

[REDACTED]

From: Amanda Scholes on behalf of Planning.Responses
Sent: 30 November 2021 09:30
To: Planning Scanning
Subject: FW: Dappers Lane - Drainage- OWC application
Attachments: LDC-ARUN-2021-017 1c OWC Approval letter (1).pdf; LDC-ARUN-2021-017 1c OWC Consent.pdf; A360 - 09 C Offsite Drainage Works.pdf

AMANDA SCHOLES
PLANNING RECEPTIONIST



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From: Anita Gardner <[REDACTED]>
Sent: 30 November 2021 08:52
To: Planning.Responses [REDACTED]
Subject: FW: Dappers Lane - Drainage- OWC application

Please add to application A/210/21/DOC.

Anita Gardner
Principal Planner



Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF
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From: Anna Gillings [REDACTED]
Sent: 30 November 2021 08:27
To: Anita Gardner [REDACTED]
Cc: Emma Patchell [REDACTED]; Sam Rous [REDACTED]
Subject: FW: Dappers Lane - Drainage- OWC application

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Dear Anita

As previously, please could you add these to application 210/21/DOC.

We now just await Laura consultation response and all conditions should then be able to be discharged.

Thanks

Anna Gillings

Managing Director
Gillings Planning

DDI – 02382358870 | Tel – 02382358855 | Mob - 07738 104310



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From: Paul Cann [REDACTED]
Sent: 29 November 2021 12:34
To: Jonathan Shuttleworth [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Luke Fallon [REDACTED]; Laura Gibbons [REDACTED]; Ray Drabble [REDACTED]; Kevin Macknay [REDACTED]; Hugo Redfern [REDACTED]; Anita Gardner [REDACTED]
Subject: RE: Dappers Lane - Drainage- OWC application

Hi Jonathan

Land Drainage Consent enclosed. Please advise the contractor to contact us once works commence.

In terms of any outstanding matters on the onsite suds design and the discharge of the relevant planning conditions, I understand that you are in discussions with Laura.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



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From: Jonathan Shuttleworth [REDACTED]
Sent: 29 November 2021 10:03
To: Paul Cann [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gill [REDACTED]; Luke Fallon [REDACTED]

[REDACTED] Laura Gibbons [REDACTED] Ray Drabble
[REDACTED] >; Kevin Macknay [REDACTED] >; Hugo Redfern
[REDACTED] Anita Gardner [REDACTED]

Subject: RE: Dappers Lane - Drainage- OWC application

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Hi Paul,

Many thanks for responding so quickly,
I have updated the drawing according to your comments.
Are we there?

Kind Regards,

Mr Jonathan Shuttleworth
Senior Engineer

[REDACTED]
Abley Letchford Partnership Ltd
Consulting Engineers



From: Paul Cann [REDACTED]
Sent: 26 November 2021 12:30
To: Jonathan Shuttleworth [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Luke Fallon [REDACTED]
[REDACTED] Laura Gibbons [REDACTED] >; Ray Drabble [REDACTED]
[REDACTED] >; Kevin Macknay [REDACTED] >; Hugo Redfern [REDACTED]
[REDACTED] Anita Gardner <Anita.Gardner@arun.gov.uk>
Subject: RE: Dappers Lane - Drainage- OWC application

Hi Jonathan

Added comments against my previous ones in red. Once resolved, I can issue the land drainage consent.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



[REDACTED]
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From: Jonathan Shuttleworth [REDACTED]
Sent: 25 November 2021 15:44
To: Paul Cann [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Luke Fallon [REDACTED]
[REDACTED] Laura Gibbons [REDACTED] Roger Spencer [REDACTED]
[REDACTED] Ray Drabble [REDACTED]; Kevin Macknay [REDACTED]
[REDACTED] Hugo Redfern [REDACTED] Anita Gardner [REDACTED]
Subject: RE: Dappers Lane - Drainage- OWC application

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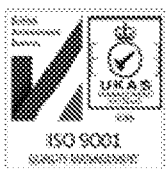
Hi Paul,

Many thanks for your comments and for calling me back yesterday. It's very much appreciated.
Hopefully, the attached drawing meets your expectations and we can get approval.
As we discussed I think I sent the application before, but you may have missed it as the email was addressed to Laura with yourself copied in. I've attached it again.

Kind Regards,

Mr Jonathan Shuttleworth
Senior Engineer

[REDACTED]
Abley Letchford Partnership Ltd
Consulting Engineers



From: Paul Cann [REDACTED]
Sent: 22 November 2021 13:42
To: Jonathan Shuttleworth [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Luke Fallon [REDACTED]
[REDACTED]; Laura Gibbons [REDACTED]; Roger Spencer [REDACTED]
[REDACTED] Ray Drabble [REDACTED]; Kevin Macknay [REDACTED]
[REDACTED] Hugo Redfern [REDACTED] Anita Gardner [REDACTED]
Subject: RE: Dappers Lane - Drainage

Hi Jonathan

Comments below;

1. I await the completed application for land drainage consent. Received ok
2. I am prepared to waive the fees in this case due to the other benefits being attained. -
3. Please could you colour the culverts/ditch on the offsite drainage works plan to make them clearer. ok
4. Proposed headwall & Leg 'D';
 - a) Specify invert levels of proposed 225mm pipe. ok
 - b) Brickwork refers to note 3 but should be note 2. Prefabricated headwall now specified as discussed. Specify the manufacturer and model, to suit the 225mm pipe.
 - c) Show how the post & rail fence will be bolted to the headwall. Prefabricated hand railing now specified. ok
 - d) Please adjust the proposed trash screen design to utilise this one or very similar; 225mm Sloped Trash Screen with Sides 45 degrees | Althon Specify the 45 degree trash screen in association with 4b)
 - e) Entry into existing manhole – make good manhole wall as necessary – add note. ok
 - f) All pipework to be twin walled polypipe or similar approved with 150mm thick ST4 concrete bed and surround with expansion joints. Add suitable note/detail. See enclosed drawing to assist.
5. Gully connection – existing lateral to be joined to new pipework/oblique junction using a 'flexible' coupling – add note. Remove the saddle connection detail as this is not applicable.
6. Leg 'B' - proposals noted thank you. -
7. Leg 'C' – proposals noted but ensure entire length of culvert adjacent the site boundary is shown. ok
8. Leg 'X' - Undertake further CCTV survey to enable completion of previous survey to Black Ditch – Present findings so further discussions can be had. Relevant notes added to plan. ok
9. Note 'Connection to be remade to upgraded pipeline between MH1 and ditch' shown in wrong location. ok

Look forward to receiving your revised details, etc.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



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From: Jonathan Shuttleworth >
Sent: 09 November 2021 11:38
To: Paul Cann; Shaun Letchford
Cc: Sam Rous; Anna Gillings; Luke Fallon
 ; Laura Gibbons; Roger Spencer
 ; Ray Drabble; Kevin Macknay
 ; Hugo Redfern
Subject: RE: Dappers Lane - Drainage

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Hi Paul,

Please find attached the offsite Drainage Works Drawing in order to show and detail the requested works and to accompany the Land Drainage Consent Application for the proposed development on Dappers Lane, Angmering. If you have any comments or questions please don't hesitate to get back to me as soon as possible.

Kind Regards,

Mr Jonathan Shuttleworth
Senior Engineer

Abley Letchford Partnership Ltd
Consulting Engineers



From: Paul Cann <[REDACTED]>
Sent: 26 October 2021 15:59
To: Shaun Letchford <[REDACTED]>
Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]>; Luke Fallon <[REDACTED]>; Jonathan Shuttleworth <[REDACTED]>; Laura Gibbons <[REDACTED]>; Roger Spencer <[REDACTED]>; Ray Drabble <[REDACTED]>; Kevin Macknay <[REDACTED]>
Subject: RE: Dappers Lane - Drainage

Hi Shaun

I have now had a conversation with Kevin Macknay at WSCC.

I have given below a very brief summary of the issues identified;

Pipeline Surveyed	Diameter (mm)	Issues	Remediation required	Comments
MH1 to Gully (Leg A)	150	Medium displaced joint @7.3m.	No action	WSCC responsibility
MH1 to Gully (Leg B)	150	Blocked.	Jetting to clear blockage (silt/roots?). CCTV afterwards to check for other issues/possible further works.	WSCC responsibility but if you have a jet machine on site to resolve the other issues listed below, clearing the blockage would be appreciated and this would also help reduce flood risk/safety (icing) concerns at the junction and benefit all concerned.
MH1 (Leg C)	225?	Medium displaced joint @12.2m. Root intrusion.	Remove roots.	Culverted watercourse. Adjoining landowner has riparian responsibility (ie. developer). Remove roots and patch line points of intrusion. Post CCTV survey required.

MH1 to ditch (Leg D)	150	Blocked.	Replace pipework.	Upgrade pipe to 225mm diameter with new headwall & trash screen (slope faced). Connect existing gully via oblique junction. Ditch to be cleaned out.
MH1 (Leg E)	225	Blocked/Badly fractured/siltation, etc.	No action.	Purpose of pipe unknown.
MH1 to Black Ditch (Leg X)	600	Root intrusion.	Remove roots.	Remove roots and patch line points of intrusion. Post CCTV survey required. Entire pipeline to the Black Ditch needs to be CCTV surveyed. A buried manhole possibly exists. Further discussion can be had once more is known.
Pipe 1 to MH1 (assumed to be gully connection immediately downstream of ditch outlet)	150	Medium displaced joint @0.6m.	Remake connection.	Connection to be remade to upgraded pipeline between MH1 and ditch.

The works highlighted yellow above will require your attention.

All these works will ultimately form part of the land drainage consent application and will need to be fully detailed. Please let me know if you have any queries.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



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From: Paul Cann

Sent: 26 October 2021 14:52

To: Shaun Letchford

Cc: Sam Rous <[redacted]>; a Gillings <[redacted]>; Luke Fallon

Jonathan Shuttleworth <[redacted]>; Laura Gibbons

oger Spencer <[redacted]>; Ray Drabble

<[redacted]>; Kevin Macknay

Subject: RE: Dappers Lane - Drainage

Hi Shaun

Thanks for the information. During the recent rainfall, flooding has been observed at the Water Lane/ Dappers Lane junction – not surprising based upon the findings of the CCTV survey!

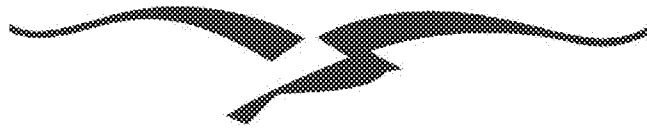
I can confirm that ordinary watercourse consent will be required for the connection of the swale to the ditch and the proposed 1.4 l/s discharge.

What we need to agree is offsite works to ensure the piped system downstream is fit for purpose to receive flows from the site, so I have copied in WSCC so we can have discussion internally and come back to you. Certainly the ditch itself will need cleaning out and from what i recall there is no headwall on the ditch outlet (so one will be required).

Speak again soon.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



[Redacted]
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From: Shaun Letchford [Redacted]
Sent: 12 October 2021 09:09
To: Laura Gibbons [Redacted]; Paul Cann <[Redacted]>
Cc: Sam Rous [Redacted]; Anna Gilling [Redacted]; Luke Fallon [Redacted]
[Redacted] Jonathan Shuttleworth [Redacted]
Subject: RE: Dappers Lane - Drainage

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Laura/Paul

Thank you for your comments.

It appears for the onsite we are nearly there. We will provide you with the updated details requested in due course.

What seems to be the area barring full approval is the offsite connections. Paul kindly sent the details of the offsite survey the previous consultant had undertaken and since then the client team have undertaken a full CCTV survey of the ditch connection and downstream network (attached). This substantiates the previous survey in that the ditch connects into the highway drainage and travels along Water Lane before discharging into the Black Ditch.

What is in abeyance is how we go about gaining discharge consent approvals to remove any further objection. As we are not directly connecting into the Black Ditch and/or altering the outfall the EA will not require an approval as it will be a flood risk activity exemption, at most, if we approach them. To this end do we require OWC from Arun into

the ditch and since we are replicating Greenfield discharge rates and the discharge is so small do we require any further approval from the highway authority, assuming they own the downstream pipework.

As always happy to discuss on the phone but if you are able to consider the above and provide your thoughts as to the best way to alleviate your concerns to achieve full sign off that would be good.

Kind regards

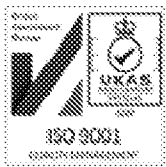
Shaun Letchford BEng (Hons) FCIHT
Director



Abley Letchford Partnership Ltd
Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, RG17 0YT

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From: Laura Gibbons [REDACTED]
Sent: 05 October 2021 10:09
To: Jonathan Shuttleworth [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Luke Fallon [REDACTED]
[REDACTED]; Paul Cann [REDACTED]
Subject: RE: Dappers Lane - Drainage

Hi Jonathan,

Thanks for your email. Please see my comments below in *blue*.

Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

Please note that I work Tuesdays 08:00-16:00 for Arun only.



Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF

From: Jonathan Shuttleworth <[REDACTED]>
Sent: 13 September 2021 17:04
To: Laura Gibbons <[REDACTED]> Shaun Letchford <[REDACTED]>
Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]>; Luke Fallon <[REDACTED]>; Paul Cann <[REDACTED]>
Subject: RE: Dappers Lane - Drainage

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Hi Laura,

Thank you for your comments.
Please find attached the updated drawings, calculations and maintenance plan to accommodate them.
Any questions, please don't hesitate to get in contact.

Kind Regards,

Mr Jonathan Shuttleworth
Senior Engineer



Abley Letchford Partnership Ltd
Consulting Engineers



From: Laura Gibbons <[REDACTED]>
Sent: 17 August 2021 13:48
To: Shaun Letchford <[REDACTED]>
Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]> Jonathan Shuttleworth <[REDACTED]>; Luke Fallon <[REDACTED]>; Paul Cann <[REDACTED]>
<Paul.Cann@arun.gov.uk>
Subject: RE: Dappers Lane - Drainage

Hi Shaun,

Thank you for supplying this information. I have the following comments.

1. Please can you detail the ground levels at the groundwater monitoring locations. *Point closed.*
2. Groundwater level at the attenuation tank is stated to be 10.05mAOD, the location appears to be between WS105 and WS106. Groundwater data loggers show groundwater level at circa 0.7mbgl, and 0.9mbgl respectively, unclear how groundwater level effectively 1.1m depth corresponds, please confirm groundwater readings to mAOD. *Point closed.*

3. Please apply a factor of safety of 6.5 to the design of permeable paving area 2 as the drained area is greater than 1000m². *Point closed.*
4. Please confirm invert level of ditch where swale connects. Please provide further details of swale proposals, including invert, cover level, slope, connection with ditch. *Await comments regarding proposed connection to ditch from a land drainage consent perspective.*
5. Please provide construction detail drawing showing swale cross section, long section, ACO inlet detail in relation to swale, connection between swale and ditch. *Await comments regarding proposed connection to ditch from a land drainage consent perspective.*
6. A construction detail drawing of the permeable paving is required. Including additional details showing diffuser block connections, and baffles. *Detail showing distribution tank does not appear to have been supplied. Awaited*
7. Please provide construction detail of permeable paving which is shown to not have a permeable sub-base. *Is this shown by the area with the SC membrane on the permeable block paved car park detail?*
8. Please provide catchpits upstream of all connections into permeable sub-base. *Point closed.*
9. Invert level of hydrobrake on construction detail is shown to be inconsistent with invert level in calculations/ on layout. Please update. *Point closed.*
10. Please detail maintenance requirements for pipes, catchpits, and hydrobrakes. *Point closed.*
11. I have looked back through the case notes and it appears that Paul had some comments regarding the condition of the downstream culvert. Please liaise with Paul Cann regarding this. *Awaited.*

Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

Please note that I work Tuesdays 08:00-16:00 for Arun only.



[Redacted]

[Redacted]

Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF

From: Shaun Letchford <[Redacted]>

Sent: 30 July 2021 16:33

To: Laura Gibbons <[Redacted]>

Cc: Sam Rous <[Redacted]>; Anna Gillings <[Redacted]>; Jonathan Shuttleworth <[Redacted]>; Luke Fallon <[Redacted]>; Paul Cann <[Redacted]>

Subject: RE: Dappers Lane - Drainage

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Laura

Further to the below please find a link to all our drawings and reports for approval to the drainage scheme as discussed. We have included:

- All drawings including drainage and area plans, sections and schedules and construction details
- Drainage statement with full drainage calculations, surveys and reports (infiltration and groundwater included separately) and the ADC checklist
- SuDS maintenance report and schedules

To confirm all calculations include for:

- FEH-13 rainfall
- Factor of safety
- All drainage beneath the incoming pipe for the 1:10 plus 40% climate change in infiltration devices

We have also included the full drainage survey of the downstream drainage which proves a connection for the watercourse at the bottom of the site on Water Lane, that any existing overland site drainage would discharge into, into the highway drain which discharges into the Black Ditch.

As always we have tried to include everything you would require for approval but obviously if there is anything fundamental you believe is missing do not hesitate to contact us, and, as always if you feel a meeting would be beneficial to discuss any points then please contact us.

We trust the drainage is to your approval and we look forward to your comments.

<https://we.tl/t-0EVRV5nhOB>

Kind regards

Shaun Letchford BEng (Hons) FCIHT
Director



Abley Letchford Partnership Ltd
Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, RG17 0YT

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From: Laura Gibbons <[redacted]>
Sent: 13 July 2021 09:46
To: Shaun Letchford <[redacted]>
Cc: Sam Rous <[redacted]>; Anna Gillings <[redacted]>; Jonathan

Shuttleworth [REDACTED] Luke Fallon <[REDACTED]> Paul Cann

Subject: RE: Dappers Lane - Drainage

Good morning Shaun,

Thanks for your email. I have provided some responses to your queries below in *red*.

I cannot state definitively whether your proposals are acceptable without seeing further information. Broadly speaking:

- the proposal to infiltrate the northern area is acceptable in principle.
- The area which drains via gravity to infiltration should be maximised, it looks like some further down pipes may be able to connect to infiltration areas.
- The remaining areas which cannot be drained via infiltration should be attenuated and discharged via gravity to watercourses.

My colleague Paul Cann may have a better knowledge of the system you are proposing on discharging to, and I recommend you contact him as soon as you have completed some further investigations into this network. Paul is on leave this week.

Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

Please note that I work Tuesdays 08:00-16:00 for Arun only.



Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF

From: Shaun Letchford <[REDACTED]>

Sent: 09 July 2021 16:46

To: Laura Gibbons <[REDACTED]>

Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]>; Jonathan Shuttleworth <[REDACTED]>; Luke Fallon <[REDACTED]>

Subject: Dappers Lane - Drainage

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Laura

I hope you are well.

We have another Angmering scheme, Dappers Lane, which we have taken on the design responsibility from Fairhurst of which you have had dealings with previously and especially during May of this year. Please allow me to explain.

We have been tasked with achieving approval from yourself (ADC) to the design of the drainage and discharge of conditions. To enable this we understand you will require full detailed design and a maintenance manual and this will follow. However, as per our other site, it would be prudent to agree the design principles with yourself to avoid abortive works both on your side and ours, knowing what you may or may not accept. To this end please below a synopsis of the design, with some questions, which relate to the drainage strategy attached.

Surface Water Drainage

As you are aware winter groundwater monitoring and infiltration testing has taken place and these have informed our drainage scheme, which follows the approved FRA and the Fairhurst drainage scheme, albeit without a pump.

As per your emails it is our intention to drain the northern section of the site through infiltration into the ground. The southern section of the building at a lower level will drain to the south and attenuated with a controlled discharge into the watercourse adjacent to Water Lane. We are at this time unsure where this watercourse drains to but we are investigating this. However, as you know the site falls to this watercourse providing an existing discharge point and, we suspect, is then taken to the Black Ditch, across Water Lane. We have therefore provided a controlled discharge to this watercourse.

The drainage scheme mimics existing Greenfield conditions and is also in accordance with your email to Fairhurst during May. However, to achieve this we have some specific questions if you would be so kind.

1. The northern section drains wholly by infiltration. With respect to the permeable paving the base is not 1m above the recorded groundwater level. Your email dated 17 March to Fairhurst states "Arun District Council will accept the invert of any type of infiltration structure at the maximum monitored groundwater level i.e. no buffer zone is required". Please can you confirm this statement. *I confirm that we do not require a 1m buffer zone, we require the base of infiltrating structures to be located above peak recorded groundwater level.*
2. With permeable paving all water drains into the structure from above and therefore the clear space below an incoming pipe for the 1:10 year event plus CC, and any groundwater or base of structure, is not required. However it would be beneficial to also drain some of the roof gullies into the permeable paving medium as they are adjacent or 5m away, due to not allowing infiltration within 5m of a building. If we discharge the roof gullies into the porous paving will you require storage below this incoming connection to be able to cater for the 1:10 year event plus CC, above the highest groundwater. If so this cannot be achieved. To clarify we are not proposing a pipe network just individual roof gully connections into the porous paving medium. *Incoming connections from roof drainage must be located above the 1 in 10 year plus 40% cc event, looking at your plans it looks like there is potential for sub-base formation levels to be lowered, please investigate this. Please ensure that catchpits are provided upstream of all connections into the sub-base. All diffuser blocks should be 5m from buildings and upstream pipes should be labelled with diameter and fall.*
3. The southern section will drain by controlled discharge into the watercourse as described. Obviously the existing Greenfield discharge rate is small as the ground suggest infiltration is viable even though it is limited in the south. The southern impermeable area Greenfield rate is 0.19 l/s. Therefore we have currently set the proposed discharge rate to 2 l/s as the most practical smallest discharge rate you can achieve. However, even this is considered too low by some authorities. Please can you confirm the maximum discharge rate you will allow for this site. *Our requirement is more heavily dictated by aperture size than flow rate, we require that apertures on flow control devices have a minimum diameter of 50mm where water is not directed through permeable sub-bases.*
4. We will provide all drainage calculations to FEH rainfall and a FOS of 5 (minor inconvenience) as per your checklist. *Please ensure that FEH 2013 rainfall is used. Without knowing your catchment area and modelled cv value I cannot confirm whether a FOS of 5 is appropriate for the infiltration drainage design.*

As stated are you able to comment on the above and the drawing as to your approval, or otherwise, to the drainage strategy, and if in agreement we will provide full detailed design and a maintenance manual for approval.

As always happy to discuss on the phone or on Teams.

Kind regards

Shaun Letchford BEng (Hons) FCIHT
Director

Abley Letchford Partnership Ltd
Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, RG17 0YT

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includes any attachments.



West Sussex Flood Risk Partnership

Our ref: LDC/ARUN/2021/017

Your ref:

Date: 29th November 2021

Mr J Shuttleworth
Abley Letchford Partnership
3 Tealgate
Charnham Park
Hungerford
RG17 0YT

Dear Jonathan

RE: Land Drainage Works – Development at junction of Water Lane & Dappers Lane, Angmering

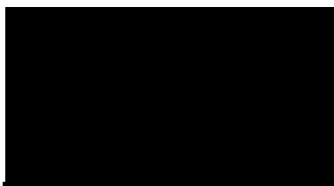
Thank you for your application for Ordinary Watercourse Land Drainage Consent.

I confirm that your proposals for the permanent / ~~temporary~~* works are approved by the West Sussex Drainage Partnership. I enclose consent number LDC/ARUN/2021/017 issued under Section 23 of the Land Drainage Act 1991.

Please notify this authority no less than seven days before commencement and upon completion of the works via one of the methods of contact below, quoting the above consent number for reference. Please note that inspections will be carried out as deemed necessary.

The applicant must provide photographs of the works during construction and on completion, and forward digital copies to this office. **Please note the 'Conditions' attached to this approval.**

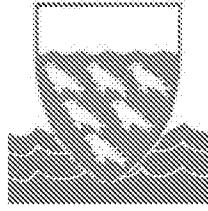
Yours sincerely



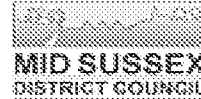
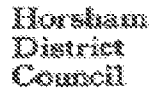
Mr Paul Cann
Principal Engineer (Drainage)

Arun District Council
Engineering Services
Arun Civic Centre
Maltravers Road
Littlehampton
West Sussex
BN17 5LF





West Sussex Flood Risk Partnership



Ordinary Watercourse Land Drainage Consent

Land Drainage Act 1991

Name:

Frontier Estates Limited

Consent applying to:

**Connection to existing ditch & culvert improvements, at development at
junction of Water Lane & Dappers Lane, Angmering**

Consent Number LDC/ARUN/2021/017

**Effective from
29th November 2021**

This note does not form part of the Certificate of Authorisation.

Introduction

The West Sussex Drainage Partnership

The West Sussex Drainage Partnership is a body consisting of West Sussex County Council and the District and Borough Authorities within West Sussex acting together in partnership, to carry out specific duties under the Land Drainage Act 1991 and Flood and Water Management Act 2010. It operates under delegated powers under section 13(4) of the Flood and Water Management Act 2010.

The Partnership aims to manage flood risk in the county through continued maintenance and regulation of ordinary watercourses, education and assistance of riparian ("river side") owners and through promotion of sustainable drainage systems (SuDS).

Legislation

Land Drainage Consents are required by virtue of the Land Drainage Act 1991. The following activities on an Ordinary (non-main) Watercourse require Local Authority Consent:

under Section 23 of the Land Drainage Act 1991;

- the erection or alteration of any mill dam, weir or other like obstruction to the flow of any watercourse
- the erection or alteration of any culvert that would be likely to affect the flow of any watercourse

under Sections 17 and 20(2) of the Land Drainage Act 1991

- any drainage works carried out by a local authority against flooding in connection with any watercourse

under Section 61F Land Drainage Act 1991 (Inserted by Schedule 22 Environment Act 1995)

- the operation of any drainage works, under the control of any Internal Drainage Board or local authority, so as to manage the level of water in a watercourse for the purposes of facilitating spray irrigation.

Note: Consent under the above legislation is required irrespective of whether the works are permanent or temporary.

Contraventions

In relation to Ordinary Watercourses, West Sussex Drainage Partnership can under Section 24 of the Land Drainage Act 1991 serve a legal notice requiring the person to abate the nuisance within a specified time. Failure to abide by such a notice can result in the West Sussex Drainage Partnership carrying out the necessary remedial work and seeking to recover costs.

Land Drainage Act 1991

Land Drainage Consent

Control of works affecting watercourses and/or flood defences

Consent number LDC/ARUN/2021/017

To: Frontier Estates Limited

The West Sussex Drainage Partnership in exercise of its powers under Section 23 of the Land Drainage Act 1991 and subject to the conditions attached, hereby grants its consent in relation to the works or operations described in this Consent.

Watercourse: Not named

Location: Land at junction of Water Lane & Dappers Lane

Map reference: TQ 07291 04635

Description of works: Connection of swale to existing ditch. Flows restricted to 1.4l/s. Upgrading of existing 150mm diameter culvert to 225mm diameter. Installation of headwall and trash screen. Other offsite improvement works as specified on plans.

As detailed on plans and sections

Drg no. A360-09 Rev C, 34932BWUG-01, A360-01 Rev C

In supporting documentation

The West Sussex Drainage Partnership does not accept any responsibility for the design and construction of the works referred hereto and any liability for any loss or damage which may arise out of their design, construction, maintenance or use.

This Consent shall come into effect on

Date 29th November 2021

Signed on behalf of the West Sussex Drainage Partnership



Mr Paul Cann
Principal Engineer (Drainage)

Date of signing

29th November 2021

Conditions

This consent is granted with the following conditions:

General

N/A

Timing

Works to be completed within six months of the date of this consent or else the consent will be deemed to have expired.

Temporary Works

N/A

Site Specific

Existing ditch to be cleaned out/re-graded as necessary.

Offsite culvert improvements to be undertaken as identified in CCTV survey report dated 23rd July 2021 by Survey Solutions and as specified on approved drawings.

Other Information

This Consent does not remove from the applicant the necessity to obtain other licences, consents, approvals or permissions (including planning permission) which may be required in law or in order to comply with any duties or responsibilities for conservation or protection of the environment.

It is the applicants responsibility to ensure that he obtains the consent / permission of any owners and occupiers affected by the works.

This Consent does not confer any rights of entry or rights over property.

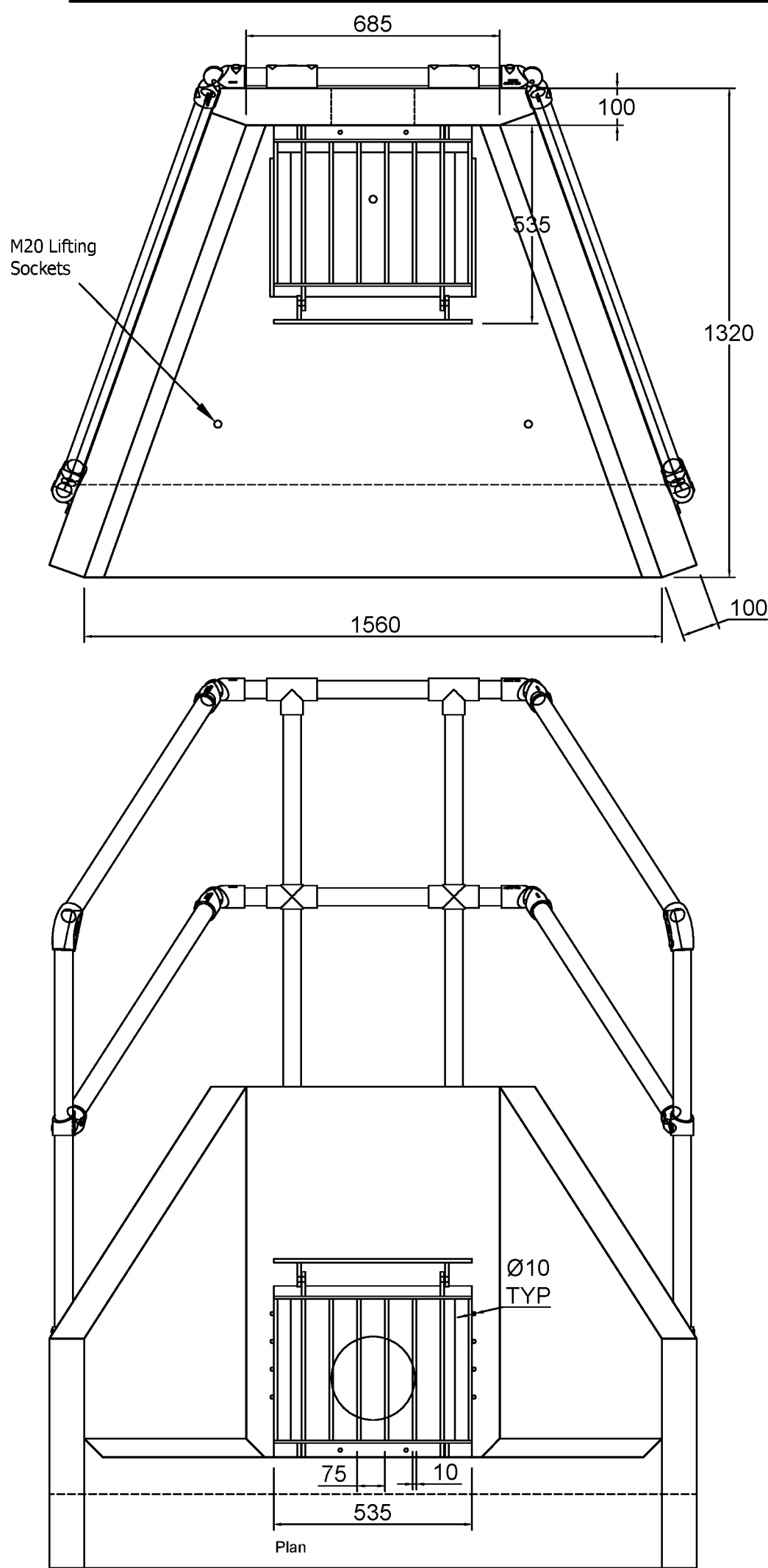
Works should be arranged to ensure there is no increase in flood risk to third parties.

That the LLFA does not accept any responsibility for the design and construction of the works that are the subject of this Consent and any liability for any loss or damage which may arise out of their design, construction, maintenance or use.

The works must be undertaken in accordance with the approved plans, drawings, calculations, specifications and other relevant documents.

All reasonable precautions must be taken during the undertaking of the works so as not to obstruct, impede or interfere with the flow of water in, into or out of the watercourse and not to damage the banks or bed or any drainage works without the approval of the Lead Local Flood Authority.

Althon H6CA Headwall with 3 sided Kee Klamp & 225mm 45° Trash Screen with Sides 40 x 10mm flats at 75mm Centres



HEADWALL NOTES:

- All dimensions in mm
- All measurements ± 1mm

Specification Information

- Opening in back wall cast to suit outside diameter of the pipework
- Invert level of pipe can be set to your specification

Headwall Installation

Units should be bedded on minimum 150mm of semi-dry concrete.
Sit the headwall level or with a slight fall 1:50 from pipe to spill mouth.

Handling

- Weight of concrete is based on 2.4 tonne/m³; 5% is recommended for sizing lifting equipment.
- All lifting points shall be used as specified below - Anchor points & loops - Total Qty: 3
- Unit to be lifted as per lifting diagram

Concrete

- Mix ref: Self-compacting DC4/DS4 Mix
- Lifting strength based on 2 cubes = 20N/mm²
- Characteristic 28 day cube strength = 50N/mm²
- Concrete provides Design Chemical Class 4 (DC4) to special Digest 1, Table F2.

Reinforcement

- Reinforcement to BS EN 13369
- Scheduling, dimensioning, bending & cutting to BS8666
- Cage to be machine tied with steel wire

Manufacture

- Manufacture to BS EN 15258:2008 precast concrete products - Retaining wall elements, Factory Production Control certificate number: 0086-CPR-650448 & BS EN 13369
- Tolerances to BS EN 13369 clause 4.3.1.1
- Finishing:

	Top	Sides	Base	Rear of back wall
Class	A	A	A	Self-Levelled

- Marking: Units shall be indelibly marked to show:
 - Mould reference code
 - De-mould date
 - Job reference number & unique product number
 - Unit weight (kg)

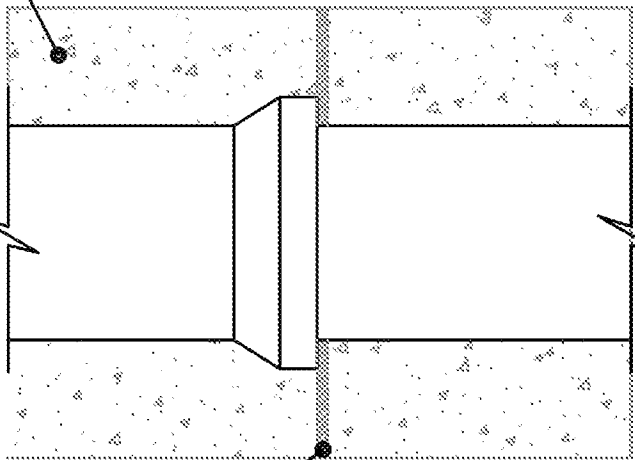
TRASH SCREEN NOTES:

- All dimensions in mm
- Manufacturing tolerances IAW EN 1090-2 ANNEX D PARA 2.7-2.8
- All measurements ± 1mm
- 40 x 10mm flats at 75mm centres as standard

Fabrication Specification

- Manufacture IAW EN 1090-2 EXC CLASS 1
- Material grade is to be: BS EN 10025 S275
- Welding carried out IAW EN 1090x2 PARA 7.5.4 - 7.5.18
- All fillet and butt welds to have a minimum throat thickness of 6mm & joints to be fully welded where possible.
- Ensure vertical flats are fully welded both sides where possible.
- All sharp edges and burrs are to be removed.
- Remove all weld splatter.
- Holes by punching are permitted without reaming.
- Galvanising is carried out after fabrication to BS EN ISO 1461

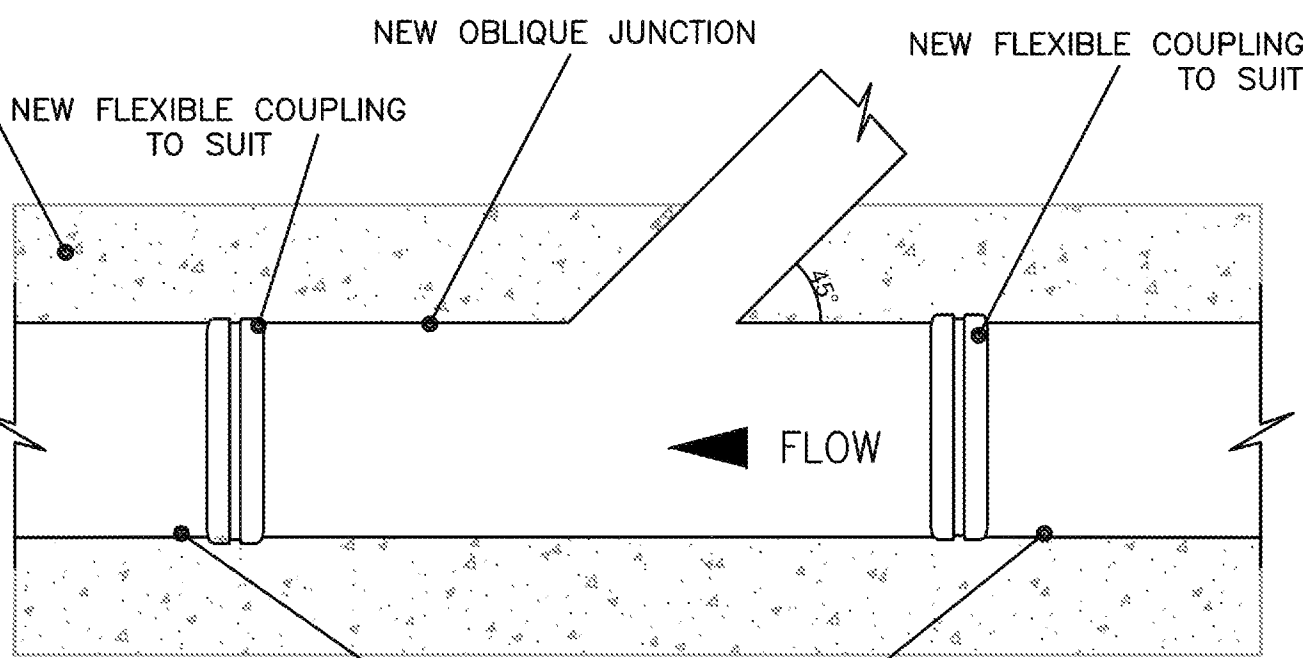
PLAIN CONCRETE CLASS ST4 TO BE SEPARATED AT EACH JOINT WITH AN APPROVED COMPRESSIBLE MATERIAL.



APPROVED 18MM THICK COMPRESSIBLE BOARD AT EACH PIPE JOINT

PIPE SURROUND EXPANSION JOINT DETAIL (TO BE USED WITH CLASS Z)

SUITABLE SURROUND AS SPECIFIED

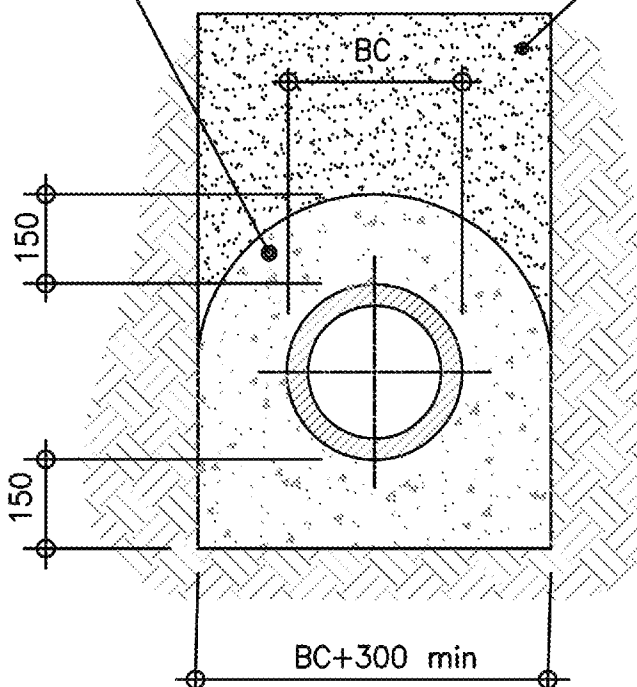


PLAN OBLIQUE JUNCTION

CONNECTION TO BE MADE AT 10 OR 2 O'CLOCK (IN SECTION)

SELECTED EXCAVATED MATERIAL TO BE FREE FROM STONES >40MM, FROZEN MATERIAL, AND NON ORGANIC MATTER. BUT CLASS 6F1 MATERIAL TO BE USED UNDER CARRIAGEWAYS AND ELSEWHERE WHERE DIRECTED BY THE ENGINEER OR THE HIGHWAY AUTHORITY

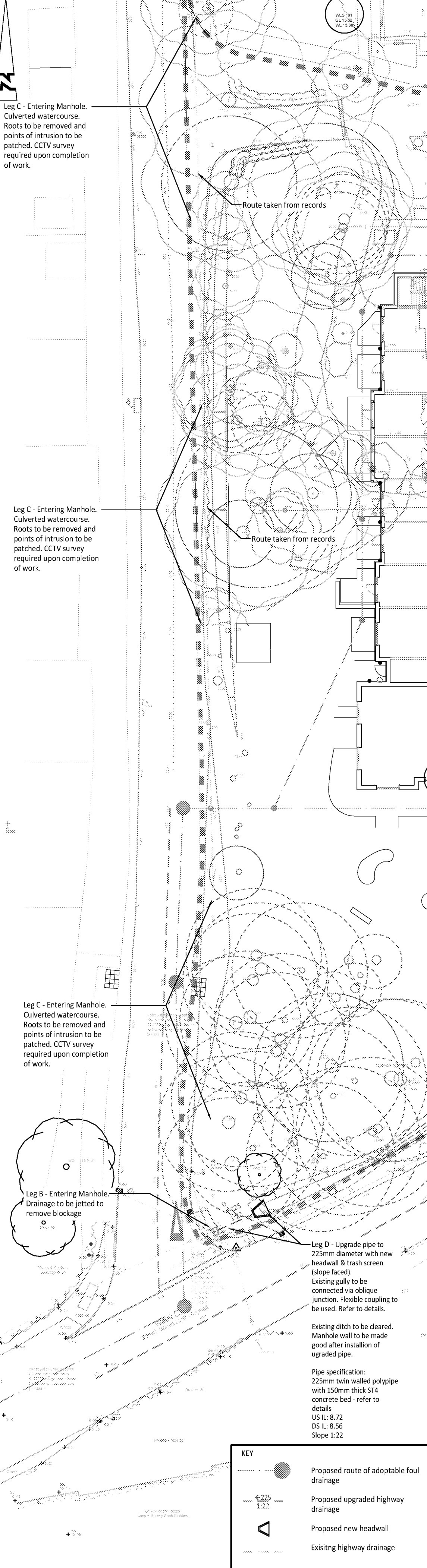
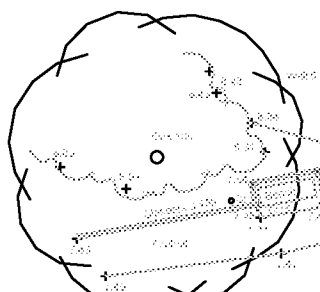
PLAIN CONCRETE CLASS ST4 TO BE SEPARATED AT EACH JOINT WITH AN APPROVED COMPRESSIBLE MATERIAL.



CONCRETE SURROUND (CLASS Z)

TO BE USED WHERE COVER TO CROWN OF PIPE IS LESS THAN 1200mm IN VEHICULAR AREAS OR LESS THAN 900mm UNDER OTHER AREAS

Leg X - Remove roots and patch line points of intrusion. Existing manhole to be uncovered and cover to be raised to existing ground level. All blockages between proposed site and Black Ditch to be cleared & CCTV survey to be completed as soon as possible and prior to any live connection of proposed site drainage.



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PIPE BEDDING NOTES:

- All dimensions are in millimetres.
- All instl concrete to be class S14 (Min. class 3) to BS 5328
- Oblique junctions up to a maximum pipe diameter of 450mm.
- Flexible couplings to be flex-seal or similar approved
- Spigots to be joined using quick set mortar
- All connections to be at 45 degrees
- Granular bedding material size to be as follows

NOMINAL DIAMETER (MM)	SINGLE SIZE (MM)	GRADED (MM)
-----------------------	------------------	-------------

100-125	10	-
---------	----	---

150-200	10 OR 14	14-5
---------	----------	------

225-300	10,14 OR 20	14-5 OR 20-5
---------	-------------	--------------

375-500	14 OR 20	14-5 OR 20-5
---------	----------	--------------

>500	14,20 OR 40	14-5 OR 20-5 OR 40-5
------	-------------	----------------------

DRAINAGE NOTES:

- Do not scale.
- Refer to all other Project Drawings and supporting notes.
- The Contractor is responsible for maintaining continuity of flow for all existing sewers within the site boundary and limit of works for the duration of the project.
- All drainage shall be installed and tested strictly in accordance with the Manufacturers' printed instructions, BS EN 752, BS EN 1601, Local Water Authority requirements and the Building Regulations.
- Where connections are being made to pipelines rather direct to manholes all connections are to be made using oblique 45 junctions.

Rev	Date	Description	Drawn	Checked
C	11.21	Updated following Arun DC comments	JS	SL
B	11.21	Updated following Arun DC comments	JS	SL
A	11.21	For Approval	HR	JS

ABLEY LETCHFORD PARTNERSHIP
Consulting Engineers
3 Tealgate, Charnham Park
Hungerford, Berkshire RG17 0YT
www.alpce.co.uk Tel: 01488 684390

Frontier

Dappers Lane Angmering

Offsite Drainage Works

For Approval

Scale	Date	Drawn	Checked
250 @ A1	Nov 2021	HR	JS
Drawing No.	A360 - 09	Revision	C