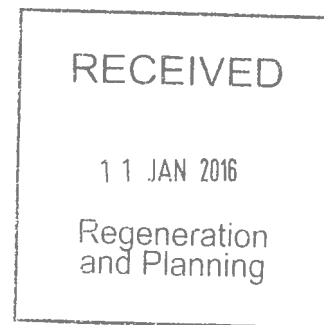
Address:
23 Cardigan Close, Dinas Powys, CF64 4PL

Comments:

Other type details: Local resident.

Comment: Further thought should be made in respect of the additional traffic and congestion that will arise. I do not believe the traffic study adequately documents the full impact on the area. The Murch Road/ Cardiff Road junction is already at capacity at rush hour and school times (making it dangerous for children walking to and from school). Castle Drive is also busy and cars travel much too fast. There is also no additional capacity on rush hour trains which are generally already at capacity from Eastbrook station, which is not considered by the report.

Case Officer:
Mrs. Y. J. Prichard



Payne, Adrienne J

From: Planning & Transportation (Customer Care)
Sent: 08 January 2016 19:52
To: Planning & Transportation (Customer Care)
Subject: New comments for application 2014/00282/OUT

New comments have been received for application 2014/00282/OUT at site address: Caerleon Road, Dinas Powys

from Mrs Gillian Fisher [REDACTED]

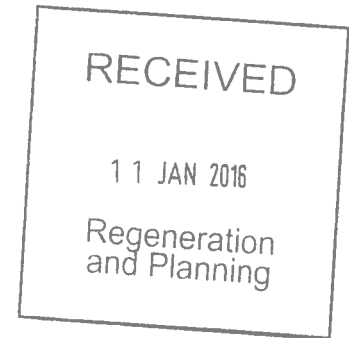
Address:
11 Tenby Close, Dinas Powys, CF64 4NU

Comments:

Other type details: contacts in the village.

Comment: Castle Drive is dangerous now especially around the junction with Murch Road. With another 50+ houses it will be much worse. Getting in and out of Dinas Powys is a nightmare from 8.00am onwards. There is no way the present infrastructure can cope. This is an awful idea without improving the roads first.

Case Officer:
Mrs. Y. J. Prichard



D.E.E.R
RECEIVED
ACTION BY: YP/JMC
NO: 4
ACK:

LATE ITEMS FOR COMMITTEE**COMMITTEE DATE : 14 January 2016**

Application No.: 2014/00282/OUT	Case Officer: Mrs Y J Prichard
Location: Caerleon Road, Dinas Powys Proposal: Outline application for residential development (of up to 70 dwellings) and associated works	

From: Community Councillor for Dinas Powys

Summary of Comments:

Concerns over traffic generation and impact on the highway network.

2

Goldsworthy, Marcus J

Subject: FW: Planning application Dinas Powys

From: [REDACTED]
Sent: 08 January 2016 21:05
To: Democratic
Cc: [REDACTED] btinternet.com; jrfanshaw@talktalk.net;
Willi [REDACTED]
Subject: Planning application Dinas Powys

To whom it may concern

I would like you to acknowledge that the comment below is totally misleading and incorrect. The person who wrote this has not used or interpreted the Capacity Transport figures correctly at the Cardiff Road junction.

"It is therefore considered that the impact of the proposed development could be mitigated an acceptable degree without significantly increasing delays to existing road users. Mitigation in the form of the implementation of an effective Travel Plan that is complemented by measures to enhance both pedestrian movement and the site's connectivity to Eastbrook Railway Station will reduce the proposed development's vehicular trip generation"

Common sense tells you that you only have to look at the Murch Hill and Castle Drive Junction now it's an accident waiting to happen. Even if you cannot understand your own statistics.

There are far too many cars around the Murch Road junction especially during School start and finish times. At these times, cars are parked all the way up and over the bridge. In the last couple of years I have witnessed a number of near accidents and a number of unpleasant road rage incidents. I only wish I had caught them on my phone.

On the statistics and regulations side is that there will be over capacity of traffic now for Cardiff Road junction. It appears that you are "fiddling" the figures to hide the true picture and have only used the total in both direction capacity for Murch rd and not in each direction during peak times. This manipulation of statistics keeps the totals below 100%. You should have used TAN 18 which states a development/s should not increase the traffic flow onto a trunk road by 5% if it nears capacity.

The figures have been manipulated in the statement by stating that the development is less than 100 house. However you have not considered the true picture or given a real representation of what is happending in Dinas Powys with the poor infrastructure nearing full its full capacity at peak times.

However, you have been told to use the St Cyres development in their calculations which is a total of 370 so you should use it. That would be an increase of 27% of housing for the Murch. Also this does not include cross common development which would then be 31% and also doesn't include the medical centre traffic which the figures say will produce more traffic than the Caerleon development at peak time

Carolyn Mirza-Davies
Community Councillor of Dinas Powys and concerned resident

LATE ITEMS FOR COMMITTEE

COMMITTEE DATE : 14 January 2016

Application No.: 2014/01505/OUT	Case Officer: Mrs. J. M. Crofts
<p>Location: Land at North West Cowbridge</p> <p>Proposal: Detailed Permission for the construction of a link road connecting Cowbridge bypass with Llantwit Major including footpaths/cycleways landscaping and associated engineering works. Outline permission with all matters reserved other than access for a mixed use residential led development - AMENDED SCHEME - increase in the maximum number of units that could be accommodated on the site from 390 to 475</p>	

From: Comments from Dwr Cymru Welsh water suggesting amended wording to condition 7 (Drainage and occupancy of development limitations)

Summary of Comments: Have been received from DCWW recommending an adjustment to the wording of condition 7, namely

7. No dwelling or the school hereby approved shall be occupied prior to 31st March 2018 unless Llanblethian Sewerage Pumping Station and the Cowbridge Waste Treatment Works, to which the development shall drain, have first been upgraded (and confirmation provided in writing by the Local Planning Authority that the upgrade works have been completed in full) and the necessary off-site improvements to the public sewerage system between the development site and Llanblethian Sewerage Pumping Station (as identified in the Hydraulic Modelling Assessment Reference SE208B Darren Close, Cowbridge Revision 1, issued February 2015) have been completed.

Reason:

To prevent overloading of the public sewerage system and to ensure sufficient capacity exists in the system to accommodate the site; to protect the environment and to meet the requirements of policies ENV27 and ENV 29 of the Unitary Development Plan



Dŵr Cymru
Welsh Water

Developer Services
PO Box 3146
Cardiff
CF30 0EH
Tel: +44 (0)800 917 2652
Fax: +44 (0)2920 740472
E.mail: developer.services@dwrcymru.com

Gwasanaethau Datblygu
Blwch Post 3146
Caerdydd
CF30 0EH
Ffôn: +44 (0)800 917 2652
Ffacs: +44 (0)2920 740472
E.bost: developer.services@dwrcymru.com

Vale of Glamorgan County Council
Dock Office
Holton Road
Barry Docks
Barry
CF63 4RT

Date: 13/01/2016
Our Ref: PLA0009873
Your Ref: 2014/01505/OUT

Dear Sir/Madam,

Grid Ref: 298232 174795
Site: Darren Farm, Land at North West of Cowbridge
Development: Construction of link road & residential development

I refer to the above planning application relating to the proposed development at Darren Farm, Cowbridge. I also refer to our consultation response dated 21st May 2015.

I acknowledge that the application is now being reported to your Planning Committee for determination on the 14th January, accompanied by the Planning Officer's Report. The published Report includes a suite of recommended planning conditions, should be application be approved. I draw particular attention to condition no.7 of the Report.

In its current format the condition seeks to control the date of communication to the public sewerage system and the undertaking of a Hydraulic Modelling Assessment (HMA). However, the condition is currently silent on the requirement to implement the solutions derived from the HMA, which would provide sufficient hydraulic capacity in the system between the development site and Llanblethian Sewerage Pumping Station. In the absence of the solutions being delivered the development would place an unacceptable risk upon the integrity of the sewerage system, the environment and the services we provide to our customers; therefore I cannot support the condition in its current format.

In order to secure the outcomes of the Hydraulic Assessment, I offer the following revised condition for consideration by your Officers and Members of your Planning Committee:

No dwelling or the school hereby approved shall be occupied prior to 31st March 2018 unless Llanblethian Sewerage Pumping Station and the Cowbridge Waste Treatment Works, to which the development shall drain, have first been upgraded (and confirmation provided in writing by the Local Planning Authority that the upgrade works have been completed in full) and the necessary off-site improvements to the public sewerage system between the development site and Llanblethian Sewerage Pumping Station (as identified in the Hydraulic Modelling Assessment



Welsh Water is owned by Glas Cymru – a 'not-for-profit' company.
Mae Dŵr Cymru yn eiddo i Glas Cymru – cwmni 'nid-er-ellw'.

We welcome correspondence in
Welsh and English

Dŵr Cymru Cyf, a limited company registered in
Wales no 2366777. Registered office: Pentwyn Road,
Nelson, Treharris, Mid Glamorgan CF46 6LY

Rydym yn croesawu gohebiaeth yn y
Gymraeg neu yn Saesneg

Dŵr Cymru Cyf, cwmni cyfyngedig wedi'i gofrestru yng
Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.

Reference SE208B Darren Close, Cowbridge Revision 1, issued February 2015) have been completed.

Reason:

To prevent overloading of the public sewerage system and to ensure sufficient capacity exists in the system to accommodate the site; to protect the environment and to meet the requirements of policies ENV27 and ENV 29 of the Unitary Development Plan

It is our view that this revised condition is robust, precise and provides all stakeholders, including the Community and the Local Authority, the reassurance that the necessary solutions will be delivered in advance of the first beneficial occupation at the site. Further, it also ensures that no occupation will occur until our own programmed improvements at Llanblethian Sewerage Pumping Station and Cowbridge Wastewater Treatment Works are completed.

I trust you will appreciate our position. Clearly the imposition of planning conditions is a matter for your Authority to consider however as the Statutory Water & Sewerage undertaker for the area we are reliant on you to protect our assets and infrastructure via the planning process.

Yours faithfully,



Owain George
Lead Development Control Officer
Developer Services

LATE ITEMS FOR COMMITTEE**COMMITTEE DATE : 14 January 2016**

Application No.: 2014/01505/OUT	Case Officer: Mrs. J. M. Crofts
Location: Land at North West Cowbridge	
Proposal: Detailed Permission for the construction of a link road connecting Cowbridge bypass with Llantwit Major including footpaths/cycleways landscaping and associated engineering works. Outline permission with all matters reserved other than access for a mixed use residential led development - AMENDED SCHEME - increase in the maximum number of units that could be accommodated on the site from 390 to 475	

From: 4.1 66 Residents of the area including from Llanblethian**4.2 Jane Hutt AM****4.3 Alun Cairns MP**

Summary of Comments: Relating to concerns that a scheme has been agreed for control of surface water run-off which could lead to flooding including in Llanblethian :

4.1 residents: The proposed Rainscape scheme represents a risk of causing flooding and rendering the existing flood defences inadequate. The Thaw flows are up to the brim and given the increase in rainfall experienced this winter and the likely hood this is a new weather pattern, to proceed with the scheme as described would most likely be disastrous, and a complete waste of money spent on the existing flood defences. Why alleviate flow upstream, only to replace it downstream?

4.2 Jane Hutt AM: advising of receipt of correspondence from residents regarding scheme's potential to create flooding in Cowbridge and Llanblethian

4.3 Alun Cairns MP in addition to objections already made, objecting to a rainscape scheme on behalf of his constituents due to potential for increased flooding to the River Thaw without a scheme for increasing the capacity of the River.

Payne, Adrienne

RECEIVED

4.1.

From: Crofts, Jane M
Sent: 12 January 2016 10:22
To: Planning
Subject: FW: CEG Planning application 2014/01505/OUT - Rainscape Scheme - Cowbridge -

12 JAN 2016
Regeneration
and Planning

D.E.E.R
RECEIVED
ACTION BY: Jmc
NO: 22
ACK:

From: John Hailes
Sent: 07 January 2016 13:23
To: Crofts, Jane M
Subject: CEG Planning application 2014/01505/OUT - Rainscape Scheme - Cowbridge -

Dear Mrs J Crofts,

With regards to the proposed Darren Farm development on green fields, and the Welsh Water proposed Rainscape Scheme to relieve pressure on their sewage farm, this will have serious repercussions on other parts of Cowbridge.

The catchment area for this proposed Scheme in the middle of Cowbridge is quite extensive, with the loss of grassland with the new houses being built in North Road and with the development on the former British Legion site will increase the volume of water, as visualised at the moment, into the River Thaw.

Did Welsh Water discuss this Rainscape Scheme with Natural Resources Wales (formerly Environment Agency Wales), and the possible impact on Cowbridge and the houses in Llanblethian?

My friends had their house flooded twice in Llanblethian until the improvements to the flood-plains system to the North of Cowbridge. This Rainscape Scheme is below the improved floodplains and any overflow would revert to the older floodplain which now includes the Middlegate Estate and the Town Hall car park.

If you had seen the level of the Thaw on the 30th December you would have seen that the gap beneath the High Street road bridge was only just coping with the volume of water flowing. The river must have been very close to overflowing. With the climate change forecast of increasingly exceptional heavy rainfalls, such as experienced up North, this Madeap Scheme surely cannot have been approved by Natural Resources Wales.

There is also the proposal to route the sewage and surface water from part of the new development to the field below Geraints Close.

I live in this Close, and a few years ago a house at the bottom of the Close suffered a blocked drain and was flooded with sewage. The contractors who were employed to clear the blockage found that the blockage was in the field below the Close.

My father requested help from Welsh Water for the layout of the drains in this area and was told that they were laid over 40 years ago and they had no records for this area.

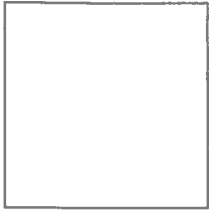
If they had no records then, how can they be sure now, that the existing system will be able to cope with the additional volume of water and sewage without this impacting on the lower area of Cowbridge? The original installation of sewage pipes below Geraints Close would not have been designed for such an extra volume of water-sewage as proposed. Further to that, I know of at least ten additional houses in Geraints Close and Way that have been added to this pipe-line in the last 40 years without any increased provision being made for them.

The proposed new development is at a higher elevation than the proposed connection area, and if there is a blockage or partial blockage somewhere down the pipe-line, the force of the extra surface water in a torrential downpour from that height would cause a back-up and possibly resulting in an overflow of sewage. Depending on the route, this could be anywhere in the lower part of Cowbridge, Geraints Way estate, The Verlands or even the new housing estate in Town Mill Road.

I would be grateful if you could look at these serious concerns and provide me with some indication that they have been given reasonable consideration by email or to me at the below address. Please don't hesitate to contact me for any additional information on telephone 07989 623054.

Yours sincerely

Mr John Hailes,
1 Geraints Close,
Cowbridge,
CF71 7BT



This email has been sent from a virus-free computer protected by Avast.
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From: Crofts, Jane M
Sent: 12 January 2016 10:25
To: Planning
Subject: FW: Planning application 2014/01505/OUT Darren Farm Cowbridge

-----Original Message-----

From: Mary Nevens <mailto:grandadn@hotmail.com>
Sent: 05 January 2016 17:21
To: Crofts, Jane M
Subject: Planning application 2014/01505/OUT Darren Farm Cowbridge

Sent from my hudl

I wish to express my strong opposition to the proposed Darren Farm development and to the subsequent amendments to the original plans.

As a resident of Llanblethian for 38 years and having endured major flooding to my property, I strongly object to any action that will disrupt the efficiency of the Flood Alleviation scheme which has been so successful and gives residents peace of mind.

The proposed development is far too large-scale.
Cowbridge's infrastructure and amenities are already stretched to capacity.

I support the views of the Cowbridge with Llanblethian Town Council on this matter.

Yours sincerely

Mrs Mary Nevens
Tregale
Piccadilly
Llanblethian
Cowbridge
CF 71 7JL

RECEIVED
12 JAN 2016
Regeneration
and Planning

D.E.E.R
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ACTION BY: JMC
NO: 28
ACK:

Cynulliad Cenedlaethol Cymru
Bae Caerdydd
Caerdydd CF99 1NA
www.cynulliad.cymru

National Assembly for Wales
Cardiff Bay
Cardiff CF99 1NA
www.assembly.wales

Our ref: JH/CB/

Mark Petherick
Cabinet Officer
Vale of Glamorgan Council
Civic Offices
Holton Rd
Barry
CF63 4RU

671
951

FAO: Cllr. Gwyn John

07 January 2016

Dear Gwyn

Re: Amended CEG planning application (2014/01505/OUT) for 475 houses on Darren Farm Cowbridge.

I have been contacted by local residents who are concerned about the proposed Rainscape scheme from the developers and Welsh Water, to collect surface water from part of Cowbridge High Street and pipe it into the River Thaw.

Residents fear that this proposal would put surface water from the High Street into the river downstream from the flood alleviation scheme control embankment but upstream from houses in Llanblethian. They are very concerned about the prospect of flooding for residents in Llanblethian who currently benefit from the Flood Protection scheme installed in 2007.

I understand that it could also reintroduce flooding potential for those previously flooded properties at the eastern end of Cowbridge, due to overflowing of the raised levels of water into the river.

Residents feel that the Flood Protection Scheme installed since 2007 has been successful. Emptying into the Thaw below the Protection area does not seem sensible and will exacerbate the situation downstream.

Bae Caerdydd
Caerdydd
CF99 1NA

Cardiff Bay
Cardiff
CF99 1NA

They object to the proposed Rainscape Scheme and request that an alternative be found so as to avoid the situation which arose prior to the Flood Protection Scheme.

I would be very grateful for some clarification and an urgent response to these serious concerns which continue to be raised with me.

With very best wishes

Yours sincerely

A handwritten signature in black ink that reads "Jane". The letter "J" is large and stylized, with a horizontal line above it. The rest of the name "ane" is written in a cursive, lowercase style.

JANE HUTT AM (VALE OF GLAMORGAN)

Petherick, Mark

From: ENGLAND, Ross <ross.england@parliament.uk>
Sent: 08 January 2016 12:45
To: Petherick, Mark
Subject: Objection to Planning Application 2014/01505/OUT

G74
LBI/LE

Dear Mark,

I am writing to object to amendments made to planning application 2014/05/01505/OUT on behalf of a number of my constituents who have contacted me with concerns regarding the proposed Rainscape Scheme at Darren Farm.

The principal concern amongst constituents is the potential for this scheme to increase the risk of flooding in other parts of Cowbridge and Llanblethian.

It is my understanding that the scheme intends to retain surface water run-off from the Darren Farm development on the Darren Farm Site, but I am informed that this water will ultimately drain into the river Thaw.

As you will be aware, there have been flooding issues that have arisen from the River Thaw in the past and during recent heavy rain there were serious local concerns that banks could burst and affect several residential locations.

Without widening or another scheme to increase the capacity of the river Thaw as it flows through Cowbridge and Llanblethian this scheme should not go ahead due to the potential for increased flooding.

It goes without saying that this objection is in addition to my objection to the overall proposal for development on the Darren Farm site which of course will be the major cause of increased surface runoff.

Yours,

Alun Cairns MP
Vale of Glamorgan



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LATE ITEMS FOR COMMITTEE 5.1 to 5.3

COMMITTEE DATE : 14 January 2016

Application No.: 2014/01505/OUT	Case Officer: Mrs. J. M. Crofts
Location: Land at North West Cowbridge	
Proposal: Detailed Permission for the construction of a link road connecting Cowbridge bypass with Llantwit Major including footpaths/cycleways landscaping and associated engineering works. Outline permission with all matters reserved other than access for a mixed use residential led development - AMENDED SCHEME - increase in the maximum number of units that could be accommodated on the site from 390 to 475	

From: 5.1 Nathaniel Lichfield & Partners, agents advisors on drainage
5.2 Principal Engineer
5.3 Natural resources wales (NRW)

Summary of Comments:

5.1 Agents advisors confirm that developer considers planning conditions associated with storm water will be fully addressed at the appropriate stage of development and any discharge to the River Thaw will be restricted, meaning that the rates will be lower than that provided at present day, thereby offering an overall betterment to downstream discharge rates which will reduce future flood events around Cowbridge and Llanblethian

5.2 Principal Engineer Confirms that the development would not be allowed to have a detrimental impact and conditions would deal with mitigation measures and drainage schemes to address flooding and drainage issues

5.3 NRW confirm that development has been assessed by them and conditions will address drainage issues including in relation to the prevention of flooding.

North West Cowbridge - Planning Application (2014/01505/OUT)

Technical Note : *Additional Information to Residents on Drainage Matters*

11th January 2015

1 Introduction

- 1.1 In response to questions raised by residents to the above planning application, this advisory note is supplied to offer clarity to the matter of both storm and foul water management.

2 Storm Water

- 2.1 The Flood Risk Assessment (FRA) prepared for the application has been built upon a 1 in 100 year storm event plus 30% allowance for climate change calculation, in accordance with National Planning Policy and Natural Resources Wales (NRW) guidance. The FRA demonstrates that the developed areas of the site will not only ensure no material impact on current flood patterns but actually offers a betterment of water attenuation on site. Run off from the development will reduce as a natural process of the installation of on-site storm water infiltration.
- 2.2 At present, storm water is free to discharge into the neighbouring locality with the potential to flood downstream. Through the proposals, storm water will be collected via a series of underground pipes beneath the development which run towards the lowest part of the site. Here, water will be stored in infiltration ponds with sufficient capacity to enable the storm water to slowly drain away through the porous ground beneath. Coupled with meticulous design with regards to site contouring, this will ensure no storm water will leave the site without first collecting within the infiltration ponds. Storm water will thus be contained within the site boundaries.
- 2.3 In summary, this system controls and reduces storm water flow off site, thereby offering a continuous and consistent improvement to the downstream catchment than is possible in present day conditions. Neither NRW nor Dwr Cymru Welsh Water (DCWW) has objected to the storm water proposals outlined within the FRA. Any planning conditions associated with storm water will be fully addressed at the appropriate stage of development.

3 Foul Water

- 3.1 Thorough and positive consultation with DCWW has taken place throughout the application process. They have undertaken a hydraulic modelling assessment to advise the developers what likely issues there may be, and what solutions can be put in place as mitigation. The hydraulic analysis showed that without mitigation the development could cause detriment with regards to predicted flooding and Combined Sewer Overflow (CSO) performance.
- 3.2 However, DCWW has confirmed that they will deliver a scheme by 1st April 2018 to mitigate the identified detriment and provide capacity at the Llanblethian Sewerage Pumping Station for all growth identified in the Local Development Plan.
- 3.3 Their preferred approach is through a series of improvement works, including a Rainscape Scheme as recommended by a DCWW Peer Review. Rainscape is an innovative approach to the management of both storm and foul water, and by using this initiative, DCWW has successfully implemented several large scale infrastructure projects over recent years in nearby Cardiff, Caldicot and Newport (further details of Rainscape are available at www.dwrcymru.com search 'Rainscape').
- 3.4 It is confirmed that the Rainscape scheme proposed at Cowbridge High Street, although subject to detailed design, will provide underground geocellular storage to retain storm water at the source. This storm water will then be soaked away in part and will also be discharged to the River Thaw. **Importantly, any discharge to the River Thaw will be restricted, meaning**

that the rates will be lower than that provided at present day, thereby offering an overall betterment to downstream discharge rates which will reduce future flood events around Cowbridge and Llanblethian.

- 3.5 The proposals will ensure nil detriment to the Cowbridge and Llanblethian communities in terms of the existing foul water network.
- 3.6 Neither NRW nor DCWW have objected to the foul water proposals outlined within the FRA. Any planning conditions associated with foul water will be fully addressed at the appropriate stage of development.

Goldsworthy, Marcus J

Subject: FW: Planning Application 2014/01505/OUT

From: Moon, Clive R
Sent: 12 January 2016 12:53
To: Goldsworthy, Marcus J
Cc: Crofts, Jane M; Robinson, Victoria L; Clogg, Michael T; Punter, Miles E
Subject: RE: Planning Application 2014/01505/OUT

Marcus,

The briefing note from Brookbanks may have addressed your queries but I would note the following.

A strategy for managing surface water, largely relying on infiltration, was commented on and suitable conditions agreed for us to be satisfied from a flood risk perspective. We raised concerns given the history of flooding out of the bottom of the site but we can manage that risk via the conditions requested – the development would not be allowed to have a detrimental impact. Our concerns about exceedance flows offsite have not been mentioned in the report but were discussed with Brookbanks. I would have anticipated this being the main concern but this doesn't appear to be the case.

The concerns raised below seem to be more focussed on the proposals for releasing spare capacity in the existing foul network as suggested in a HMA undertaken for the development (referred to in FCA section 5). The proposals for discharging attenuated flows to the Thaw would be regulated by NRW and given the response from John Hogg they are aware of the proposals. A RainScape strategy could have discharged solely to infiltration in which case NRW would not have commented and we would ensure the proposals were appropriate. The developer and DCWW will need to clarify who will maintain the RainScape assets post-development - I am unclear whether they will be adopted as public sewer or constructed within the adopted highway.

Regards,

Clive Moon
Principal Engineer (Coastal and Flood Risk Management)
Visible Services and Transport
Vale of Glamorgan Council / Cyngor Bro Morgannwg
tel / ffôn: 029 20673277
mob / sym: 07860526276
e-mail / e-bost: crmoon@valeofglamorgan.gov.uk

Visit our Website at www.valeofglamorgan.gov.uk
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Correspondence is welcomed in Welsh or English/Croesawir Gohebiaeth yn y Gymraeg neu yn Saesneg.

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Ystyriwch yr amgylchedd. Peidiwch ag argraffu'r neges hon oni bai fod gwir angen.*

Goldsworthy, Marcus J

Subject: FW: Jane Hutt AM - URGENT Rainscape Scheme Cowbridge

From: Hogg, John
Sent: 07 January 2016 15:21
To: Hutt, Jane (Assembly Member); Beaven, Camilla (AM Support Staff, Jane Hutt)
Cc: Hogg, John; jordan; England, Tim; Beynon, Gemma; Nolan, Sue
Subject: Jane Hutt AM - URGENT Rainscape Scheme Cowbridge

Dear Camilla,

Thank you for your email on 4 January regarding planning application 2014/01505/OUT for 475 houses on Darren Farm, Cowbridge.

We understand from speaking to the Local Authority and DCWW that the sewer system connecting the proposed site to the sewage treatment works has limited capacity. DCWW have advised that additional capacity would need to be created to accommodate increased foul flows and that a number of options (one of which is a Rainscape scheme) could feasibly be implemented. We are not aware that any decision has been taken on which option would be pursued.

DCWW have requested conditions to be included (if outline planning permission is granted) that will require the developer to agree the detail of the capacity improvement scheme with the Local Planning Authority and construct it prior to foul flows being discharged to the sewerage system.

DCWW have agreed to include us in discussions if the Rainscape proposal is to be the option actively considered. We do advise any proposals for surface water removal solutions should not increase flood risk elsewhere nor impact our flood alleviation schemes.

I hope this answers Jane's concerns but please do not hesitate to contact me if you need anything further.

Kind regards,

John

John Hogg

Head of Operations South East Wales/Pennaeth Gweithrediadau i'r De Ddwyrain
Cymru
Natural Resources Wales/Cyfoeth Naturiol Cymru /

LATE ITEMS FOR COMMITTEE

COMMITTEE DATE : 14 January 2016

Application No.: 2014/01505/OUT	Case Officer: Mrs. J. M. Crofts
<p>Location: Land at North West Cowbridge</p> <p>Proposal: Detailed Permission for the construction of a link road connecting Cowbridge bypass with Llantwit Major including footpaths/cycleways landscaping and associated engineering works. Outline permission with all matters reserved other than access for a mixed use residential led development - AMENDED SCHEME - increase in the maximum number of units that could be accommodated on the site from 390 to 475</p>	

From: Ecology

Summary of Comments: retains concerns regarding loss of habitat/breeding grounds for lapwing and also skylark and thus concludes that mitigation should be provided by additional legal agreement requirement and /or condition

Suggested condition:

Prior to the commencement of any site clearance works an appropriate scheme for mitigation for skylark and lapwing, and details of the timescale for such mitigation works, shall be submitted to and approved in writing by the local planning authority and any approved scheme of mitigation shall be undertaken in full accordance with the approved details.

Reason: In the interests of enhancement of the ecology of the area and to meet the requirements of policy ENV16 of the Unitary Development Plan.

CONSULTATION RESPONSE: COUNTRYSIDE AND ENVIRONMENT (ECOLOGY)

To / I:	Operational Manager Development & Building Control	From / Oddi Wrth:	Ecology, Development Services Countryside and Economic Projects.
FAO	Mrs. J. M. Crofts		Mrs Erica Dixon
Date / Dyddiad:	7 January 2016	Tel / Ffôn:	(01446) 704855
Your Ref / Eich Cyf:	2014/01505/FUL	My Ref / Fy Cyf:	
Location	Land at North West Cowbridge		
Proposal	Detailed Permission for the construction of a link road connecting Cowbridge bypass with Llantwit Major including footpaths/cycleways landscaping and associated engineering works. Outline permission with all matters reserved other than access for a mixed use residential led development - AMENDED SCHEME - increase in the maximum number of units that could be accommodated on the site from 390 to 475		

ECOLOGY RESPONSE	
<input type="checkbox"/> No comment	<input type="checkbox"/> Notes for applicant
<input type="checkbox"/> Object (holding objection)	<input type="checkbox"/> Request for further information
<input checked="" type="checkbox"/> Object and recommend refusal	<input type="checkbox"/> Recommend planning conditions

Summary

We maintain our current position, but provide the following comments on the email received.

Referenced documents

With respect to our comments, we make reference to the following documents

- Ecological Consultants report “*Land to the North West of Cowbridge, Ecological Survey Report*”, Baker Consultants, 16 December 2014
- Ecological Consultants Report “*Land to the North West of Cowbridge, Bird Strategy*”, Baker Consultants, 4 June 2015.
- *County Ecology Officer first response to the planning application, 12 February 2015*
- *County Ecology Officer response to the planning application, 12 November, 2015*

- Letter from Carlos Abrahams of Baker Consultants, by email to Jane Crofts, 3 December 2015

Detailed Comments

We feel that the consultant in the email of 3 December 2015 in stating the situation regarding lapwing and skylark at the site has not given a full picture and therefore the statement may be misleading. We provide further information to this, as detailed below.

“from our survey information, lapwing is not considered to breed within the proposed development site”.

1. The bird survey was carried out in 2014 with visits on 23 May, 6 June and 26 June in the early morning or evening; with an additional non-survey visit on 18 March.
2. CIEEM Professional Guidance Series 9 – Ecological Report Writing recommends the inclusion of “Historical records” as part of the desk study. Historical records can include ad hoc or anecdotal records.
3. Lapwing are considered ‘near threatened’ at a global level on the IUCN list (<http://www.birdlife.org/datazone/species/factsheet/22693949>) and ‘vulnerable’ at a European level (http://www.birdlife.org/datazone/userfiles/file/Species/erlob/summarypdfs/22693949_vanellus_vanellus.pdf). Therefore, it is important that populations of birds are accurately surveyed and adequately protected.
4. No information or evidence has been provided to the LPA that would indicate or confirm a change in management practices on the site.
 - a. However, the consultant is welcome to submit full details of the historical cropping plan or other information to demonstrate unsuitability for breeding for a significant length of time.
5. The significant spacing between survey visits (and the minimum number of visits undertaken to meet minimum survey standards) may have resulted in failed breeding attempts not being seen
 - a. The Consultant may submit details of when the winter wheat was harvested to support their assertion.

Skylark

Skylark was confirmed breeding on site during the surveys in 2014. Creation of bird habitat within the western buffer is unlikely to be of any benefit to Skylark. The area is bordered by hedgerows and a road, and is crossed with hedgerows and occasional trees. At its widest point, this area is approximately 80m and at its narrowest is 40m. Skylark are vulnerable to nest predation (e.g. from corvids), and avoids areas close to woods, hedgerows, single trees and other vertical structures (*Donald, P.F., Evans, A.D., Muirhead, L.B., Buckingham, D.L., Muirhead, L.B., & Wilson, J.D. 2001. Factors affecting the territory distribution of Skylarks *Alauda arvensis* breeding on lowland farmland. *Bird Study* 48: 271-278*). 20m is generally accepted as the required buffer. Therefore the majority of this area is not viable breeding habitat for Skylark.

Further to this, the entire area would be subject to increased predation pressure from the domestic cats, present as a result of the residential development, a likely effect of the development.

In the only area that could be viable (ie at the widest point) the site is crossed by a Public Right of Way which will be retained. The report "Dogs, Access and Nature Conservation; English Nature Research Reports; Report 649" concludes that whilst research has rarely tried, or been able, to distinguish the specific effects of dogs on wildlife, as distinct from effects of humans and dogs generally, the evidence that is available (both anecdotal and from controlled experiments) shows that dogs do disturb ground nesting birds in particular and that this disturbance can lead to adverse effects on individuals, and in some cases on populations. The greatest risk is from predation of eggs or young (particularly by corvids) when parent birds are flushed from nests, whilst other effects include reduced feeding opportunities coupled WITH HIGHER ENERGY COSTS LEADING TO REDUCED FITNESS.

In short therefore, the western buffer area, created as new bird habitat may be suitable for vegetation nesting birds, but is extremely unlikely to be appropriate for ground nesting birds. Therefore it is our opinion that no suitable habitat for ground nesting birds has been provided to mitigate the effects of the development.

The increase in vegetation to benefit other species should not be used in the assessment of the impact. The impact on individual species should be addressed individually, unless there is a reason for grouping (due to habitat preference similarities).

The Vale of Glamorgan Ecologist has not accepted that a net positive effect will occur. I refer to Point 7 in my previous reply

- 7) *In addressing impacts on protected species, the response should be both adequate and appropriate. To this end, we would consider like-for-like replacement to be appropriate. Mitigation involving enhancement of an existing habitat for one species (or group of species) and accepting the loss of another species (or group of species) is not deemed to be appropriate, nor in keeping with the NERC Act. Furthermore, in our opinion, this does not go far enough to satisfy our legal obligations under the Conservation Regulations.*

TAN5 states that "***the presence of a protected species is a material consideration***". Attention is drawn to Regulation 9A of the Habitats Regulations, again previously stated in my responses, that The Vale of Glamorgan, as a Competent Authority, in the exercising of their functions, has a statutory duty to (Conservation of Habitats and Species Regulations 2010) to "*take such steps in the exercise of their functions as they consider appropriate to contribute to..... the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat.....*" (Reg 9A(2) & (3)).

Taken from “*Draft Guidance for public bodies on implementing the duty in Regulation 9A of the Conservation of Habitats and Species Regulations 2010 relating to the provision of sufficient diversity and area of habitat for wild birds in England and Wales*”.

“Whilst there are no specific population level targets for different bird species for the purposes of implementing the Regulations, the objective in regulation 9A(3) is taken to mean that the diversity and area of habitat should be such that bird populations in England and Wales are capable of maintaining themselves on a long-term basis across their natural ranges. The focus for management actions under regulations 9A(1) and (2) should be on the natural habitats used by wild bird species. Particular attention needs to be given to the management, restoration and, where necessary, re-creation of the habitats of those species with populations in decline, but also to ensuring that those habitats supporting viable populations of birds are maintained.”

Net gains of biodiversity are accepted from development, providing that the net-gain has been adequately and appropriately demonstrated. However, species need to be addressed on an individual species level and in the case of Skylark, where there will be a demonstrated loss, the proposed mitigation is not appropriate to the species concerned.

Mitigation and compensation whilst delivering a net biodiversity gain, must also address priority or target species. It is our opinion that in this case, insufficient mitigation/compensation has been included within the development plans to ensure that

- a) There will be no deterioration of Skylark or Lapwing (a species in global decline) populations
- b) There will be a net biodiversity gain as a result of this development
- c) That the mitigation and compensation proposed will ensure that the Local Planning Authority will not be in breach of regulation 9A of the Habitats Regulations or NERC.

If planning permission were granted with the plans as proposed, it is unlikely that the LPA would be complying with its statutory duties under the Natural Environment and Rural Communities Act 2006 (NERC) nor the Conservation of Habitats and Species Regulations 2010.

Furthermore, to grant planning permission at this stage, would appear to be in contradiction to Planning Policy Wales and TAN5. Therefore, I consider this to be an **unacceptably high risk** to the Authority and the decision could be open to legal challenge.

Conclusion

The only conclusion that can accurately be reached from the survey and information available to the LPA is that **Lapwing have previously bred on the site, but did not breed successfully on the site in 2014**. As previously stated, Lapwing are site-faithful and therefore the failure to breed successfully in one year, would not justify the classification of the site as a non-breeding site. There is historic evidence of lapwing breeding at this site, and at the present time, we do not feel that the consultant has

provided sufficient evidence to confidently classify this site as a non-breeding site for Lapwing.

It is highly unlikely that the mitigation proposed will maintain, let alone enhance the existing population of Skylark and therefore this must be seen as a biodiversity loss.

I therefore maintain my current position, that as the plans stand, I recommend that either the application be refused or that a bi-lateral agreement / S106 is pursued to secure adequate and appropriate replacement habitat for priority and protected species on site.

ANNEX 1 – SUPPORTING INFORMATION (LEGISLATION, PLANNING POLICY AND CASE LAW)

CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010 (AS AMENDED):

Known as the “Habitats Regulations”, this statutory instrument transposes the Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive) into UK law. The Directive is the means by which the European Union meets its obligations under the Bern Convention. The most vulnerable and rarest of species internationally (in the European context) are afforded protection under this legislation. The species listed on Schedule 2 are termed “European Protected Species” and are afforded the highest levels of protection and command strict licensing requirements for any works which may affect them. The species include all British bats, Otter, Dormouse and Great Crested Newt. They are fully protected against disturbance, killing, injury or taking. In addition any site regarded as their “breeding site or resting place” is also protected. It is generally regarded that the site is protected whether the animals are present or not.

The Habitats Regulations clearly outline the role of Planning Authorities in the implementation of the Habitats and Birds Directives; by stating [Section 9(3)] “**A competent authority, in exercising any of their functions, must have regard to the requirements of the Habitats Directive and Birds Directive so far as they may be affected by the exercise of those functions**”

New amendments to the Conservation of Habitats and Species Regulations 2010 included a duty on LPAs to “*take such steps in the exercise of their functions as they consider appropriate to contribute to... the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat...*” (Reg 9A(2) & (3))

Habitats Regulations Licensing

Where works will affect a EPS, then the developer must seek a derogation (licence) prior to undertaking the works. The licence can only be issue once the “3 tests” are satisfied, that is:

- Test 1 – the purposes of “preserving public health or safety, or for reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment”.
- Test 2 – there must be “no satisfactory alternative”; and
- Test 3 – the derogation is “not detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range”.

Licences are issued by Natural Resources Wales (NRW), with NRW assessing Test 3, and the LPA assessing tests 1 & 2 (where proposals are not subject to planning, then NRW alone will assess all three tests). Where Planning regulations apply, the NRW will only issue a licence after determination of the planning application. Planners failing to do so will be in breach of the Habitats Regulations (see also Case Law, Morge Case and Woolley Ruling below).

WILDLIFE AND COUNTRYSIDE ACT 1981 (AS AMENDED)

The WCA protects the UK's most vulnerable and rare species as outlined below.

Section 1 – breeding birds. The basic protection afforded to all birds is:

- Protection from killing, injury or taking of any wild bird
- Protection from taking, damaging or destroying the nest of any wild bird
- Protection from taking or destroying the egg of any wild bird

Further, some species, specifically those listed on Schedule 1 of the Act are afforded extra levels of protection to include:

- Protection from disturbance whilst it is nest building; or, is at or near a nest with eggs or young, or disturb the dependant young of such a bird.

There are exemptions from this basic protection for, for example: sale, control of pest species and sporting eg. game birds outside of the close season.

Section 9 (Schedule 5) - protected animals (other than birds) All animals listed on Schedule 5 are protected against killing, injury or taking. Any structure/place used for shelter or protection is protected against damage, destruction or obstructing access to. And it is an offence to disturb an animal whilst using such a structure / place. Some species are afforded "Part Protection" meaning that they enjoy only some of the protection outlined above – eg the animals may be protected, but not their structure used for shelter/protection (such as slow worm).

Section 13 (Schedule 8) – protected plants. Protected plants are afforded protection against: being picked, uprooted or destroyed. They are also protected against sale (or advertising for sale) – this is particularly relevant with respect to bluebells.

THE PROTECTION OF BADGERS ACT 1992

This protects badgers from killing, injury and taking; or attempting to kill, injure or take. Badger setts are also afforded protection and it is an offence to:

- Damage a badger sett or any part of it
- Destroy a badger sett
- Obstruct access to any entrance of a badger sett
- Disturb a badger when it is occupying a badger sett

Development which will destroy or disturb a badger sett (within 30m) is subject to licensing. The licensing body is NRW. However, badgers are considered a species protected under UK legislation (see PPW) and are therefore a material consideration during the planning decision.

NATURAL ENVIRONMENT AND RURAL COMMUNITIES (NERC) ACT 2006

Under the NERC Act, Local authorities have a Duty to have regard to the conservation of biodiversity in exercising their functions. The Duty affects all public authorities and aims to raise the profile and visibility of biodiversity, to clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making. Note - Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.

PLANNING POLICY WALES SEPTEMBER 2009 (TECHNICAL ADVICE NOTE 5: NATURE CONSERVATION AND PLANNING)

Section 6.2.1 – the presence of a protected species is a material consideration when a local planning authority is considering a development proposal, that, if carried out, would be likely to result in disturbance or harm to the species or its habitat.

Section 6.2.2 – It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted.

Section 6.3.5 – any step in the planning or implementation of a development likely to affect a European Protected Species could be subject to a licence to permit or the survey or implement the proposal are under a duty to have regard to the requirements of the Habitats Directive in exercising their functions.

PLANNING POLICY WALES (EDITION 5, NOVEMBER 2012)

Planning Policy Wales, Section 5.5.11 states that *“The presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat”*.

Furthermore, Section 5.5.12 states that *“Developments are always subject to the legislation covering European Protected Species regardless of whether or not they are within a designated site. ”And “Local planning authorities are under a duty to have regard to the requirements of the Habitats Directive in exercising their functions. To avoid developments with planning permission subsequently not being granted derogations in relation to European protected species, planning authorities should take the above three requirements for derogation into account when considering development proposals where a European protected species is present”*.

VALE OF GLAMORGAN COUNCIL - SUPPLEMENTARY PLANNING GUIDANCE

Supplementary Planning Guidance – Biodiversity and Development

WOOLLEY RULING

This case confirmed that local planning authorities must apply the same three tests as Natural England (in Wales, CCW) when deciding whether to grant planning permission when one or more of the European protected species offences under the Habitats Regulations may be committed.

This judgment clarifies a legal duty which was already in existence although many planning authorities were not applying it correctly. His Honour Judge Waksman QC, in the High Court in June 2010, handed down this ruling in the case of R (on the application of Simon Woolley) v Cheshire East Borough Council concerning a development with a bat roost. **This judgment makes it clear that the local planning authority must apply the “3 tests” when determining a planning application.**

MORGE CASE (SUPREME COURT CASE 19 JANUARY 2011)

The case gives clarification to deliberate disturbance and to the interpretation of “damage or destruction of a breeding site or resting place”. It also gives guidance on how LPA should discharge their duties with respect to the Habitats Directive.

CORNWALL RULING

Judgement that a planning authority had acted unlawfully by granting planning permission without sufficient information on flora and fauna.

Sometimes planning authorities grant planning permission before some or all ecological surveys have been carried out, making ecological surveys a planning condition, or Section 106 Agreement, under the Town and Country Planning Act 1990.

For development that requires an Environmental Impact Assessment this practice was subject to judicial review proceedings in the High Court and it was determined that the planning authority had acted unlawfully by granting planning permission without sufficient information on flora and fauna (known as the Cornwall Ruling because the planning authority in this case was Cornwall County Council). Requiring surveys as a condition of the Section 106 Agreement was not sufficient, as this would exclude the consultation process that is required under the Town and Country Planning (EIA) Regulations (1999).

LATE ITEMS FOR COMMITTEE

COMMITTEE DATE : 14 January 2016

Application No.: 2014/01505/OUT	Case Officer: Mrs. J. M. Crofts
<p>Location: Land at North West Cowbridge</p> <p>Proposal: Detailed Permission for the construction of a link road connecting Cowbridge bypass with Llantwit Major including footpaths/cycleways landscaping and associated engineering works. Outline permission with all matters reserved other than access for a mixed use residential led development - AMENDED SCHEME - increase in the maximum number of units that could be accommodated on the site from 390 to 475</p>	

From: amended condition to clarify drawing references

Summary of Comments:

18. The development shall be carried out in accordance with the following approved plans and documents: Cowbridge Pattern Book, Environmental Impact Assessment and Appendices, Figures, Technical Assessments , Design and Access Statement and Addendum received 10 September 2015, Planning Statement and Addendum received 10 September 2015, Waste Assessment, Transport Assessment, Environmental Statement Addendum Appendices and figures, Service Supply Statement, Statement of Community Involvement ,Non Technical Summary (amended 10 September 2015), Environmental Statement Addendum Technical Assessments received on 22 December 2014 other than as amended by documents received on 11 June 2015 and 10 September 2015 and drawings PS31131-12/1 and 12.2 Revisions K, 12.6 Revision J, 21 Revision F from Nathaniel Lichfield and Partners and 2147/P35a from Tyler Grange received on 10 September 2015.

Reason:

For the avoidance of doubt as to the approved development and to accord with Circular 016:2014 on The Use of Planning Conditions for Development Management.

8,

LATE ITEMS FOR COMMITTEE

COMMITTEE DATE : 14 January 2016

Application No.: 2015/00534/OUT	Case Officer: Mr. Steven Rennie
Location: Land rear of Seaton Hoe, Pen Y Turnpike Road, Dinas Powys	
Proposal: Outline planning consent for the construction of 1no residential property including access, with all other matters reserved	

From: Steven Rennie (Case Officer)

Summary of Comments:

Correction for condition 6, which should refer to the vision splays required with condition 7 and not 8. Condition has been amended as follows:

6. The dwelling hereby approved shall not be brought into beneficial use until the approved access, any off-site highway works, footpath link and the vision splays (referred to in Condition 7), as shown on plan 2729[C]S(0)11 A (received 2 November 2015) have been constructed in accordance with the approved plans up to adoptable standards. The access and footpath shall thereafter be so retained to serve the development hereby approved and the footpath shall be offered up for adoption to the Local Highway Authority prior to first beneficial occupation of the dwelling hereby approved.

Reason:

In the interest of highway safety and to ensure a satisfactory form of access to serve the development, and to ensure compliance with the terms of Policy ENV27 of the Unitary Development Plan.

LATE ITEMS FOR COMMITTEE

COMMITTEE DATE : 14 January 2016

Application No.: 2015/01215/FUL	Case Officer: Mr. Steven Rennie
Location: Springfield, Graig Penllyn Proposal: New two storey, three bedroom detached dwelling house and detached double garage in existing residential plot	

From: Mrs Dixon (Council Ecologist)

Summary of Comments:

No objections though would be seeking landscaping and recommends native species.

Rennie, Steven

From: Dixon, Erica
Sent: 12 January 2016 09:56
To: Rennie, Steven
Subject: RE: Springfield

Thanks. Nothing else, but it would be good to see the proposals for boundary landscaping/planting and to recommend a native species hedge.

Erica Dixon
Ecologist
Regeneration and Planning
Vale of Glamorgan Council / Cyngor Bro Morgannwg
tel / ffôn: 01446 704855
e-mail / e-bost: edixon@valeofglamorgan.gov.uk

Visit our Website at www.valeofglamorgan.gov.uk
Ewch i'n gwefan yn www.bromorgannwg.gov.uk

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Correspondence is welcomed in Welsh or English/Croesawir Gohebiaeth yn y Gymraeg neu yn Saesneg.

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From: Rennie, Steven
Sent: 11 January 2016 16:12
To: Dixon, Erica
Subject: RE: Springfield

Hi Erica – Photo attached. Excavations already done and retaining wall being put in now. We have asked for additional landscaping to the boundaries when done. Anything else you would want? I don't think there are any ecology requirements with the last application a couple of years ago though.

Steven Rennie
Senior Planner
Regeneration and Planning
Vale of Glamorgan Council / Cyngor Bro Morgannwg
tel / ffôn: 01446 704653
e-mail / e-bost: srennie@valeofglamorgan.gov.uk

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Ewch i'n gwefan yn www.bromorgannwg.gov.uk

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From: Dixon, Erica
Sent: 11 January 2016 14:30
To: Rennie, Steven
Subject: Springfield

LATE ITEMS FOR COMMITTEE

COMMITTEE DATE : 14 January 2016

Application No.: 2015/01215/FUL	Case Officer: Mr. Steven Rennie
Location: Springfield, Graig Penllyn Proposal: New two storey, three bedroom detached dwelling house and detached double garage in existing residential plot	

From: Glamorgan Gwent Archaeology Trust

Summary of Comments:

Consultee response: Unlikely that archaeological material would be disturbed and no objections raised.

Our ref: A51360/CNM

ARCHAEOLOGICAL PLANNING

Head of Planning and Transportation
Vale of Glamorgan Council
Dock Office
Barry Docks
Barry
CF63 4RT

6th January 2016

FAO Mr. Steven Rennie

Dear Sir

Re: New two storey, three bedroom detached dwelling house and detached double garage in existing residential plot Springfield, Graig Penllyn Pl.App.No. 2015/01215/FUL


Thank you for consulting us on this application.

The Historic Environment Record shows the application area to be located on the outskirts of Graig Penllyn in an area of post-medieval expansion. The record shows no archaeological features or finds and it is therefore unlikely that material would be disturbed during the development.

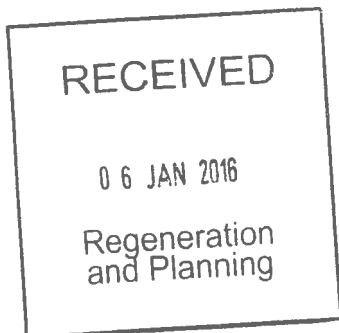
The record is not definitive, however, and should any archaeological material be disturbed during the course of the work, please contact this Division of this Trust. Nevertheless, as the archaeological advisers to your Members, we re-iterate our previous opinion, that we have no objection to the determination of this application.

Thank you for consulting us on this application. If you have any questions or require further advice on this matter please do not hesitate to contact us.

Yours faithfully



Neil Maylan BA MCifA
Archaeological Planning Manager



Archaeological
Planning



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LATE ITEMS FOR COMMITTEE

COMMITTEE DATE : 14 January 2016

Application No.: 2015/01215/FUL	Case Officer: Mr. Steven Rennie
Location: Springfield, Graig Penllyn	
Proposal: New two storey, three bedroom detached dwelling house and detached double garage in existing residential plot	

From: Mr R Hatherway (Planning Consultant for Neighbour at 'Bramblewood')

Summary of Comments:

Letter highlights the removal of trees along the boundary to the east and the excavations already undertaken by the application. Also stated that due to the excavation works the vegetation to the boundary with Bramblewood is unlikely to survive, which is "absolutely necessary" to mitigate the impacts between the proposed house and the neighbouring property.

The Consultant also notes that the works undertaken since the application has been submitted results in the proposals not according with the submitted Design and Access Statement or Arboricultural Report. Examples have been highlighted within the letter.

Letter also states that the proposed stone wall to the frontage would be out of keeping with the character of the village. The letter also states that the wall would cause issues relating to visibility when exiting the access from Bramblewood.

The neighbour has also employed a surveyor to assess the excavation works and required retaining barriers needed, in relation to possible litigation being considered.

The letter also states that a Flood Consequence Assessment is required due to the excavated area recently being flooded. Required information regarding levels.

Rennie, Steven

From: Rob Hathaway <rob@planrltd.co.uk>
Sent: 11 January 2016 09:32
To: Rennie, Steven; Planning & Transportation (Customer Care)
Subject: Springfield, Graig Penllyne
Attachments: Objection to Planning Applic at Springfield - 2015-01215-FUL.pdf

Steven

Please see further neighbour objection following release of your report to Committee. The site and surrounding also clearly floods (see objection photos) and given the importance of finished floor levels to protecting the amenity of the occupiers of Bramblewood – it would appear advisable for an FCA to advise on the floor level required before any the development goes any further.

My client is also exploring litigation based on the undermining of his land and has commissioned a consultant's report on this. I am aware that some information on retaining walls has been provided but I am unsure is this information is sufficient. For example the drawing dp2286_dp110a shows a 1.2m retaining wall when the excavation has left a 2.4-3.0m sheer face in the south west corner that has now collapsed.

Can you please acknowledge receipt and can you bring these matters to the attention of councillors before the site visit.

Robert Hathaway BSc Hons, Dip TP, MRTPI

rob@planrltd.co.uk

07532088577





**Objection to Proposed House and Garage at Springfield, Craig Penllyne, CF71 7RU.
Planning Application 2015/01215/FUL**

I represent Mr and Mrs Cookson who live at Bramblewood Graig Penllyne which is the house most affected by the proposed grant of planning consent at land adjacent to Springfield. I write to formally object to the proposed 2-storey, 3-bedroom detached dwelling house and detached double garage on site.

The Council previously granted consent under planning application 2013/00955/FUL for a detached dwelling to the south of Springfield. It was clearly the view of the Council at the time of consent that retention of the surrounding landscape on the boundaries formed a very important reason for granting consent. Especially given the level of screening offered to the occupiers of Bramblewood House that sits in close proximity and on elevated ground to the west. This is clearly evidenced from the case officer's report, the consent and conditions 12 and 14 approval where the trees surrounding the site were due to be retained in line with Policy ENV 27 of the UDP.

However in advance of any opportunity for the Council's arboriculturalist or Council Planning Committee members to consider the merits of an alternative planning proposal for the site, the applicant has removed all the trees along the front (eastern) boundary. The applicant has also undertaken significant excavation on the site such that my client's land has been undermined and has started to collapse. This is currently subject to the possibility of litigation outside of the planning system. However the excavation has effectively removed a large portion of the root protection area from the natural vegetation on the southern and western boundaries. I am very surprised that given the weight that the planning department places on the protection of the western boundary to mitigate against the visual impact of the new house, that this point is not addressed in the current report placed before Planning Committee members. We understand that the application is subject to a site visit by Planning Committee members on Jan 14 2016 and Members will see the site for themselves. Given that a significant proportion of the remaining boundary vegetation is effectively hanging in some places in mid-air, arboricultural guidance would point to the fact that the vegetation is unlikely to survive. The likely loss of the existing relatively mature landscaping between Springfield and Bramblewood that is heralded in the 2013 application and this application is absolutely necessary to militate against the proximity of the two houses is particularly damaging to the argument to allow development.

We also note that the scheme does not follow the advice of the Arboricultural Report or DAS submitted as part of the application. This is not mentioned in the Planning Officer's report. The removal of the landscaping totally changes the character and appearance of the local area. Under Site Conditions 2.2 of Cardiff Treescapes recent report the consultants comment:

'There are no individual trees of any great arboricultural or amenity merit on the site although the surrounding hedgerow groups provide screening cover, habitat and access corridors for

wildlife. Overall the area is perceived as rural with interconnected hedgerows and low density housing.'

The Design and Access Statement and Cardiff Treescapes Tree Protection Report recommends the retention of the majority of the front landscaping. For example the Cardiff Treescapes Report' conclusions state

'It is our opinion a development within the garden area of this property will not result in any significant tree loss. The development proposal plan (DP 110 2267 04/09/2013) supplied by Jonathan N Williams of the Robertson Francis Partnership indicates the development foot print which would necessitate the removal of some shrubs and one C category tree. The proposed access driveway to the site will necessitate the removal of part of tree group T1, Leyland Cypress. Other trees that have been highlighted as requiring removal are either in poor health (T 7 & T8 Elms) or are considered to be unsuitable for the location (T6 Ash).

- *Screening to the site can largely be maintained although part of group 1 (Leyland Cypress) will need to be removed to allow the construction of the access driveway*

However the images of the total removal of the treed front screening is out of accord with the 'supposed' agreed vision and approval for the site as approved in 2013 and cannot be claimed to be part vision (as listed by the DAS and Tree Protection Report) for the current 2015 application. An examination of the images contained in the 2015 DAS clearly shows the pre-existing situation where soft landscaping screens the site and my client's property at Bramblewood from the main road

Whereas the 2013 consent retained a soft landscaping screening which is a more predominate feature of this section of the village, the applicant's proposal is to erect a 1.8m stone wall along the frontage of the plot. Such a long high stone wall is considered to be out of keeping with the character of this part of the village, notwithstanding that stone is a feature of the older parts of the village. The erection of a stone wall in the location shown has potential to a more permanent immovable barrier and cause visibility issues for my clients as they egress Bramblewood. Any permission for a stone wall would have to be conditioned to be so set back into the site that it would not cause any harm to visibility.

The lack of fore thought in the overall planning and development of the site is evidenced in the fact that the applicant has only recently had to be made aware that he is required to install retaining walls to prop up his neighbour's land. My clients have today (Friday Jan 8 2016) received some basic retaining wall details for the southern and western boundaries which leave a number of questions unanswered and my client is seeking professional legal and structural engineering advice in relation to both the excavation and destabilisation of their land. My client has commissioned a detailed surveyor's report on the works in advance of possible litigation (this will be forwarded when available) but interim advice includes:

- excavations have removed the batter and support for my client's land leaving a sheer vertical face;
- no details are provided in the application in relation to the treatment of the boundaries;
- the observation that the sheer vertical face may fail (in fact as can be seen from the photos part of the face has already slumped);
- the need for temporary support given that the sheer face is in excess of 2m;
- the need for permanent support;
- the need for examination by building control; and
- the need for serving of notices under the Party Wall Act.

The applicant has lowered the ground level of the main plot and filled in a ditch that ran parallel to the highway. Given the high rainfall and as a low lying spot in the village, the whole site has subsequently flooded over the recent weeks. The pictures below shows the extent of flooding on the site and local residents report frantic efforts over the last weeks to prevent damage to surrounding land through temporary dams, revetments, sand bagging and pumps. The flooding calls into question the information provided at the application stage and the no objection response from the Council's land drainage section. It is patently obvious that the site has flooded and this suggests the need for a **Flood Consequences Assessment (FCA)** both in connection with the need to protect the site and any adverse effect on surrounding land. As well as this and as a consequence of the flooding of the site it will surely be the applicant's intention to raise the floor level of the proposed house. This reveals the need for further detailed drawings based on finished floor levels to adequately take account of the potential impact of any new house on Bramblewood. Under the previous 2013 determination the Council demanded plan based evidence that any new house would not adversely affect the amenity of the occupiers of Bramblewood. It is strongly requested that the Council follow exactly the same course before granting consent and such proposed plans would need to be based on real finished floor levels based on the recommendations arising from a FCA.

The 2013 approval on the site restricted development on the plot to that closest to the existing Springfield house leaving the south of the site in front of Bramblewood free from development. This present proposal would see a double garage built in front of Bramblewood and would increase the building footprint on the land.

Pre Existing Image of Street Scene



Condition of Site on Jan 5 2016



Jan 8 2016

Rennie, Steven

From: Rob Hathaway <rob@planrltd.co.uk>
Sent: 12 January 2016 14:15
To: Planning & Transportation (Customer Care); Rennie, Steven
Subject: FW: Revised Report -Springfield
Attachments: Report in Respect of Adjacent Excavations - Bramblewood House.pdf

Please see attached report.

Robert Hathaway BSc Hons, Dip TP, MRTPI

rob@planrltd.co.uk

07532088577



From: Simon Care [<mailto:SCare@berrysmith.com>]
Sent: 12 January 2016 12:26
To: 'Rob Hathaway'
Cc: Andy Cookson; 'Laura Cookson'
Subject: FW: Revised Report

Hi Rob

Please see below and attached from John Day as I note you were not copied in.

Kind regards

A handwritten signature in black ink, appearing to read 'Simon Care'.

SIMON CARE
BERRY SMITH LLP

Direct e-mail: scare@berrysmith.com
Enc.

From: John Day [<mailto:john.day@coark.com>]
Sent: 12 January 2016 12:15
To: Simon Care <SCare@berrysmith.com>
Cc: Andy Cookson (andygcookson@hotmail.com) <andygcookson@hotmail.com>
Subject: Revised Report

Simon/Andrew

Please see attached revised report.

**REPORT IN RESPECT OF
ADJACENT EXCAVATIONS
BRAMBLEWOOD HOUSE,
GRAIG PENLLYN, COWBRIDGE**

Report in Respect of Adjacent Excavations

in respect of

Bramblewood House, Graig Penllyn, Cowbridge

on behalf of

Mr Andrew Cookson

File Reference : JD/44123

Date of Publication : January 2016

Cooke & Arkwright
7/8 Windsor Place

Cardiff
CF10 3SX

Tel: 02920 346325

Fax: 02920 346350

email: john.day@coark.com

Our Ref: JD/44123

Private & Confidential
Mr Simon Care
Berry Smith LLP
Haywood House
Dumfries Place
CARDIFF
CF10 3GA

Dear Mr Care

REPORT IN RESPECT OF ADJACENT EXCAVATIONS
BRAMBLEWOOD HOUSE, GRAIG PENLLYN, COWBRIDGE, VALE OF GLAMORGAN

Contents	
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4. Stability of Excavations.....	4
5. Right of Support.....	6
6. Conclusion	6
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1. Instructions

- 1.1 Cooke & Arkwright have been instructed by Mr Andrew Cookson to investigate the ground excavation works recently completed within the land adjacent to his boundary and advise whether or not the current conditions remaining are suitable to support his driveway and other boundaries to his property in the short and long term.

2. Existing Landscaping

- 2.1.1 Although we did not inspect the property prior to the excavation works being carried out, we have viewed the site using historic aerial photographs and note that the site adjoining the subject property was previously covered with both low level and extensive high level plantings, particularly to the perimeter, and it appears that the boundaries were to a graded slope and self-supporting.

3. Extent of Excavations

- 3.1.1 We carried out an inspection on 17 December 2015 at which time the weather was overcast but dry, however, previously significant and continued rainfall had occurred.
- 3.1.2 At the time of our inspection, we noted that the site had been cleared of all vegetation (save for some plantings to the boundary) and that excavations had been carried out in order to reduce the level of the site and provide a level site throughout.
- 3.1.3 In order to reduce the levels of the site, excavations have been carried out to the boundary, resulting in a near vertical face to the excavations which range in height from approximately 2 metres down to approximately 300 millimetres.
- 3.1.4 The highest section of excavation is located either on or adjacent to the boundary with Mr Cookson's house and in particular adjacent to the entrance driveway.
- 3.1.5 As we did not have permission to enter the Adjoining Owner's property, we did not carry out a full and detailed measured survey of the excavation height or an analysis of the soil type.
- 3.1.6 However, from our visual inspections it appears that the soil type has a high clay content.

4. Stability of Excavations

- 4.1.1 We have been instructed to provide an opinion as to the suitability of the excavations to be left in their current state, and the likely stability of the excavations in the short and long term.
- 4.1.2 We are advised that the owner of the adjoining property has submitted a Planning Application to erect a detached garage and house on the plot and we have assumed that the works carried out to-date relate to this application.



- 4.1.3 We are advised that the excavations were carried out approximately 2 weeks prior to our inspection and at that time, the face of the excavations appeared to be stable with no signs of sheer failure or slumping.
- 4.1.4 We have reviewed the Planning Application, however cannot find any reference to the treatment of the boundaries.
- 4.1.5 When excavations are carried out to depths and to soil types found on the Adjoining Property it is usually to either:-
- (1) Provide temporary or permanent support to the excavations in the form of a retaining wall or;
 - (2) Batter the face of the excavations to an angle that will support the excavation, known as the angle of repose.
- For soils of this type, we would anticipate the angle being in the region of 18-45°.
- 4.1.6 At present the excavation face is for all intents and purposes vertical and as such, we are of the opinion that it may fail due to a number of factors including:-
- Slumping of the face of the excavation;
 - External loading factors, including the possible running of motor vehicles along the adjoining driveway. We understand that Mr Cookson has an oil fired central heating system and as such, periodically has deliveries of oil that are contained in large tankers, with significant weights;
 - Instability due to excessive water in the adjoining soils.
- 4.1.7 In view of the fact that the Planning Application has not been decided and may take many weeks to resolve, we would recommend that some form of temporary support is installed in order to protect the boundary from collapse.
- 4.1.8 In the longer term we would recommend that the boundary is stabilised either by way of a natural batter or, given the close proximity of the buildings to the boundary, a retaining wall.
- 4.1.9 We note that subsequent to our initial inspection, that some partial collapse of the excavations has already occurred.
- 4.1.10 It is our opinion that the Planning Authority would require details of the boundary treatment as part of the Planning Application as this will have a material effect on the visual appearance of the site.
- 4.1.11 We have viewed the documentation provided by the Local Authority Planning Portal for the Application, and this does not appear to include any specific details of the boundary treatment.
- 4.1.12 If the boundaries are not subject to the Planning Application we would have expected that details of the boundary stabilisation would be required for Building Regulation Approval.



5. Right of Support

- 5.1.1 During our inspection we noted a short section of walling adjacent to the entrance gates leading to Mr Cookson's property and as the excavations are below the level of the walls foundations, the Adjoining Owner should have served a Notice of Adjacent Excavation under the terms of the Party Wall Etc. Act for the works within this area.
- 5.1.2 We are not legal experts, however, would expect that Mr Cookson would have a legal right of support and as such it is the responsibility of the Adjoining Owner to carry out such works to the excavations in order to provide this.

6. Conclusion

- 6.1 The owner of the property adjoining Mr Cookson's boundary has carried out deep excavations which have resulted in a vertical excavation face to the boundary which has no means of natural or mechanical support.
- 6.2 Since our inspection, the excavation face to the boundary has partially collapsed and we are of the opinion that further more substantial collapse is likely to occur in the future.
- 6.3 In order to protect the boundary we would recommend that either a natural support in the form of angled face to the soil or a mechanical support in the form of a retaining wall is installed.

7. Report Limitations

Purpose of Report and Client

- 7.1 This report is provided for the stated purpose only and for the sole use of the named client. It is confidential to the client and its professional advisors. Cooke & Arkwright accepts no responsibility whatsoever to any other person who, choosing to rely upon this report, will do so entirely at his own risk. This applies even to a person who pays the client for this report.
- 7.2 It is subject to copyright and neither the whole nor any part of this report or any reference thereto, may be included in any document, statement or presentation, nor published or reproduced in any way, without our prior approval in writing as to the form or context in which it will appear.

Cooke and Arkwright

Cooke & Arkwright
Chartered Surveyors

Date January 2016



APPENDICES	
1	Photographs of Excavations
2	Photographs of Partial Collapse to Excavations



APPENDIX 1

Photographs of Excavations





Photograph 1



Photograph 2



Photograph 3



Photograph 4



Photograph 5



Photograph 6

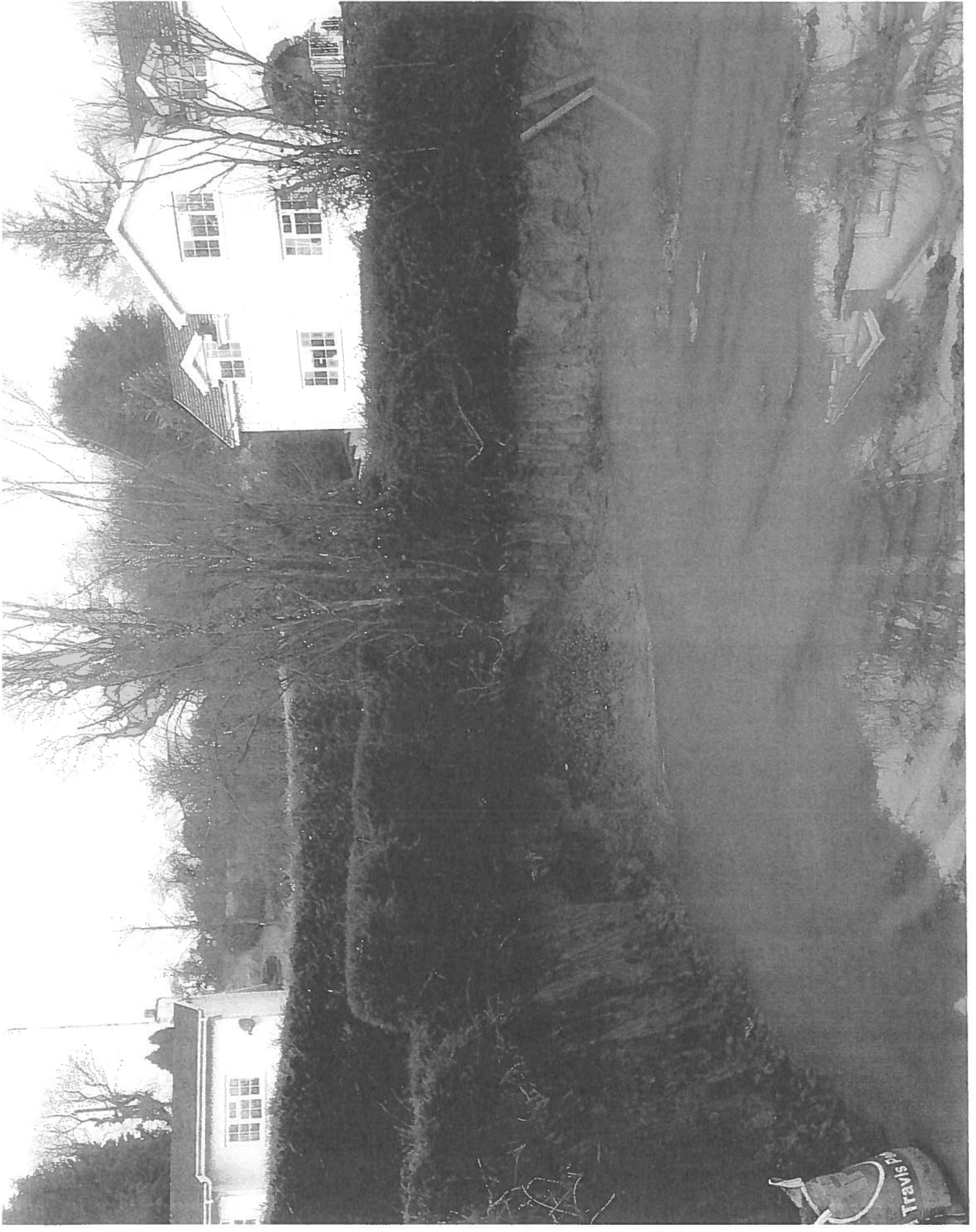


Photograph 7

APPENDIX 2

Photographs of Partial Collapse to Excavations





LATE ITEMS FOR COMMITTEE

COMMITTEE DATE: 14 January 2016

Application No: 2015/01215/FUL	Case Officer: Mr. Steven Rennie
Location: Springfield, Graig Penllyn	
Proposal: New two storey, three bedroom detached dwelling house and detached double garage in existing residential plot	

From: Applicant/Agent

Summary of Comments:

Revised plan received (DP 110A) of proposed layout to include 1.2m retaining wall towards the southern and western boundary of the site. The area for landscaping has also been amended as a result of the retaining wall being included. Structural calculations have also been submitted regarding the retaining wall.

In relation to the amended plan and structural calculations of the retaining wall being received this has been assessed by the Council's Building Control Section as acceptable.

In response to the amended plan and calculations received the following condition has been amended:

2. The development shall be carried out in accordance with the following approved plans and documents: DP 310 A, DP100, DP110A, DP300A, DP350, Design and Access Statement, Calculations for 'Block Retaining' (Tedds) and DP101;

Reason:

For the avoidance of doubt as to the approved development and to accord with Circular 016:2014 on The Use of Planning Conditions for Development Management.

Also, an additional condition is recommended, relating to the retaining works:

15. Notwithstanding the submitted information, full details of the retaining wall as indicated on plan DP110 A, including materials and dimensions, shall be submitted to and approved in writing by the Local Planning Authority. The retaining wall shall be fully implemented in accordance with the approved details prior to first beneficial occupation of the dwelling hereby approved.

Reason:

By reason of ensuring land stability and in the interests of visual amenity, in accordance with policy ENV 27 of the adopted Unitary Development Plan.

Rennie, Steven

From: Jonathan Williams <jonathan@rfparchitects.com>
Sent: 08 January 2016 14:52
To: Rennie, Steven
Subject: Plot adjacent to Springfield, Graig Penllyn, Vale of Glamorgan, CF71 7RU - Ref. 2015/01215/FUL
Attachments: 2286_dp110a.pdf; 2286_Retaining Wall_Structural Calcs_08.01.16.pdf

Dear Steve

Further to our recent telephone conversations regarding the above planning application, please find attached the following information defining the new retaining wall, which is proposed to be constructed in the garden adjacent to the south and west boundaries:

- Proposed Site Plan drawing, 2286/DP110A; and
- Structural calculations for the new retaining wall

I would be grateful if you would please include this information in the application as a 'late representation'. I would also be grateful if you would please confirm receipt of this e-mail.

Kind regards

Jonathan

Jonathan N Williams
Robertson Francis Partnership
Chartered Architects
13 Cathedral Road
CARDIFF
CF11 9HA

t: 029 2039 9000
m: 07710 362286

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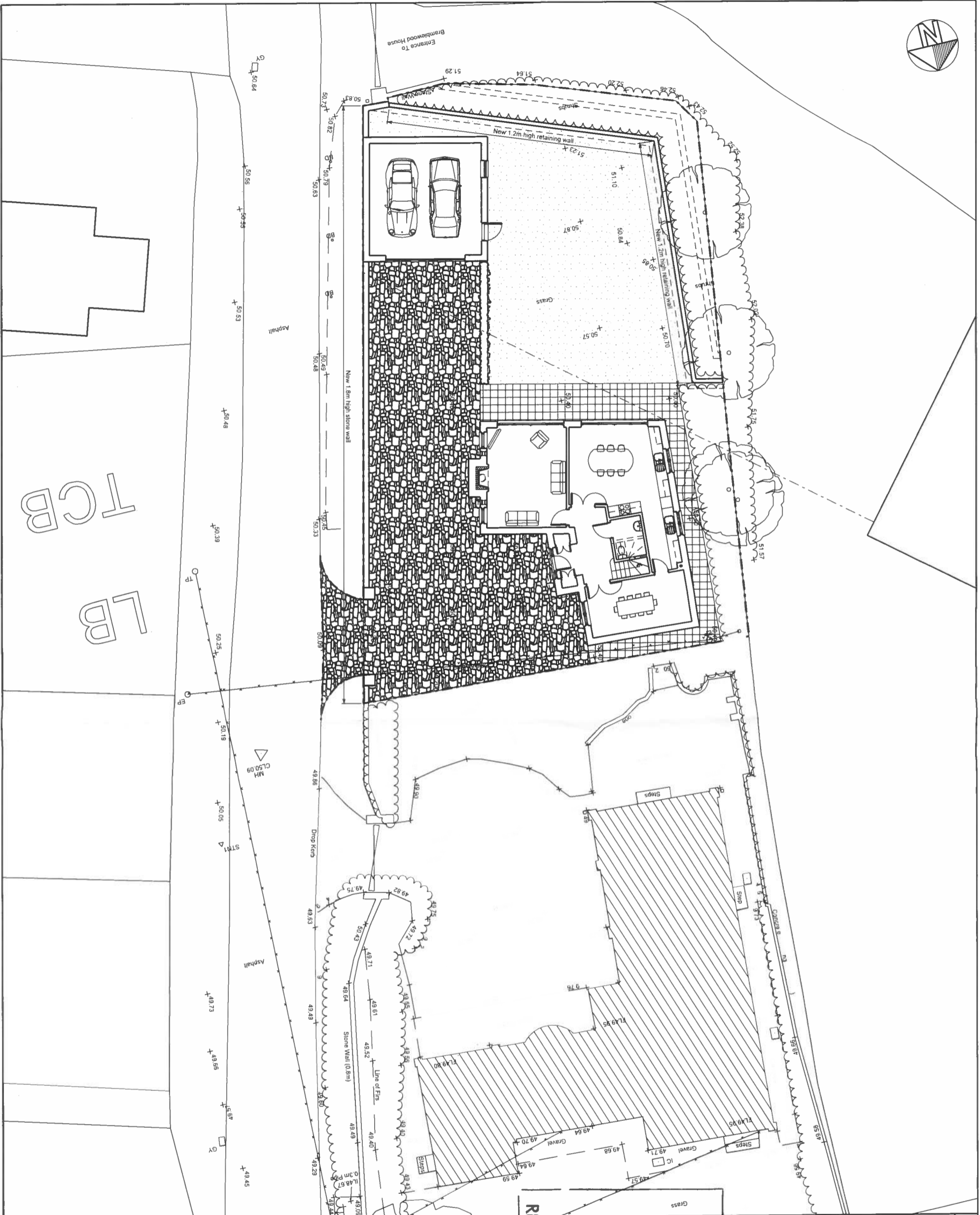
N O T E S

VALE OF GLAMORGAN
COUNCIL

AMENDED PLANS

2015/01215/FUL

RECEIVED Date 5/11/15



REVISION	DESCRIPTION	BY	DATE
A	Retaining wall added in garden and garage moved to north	RDP	07.01.16

ROBERTSON FRANCIS
P A R T N E R S H I P
Chartered Architects Tel : (029) 2039 9000
13 Cathedral Road Fax : (029) 2037 2329
Cardiff CF11 9HA E-mail : info@rfrarchitects.com

MR JAMES COLBURN

DOOR TITLE
PLOT ADJACENT TO
SPRINGFIELD, GRAIG PENLLYN
VALE OF GLAMORGAN, CF71 7RU

PROPOSED SITE PLAN

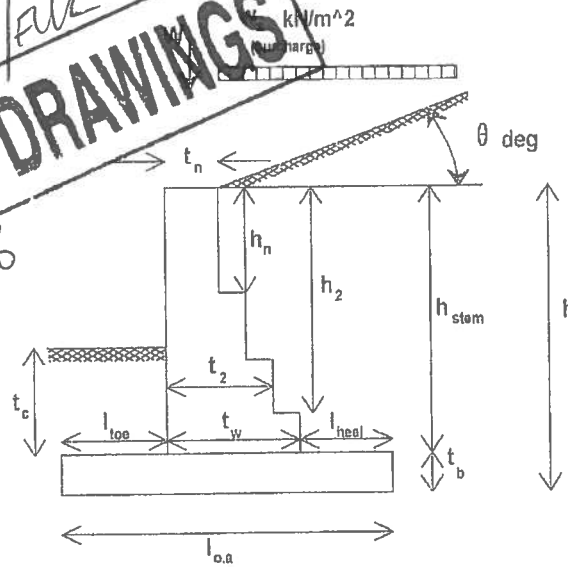
STATUS	DATE	DRAWN	CHECKED	SCALE & ALT
PLANNING	13.10.15	RDP	JNW	1:200
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TCB
LB

Project			Plot Adjacent to Springfields Craig Penllyn		Job no JC/01/16	
Calcs for			Block Retaining		Start page no./Revision 1	
Calcs by CU	Calcs date 06/01/2016	Checked by	Checked date	Approved by	Approved date	

2015/02/15/FUL
ADDITIONAL DRAWINGS
 6/1/16



CANTILEVER MASONRY RETAINING WALL DESIGN (BS8110&BS5628) MASONRY CANTILEVER RETAINING WALL DESIGN TO CP2 & BS5628 (PART 1)

RETAINING WALL PRESSURES - GRANULAR FILL - NO WALL FRICTION – ASSUMED FULLY DRAINED

General Soil Data

Density of retained soil	$\gamma_s = 18.0 \text{ kN/m}^3$
Angle of internal friction	$\phi = 35.0^\circ$
Angle of soil surface	$\theta = 0.0^\circ$
Ground cover over base at front of wall – if > 0mm, assumed permanent	$t_c = 500 \text{ mm}$

Loads on wall and ground

Surcharge load (horizontal plan area)	$w_s = 2.5 \text{ kN/m}^2$
Design vertical dead load on wall (unfactored)	$W_v = 0.00 \text{ kN/m}$
Design vertical live load on wall (unfactored)	$W_l = 0.00 \text{ kN/m}$

Stem details

Density of wall stem brickwork	$\gamma_w = 20.0 \text{ kN/m}^3$
Wall base section thickness	$t_w = 1300.0 \text{ mm}$
Height retained	$h = 2650 \text{ mm}$

Base details

Density of wall base	$\gamma_b = 24.0 \text{ kN/m}^3$
Length of heel	$l_{heel} = 300 \text{ mm}$
Length of toe	$l_{toe} = 300 \text{ mm}$
Base thickness	$t_b = 250 \text{ mm}$

Plot Adjacent to Springfields Craig Penllyn				JC/01/16	
Calcs for Block Retaining				Start page no./Revision 2	
Calcs by Ge	Calcs date 06/01/2016	Checked by	Checked date	Approved by	Approved date

Length of base $l_{o_a} = l_{toe} + t_w + l_{heel} = 1900 \text{ mm}$

Height of active soil (at back of stem and heel)

Height of wall stem

$$h_{stem} = h - t_b = 2400 \text{ mm}$$

$$h_{soil} = h + l_{heel} \times \tan(\theta) = 2650 \text{ mm}$$

Load factors

Dead Load Factor

$$\gamma_{L_d} = 1.40$$

Imposed Load Factor

$$\gamma_{L_i} = 1.60$$

Coefficients using Rankine

Active coefficient (Sloping Surface) - no friction

$$k_{a_s} = (\cos(\theta) - \sqrt{((\cos(\theta))^2 - (\cos(\phi))^2)}) / (\cos(\theta) + \sqrt{((\cos(\theta))^2 - (\cos(\phi))^2)}) = 0.271$$

Active coefficient (level surface)

$$k_a = (1 - \sin(\phi)) / (1 + \sin(\phi)) = 0.271$$

Passive coefficient (level surface)

$$k_p = (1 + \sin(\phi)) / (1 - \sin(\phi)) = 3.690$$

At - rest coefficient

$$k_o = (1 - \sin(\phi)) = 0.426$$

For a one metre width - (Horizontal Components - Active Earth Pressures)

At the virtual back of the wall (back of heel)

Surcharge

pressure

$$p_s = k_{a_s} \times w_s = 0.7 \text{ kN/m}^2$$

force - horizontal

$$F_s = (p_s \times h_{soil}) \times (\cos(\theta))^2 = 1.8 \text{ kN/m}$$

overturning moment about toe $M_s = F_s \times h_{soil} / 2 = 2.4 \text{ kNm/m}$

Backfill

pressure

$$p_a = k_{a_s} \times \gamma_s \times h_{soil} = 12.9 \text{ kN/m}^2$$

force - horizontal

$$F_a = (p_a \times h_{soil} / 2) \times (\cos(\theta))^2 = 17.1 \text{ kN/m}$$

overturning moment about the toe

$$M_a = F_a \times h_{soil} / 3 = 15.1 \text{ kNm/m}$$

Total horizontal force (unfactored)

$$F_t = F_s + F_a = 18.9 \text{ kN/m}$$

Total horizontal force (factored)

$$F_{t_{ult}} = \gamma_{L_i} \times F_s + \gamma_{L_d} \times F_a = 26.9 \text{ kN/m}$$

Total overturning moment (unfactored)

$$M_t = M_s + M_a = 17.5 \text{ kNm/m}$$

Total overturning moment (factored)

$$M_{t_{ult}} = \gamma_{L_i} \times M_s + \gamma_{L_d} \times M_a = 25.0 \text{ kNm/m}$$

Average load factor

$$\gamma_{L_{av}} = M_{t_{ult}} / M_t = 1.43$$

STABILITY CHECKS

(Unfactored Loads - Active Soil Pressures)



Project Plot Adjacent to Springfields Craig Penllyn			JOB NO. JC/01/16		
Calcs for Block Retaining			Start page no./Revision 3		
Calcs by Ge	Calcs date 06/01/2016	Checked by	Checked date	Approved by	Approved date

1) SLIDING

Coefficient of friction $\mu = \tan(\phi) \times \text{factor} = 0.525$ factor = 0.75

Passive pressures in front of wall

Top of base $pp_1 = k_p \times t_c \times \gamma_s = 33.2 \text{ kN/m}^2$

Underside of base $pp_2 = k_p \times (t_c + t_b) \times \gamma_s = 49.8 \text{ kN/m}^2$

Total resistance

Base $PP_{\text{base}} = (pp_1 + pp_2) \times t_b / 2 = 10.4 \text{ kN/m}$

Passive resistance Soil in front of wall assumed to resist sliding

$P = PP_{\text{base}} \times \text{soil_resists} = 10.4 \text{ kN/m}$

Factor of safety against sliding

Factor of safety required $FOS_{\text{reqd sliding}} = 2.00$

Length of heel provided $l_{\text{heel}} = 300 \text{ mm}$

Conservatively, it is assumed that the surcharge load does not provide downward pressure on the heel in the sliding calculation.

$FOS_{\text{sliding}} = (((l_{\text{heel}} \times (\gamma_s \times (h_{\text{stem}} + l_{\text{heel}} \times \tan(\theta)/2) + \gamma_b \times t_b)) + l_{\text{toe}} \times \gamma_b \times t_b + W_v + (t_w \times (\gamma_w \times h_{\text{stem}} + \gamma_b \times t_b))) \times \mu) + P) / F_t$

$FOS_{\text{sliding}} = 2.956$

Factor of safety against sliding = 3.0 i.e. > 2.0 - OK

2) OVERTURNING

Factor of safety against overturning

Factor of safety required $FOS_{\text{reqd o_turn}} = 2.00$

Length of toe provided $l_{\text{toe}} = 300 \text{ mm}$

Conservatively, it is assumed that the surcharge load does not provide downward pressure on the heel in the overturning calculation.

Taking Moments about front of the toe

$M_{r1} = (W_v + h_{\text{stem}} \times t_w \times \gamma_w) \times (l_{\text{toe}} + t_w / 2) = 59.3 \text{ kNm/m}$

$M_{r2} = l_{\text{heel}} \times h_{\text{stem}} \times \gamma_s \times (l_{\text{toe}} + t_w + l_{\text{heel}} / 2) = 22.7 \text{ kNm/m}$

$M_{r3} = (l_{\text{toe}} + t_w + l_{\text{heel}})^2 \times t_b \times \gamma_b / 2 = 10.8 \text{ kNm/m}$

$M_{r4} = l_{\text{heel}} \times l_{\text{heel}} \times \tan(\theta) / 2 \times \gamma_s \times (l_{\text{toe}} + t_w + l_{\text{heel}} \times 2/3) = 0.0 \text{ kNm/m}$

Resisting moment $M_r = M_{r1} + M_{r2} + M_{r3} + M_{r4} = 92.8 \text{ kNm/m}$

Factor of safety against overturning $FOS_{\text{o_turn}} = M_r / \text{abs}(M_i) = 5.30$

Factor of safety against overturning = 5.3 i.e. > 2.0 - OK

Overall length of base $l_{\text{o_a}} = l_{\text{toe}} + t_w + l_{\text{heel}} = 1.900 \text{ m}$

3) BEARING PRESSURE (INCLUDING LIVE LOADS AND TOE COVER)

Plot Adjacent to Springfields Craig Penllyn				JC/01/16	
Calcs for Block Retaining				Start page no./Revision 4	
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Total overturning moment for bearing calculation $M_t = 17.5 \text{ kNm/m}$

Total resisting moment for bearing calculation $M_r = 92.8 \text{ kNm/m}$

Total vertical load on base

$$N = t_w \times h_{stem} \times \gamma_w + (h_{stem} + l_{heel} \times \tan(\theta)/2) \times l_{heel} \times \gamma_s + t_c \times l_{toe} \times \gamma_s + l_{o_a} \times t_b \times \gamma_b + W_v + W_s \times l_{heel} + W_l$$

$$N = 90.2 \text{ kN/m}$$

Eccentricity of vertical load

$$e_1 = (M_r - \text{abs}(M_t) + t_c \times l_{toe}^2 \times \gamma_s/2 + W_s \times l_{heel} \times (l_{toe} + t_w + l_{heel}/2) + W_l \times (l_{toe} + t_w/2)) / N = 0.854 \text{ m}$$

$$e = l_{o_a} / 2 - e_1 = 0.096 \text{ m}$$

Resultant lies inside middle third

Maximum bearing pressure $p_{max} = \text{if}(\text{abs}(e) < (l_{o_a} / 6), \sigma_{max2}, \sigma_{max1}) = 61.9 \text{ kN/m}^2$

Permissible bearing pressure $p_{bearing} = 100 \text{ kN/m}^2$

Maximum bearing pressure is 62 kN/m² i.e. < Allowable - OK

DESIGN BASE PRESSURES BASED UPON ACTIVE EARTH PRESSURES

For a one metre width - (Horizontal Components - Active Earth Pressures)

Resultant lies inside middle third

Pressures under the base

$$\sigma_{max} = \text{if}(\text{abs}(e) < l_{o_a} / 6, \sigma_{max2}, \sigma_{max1}) = 61.9 \text{ kN/m}^2$$

$$\sigma_{min} = \text{if}(\text{abs}(e) < l_{o_a} / 6, \sigma_{min2}, 0 \text{ kN/m}^2) = 33.0 \text{ kN/m}^2$$

Bearing length $l_p = \text{if}(\text{abs}(e) < (l_{o_a} / 6), l_{b2}, l_{b1}) = 1.900 \text{ m}$

Pressures under the heel/stem interface

$$l_{p_heel} = l_p - l_{toe} - t_w = 0.300 \text{ m}$$

$$\sigma_{heel} = \text{max}(((\sigma_{max} - \sigma_{min}) \times l_{p_heel} / l_p) + \sigma_{min}, 0 \text{ kN/m}^2) = 37.6 \text{ kN/m}^2$$

Pressures under the toe/stem interface

$$\sigma_{toe} = ((\sigma_{max} - \sigma_{min}) \times (l_{p_heel} + t_w) / l_p) + \sigma_{min} = 57.4 \text{ kN/m}^2$$

BASE DESIGN - HEEL

Shears and Moments

Vertical load downward $W_{ult_heel} = (h_{stem} \times \gamma_s + \gamma_b \times t_b) \times \gamma_{f_d} + W_s \times \gamma_{f_d} = 72.9 \text{ kN/m}^2$

$$W_{ult_heel1} = (l_{heel} \times \tan(\theta)/2 \times \gamma_s) \times \gamma_{f_d} = 0.0 \text{ kN/m}^2$$

Ultimate Shear (at wall face)

downward $V_{ult_pos_heel} = (W_{ult_heel} + W_{ult_heel1}) \times l_{heel} = 21.9 \text{ kN/m}$

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Heel Distribution Steel

Minimum percentage of distribution reinforcement $k_1 = 0.13 \%$

Minimum Area Required $A_{s_dist_req} = k_1 \times A_c = 325 \text{ mm}^2/\text{m}$

Area Provided $A_{s_dist_base} = A_{st_heel} = 393 \text{ mm}^2/\text{m}$

Area of distribution steel provided OK

CHECK OF NOMINAL COVER

Cover to outer tension reinforcement

$$c_{heel} = t_b - d_{heel} - d_{st_heel} / 2 = 41.0 \text{ mm}$$

Permissible minimum nominal cover to all reinforcement (Table 3.4)

$$c_{min_heel} = 40 \text{ mm}$$

Cover over outer steel OK (top of heel)

HEEL SHEAR RESISTANCE – AT WALL FACE

Applied shear stress at wall face

$$v_{heel} = V_{ult_heel} / d_{heel} = 0.03 \text{ N/mm}^2$$

Check shear stress to clause 3.4.5.2 (BS8110:Pt 1)

$$v_{allowable} = \min ((0.8 \text{ N}^{1/2}/\text{mm}) \times \sqrt{f_{cu}}, 5 \text{ N/mm}^2) = 4.73 \text{ N/mm}^2$$

Shear stress < maximum - OK

Shear stresses to clause 3.4.5.4 (BS8110:Pt1)

Allowable shear stress

$$v_{c_heel} = 0.48 \text{ N/mm}^2$$

No shear reinforcement required

BASE DESIGN - TOE

Shears and Moments

Conservatively all soil overburden on the toe is ignored

Ultimate Shear (conservatively - at face of wall)

$$V_{ult_toe} = ((\sigma_{toe} \times l_{toe}) + (((\sigma_{max} - \sigma_{toe}) / 2) \times l_{toe})) \times \gamma_{f_av} - l_{toe} \times t_b \times \gamma_b \times \gamma_{f_d} = 23.0 \text{ kN/m}$$

Ultimate Moment (at centre of wall)

$$M_{ult_toe} = ((\sigma_{toe} \times l_{toe} \times (l_{toe} + t_w) / 2) + (\sigma_{max} - \sigma_{toe}) / 2 \times l_{toe} \times (2 \times l_{toe} / 3 + t_w / 2)) \times \gamma_{f_av} - l_{toe} \times t_b \times \gamma_b \times \gamma_{f_d} \times (l_{toe} / 2 + t_w / 2)$$

$$M_{ult_toe} = 18.5 \text{ kNm/m}$$

TOE REINFORCEMENT - MESH

Tension Reinforcement

Cover to bars in the bottom of the toe $c_{r_toe} = 40 \text{ mm}$

Effective depth to bars $d_{toe} = t_b - c_{r_toe} - (6 \text{ mm}) = 204 \text{ mm}$

Assume the base is a cantilevered slab

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Characteristic strength of reinforcement $f_y = 460 \text{ N/mm}^2$

Characteristic strength of concrete $f_{cu} = 35 \text{ N/mm}^2$

Area of reinforcement required

$$K_{toe} = \text{abs}(M_{ult_toe}) / (d_{toe}^2 \times f_{cu}) = 0.013 \quad K' = 0.156$$

Compression steel not required

Lever arm $z_{toe} = \min((0.95 \times d_{toe}), (d_{toe} \times (0.5 + \sqrt{(0.25 - K_{toe}/0.9)}))) = 194 \text{ mm}$

Reinforcement required $A_{s_toe} = \text{abs}(M_{ult_toe}) / (1/\gamma_{ms} \times f_y \times z_{toe}) = 217 \text{ mm}^2/\text{m}$

Minimum reinforcement $A_{s_min_toe} = \text{if}(f_y == 460 \text{ N/mm}^2, 0.0013 \times t_b, 0.0024 \times t_b) = 325 \text{ mm}^2/\text{m}$

$A_{s_req_toe} = \max(A_{s_toe}, A_{s_min_toe}) = 325 \text{ mm}^2/\text{m}$

Tension steel provided

Use A393 Mesh $A_{s_prov_toe} = A_{st_toe} = 393 \text{ mm}^2/\text{m}$

Area of main tension steel provided in toe sufficient

Toe - Check min and max areas of steel

Total area of concrete $A_c = t_b = 250000 \text{ mm}^2/\text{m}$

Minimum percentage area of reinforcement $k = 0.13 \%$

Minimum area of steel required $A_{s_min} = k \times A_c = 325 \text{ mm}^2/\text{m}$

Maximum area of steel allowed $A_{s_max} = 4\% \times A_c = 10000 \text{ mm}^2/\text{m}$

Area of main steel provided OK

Toe Distribution Steel

Minimum percentage of distribution reinforcement $k_1 = 0.13 \%$

Minimum Area Required $A_{s_dst_req} = k_1 \times A_c = 325 \text{ mm}^2/\text{m}$

Area Provided $A_{s_dst_base} = A_{st_toe} = 393 \text{ mm}^2/\text{m}$

Area of distribution steel provided OK

CHECK OF NOMINAL COVER

Cover to outer tension reinforcement

$$c_{toe} = t_b - d_{toe} - d_{st_toe} / 2 = 41.0 \text{ mm}$$

Permissible minimum nominal cover to all reinforcement (Table 3.4)

$$c_{min_toe} = 40 \text{ mm}$$

Cover over outer steel OK (bottom of toe)

TOE SHEAR RESISTANCE

Applied shear stress

$$v_{toe} = V_{ult_toe} / d_{toe} = 0.11 \text{ N/mm}^2$$

Check shear stress to clause 3.4.5.2 (BS8110:Pt 1)

$$v_{allowable} = \min((0.8 \text{ N}^{1/2}/\text{mm}) \times \sqrt{f_{cu}}, 5 \text{ N/mm}^2) = 4.73 \text{ N/mm}^2$$

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Shear stress < maximum - OK

Shear stresses to clause 3.4.5.4 (BS8110:Pt 1)

Allowable shear stress

$$v_{c_toe} = 0.48 \text{ N/mm}^2$$

No shear reinforcement required

STEM DESIGN

Width of base of wall $t_w = 1300.0 \text{ mm}$

Height of stem of wall $h_{stem} = 2400 \text{ mm}$

DESIGN OF BASE WALL SECTION (ACTIVE PRESSURES)

Wall base section thickness $t_w = 1300.0 \text{ mm}$

Depth from top of wall to base

$$h_{stem} = 2400 \text{ mm}$$

Applied moment at base of wall

$$M_{base} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{stem}^2 / 2) \times \gamma_{f_l} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{stem}^3 / 6) \times \gamma_{f_d} = 18.9 \text{ kNm/m}$$

Applied shear force at base of wall

$$F_{base} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{stem}) \times \gamma_{f_l} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{stem}^2 / 2) \times \gamma_{f_d} = 22.3 \text{ kN/m}$$

CHECK RESISTANCE TO MOMENT WITH FLEXURAL STRENGTH (BS5628:PT 1:CL 36.5.3)

Flexural strength (|| to bed joints)(Table 3) $f_{kx} = 0.15 \text{ N/mm}^2$

Design dead load at the base of the wall $V_{base} = W_v + t_w \times h_{stem} \times \gamma_w = 62.40 \text{ kN/m}$

$$\text{Dead load per unit area } g_{d_base} = V_{base} \times \gamma_{fd} / t_w = 0.04 \text{ N/mm}^2$$

$$\text{Section modulus } Z_{base} = t_w^2 / 6 = 281.7 \times 10^6 \text{ mm}^3/\text{m}$$

$$\text{Restoring moment } M_{R_base} = (f_{kx} / \gamma_m + g_{d_base}) \times Z_{base} = 24.2 \text{ kNm/m}$$

Wall bending - OK

STEM SHEAR (BS5628:PT 1:CL 33)

Mortar designation Mortar = "iii"

Design dead load at the base of the wall $V_{base} = W_v + t_w \times h_{stem} \times \gamma_w = 62.40 \text{ kN/m}$

$$\text{Design vertical dead load per unit area } g_{A_base} = V_{base} \times \gamma_{fd} / t_w = 0.04 \text{ N/mm}^2$$

Characteristic shear strength of masonry

$$f_{v_j} = \min(1.75 \text{ N/mm}^2, 0.35 \text{ N/mm}^2 + (0.6 \times g_{A_base})) = 0.38 \text{ N/mm}^2$$

$$f_{v_{iii}} = \min(1.4 \text{ N/mm}^2, 0.15 \text{ N/mm}^2 + (0.6 \times g_{A_base})) = 0.18 \text{ N/mm}^2$$

$$f_v = \text{if}((\text{Mortar} == \text{"i"}) | (\text{Mortar} == \text{"ii"}), f_{v_j}, f_{v_{iii}}) = 0.18 \text{ N/mm}^2$$

Ref BS 5628 Pt 1: Clause 25

Shear stress $V_{base} = F_{base} / t_w = 0.02 \text{ N/mm}^2$

Partial safety factor for shear $\gamma_{mv} = 2.5$



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Wall base shear OK

DESIGN OF WALL SECTION 2 (ACTIVE PRESSURES)

Wall section thickness $t_{wall_2} = 1002.5$ mm

Depth from top of wall to base of section

$h_{wall_2} = 1900$ mm Warning the height of the section is not a complete number of bricks

Applied moment at base of section

$$M_{wall_2} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_2}^2 / 2) \times \gamma_{f_i} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_2}^3 / 6) \times \gamma_{f_d} = 9.8 \text{ kNm/m}$$

Applied shear force at base of section

$$F_{wall_2} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_2}) \times \gamma_{f_i} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_2}^2 / 2) \times \gamma_{f_d} = 14.4 \text{ kN/m}$$

CHECK RESISTANCE TO MOMENT WITH FLEXURAL STRENGTH (BS5628:PT 1:CL 36.5.3)

Flexural strength (|| to bed joints)(Table 3) $f_{kx} = 0.15$ N/mm²

Design dead load at the base of the wall $V_{wall_2} = W_v + t_{wall_2} \times h_{wall_2} \times \gamma_w = 38.10$ kN/m

Dead load per unit area $g_{d_wall_2} = V_{wall_2} \times \gamma_{f_d} / t_{wall_2} = 0.03$ N/mm²

Section modulus $Z_{wall_2} = t_{wall_2}^2 / 6 = 167.5 \times 10^6$ mm³/m

Restoring moment $M_{R_wall_2} = (f_{kx} / \gamma_m + g_{d_wall_2}) \times Z_{wall_2} = 12.9$ kNm/m

Wall bending - OK

STEM SHEAR (BS5628:PT 1:CL 33)

Mortar designation Mortar = "iii"

Design dead load at the base of the wall $V_{wall_2} = W_v + t_{wall_2} \times h_{wall_2} \times \gamma_w = 38.10$ kN/m

Design vertical dead load per unit area $g_{A_wall_2} = V_{wall_2} \times \gamma_{f_d} / t_{wall_2} = 0.03$ N/mm²

Characteristic shear strength of masonry

$$f_{v_i} = \min(1.75 \text{ N/mm}^2, 0.35 \text{ N/mm}^2 + (0.6 \times g_{A_wall_2})) = 0.37 \text{ N/mm}^2$$

$$f_{v_{iii}} = \min(1.4 \text{ N/mm}^2, 0.15 \text{ N/mm}^2 + (0.6 \times g_{A_wall_2})) = 0.17 \text{ N/mm}^2$$

$$f_v = \text{if}((\text{Mortar} == \text{"i"}) || (\text{Mortar} == \text{"ii"}), f_{v_i}, f_{v_{iii}}) = 0.17 \text{ N/mm}^2$$

Ref BS 5628 Pt 1: Clause 25

Shear stress $v_{wall_2} = F_{wall_2} / t_{wall_2} = 0.01$ N/mm²

Partial safety factor for shear $\gamma_{mv} = 2.5$

Wall section base shear OK

DESIGN OF WALL SECTION 3 (ACTIVE PRESSURES)

Wall section thickness $t_{wall_3} = 890.0$ mm

Depth from top of wall to base of section

$h_{wall_3} = 1700$ mm Warning the height of the section is not a complete number of bricks

Applied moment at base of section

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Applied shear force at base of section

$$F_{wall_3} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_3}) \times \gamma_{t_l} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_3}^2 / 2) \times \gamma_{t_d} = 11.7 \text{ kN/m}$$

CHECK RESISTANCE TO MOMENT WITH FLEXURAL STRENGTH (BS5628:PT 1:CL 36.5.3)

Flexural strength (|| to bed joints)(Table 3) $f_{ix} = 0.15 \text{ N/mm}^2$

Design dead load at the base of the wall $V_{wall_3} = W_v + t_{wall_3} \times h_{wall_3} \times \gamma_w = 30.26 \text{ kN/m}$

Dead load per unit area $g_{d_wall_3} = V_{wall_3} \times \gamma_{fd} / t_{wall_3} = 0.03 \text{ N/mm}^2$

Section modulus $Z_{wall_3} = t_{wall_3}^2 / 6 = 132.0 \times 10^6 \text{ mm}^3/\text{m}$

Restoring moment $M_{R_wall_3} = (f_{ix} / \gamma_m + g_{d_wall_3}) \times Z_{wall_3} = 9.7 \text{ kNm/m}$

Wall bending - OK

STEM SHEAR (BS5628:PT 1:CL 33)

Mortar designation Mortar = "iii"

Design dead load at the base of the wall $V_{wall_3} = W_v + t_{wall_3} \times h_{wall_3} \times \gamma_w = 30.26 \text{ kN/m}$

Design vertical dead load per unit area $g_{A_wall_3} = V_{wall_3} \times \gamma_{fd} / t_{wall_3} = 0.03 \text{ N/mm}^2$

Characteristic shear strength of masonry

$$f_{v_j} = \min(1.75 \text{ N/mm}^2, 0.35 \text{ N/mm}^2 + (0.6 \times g_{A_wall_3})) = 0.37 \text{ N/mm}^2$$

$$f_{v_iii} = \min(1.4 \text{ N/mm}^2, 0.15 \text{ N/mm}^2 + (0.6 \times g_{A_wall_3})) = 0.17 \text{ N/mm}^2$$

$$f_v = \text{if}((\text{Mortar} == \text{"i"}) || (\text{Mortar} == \text{"ii"}), f_{v_j}, f_{v_iii}) = 0.17 \text{ N/mm}^2$$

Ref BS 5628 Pt 1: Clause 25

Shear stress $v_{wall_3} = F_{wall_3} / t_{wall_3} = 0.01 \text{ N/mm}^2$

Partial safety factor for shear $\gamma_{mv} = 2.5$

Wall section base shear OK

DESIGN OF WALL SECTION 4 (ACTIVE PRESSURES)

Wall section thickness $t_{wall_4} = 665.0 \text{ mm}$

Depth from top of wall to base of section

$h_{wall_4} = 1400 \text{ mm}$ Warning the height of the section is not a complete number of bricks

Applied moment at base of section

$$M_{wall_4} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_4}^2 / 2) \times \gamma_{t_l} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_4}^3 / 6) \times \gamma_{t_d} = 4.2 \text{ kNm/m}$$

Applied shear force at base of section

$$F_{wall_4} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_4}) \times \gamma_{t_l} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_4}^2 / 2) \times \gamma_{t_d} = 8.2 \text{ kN/m}$$

CHECK RESISTANCE TO MOMENT WITH FLEXURAL STRENGTH (BS5628:PT 1:CL 36.5.3)

Flexural strength (|| to bed joints)(Table 3) $f_{ix} = 0.15 \text{ N/mm}^2$

Design dead load at the base of the wall $V_{wall_4} = W_v + t_{wall_4} \times h_{wall_4} \times \gamma_w = 18.62 \text{ kN/m}$

Dead load per unit area $g_{d_wall_4} = V_{wall_4} \times \gamma_{fd} / t_{wall_4} = 0.03 \text{ N/mm}^2$

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Section modulus $Z_{wall_4} = t_{wall_4}^2/6 = 73.70 \times 10^6 \text{ mm}^3/\text{m}$

Restoring moment $M_{R_wall_4} = (f_{ix}/\gamma_m + g_{d_wall_4}) \times Z_{wall_4} = 5.0 \text{ kNm/m}$

Wall bending - OK

STEM SHEAR (BS5628:PT 1:CL 33)

Mortar designation Mortar = "iii"

Design dead load at the base of the wall $V_{wall_4} = W_v + t_{wall_4} \times h_{wall_4} \times \gamma_w = 18.62 \text{ kN/m}$

Design vertical dead load per unit area $g_{A_wall_4} = V_{wall_4} \times \gamma_{fd} / t_{wall_4} = 0.03 \text{ N/mm}^2$

Characteristic shear strength of masonry

$f_{v_i} = \min(1.75 \text{ N/mm}^2, 0.35 \text{ N/mm}^2 + (0.6 \times g_{A_wall_4})) = 0.37 \text{ N/mm}^2$

$f_{v_ii} = \min(1.4 \text{ N/mm}^2, 0.15 \text{ N/mm}^2 + (0.6 \times g_{A_wall_4})) = 0.17 \text{ N/mm}^2$

$f_v = \text{if}((\text{Mortar} == \text{"i"}) | | (\text{Mortar} == \text{"ii"}), f_{v_i}, f_{v_ii}) = 0.17 \text{ N/mm}^2$

Ref BS 5628 Pt 1: Clause 25

Shear stress $V_{wall_4} = F_{wall_4} / t_{wall_4} = 0.01 \text{ N/mm}^2$

Partial safety factor for shear $\gamma_{mv} = 2.5$

Wall section base shear OK

DESIGN OF WALL SECTION 5 (ACTIVE PRESSURES)

Wall section thickness $t_{wall_5} = 440.0 \text{ mm}$

Depth from top of wall to base of section

$h_{wall_5} = 1000 \text{ mm}$ Warning the height of the section is not a complete number of bricks

Applied moment at base of section

$M_{wall_5} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_5}^2 / 2) \times \gamma_{fd} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_5}^3 / 6) \times \gamma_{fd} = 1.7 \text{ kNm/m}$

Applied shear force at base of section

$F_{wall_5} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_5}) \times \gamma_{fd} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_5}^2 / 2) \times \gamma_{fd} = 4.5 \text{ kN/m}$

CHECK RESISTANCE TO MOMENT WITH FLEXURAL STRENGTH (BS5628:PT 1:CL 36.5.3)

Flexural strength (|| to bed joints)(Table 3) $f_{ix} = 0.15 \text{ N/mm}^2$

Design dead load at the base of the wall $V_{wall_5} = W_v + t_{wall_5} \times h_{wall_5} \times \gamma_w = 8.80 \text{ kN/m}$

Dead load per unit area $g_{d_wall_5} = V_{wall_5} \times \gamma_{fd} / t_{wall_5} = 0.02 \text{ N/mm}^2$

Section modulus $Z_{wall_5} = t_{wall_5}^2/6 = 32.27 \times 10^6 \text{ mm}^3/\text{m}$

Restoring moment $M_{R_wall_5} = (f_{ix}/\gamma_m + g_{d_wall_5}) \times Z_{wall_5} = 2.0 \text{ kNm/m}$

Wall bending - OK

STEM SHEAR (BS5628:PT 1:CL 33)

Mortar designation Mortar = "iii"

Design dead load at the base of the wall $V_{wall_5} = W_v + t_{wall_5} \times h_{wall_5} \times \gamma_w = 8.80 \text{ kN/m}$

Design vertical dead load per unit area $g_{A_wall_5} = V_{wall_5} \times \gamma_{fd} / t_{wall_5} = 0.02 \text{ N/mm}^2$

Characteristic shear strength of masonry

$$f_{v_i} = \min(1.75 \text{ N/mm}^2, 0.35 \text{ N/mm}^2 + (0.6 \times g_{A_wall_5})) = 0.36 \text{ N/mm}^2$$

$$f_{v_{iii}} = \min(1.4 \text{ N/mm}^2, 0.15 \text{ N/mm}^2 + (0.6 \times g_{A_wall_5})) = 0.16 \text{ N/mm}^2$$

$$f_v = \text{if}(\text{((Mortar == "i"))} | \text{((Mortar == "ii")), } f_{v_i}, f_{v_{iii}}) = 0.16 \text{ N/mm}^2$$

Ref BS 5628 Pt 1: Clause 25

Shear stress

$$v_{wall_5} = F_{wall_5} / t_{wall_5} = 0.01 \text{ N/mm}^2$$

Partial safety factor for shear

$$\gamma_{mv} = 2.5$$

Wall section base shear OK

DESIGN OF WALL SECTION 6 (ACTIVE PRESSURES)

Wall section thickness $t_{wall_6} = 215.0 \text{ mm}$

Depth from top of wall to base of section

$$h_{wall_6} = 500 \text{ mm} \text{ Warning the height of the section is not a complete number of bricks}$$

Applied moment at base of section

$$M_{wall_6} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_6}^2 / 2) \times \gamma_{f_i} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_6}^3 / 6) \times \gamma_{f_d} = 0.3 \text{ kNm/m}$$

Applied shear force at base of section

$$F_{wall_6} = (k_{a_s} \times (\cos(\theta))^2 \times W_s \times h_{wall_6}) \times \gamma_{f_i} + (k_{a_s} \times (\cos(\theta))^2 \times \gamma_s \times h_{wall_6}^2 / 2) \times \gamma_{f_d} = 1.4 \text{ kN/m}$$

CHECK RESISTANCE TO MOMENT WITH FLEXURAL STRENGTH (BS5628:PT 1:CL 36.5.3)

$$\text{Flexural strength (|| to bed joints)(Table 3) } f_{kx} = 0.15 \text{ N/mm}^2$$

Design dead load at the base of the wall $V_{wall_6} = W_v + t_{wall_6} \times h_{wall_6} \times \gamma_w = 2.15 \text{ kN/m}$

$$\text{Dead load per unit area } g_{d_wall_6} = V_{wall_6} \times \gamma_{f_d} / t_{wall_6} = 0.01 \text{ N/mm}^2$$

$$\text{Section modulus } Z_{wall_6} = t_{wall_6}^2 / 6 = 7.704 \times 10^6 \text{ mm}^3/\text{m}$$

Restoring moment

$$M_{R_wall_6} = (f_{kx} / \gamma_m + g_{d_wall_6}) \times Z_{wall_6} = 0.4 \text{ kNm/m}$$

Wall bending - OK

STEM SHEAR (BS5628:PT 1:CL 33)

Mortar designation Mortar = "iii"

Design dead load at the base of the wall $V_{wall_6} = W_v + t_{wall_6} \times h_{wall_6} \times \gamma_w = 2.15 \text{ kN/m}$

$$\text{Design vertical dead load per unit area } g_{A_wall_6} = V_{wall_6} \times \gamma_{f_d} / t_{wall_6} = 0.01 \text{ N/mm}^2$$

Characteristic shear strength of masonry

$$f_{v_i} = \min(1.75 \text{ N/mm}^2, 0.35 \text{ N/mm}^2 + (0.6 \times g_{A_wall_6})) = 0.36 \text{ N/mm}^2$$

$$f_{v_{iii}} = \min(1.4 \text{ N/mm}^2, 0.15 \text{ N/mm}^2 + (0.6 \times g_{A_wall_6})) = 0.16 \text{ N/mm}^2$$

$$f_v = \text{if}(\text{((Mortar == "i"))} | \text{((Mortar == "ii")), } f_{v_i}, f_{v_{iii}}) = 0.16 \text{ N/mm}^2$$

Ref BS 5628 Pt 1: Clause 25

Shear stress

$$v_{wall_6} = F_{wall_6} / t_{wall_6} = 0.01 \text{ N/mm}^2$$

Partial safety factor for shear

$$\gamma_{mv} = 2.5$$



Project		Plot Adjacent to Springfields Craig Penllyn		Job no.		JC/01/16 -	
Calcs for		Block Retaining		Start page no./Revision		13	
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date		
Ge	06/01/2016						

Wall section base shear OK

SUMMARY OF RESULTS

Wall Dimensions

Masonry Flexural Strength

Masonry Flexural Strength - 0.2 N/mm²

- Stem Base section 1300mm thick and 2400mm from base to the top of the wall
- Section 2 1003mm thick and 1900mm from base of section 2 to the top of the wall
- Section 3 890mm thick and 1700mm from base of section 3 to the top of the wall
- Section 4 665mm thick and 1400mm from base of section 4 to the top of the wall
- Section 5 440mm thick and 1000mm from base of section 5 to the top of the wall
- Section 6 215mm thick and 500mm from base of section 6 to the top of the wall

Base Top Reinforcement - Mesh

Heel (Top) Reinforcement Provide A393 Mesh (Top)

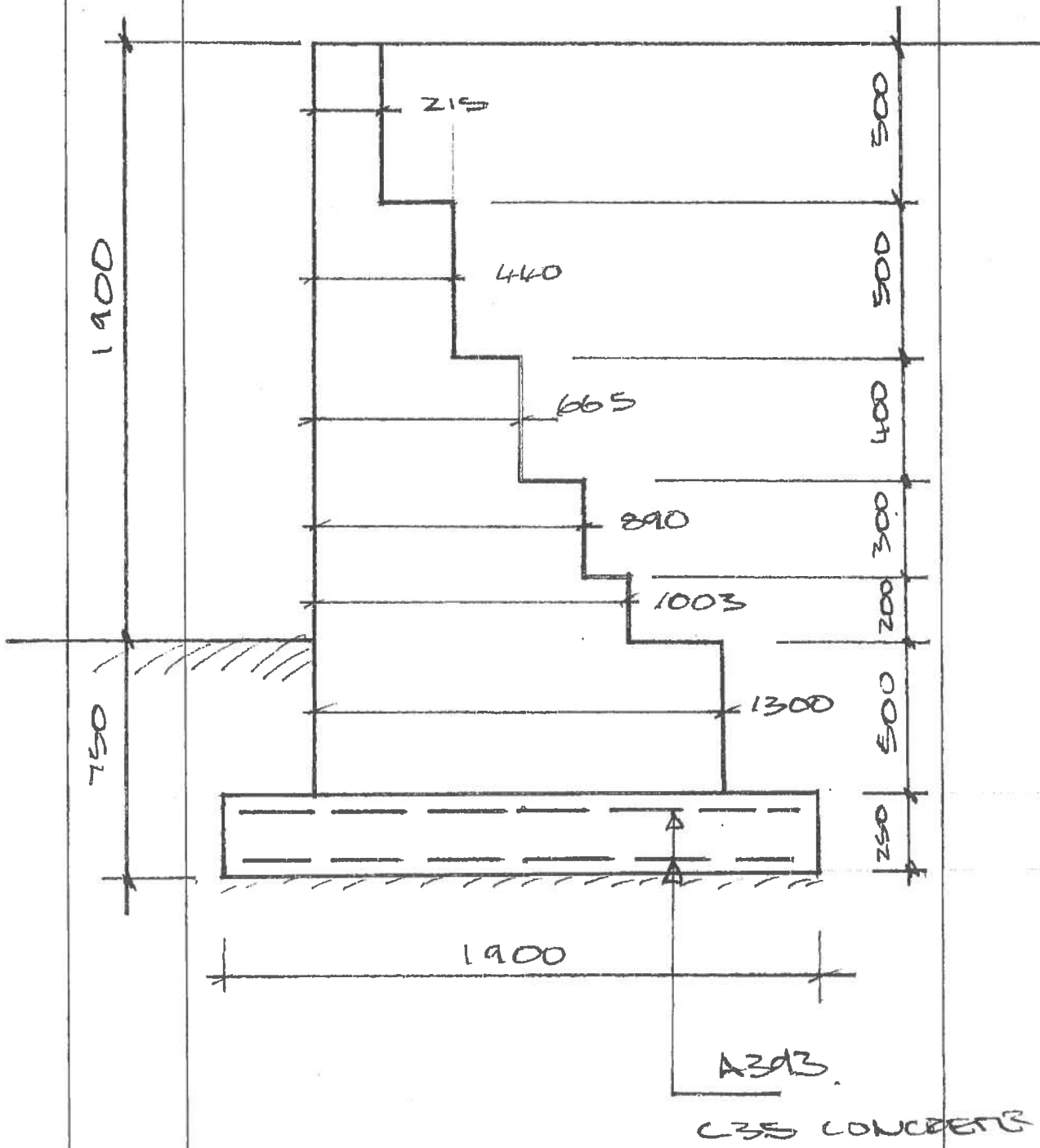
Base Bottom Reinforcement - Mesh

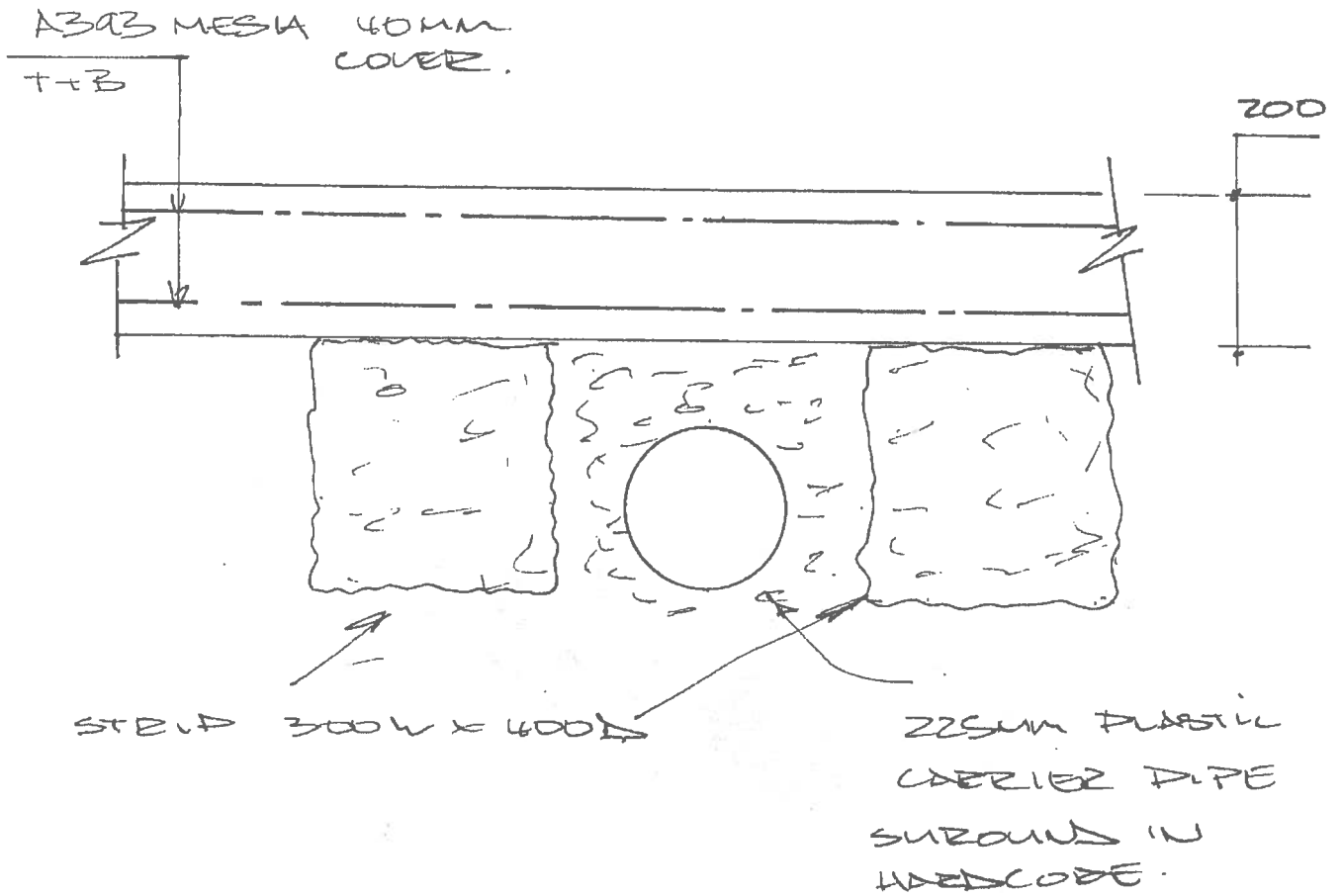
Toe (Bottom) Reinforcement Provide A393 Mesh (Bottom)

	Prepared	Checked	Job Number	
	Date	Date	Sheet No	Rev

Ref	Calculations	Output
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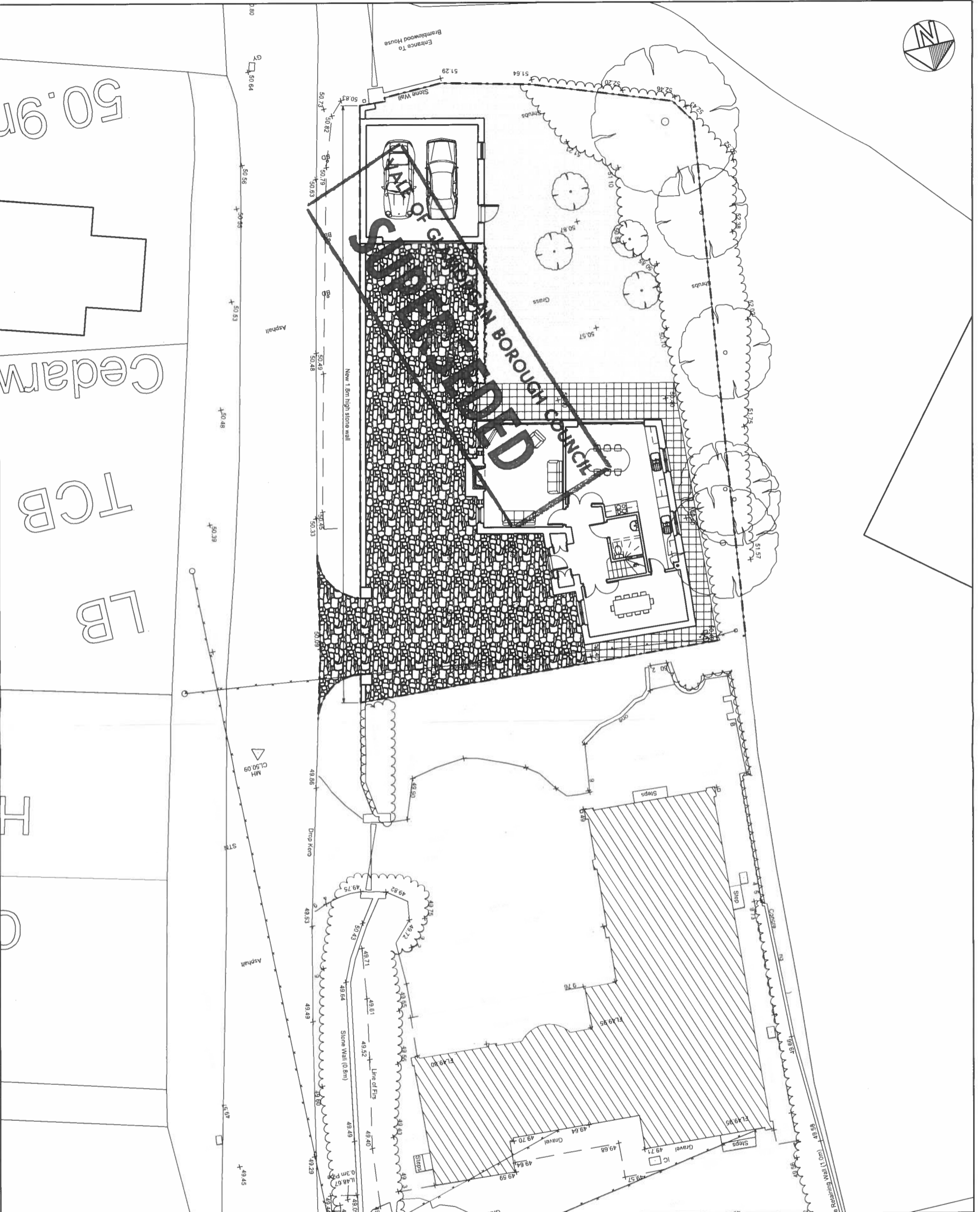
7N Blows.





CONCRETE TO CROSS OVER.
 C35 AIR ENTRAINMENT
 STEEL C10.

Drawing Title	CONCRETE CROSS OVER			Client	MR JAMES COBURN
	Scales @ A4			Contract	PLOT ADJACENT TO SPRINGFIELDS
Drawn By	JC/OI/16				CRAIG PENLLYN
Checked By	CO			Drawing No	SK1
					COWBRIDGE



N O T E S																		
<p>REVISION DESCRIPTION BY DATE</p> <p>ROBERTSON FRANCIS</p> <p>P A R T N E R S H I P</p> <p>Chartered Architects Tel : (029) 2039 9000 13 Cathedral Road Fax : (029) 2037 2329 Cardiff CF11 9HA E-mail: info@rpfarchitects.com</p> <p>RFP</p> <p>CLIENT MR JAMES COLBURN</p> <p>JOB TITLE PLOT ADJACENT TO SPRINGFIELD, GRAIG PENLILLYN VALE OF GLAMORGAN, CF71 7RU</p> <p>DOCUMENT REF PROPOSED SITE PLAN</p> <table border="1"> <thead> <tr> <th>STATUS</th> <th>DATE</th> <th>DRAWN</th> <th>CHECKED</th> <th>SCALE & UNIT</th> </tr> </thead> <tbody> <tr> <td>PLANNING</td> <td>13.10.15</td> <td>RDP</td> <td>JNW</td> <td>1:200</td> </tr> <tr> <td>REF NO</td> <td>2286</td> <td>DRAWING TO</td> <td>DP 110</td> <td></td> </tr> </tbody> </table> <p><small>THIS DRAWING IS COPYRIGHT. ALL DIMENSIONS TO BE CHECKED ON SITE. ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE ARCHITECTS. ALL DIMENSIONS TO BE CHECKED PRIOR TO ORDER OF MATERIALS OR FABRICATION OF WORK. THIS DRAWING SHOULD NOT BE SCALED.</small></p>				STATUS	DATE	DRAWN	CHECKED	SCALE & UNIT	PLANNING	13.10.15	RDP	JNW	1:200	REF NO	2286	DRAWING TO	DP 110	
STATUS	DATE	DRAWN	CHECKED	SCALE & UNIT														
PLANNING	13.10.15	RDP	JNW	1:200														
REF NO	2286	DRAWING TO	DP 110															

50.9m

Cedar

TCB

LB