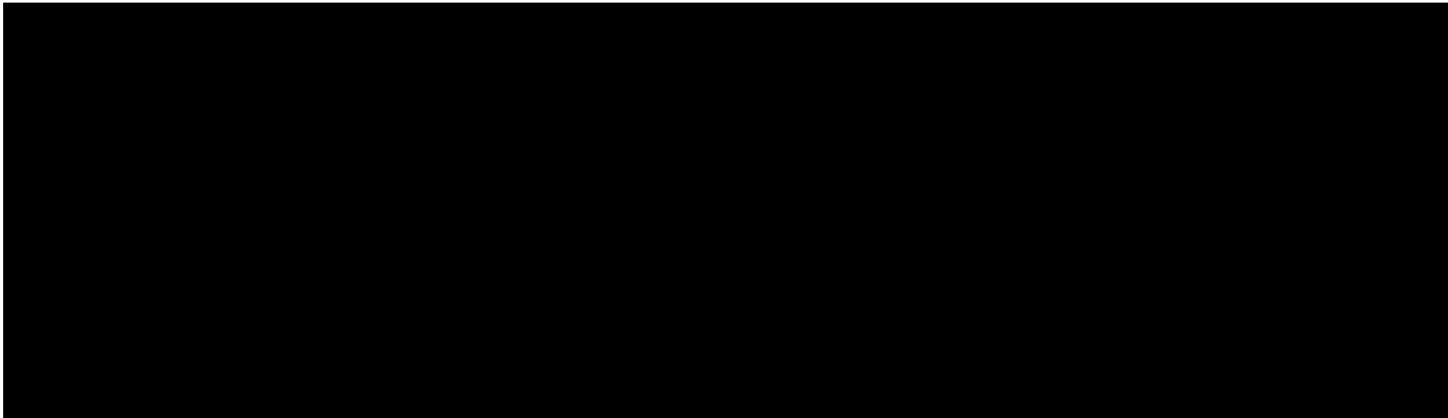




Please upload onto Ocella the email below and the attached revised plans and amended Flood Risk Assessment from the **applicant's drainage engineers** for planning application **A/76/20/PL** relating to Dappers Lane, Angmering.

The Action Sheet is attached to this email.

Thanks,

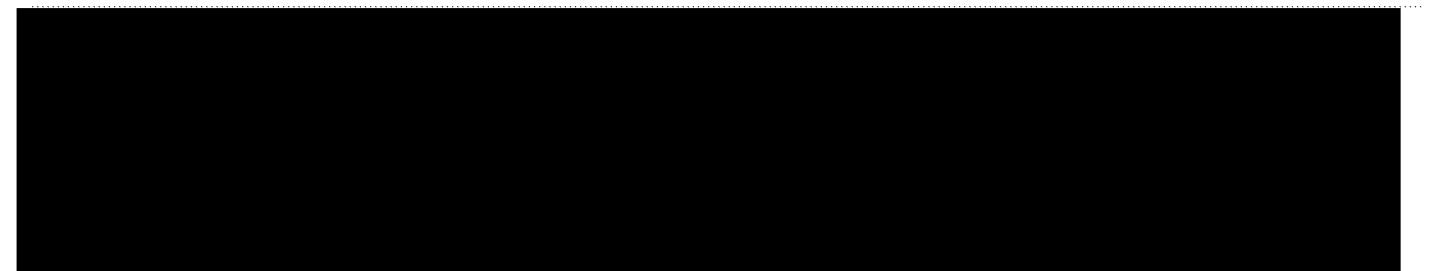
Michael

Michael Eastham
Principal Planning Officer,
Planning Department



Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF
www.arun.gov.uk

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Hi Laura,

Hope all is well, it's been a little while since we last spoke concerning Dappers Lane. The good news is we now have the amended layout with the 'skinnier' pond which has been extended out to the west as previously discussed. We now also have the 3.00m maintenance strip between the pond and the improved ditch along the southern boundary which was required as per the outstanding point(s) in relation to your holding objection.

I attach the updated FRA in view of this change, along with the drawings contained within as well as in addition to which I hope alleviate your remaining concerns. Drawing PL500A demonstrates the indicative pond sections with the 3.00m easement between the two features (pond and ditch).

I believe this was all that was outstanding and required in relation to the holding objection therefore I trust that this can now be removed. Should you require additional information before doing so however, please do let me know.

A few other points just to 'tidy up';

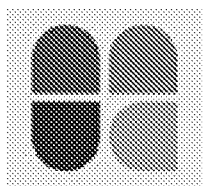
- The culverted section of the ditch which dog-legs along the southern boundary has been surveyed and there are no incoming connections within the bounds of the site, therefore we appear to be OK to clear this section through and reinstate as open ditch. I issued this information to Paul (he had requested to have this CCTV'd when we met on site a little while back) and I trust you have received his response confirming no further works are required pre-planning, and can be addressed at discharge of conditions stage as appropriate (in relation to the land drain on site).
- Discussions have taken place between myself, Paul, Kevin (Macknay) and Rob (Clark) concerning the two surface water options. We have obtained x2 No. prices from two different contractors to undertake the required remedial works to the off-site culvert with reference to Paul's checklist. It appears that a route through the school instead is Persimmon's preferred option now, therefore if that option is chosen, the works to the culvert may not be required. The reason I say 'may' is because there were discussions about this being used by the site as an 'overflow' to supplement the new route through the school – if this is the adopted approach, some works will be undertaken to improve the condition of the culvert – the main point being removing the football which is stuck in there at present. In terms of how any works would be undertaken (to the culvert) to bring this up to an acceptable standard is still to be finalised, the general consensus has been that a meeting may be held with affected residents to discuss the works and that the works would be 'fronted' by ADC/WSCC. A lot has been discussed concerning how works could be co-ordinated although probably too much to put in an email. Happy to discuss if you would like to run through although I stress the preference is now to requisition through the grounds of the school.

If there is anything that I have missed or if you would like to discuss this further at all, please feel free to give me a call. I am on annual leave next week, therefore if possible I would like to get confirmation that all has now been addressed before I head off to avoid any delays as a result of my absence.

Thanks for your time, look forward to hearing from you.

Kind regards

Stuart Burnett
Engineer



Bright Plan Civils, Transport Planning and Civil Engineering Consultants

Bright Plan Civils, 2 West Barn, Norton Lane, Chichester, PO20 3AF

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[REDACTED]

Afternoon Laura,

I have been in touch with Persimmon today to discuss potential changes to the pond as previously discussed; to slim this down and extend to the west (ensuring no loss of area/volume). We're looking for the 3.00m buffer as discussed with yourself, which you have confirmed can coincide where the pond/ditch works are concerned. Any developments where this is concerned, I will keep you informed.

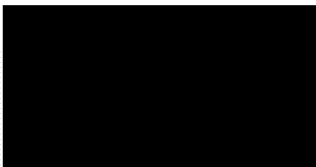
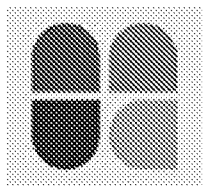
The email in blue italics from Paul is what I also believe to be the latest concerning the expectations and requirements where remedial works are concerned to the culvert, and is appended within the current FRA. There is also the secondary option which avoids the use of the existing culvert, which I attach for reference (routing through the grounds of the school, as will be the case with the foul).

I have all of the CCTV survey data if required as well in relation to the existing culvert.

More to follow from me in due course, pending a tweak to the layout from Persimmon.

Kind regards

Stuart Burnett
Engineer



Bright Plan Civils, Transport Planning and Civil Engineering Consultants

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[REDACTED]

Subject: RE: Dappers Lane A/76/20/PL

Hi Stuart,

Thanks for your response.

I confirm the following:

Point 1. closed.

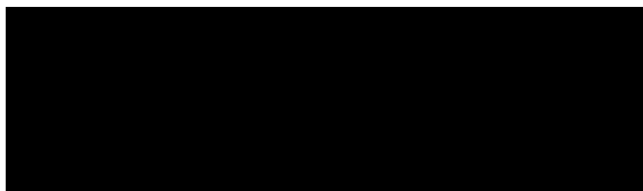
Point 2. 3m buffer between the ditch and basin is acceptable to coincide, i.e. only 3m between allowing access to either the basin or ditch. As part of the tweaking of the site layout it would be good to see an option for the "skinnier" pond should this be required once further investigation regarding deculverting has been undertaken.

Point 3. Closed- Flotation calculations to be left to detailed design. Assurances provided that a construction solution will be found whilst ensuring adequate free volume.

Point 4. Thank you for confirming that the conflicting trees will be removed from the basin. We will await revised landscaping proposals.

Point 5. Thank you, re-design awaited, point will be closed if shown there is then a 3m buffer.

Point 6. I understand that a meeting between ourselves, WSCC and Persimmon is being requested at the earliest opportunity to try to agree a way forward for the offsite requirements. To assist I have included below in *blue italics* what I believe were Paul's latest correspondence regarding requirements for the culverted watercourse.



Hi Stuart

In terms of the culvert, we need to ensure that it is fit for purpose now and for the foreseeable future, before allowing any formal discharge from the new development to it. We are more than happy to work with Persimmons in terms of getting the identified issues resolved.

Whilst, we work on behalf of WSCC (the lead local flood authority) in terms of undertaking enforcement in respect to land drainage, you are no doubt aware, that we are significantly understaffed at present and therefore formal enforcement against landowners could be a long process and therefore not in alignment with the developments timescales. Also, not all of the identified issues are enforceable.

I have summarised below the main issues identified by the CCTV survey that need resolving;

MH1 to MH2 (225mm dia)

4.5m JDM/OJM

14.7m JDM/OJM

23.2m JDM/OJM

41.4m Brick through side & multiple fractures (Could possibly be repaired internally/remotely ie. cutting/patch lining?) (Survey abandoned)

MH2 to MH1 (225mm dia)

30.4m Top of pipe has been previously cut out, but then fixed back in position – ok

47.35m JDM

55.6m Multiple fractures & hole (Suggest patch lining repair)

57.5m JDM/OJM

58.2m Small hole & fractures in invert (Suggest patch lining repair)

72.5m JDM

74.2m JDM

82.0m Hole in top of pipe but appears plugged - ok

91.0m JDM (Survey abandoned)

MH1 to MH2 will require full CCTV after remedial works to check remainder of pipeline not surveyed. Any issues found to be discussed.

MH2 to MH3 (225mm dia)

25.4m Hole in top of pipe but appears plugged - ok

MH3 to MH4 (225mm dia)

1.9m JDM & soil deposits

4.3m Hole in top of pipe and fractures (Suggest patch lining repair)

13.26m JDM & debris deposits

27.6m Encrustation at joint (Suggest remote cutting due to no access to immediately adjacent manhole)

MH4 to MH5? (225mm dia)

20.1m Length of guttering pipeline (Survey abandoned)

Ditch to MH4 (225mm dia)

6.05m On verge of collapse (under building?)

10.7m Metallic spike from fence post/fractures

24.0m Intruding poor connection and football obstruction (Survey abandoned)

MH4 to Ditch will require full CCTV after remedial works to check remainder of pipeline not surveyed. Any issues found to be discussed.

In terms of way forward, may I suggest that you obtain prices for undertaking the necessary repair works (some repairs can be done internally rather than open excavation). All the above works need to be considered unless there is an 'ok'. Once you have this information, we can discuss the matter further.

If the culvert were diverted into the school land (ensuring any existing connections are reconnected to the new pipe and the existing pipe filled with concrete to abandon it), then legally the school would become responsible for it as landowner. The other landowners would also have to agree to it.

An alternative would be to lay a private surface water pipe on that same school route and connect into manhole 1, therefore bypassing the issues. This pipe would need to be maintained by Persimmons management company unless you offer it for adoption to Southern Water or requisition it from Southern Water.

I await to hear from you once you have considered the above.

Kind regards,

[Redacted signature]

Hi Laura,

Apologies for the delay in getting back to you on this. I have been speaking with Rob (Clark) of Persimmon Homes concerning a few other bits and pieces relating to the site this afternoon.

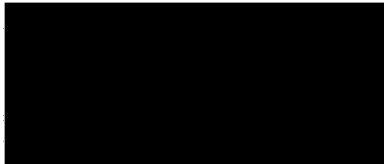
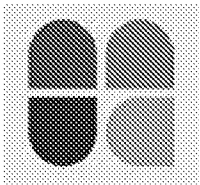
I have copied Rob's responses to your additional comments below (Rob's comments are in green). Additional comments from myself are in orange and highlighted.

All - I will be in attendance on the Zoom meeting/call next Thursday, hosted by Lisa Adams (ADC). If anybody requires anything future prior to this meeting – or if there is anything else anyone would like to raise in advance, please do not hesitate to let me know.

Thanks again for your time.

Kind regards

Stuart Burnett
Engineer

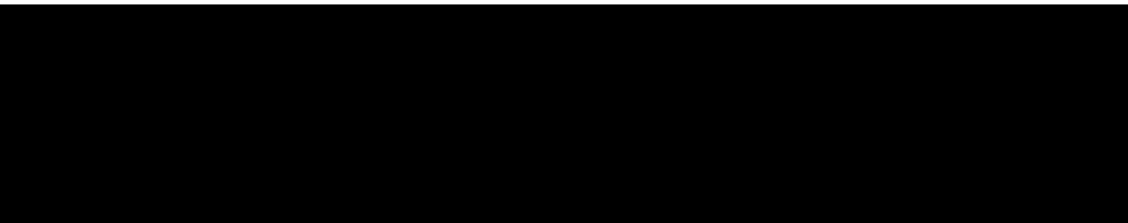


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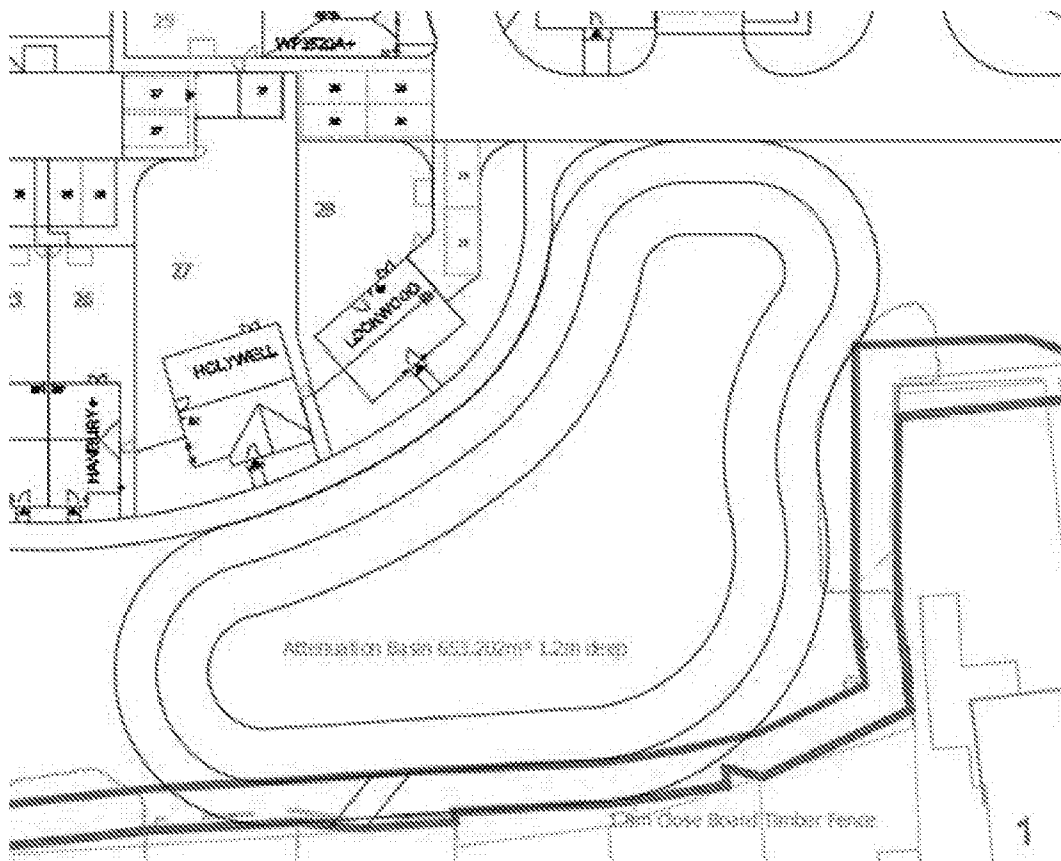
Hi Stuart,

Thank you for sending this information over. Comments below in *blue*.

1. Catchment area plan to enable verification of provided calculations, preferably in dwg format. Please find attached the requested catchment plan in .dwg format, along with updated calcs which have been rounded up in terms of the catchment for a 'worst case'. It is worth pointing out that at present we have allowed/catered for 100% of the impermeable area(s) on site, as well as there being climate change and urban creep allowances. Obviously at detailed design this will be refined, and areas such as private paths and/or patios will not likely be draining to the pond. The fact is, not all of the area(s) currently allowed for will drain to the pond/reach the pond there will be areas which drain naturally to landscaped areas etc. There is also freeboard provided in the pond, where 'peak' water levels are concerned. *Has the rain falling upon the basin been accounted for in calculations? Rainfall upon the basin itself has been considered and accounted for.*

2. Cross sections of attenuation basin, detailing offset of basin to surrounding features, including adjacent ordinary watercourse. An unobstructed 3m buffer should be provided around the attenuation basin. There is a buffer around the pond of at least 3.00m, with the exception of to the south of the pond where it is slightly reduced owing to the re-grading works associated with the watercourse. This has not been detailed out at present, and is a point for detailed design. It is demonstrated, however, that the pond can be maintained with the buffer that is provided in all other areas. *See comment to point 5 below. The screen shot below has been provided by Rob with the following comment; 'The outer 'circle' shows the 3 metre offset at the top of the bank (of the pond). This coincides with the 3 metre maintenance strip for the culvert along the southern edge.'*

At present (i.e. as existing, pre-development) a section of the southern boundary is culverted. We have proposed to reinstate as open-ditch for the full extent of the southern boundary up to the outfall point (the south-west corner), offering betterment and reducing maintenance issues – i.e. potential blockage situations. If the culverted section is reinstated as open-ditch, and the 3.00m buffer measured from the top of the bank overlaps/conflicts so to speak with the 3.00m buffer associated with the pond, the 3.00m can be provided in both instances by slight adjustment to the pond footprint – extending to the west where there is ample space available in order to compensate for the loss of area if we 'skinny' the pond up to the south (allowing/providing for the requirement easement).



3. Flotation calculations demonstrating that a safe basin design can be achieved in the given footprint and provide the required free volume for water storage. We have not produced flotation calcs and are of the view that this should be a matter for detailed design. What has been demonstrated is that there is sufficient storage provision with the pond to accommodate a 1-in-100-year event, inclusive of climate change and urban creep allowances. Ultimately, any additional excavation works associated with the pond to line this will need to be done so that the storage depth is not reduced – i.e. the pond will need to be dug out deeper in order to line so that the finished base depth is set at the level required in order to provide the volume of storage necessary. *Okay, as stated, the pond will have to be dug deeper to provide resistance to flotation and provide the volume of storage necessary. Agree to leave to detailed design. Thank you.*

4. Revisions to landscaping plans to move trees out of the attenuation basin- currently acers for example are proposed within the basin extents. This is not acceptable as the basin will have to be lined. Please ensure that all root potential areas are outside of surface water drainage feature extents. No comment – for others. *Awaited. The landscape features will be removed from the basin extents.*

5. evidence that a 3m buffer is provided throughout the site to the southern watercourse (N.B. 3m is measured from the top of bank of watercourse). As mentioned above, where the watercourse passes adjacent to the pond along the southern boundary, it is not possible to provide a 3.00m buffer – it is slightly reduced here. As we move past the pond (to the west towards the outfall location where the culvert is located) it opens back up again. Essentially, we have a 'pinch point' by the pond. *There must be a 3m buffer between the basin and top of bank of the watercourse to facilitate maintenance of both the watercourse and pond. In addition, it is evident that plot 7 (house and fence line) is located on the top of bank of the watercourse. This must be set back 3m. This is being dealt with as part of a redesign and plot 7 will be set back. Please also refer to my comment above in relation to 2.*

6. Written assurances that should discharge to the watercourse be necessary that works will be completed to ensure the receiving watercourse and culvert are in an appropriate condition. These works should be in accordance with the works previously detailed in discussions with ADC and included as an appendix to the strategy submitted. Although we cannot provide reassurance of this, Persimmon have acknowledged the previous request that remedial works/improvements will be required if the culvert is

to be utilised. As we are not going to be involved in the detailed design work associated with this site, we can only pass this information on. *Noted, I believe further discussions with Persimmon regarding this will be required, finding a way to secure works which are outside of the site boundary will be fundamental to receiving our support and the support of concerned residents. One option that we have discussed internally is obtaining a contribution to cover the works and then us/ LLFA carrying out the works. A series of options need to be discussed with Persimmon and the way forwards agreed. We are happy to provide a contribution but we would not want the works to prevent plot completions. We can agree a specific number of plots that can be occupied prior to the culvert being upgraded. I will leave discussions to ADC/Persimmon on this matter. If you require any information from me however, please let me know. I have all of the CCTV survey data previously circulated, as well as Paul's previous email identifying concerns/required remedial works (somewhere!) Happy to dig this information out if needed and if this will be of help at this time?*

Kind Regards,

Hi Laura,

Thanks for your email and prior warning of the holding objection. Rob Clark from Persimmon forwarded this on to us shortly after you, in addition to a couple of additional comment which followed slightly later (5. and 6. below). Unfortunately, we are not going to be involved with this site moving forwards at detailed design. We do a lot of work with Persimmon at planning, although have not been awarded the scheme moving on, therefore this will be picked up by somebody else.

Despite this, please find attached a detailed catchment plan in both .dwg and .pdf format. Should you have any questions concerning this please do not hesitate to let Mark or I know. I also attach sections as requested, again should you require further detail or clarification, please feel free to ask.

I have provided a couple of comments, below as well in red.

1. Catchment area plan to enable verification of provided calculations, preferably in dwg format. Please find attached the requested catchment plan in .dwg format, along with updated calcs which have been rounded up in terms of the catchment for a 'worst case'. It is worth pointing out that at present we have allowed/catered for 100% of the impermeable area(s) on site, as well as there being climate change and urban creep allowances. Obviously at detailed design this will be refined, and areas such as private paths and/or patios will not likely be draining to the pond. The fact is, not all of the area(s) currently allowed for will drain to the pond/reach the pond there will be areas which drain naturally to landscaped areas etc. There is also freeboard provided in the pond, where 'peak' water levels are concerned.
2. Cross sections of attenuation basin, detailing offset of basin to surrounding features, including adjacent ordinary watercourse. An unobstructed 3m buffer should be provided around the attenuation basin. There is a buffer around the pond of at least 3.00m, with the exception of to the south of the pond where it is slightly reduced owing to the re-grading works associated with the watercourse. This has not been detailed out at present, and is a point for detailed design. It is demonstrated, however, that the pond can be maintained with the buffer that is provided in all other areas.
3. Flotation calculations demonstrating that a safe basin design can be achieved in the given footprint and provide the required free volume for water storage. We have not produced flotation calcs and are of the

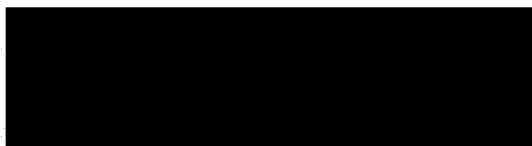
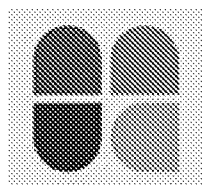
view that this should be a matter for detailed design. What has been demonstrated is that there is sufficient storage provision with the pond to accommodate a 1-in-100-year event, inclusive of climate change and urban creep allowances. Ultimately, any additional excavation works associated with the pond to line this will need to be done so that the storage depth is not reduced – i.e. the pond will need to be dug out deeper in order to line so that the finished base depth is set at the level required in order to provide the volume of storage necessary.

4. Revisions to landscaping plans to move trees out of the attenuation basin- currently acers for example are proposed within the basin extents. This is not acceptable as the basin will have to be lined. Please ensure that all root potential areas are outside of surface water drainage feature extents. No comment – for others.
5. Evidence that a 3m buffer is provided throughout the site to the southern watercourse (N.B. 3m is measured from the top of bank of watercourse). As mentioned above, where the watercourse passes adjacent to the pond along the southern boundary, it is not possible to provide a 3.00m buffer – it is slightly reduced here. As we move past the pond (to the west towards the outfall location where the culvert is located) it opens back up again. Essentially, we have a 'pinch point' by the pond.
6. Written assurances that should discharge to the watercourse be necessary that works will be completed to ensure the receiving watercourse and culvert are in an appropriate condition. These works should be in accordance with the works previously detailed in discussions with ADC and included as an appendix to the strategy submitted. Although we cannot provide reassurance of this, Persimmon have acknowledged the previous request that remedial works/improvements will be required if the culvert is to be utilised. As we are not going to be involved in the detailed design work associated with this site, we can only pass this information on.

I hope that the above and attached will assist with the holding objection at this time – should you find there is anything else that is needed in order to address the concerns, please do not hesitate to get back in touch.

Kind regards

Stuart Burnett
Engineer



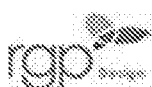
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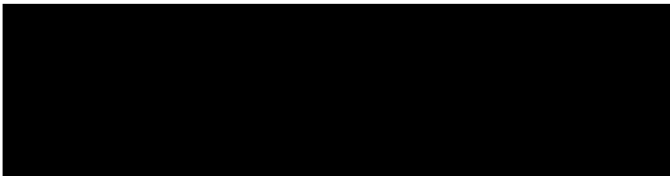
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Hi Stuart,

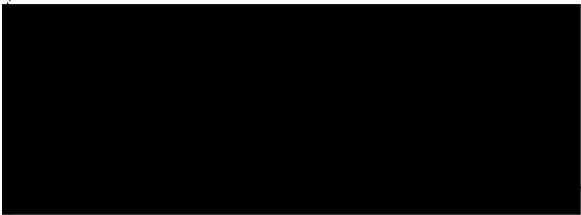
I hope you are well, presume that you are still working on Dappers Lane for Persimmons. I have just sent a holding objection to planning (attached for reference). I need the following information provided:

1. Catchment area plan to enable verification of provided calculations, preferably in dwg format. (I know you gave the overall impermeable areas, it would just be good to see this broken down to verify that you have taken all of the bits that you need to into account)
2. Cross sections of attenuation basin, detailing offset of basin to surrounding features, including adjacent ordinary watercourse. An unobstructed 3m buffer should be provided around the attenuation basin. (These can be quite rough, just need to see top of bank of each feature shown really at this stage, this also facilitates my review of the attenuation volume provided)
3. Flotation calculations demonstrating that a safe basin design can be achieved in the given footprint and provide the required free volume for water storage.

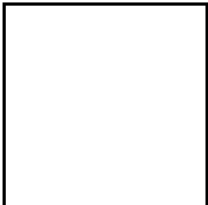
This info is required for me to verify that you will be providing enough space for surface water drainage.

Any questions please let me know.

Kind regards,



Worthing Town Hall, Chapel Road, Worthing, West Sussex, BN11 1HA



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Laura Gibbons

Engineer, Adur & Worthing Councils

Phone: 01903 221374

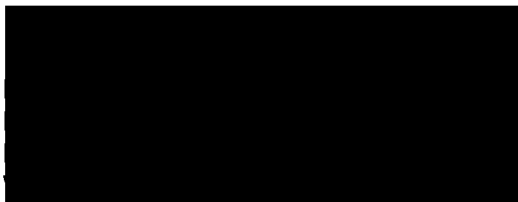
Email: laura.gibbons@adur-worthing.gov.uk

Website: www.adur-worthing.gov.uk

Address: Facilities & Technical Services, Worthing Town Hall, Chapel Road, Worthing, West Sussex, BN11 1HA



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