

Amanda Scholes | Receptionist, Department, Arun District Council | Location: Ground Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

Internal: 37736 | External: +44 (0) 1903 737500 ext 37736 | E-mail: amanda.scholes@arun.gov.uk



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Anita Gardner | Principal Planner, Directorate of Place, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

Internal: 37529 | External: +44 (0) 1903 737529 | E-mail: anita.gardner@arun.gov.uk



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From: Paul Cann <Paul.Cann@arun.gov.uk>

Sent: 27 March 2020 10:22

[REDACTED]

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

James

Recent emails to Chris enclosed fyi

Regards

Paul Cann
Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre,
Maltravers Road, Littlehampton, BN17 5LF

Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk

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From: James Elsey [REDACTED]

Sent: 03 March 2020 12:43

To: Paul Cann <Paul.Cann@arun.gov.uk>; Chris Slade [REDACTED]

[REDACTED]

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Paul,

Following on from the below, please see attached CCTV and clearance works report in order to obtain DOC. I have also put below an extract from Liam Seller which contains the hyperlink for the report and video files. If you require any further assistance please contact either myself, Lloyd Carter or Chris Slade.

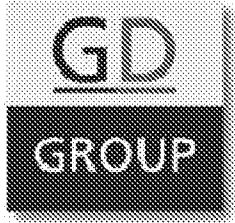
"Further to completion of our survey at the weekend please find our report attached.

You can download a further copy of the report and the video files via this We Transfer link (large file size 1.8GB) :

[REDACTED]

Kind regards

James Elsey



Construction Services

Basepoint, Little High Street, Shoreham by Sea, West Sussex, BN43 5EG

From: Paul Cann <Paul.Cann@arun.gov.uk>

Sent: 20 February 2020 14:03

To: Chris Slade [REDACTED]

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris

I have had a further discussion with WSCC regarding the proposed connection. They are willing to accept the restricted discharge on the proviso of the following (see enclosed plans) in order to ensure the receiving system is in good working order;

1. The connection is made at soffit to soffit level, not invert to invert.
2. Replace manhole cover and frame at point A with class D400 ductile iron of the same size, and bedded appropriately to the satisfaction of the ADC engineer.
3. Clean out road gully sumps at points A and B.
4. Jet clean gully laterals at points A and B, to remove any silt, debris & roots.
5. Jet clean pipeline upstream of point A (assuming one exists) where adjacent to the site boundary, to remove any silt, debris & roots and provide CCTV survey.
6. Jet clean pipeline downstream of point A to point C or D (depending where the pipeline upsizes from 225mm diameter and is shown to be in reasonable condition at that point), to remove any silt, debris & roots and provide CCTV survey.
7. Provide a copy of the CCTV survey to us along with a supporting plan, so the findings can be discussed. This may include additional works that will need to be undertaken.

Please note that our drainage records are a guide and you will need to verify the existence of pipelines/manholes by your own onsite investigations.

All the above matters will need to be resolved/agreed before your drainage design can ultimately be agreed.

Regards

Paul Cann
Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk



From: Chris Slade [REDACTED]
Sent: 17 February 2020 14:10
To: Paul Cann <Paul.Cann@arun.gov.uk>
[REDACTED]

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Paul

Please find revised drainage layout attached showing the revised tank position to accommodate the RPZ and porous drive areas. An additional revision will follow shortly indicating all RWPs and round plot drainage and details however the main objective at this stage is to secure approval with WSCC on a connection into their system.

The client has made two attempts to lift the upstream chamber however it is rusted shut. Are the details of this chamber essential to take things forward with WSCC? There is concern that the cover and frame may break or have to be broken in order to lift it.

Kind regards

Chris Slade **FIHE**
CGS Civils Ltd



Drainage Design | SuDS | Flood Risk Assessments | Highways | External Works

Richard Cobden House | Lion Street | Chichester | West Sussex | PO19 1LW

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From: Paul Cann <Paul.Cann@arun.gov.uk>
Sent: 12 February 2020 14:11

To: Chris Slade [REDACTED]
Cc: Mark Warwick <Mark.Warwick@arun.gov.uk>; Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris

We have spoken to our tree officer regarding the location of the potential storage tank. The tank appears to encroach into the tree root protection zone and would not be permitted. It also needs to take account of the expansion of this zone as the trees reach maturity. I would suggest that you seek further advice from the developers arboriculturalist. Ultimately, the proposals will need also be agreed by our own tree officer.

Please note that the development will need to include permeable paving for water treatment ie. property driveways.

We are still waiting for photos of the other manhole in Arundel Road.

Regards

Paul Cann
Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk

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From: Chris Slade [REDACTED]
Sent: 07 February 2020 14:31
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Sarah

Thanks for your email.

The chaps on site have now managed to get the cover off of the chamber and attached are some photos to confirm that it is indeed a highway drain chamber. The depth is 1.24m to invert. It could do with a serious clean and root removal.

I've re-jigged our preliminary layout to suit. Fortunately there is plenty of fall.

Will this be enough to start a dialogue?

Many thanks

Chris Slade **FIHE**
CGS Civils Ltd

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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Sent: 03 February 2020 11:15

To: Chris Slade [REDACTED]

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris,

At present I think more information is required before we can further discussion with WSCC. We went down to the site on Wednesday last week and met a gentleman who said he was the owner. He promised to lift the two manholes adjacent to the site and send Paul pictures. So far we have not received these. Please could you investigate the manholes and gullies in the vicinity of the site, it will be helpful to see the current condition they are in, the pipe dimeters going in and out, and their (invert and cover) levels. Consider whether or not it is possible to get a gravity connection to either of these from the site.

Kind Regards

Sarah Burrow
Engineering Assistant

From: Chris Slade [REDACTED]

Sent: 29 January 2020 14:17

To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Cc: Paul Cann <Paul.Cann@arun.gov.uk>

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Sarah

Thank you. Ok if he is able to then that would be a great help. We will then pursue a connection via WSCC directly.

Kind regards

Chris Slade **FIHE**
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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 29 January 2020 12:54
To: Chris Slade [REDACTED]
Cc: Paul Cann <Paul.Cann@arun.gov.uk>
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris,

There's not much more I can do at this stage. I agree infiltration is not looking viable on the site. Paul is meeting someone from WSCC tomorrow on an unrelated matter but has agreed to discuss this with them. You will obviously have to approach them independently. If there are any updates or we have any questions then either myself or Paul will get in touch.

Kind Regards

Sarah Burrow
Engineering Assistant

From: Chris Slade [REDACTED]
Sent: 20 January 2020 16:07
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Cc: Paul Cann <Paul.Cann@arun.gov.uk>
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Sarah

Please find report attached. If Paul is able to help push this through as an option with WSCC then we would be very grateful. The site itself falls towards a private road which then discharges out onto the highway.

Kind regards

Chris Slade **FIHE**
CGS Civils Ltd

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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 17 January 2020 15:46
To: Chris Slade [REDACTED]
Cc: Paul Cann <Paul.Cann@arun.gov.uk>
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris,

Once the formal report is ready let me know and we'll take a look at it. Paul was not convinced by the idea of discharging to the surface of the site. If the conditions are as bad as you imply then the highway drain is likely to be the most feasible option, I'd recommend discussing this with Paul before approaching WSCC as he may be able to assist you.

Sarah Burrow
Engineering Assistant

From: Chris Slade [REDACTED]
Sent: 16 January 2020 15:39
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Sarah

We had the soakaway testing carried out yesterday. Whilst the formal report is not available yet the feedback from site was not great. Basically the pits struggled to drain and in a couple of instances they failed completely due to very high groundwater. The current weather did not help but at least we have captured the site in its worse case scenario.

Unfortunately with this site we do not have a fallback option as there are no ditches or surface water sewers in the vicinity of the site. On this basis I only see two feasible options and that is a restricted connection into the foul water sewer or the highway drain. Both I would imagine will result in stiff resistance from each authority.

The original drainage strategy attached discussed the possibility of simply have several restricted outfalls to discharge onto the surface of the site to mimic current drainage as best as possible. Would this be feasible? I've not heard of this approach before and whilst the rate could be controlled there is the issue of the additional volume of water that will be far more than existing.

Anyway, I thought that I would just run this past you now for consideration prior to us making contact with Southern Water and WSCC.

Kind regards

Chris Slade **FIHE**
CGS Civils Ltd



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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Sent: 17 December 2019 15:34

To: Chris Slade [REDACTED]

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris,

Ok that's fine, please ensure that the tests are completed in the locations and at appropriate depths to correspond with any potential infiltration structures. I would strongly advise doing both shallow (permeable paving) and deeper tests (soakaways). You may be interested to hear that a neighbouring site (A/31/18/OUT – 68 Arundel Road) achieved 1.27×10^{-5} in March 2018. They designed soakaways of 800mm depth to correspond with gravelly conditions found below the first layer of clay. I appreciate your site will exhibit different conditions but thought the information may be useful.

Sarah Burrow
Engineering Assistant

From: Chris Slade [REDACTED]

Sent: 17 December 2019 15:21

To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Cc: Paul Cann <Paul.Cann@arun.gov.uk>

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Sarah

Ok thanks. I'll send onto the client and we can arrange the testing for the first week of Jan.

Kind regards

Chris Slade **FIHE**
CGS Civils Ltd



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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 17 December 2019 14:34
To: Chris Slade [REDACTED]
Cc: Paul Cann <Paul.Cann@arun.gov.uk>
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris,

I have just had a look at the report that you have supplied me, apologies it has taken me a while to get there. I have not looked into any other documents relating to this application, only the report you attached. On the basis of this report I'm afraid I am of the opinion that further investigation of infiltration potential is required. The infiltration testing mentioned in the report is not in accordance with BRE 365.

I am aware that a previous report has been cited. If you have evidence of infiltration testing completed in accordance with BRE365 then I would be happy to reconsider. However on the basis of this report I suggest that you carry out infiltration tests in accordance with BRE365 at agreed depths and locations in January/February.

Sarah Burrow
Engineering Assistant

From: Chris Slade [REDACTED]
Sent: 10 December 2019 15:44
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Subject: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Sarah

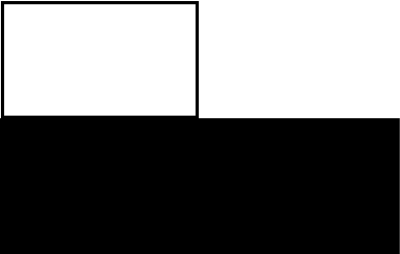
We are the appointed engineers on the above scheme which we are underway with on the drainage design. It is only some 400m from the Dappers Lane site.

We have been issued with the Site Investigation report by Ashdown which indicates a negligible infiltration rate across the site at varying depths with rates varying between $\times 10^{-6}$ and $\times 10^{-8}$ m/s predominantly due to the London and Lambeth Clays. I have attached some extracts of this to confirm.

On this basis we just wanted to confirm that this was sufficient evidence to determine that the site can be classed as being unsuitable for infiltration so that no further infiltration testing needs to be undertaken and we can explore alternative disposal options.

Many thanks and kind regards

Chris Slade **FIHE**
CGS Civils Ltd



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From: Paul Cann
Sent: 26 March 2020 10:15
To: Chris Slade
Cc: Kevin Macknay; Bruce Taunton; Sarah Burrow
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris

Comments on your proposals;

1. I am still awaiting WSCC to review the findings of the CCTV survey/jetting – I will contact you again once I get their feedback. The one thing that is clear, is the abundance of tree root issues, as expected. Agreement on this matter is critical to the whole scheme.
2. Please provide confirmation from our tree officer confirming that the tank is outside the existing and future root protection zones.
3. Specify tank inlet and outlet invert levels on the layout plan.
4. New 150mm connection to 225mm highway drain to connect at soffit to soffit level. Make this clear on the layout plan.
5. Provide backdrop construction detail.
6. Add suitable note 'all connections not to manholes to connect via oblique junctions as per your construction details'.
7. Pipes downstream of tank encroach into root zones. Please adjust as necessary to ensure they are not within existing or future tree root protection zones. Length S10 to HWD will probably need to be lengthened to achieve this and will require a 150mm concrete bed and surround (add note) to protect against root intrusion. Please indicate the clients proposals (on the plan) in respect to the vegetation in that area.
8. Floatation calcs mention groundwater 1.3m bgl. Is this the peak recorded winter level at that location?
9. Existing manhole covers of IC1 and IC3 have broken covers as recorded on the CCTV survey and from visual inspection. Please could these be replaced in a similar manner as proposed for the manhole being connected to. Add locations/notes on plan. This will form part of any agreement under item 1.
10. Show permeable paving finished surface levels and base levels on plan.
11. Permeable paving – provide permeable geotextile layer between binder course and sub base to prevent migration of fines.
12. Show finished road levels.
13. Trees on southern boundary – pipes are within the root zones here – indicate proposals for these trees. Further discussion will need to be had and these will include our tree officer.
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 - d) Check all details in pipe network match what is shown on the layout plan ie. steep gradient shown S6 to S10, some cover levels and other gradients differ.
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 - d) Include filter upstream of hydrobrake and its importance if one is specified.
 - e) Include recorded winter groundwater levels.

Look forward to receiving your revised details. Any questions, let me know.

Regards

Paul Cann
Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk

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Save the environment - think before you print.

From: Chris Slade [REDACTED]
Sent: 16 March 2020 09:10
To: Paul Cann <Paul.Cann@arun.gov.uk>; Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Subject: FW: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Paul & Sarah

Hope all is well with you both.

Just wondered how this check was coming along? Please do let me know if you need any further information.

Kind regards

Chris Slade **FIHE**
CGS Civils Ltd



Drainage Design | SuDS | Flood Risk Assessments | Highways | External Works

Richard Cobden House | Lion Street | Chichester | West Sussex | PO19 1LW

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From: Chris Slade
Sent: 04 March 2020 11:50
To: 'Dean Muggeridge' [REDACTED]

Subject: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Dean

Please find attached latest drainage layout, details and calculations for the above scheme for submission to Arun DC.

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From: Paul Cann
Sent: 26 March 2020 12:12
To: Chris Slade
Cc: Kevin Macknay; Sarah Burrow
Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris

I have now heard back from WSCC (copied in). The connection to the highway drain is acceptable in principle subject to;

1. The three broken manhole covers previously identified being replaced with suitable duty ductile iron covers to suit the manhole opening sizes.
2. Was IC1-IC2 surveyed with an overlap? If not, please resurvey after item 3.
3. Re-jet lengths IC1-IC2 and IC2-IC3 (and any gully laterals identified with root intrusion) with heavy jetter/root cutter, to remove as much root material as possible. Provide CCTV survey after completion.

Items 2 and 3 will need to be carried out (and to an acceptable standard) prior to discharge of the planning condition.

Please ensure all our correspondence is eventually copied to the planning officer to support your DOC application.

Regards

Paul Cann
Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

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From: Paul Cann
Sent: 26 March 2020 10:15
To: 'Chris Slade'

Subject: RE: A/144/19/DOC Land East of New Place Nursery, Arundel Road, Angmering

Hi Chris

Comments on your proposals;

1. I am still awaiting WSCC to review the findings of the CCTV survey/jetting – I will contact you again once I get their feedback. The one thing that is clear, is the abundance of tree root issues, as expected. Agreement on this matter is critical to the whole scheme.
2. Please provide confirmation from our tree officer confirming that the tank is outside the existing and future root protection zones.
3. Specify tank inlet and outlet invert levels on the layout plan.
4. New 150mm connection to 225mm highway drain to connect at soffit to soffit level. Make this clear on the layout plan.
5. Provide backdrop construction detail.
6. Add suitable note 'all connections not to manholes to connect via oblique junctions as per your construction details'.
7. Pipes downstream of tank encroach into root zones. Please adjust as necessary to ensure they are not within existing or future tree root protection zones. Length S10 to HWD will probably need to be lengthened to achieve this and will require a 150mm concrete bed and surround (add note) to protect against root intrusion. Please indicate the clients proposals (on the plan) in respect to the vegetation in that area.
8. Flootation calcs mention groundwater 1.3m bgl. Is this the peak recorded winter level at that location?
9. Existing manhole covers of IC1 and IC3 have broken covers as recorded on the CCTV survey and from visual inspection. Please could these be replaced in a similar manner as proposed for the manhole being connected to. Add locations/notes on plan. This will form part of any agreement under item 1.
10. Show permeable paving finished surface levels and base levels on plan.
11. Permeable paving – provide permeable geotextile layer between binder course and sub base to prevent migration of fines.
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