
Job name: Burger King, Barnsley

Job No: M44628

Note No: M44628-JNP-XX-XX-RP-C-1001

Date: 31/01/2025

Prepared by: Alex Gowers

Subject: Drainage Strategy Statement

1. Introduction

- 1.1 JNP Group were instructed by Burger King UK to prepare a drainage strategy to support a full planning application submission for a new restaurant building and associated external works.
- 1.2 The proposed development site is 0.20 hectares and is currently part of an asphalt surfaced car park for a Tesco Extra supermarket store.
- 1.3 JNP Group has prepared the following drawings which provide the surface water drainage strategy for the new development. This technical note should be reviewed in conjunction with the drawings.
 - M44628-JNP-90-XX-DR-C-2001 General Arrangement
 - M44628-JNP-92-XX-DR-C-2002 Private Drainage Layout
 - M44628-JNP-90-XX-DR-C-2003 Setting Out Plan
 - M44628-JNP-90-XX-DR-C-2004 Levels Layout
 - M44628-JNP-92-XX-DR-C-2005 Surface Water Allocation Plan
 - M44628-JNP-92-XX-DR-C-2006 Existing Site Surface Water Drainage Assessment
 - M44628-JNP-90-XX-DR-C-3000 Drainage Construction Details
 - M44628-JNP-90-XX-DR-C-3001 Typical Construction Details
- 1.4 A new building will be constructed onsite. It is proposed to retain where possible the access roads and existing car park and reuse the existing drainage system.
- 1.5 The development does not increase the impermeable area across the site.
- 1.6 JNP has undertaken an assessment of the existing drainage onsite to calculate the existing surface water runoff rate for the 1 in 2 year storm event. The surface water drainage design for the new development reduces the existing surface water runoff rate by 30% by providing 2No. Hydrobrake flow control chambers to restrict the flows offsite, and attenuation tanks to provide onsite storage.
- 1.7 The development site is constrained by existing utilities that cross the site. Therefore, the opportunity to introduce sustainable drainage systems (SuDS) is limited.
- 1.8 Whilst preparing the drainage strategy JNP Group has liaised with the Barnsley Council Planning

Department and Yorkshire Water.

- 1.9 Planning Permission has been granted by Barnsley Council for a restaurant only. Refer to application reference 2024/0741 within Appendix A.
- 1.10 The new proposed drainage strategy has been prepared to support a revised planning application for a restaurant with a drive through lane. The new drainage strategy addresses the requirements of planning conditions 4 and 9 that were raised for the original planning application.

2. Existing Site

- 2.1 The site is located at land north of the Tesco Extra store, Wombwell Lane, Barnsley, S70 3NS.
- 2.2 The existing site is a section of car park within the Tesco Extra main car park.
- 2.3 The existing surface consists of 100% impermeable hardstanding. The site boundary is shown in Figure 2.3 below.



Figure 2.3 Development Site Boundary

- 2.4 There is a surface water sewerage system and gullies located across the existing site. All surface water runoff from the existing site discharges into the underground sewerage system.

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- 2.5 The existing sewers onsite are both adopted and private and form part of the sewerage system that serves the Tesco Extra supermarket building, car park and private access road.
 - 2.6 Existing Public and Private sewers onsite have been investigated by undertaking detailed topographical surveys and CCTV drainage surveys. The CCTV report ref. '240291 CCTV Report' confirms the routes and connection points. This information is also shown on the drainage design drawings for the proposed development (Appendix D).

3. Surface Water Drainage Hierarchy

Infiltration

- 3.1 An assessment of the geology has been carried out using the 1:50,000 scale British Geological Survey (BGS) online GeoIndex Tool as well as to the BGS 1:50,000 Series published geological map, Sheet 87 Barnsley.
- 3.2 The superficial geology of the site to be is indicated to be Alluvium, which is described by the BGS as "Normally soft to firm, consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present".
- 3.3 The underlying "bedrock" geology is indicated to be strata of the Pennine Middle Coal Measures Formation which is described by the BGS as "*Interbedded grey mudstone, siltstone, pale grey sandstone and commonly coal seams.*" The sandstone is described by the BGS as "*Medium strong to extremely strong medium to widely jointed thinly to thickly bedded fine to coarse-grained SANDSTONE may contain slate or mudstone and siltstone beds. Weathers to a loose to very dense sand, gravel or silty/clayey sand.*" The Mudstone is described by the BGS as "*Very weak to medium strong usually fissured MUDSTONE. Weathers to a firm to stiff silty clay*". The solid geology is shown to dip approximately 5 degrees to the northeast.
- 3.4 An intrusive phase 2 site investigation was carried out by JNP Group on 29th July 2024 where 5no. dynamic sampling boreholes were formed, with 6 return gas and groundwater level monitoring visits during a period between 5th August 2024 and 18th October 2024.
- 3.5 These boreholes identified made ground (including hardstanding) to a depth of 0.9m to 1.0m below ground level (bgl). This top layer of made ground was found to be underlaid by a layer of Alluvium between 1.0m to 1.6m deep. Below the Alluvium was found to consist of the Pennine Middle Coal Measures Formation.
- 3.6 The existing layer of Alluvium consists of stiff to firm clays. The depth of Pennine Middle Coal encountered consisted of weathered mudstones.
- 3.7 Based on the above descriptions, the superficial and bedrock geology do not support the use of infiltration drainage to discharge surface water directly into the ground.
- 3.8 The existing site and neighbouring properties are served by surface water sewers which indicates that infiltration drainage and soakaways are not viable.

Discharge to Watercourse

- 3.9 There is a section of the former Sheffield and South Yorkshire Navigation Dearn and Dove Canal located to the west of the Tesco store and car park.
- 3.10 The canal is disused and has been filled to the south of the site as shown in Figure 3.8 below.

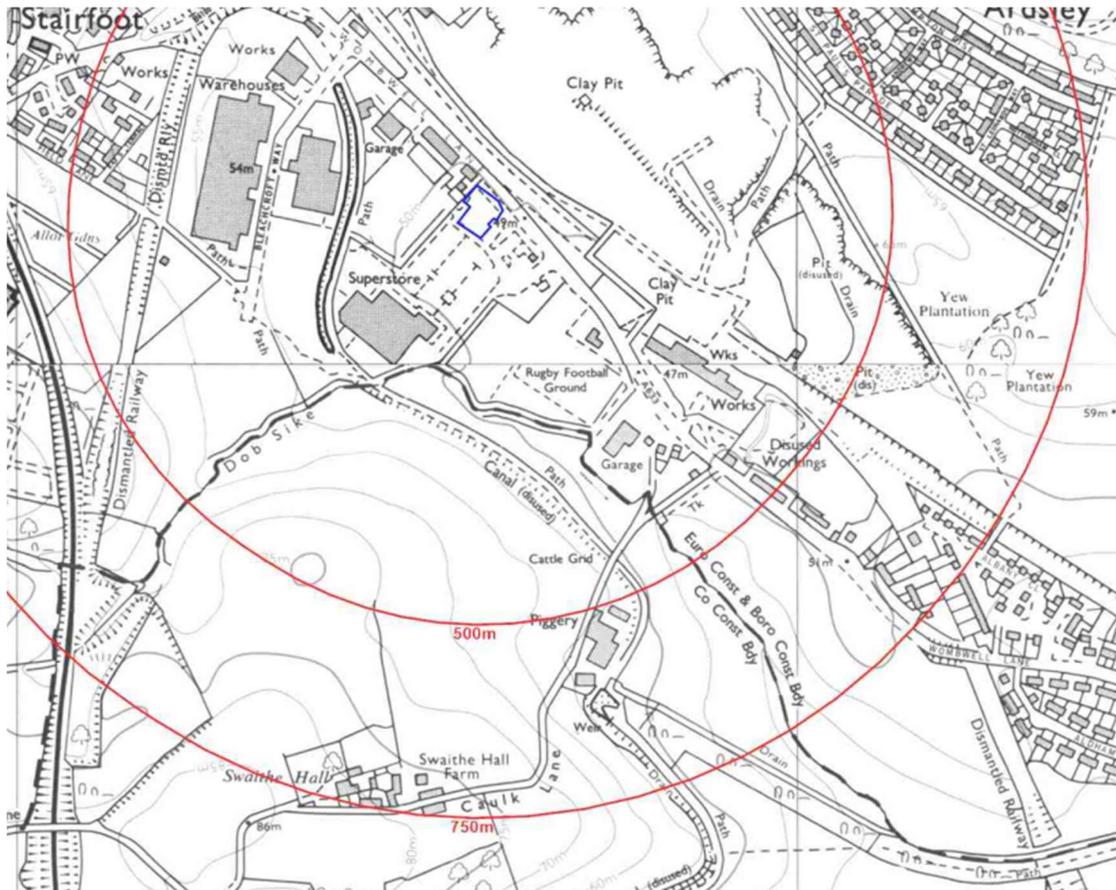


Figure 3.8 – Discussed canal to the south of the development site

- 3.11 The Dob Sike ordinary watercourse is located approximately 200m to the south of the development site. Dob Sike is a tributary of the River Dove which is located approximately 1.3km to the east of the site.
- 3.12 The site is served by existing surface water sewers which presumably discharge to the Dob Sike watercourse.
- 3.13 It is not possible to connect to an onsite or nearby watercourse.

Discharge to Surface Water Sewer

- 3.14 The following extract from the Yorkshire Water sewer record plan shows there is an adopted public water sewer onsite that flows southwards under Tesco Extra store car park.



Figure 3.11 Extract from the Yorkshire Water Sewer Record showing public surface water sewers that serve the development site.

- 3.15 The topographical survey for the site shows the site is also served by private surface water sewers that discharge into the adoptable sewer network.
- 3.16 All of the existing surface water sewer connections onsite are shallow (<1.6m depth to invert) resulting in an added constrain to the available depth and gradient of proposed sewers.
- 3.17 The proposed development for the Burger King restaurant will connect to and reuse the existing sewers which serve the development site.

4. Proposed Drainage Strategy

- 4.1 The proposed development will provide a Burger King restaurant along with resurfacing a section of the car park and pedestrianising a portion of the car park.
- 4.2 The proposed development will utilise the existing surface water and combined sewerage network.
- 4.3 All existing gullies on site to be retained will undergo remediation during construction to ensure they are in a good condition and provide suitable drainage.
- 4.4 The proposed development will consist of 100% impermeable hardstanding as existing.
- 4.5 Where possible, the existing car park and access roads within the development site boundary will be retained and reused as car parking for the new Burger King restaurant, with no changes to the existing surface water drainage system.
- 4.6 The existing combined water sewer pipe beneath the proposed building is proposed to be diverted

along the south of the building utilising 225mm diameter pipe and 1.2m internal diameter manholes.

- 4.7 Please refer to drawing M44628-JNP-92-XX-DR-C-2002 for further details.
- 4.8 We have reviewed the possibility of SuDS features such as permeable paving/tarmac however considering the extent of existing underground utilities in the site, and the frequency and type of vehicular traffic across the site, there does not appear to be any suitable, significant areas for such features.
- 4.9 JNP Group has obtained Pre-Planning Advice from Yorkshire Water which is provided in Appendix A.
- 4.10 Yorkshire Water have stated that their main approach to surface water drainage is to the surface water hierarchy, as in Requirement H3 of the Building Regulations. We highlight the following:
 - 4.10.1 SI shows that infiltration drainage is not viable.
 - 4.10.2 Mapping and topographic information show that it is not viable to discharge to a watercourse onsite.
 - 4.10.3 It is proposed to connect to existing SW sewers onsite.
 - 4.10.4 Yorkshire Water and Barnsley Council require a 30% reduction in the surface water runoff rate from the existing development.
 - 4.10.5 JNP has assessed the existing impermeable areas and drainage onsite using Causeway Flow for a 1 in 2 year event. For the developed area, the existing runoff rate was calculated to be 17.3 l/s. Including the 30% reduction, the proposed runoff rate will be lowered to a total of 12 l/s. Refer to the existing drainage assessment drawing and calculations within Appendix C.
 - 4.10.6 The surface water drainage design for the new development reduces the existing surface water runoff rate by 30% by providing 2No. Hydrobrake flow control chambers to restrict the flows offsite, and attenuation tanks to provide onsite storage.
 - 4.10.7 The surface water drainage system has been designed so that above ground flooding does not occur for the 1 in 100 year event + 40% climate change allowance. Refer to Appendix D for proposed impermeable areas plan, proposed drainage layout, and Flow calculations.
 - 4.10.8 This site is a refurbishment of an existing car park with 100% impermeable area, and the development will remain impermeable like existing after construction so there will be no opportunity for infiltration.
 - 4.10.9 Our current design includes remediation of the existing surface water features onsite to accommodate the unchanged surfaces within the site, and ensure the system operates effectively and extends the design life of the drainage system.
- 4.11 Due the existing drainage connections being shallow, there is not the suitable depth for a single drainage network and discharge. Therefore our proposed solution is 2 separate networks and discharge points, each supporting approximately half of the site. Each network has a HydroBrake

Flow control before discharge to limit to a combined total of 12l/s.

- 4.12 There is not expected to be any increase in the existing surface water discharge, and following the remediation works proposed for the existing gullies and pipes, the existing drainage network will be in a better condition following the development.

5. Conclusions

- 5.1 The proposed site boundary is 0.22 hectares and is currently part of an asphalt surfaced car park for a Tesco Extra supermarket store.
- 5.2 A total area of 0.10 hectares of the existing site is being developed.
- 5.3 The existing surface consists of 100% impermeable hardstanding.
- 5.4 The site is served by existing adopted and private surface water sewers.
- 5.5 The majority of the existing car park and access roads, within the development site boundary, will be retained and reused as car parking for the new Burger King restaurant, with no changes to the existing surface water drainage system.
- 5.6 The new building and associated external works will discharge surface water into the existing underground surface water sewerage system.
- 5.7 It is not viable to provide SUDs features such as permeable paving/tarmac due to existing underground utilities in the site, and the frequency and type of vehicular traffic across the site.
- 5.8 There are 2no. HydroBrake flow control chambers proposed to limit the proposed surface water discharge rate to the existing 1 in 2 year event runoff rate, with a 30% betterment.
- 5.9 There are 4no. offline surface water attenuation tanks proposed.
- 5.10 The proposed drainage solution for the new development will not increase surface water runoff from the site or increase flood risk onsite or offsite.

Document Issue Record

Technical Note No	Rev	Date	Prepared	Reviewed	Approved
M44628-JNP-XX-XX- RP-C-1001	P01	26/06/2024	AG	AM	AM
M44628-JNP-XX-XX- RP-C-1001	P02	12/07/2024	AG	AM	AM
M44628-JNP-XX-XX- RP-C-1001	P03	31/01/2025	AG	AM	AM

List of Appendices

- Appendix A* Barnsley Council Planning permission
- Appendix B* Correspondence from Yorkshire Water. Pre-Planning Enquiry.
- Appendix C* Existing Drainage Assessment Drawings and Calculations.
- Appendix D* Proposed impermeable areas plan, Proposed Drainage Strategy layout, Flow Calculations.

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Appendix A



GRANT OF PLANNING PERMISSION

TOWN AND COUNTRY PLANNING ACT 1990

APPLICATION NO. 2024/0741

To Mr Chris Piris-Jones
Firstplan
21 Broadwall House
London
SE1 9PL

DESCRIPTION Erection of restaurant pod (Use Class E(b)) with associated car parking, refuse area and landscaping.

LOCATION Car Park, Tesco Supermarket, Wombwell Lane, Stairfoot, Barnsley, S70 3NS

Permission is **granted** for the proposals which were the subject of the Application and Plans registered by the Council on 02/09/2024 and described above.

The approval is subject on compliance with the following conditions:

- 1 The development hereby permitted shall be begun before the expiration of 3 years from the date of this permission.
Reason: In order to comply with the provision of Section 91 of the Town and Country Planning Act 1990.

- 2 The development hereby approved shall be carried out strictly in accordance with the amended plans:

Location Plan, Drawing No: 2763-URB-BA-ZZ-DR-A-1001, Rev: P00b
Proposed Block Plan, Drawing No: 2763-URB-BA-XX-DR-A-208151, Rev: P00c
Proposed Elevations - Sheet 1 of 2, Drawing No: 2763-URB-BA-XX-DR-A-208250, Rev P01
Rec 3.12.2024.pdf
Proposed Elevations - Sheet 2 of 2, Drawing No: 2763-URB-IOW-XX-DR-A-208251, Rev P01
Rec 3.12.2024.pdf
Proposed Floorplan, Drawing No: 2681-URB-BA-ZZ-DR-A-208150, Rev: P00a
Proposed Roofplan, Drawing No: 2681-URB-BA-ZZ-DR-A-127150, Rev: P00a
Landscape Plan, Drawing No: 2763-URB-LS-00-DR-L-208150, Rev: P00
Private Drainage Layout, Drawing No: M44628 JNP 92 XX DR C 2002, Rev P03, Rec
23.10.2024.pdf
General Arrangement Plan, Drawing No: M44628 JNP 90 XX DR C 2001, Rev P02, Rec
4.10.2024
Drainage Typical Construction Details, Drawing No: M44627 JNP 90 XX DR C 3001, Rev
P02, Rec 4.10.2024
Drainage Levels Layout, Drawing No: M44628 JNP 90 XX DR C 2004, Rev P02, Rec
4.10.2024

and specifications as approved unless required by any other conditions in this permission.

Reason: In the interests of the visual amenities of the locality in accordance with Local Plan Policy D1 High Quality Design and Place Making.

- 3 No building or other obstruction including landscape features shall be located over or within 3 metres either side of the centre line of the public sewer i.e. a protected strip width of 10 metres, that crosses the site. Furthermore, no construction works in the relevant area(s) of the site shall commence until measures to protect the public sewerage infrastructure that is laid within the site boundary have been implemented in full accordance with details that have been submitted to and approved by the Local Planning Authority. The details shall include but not be exclusive to the means of ensuring that access to the pipe for the purposes of repair and maintenance by the statutory undertaker shall be retained at all times. If the required stand-off or protection measures are to be achieved via diversion or closure of the sewer, the developer shall submit evidence to the Local Planning Authority that the diversion or closure has been agreed with the relevant statutory undertaker and that, prior to construction in the affected area, the approved works have been undertaken.

Reason: In the interest of public health and maintaining the public sewer network.

- 4 There shall be no piped discharge of surface water from the development prior to the completion of surface water drainage works, details of which will have been submitted to and approved by the Local Planning Authority. If discharge to public sewer is proposed, the information shall include, but not be exclusive to:
- a) evidence to demonstrate that surface water disposal via infiltration or watercourse are not reasonably practical;
 - b) evidence of existing positive drainage to public sewer and the current points of connection;
 - and c) the means of restricting the discharge to public sewer to the existing rate less a minimum 30% reduction, based on the existing peak discharge rate during a 1 in 1 year storm event, to allow for climate change.

Reason: To ensure that no surface water discharges take place until proper provision has been made for its disposal and in the interest of sustainable drainage.

- 5 The parking/manoeuvring facilities as indicated on the submitted block plan (Drawing No: 2763-URB-BA-XX-DR-A-208151, Rev: P00c) shall be surfaced in a solid bound material (i.e. not loose chippings) and made available for the manoeuvring and parking of motor vehicles prior to the development being brought into use, and shall be retained for that sole purpose at all times. Adequate measures shall be so designed into the proposed vehicular areas to avoid the discharge of surface water from the site on to the highway.

Reason: To ensure that there are adequate parking facilities to serve the development which are constructed to an acceptable standard; to ensure adequate provision for the disposal of surface water and to prevent mud/debris from being deposited on the public highway and to prevent the migration of loose material on to the public highway to the detriment of road safety and in accordance with Local Plan Policy T4 New Development and Transport Safety.
- 6 The use hereby approved can only operate between the following hours, with no deliveries or other operations to occur outside the hours specified:
Monday - Sunday: 08:00 - 23:00

Reason: In the interest of residential amenity in accordance with Local Plan Policy GD1.
- 7 Noise from fixed building services plant associated with the proposed development shall not exceed the Noise Rating Level Design Limits stated in Table 6 of the Noise Solutions Ltd, Plant Noise Impact Assessment Report (Ref: 92277, dated 17th July 2024) at the nearest receptor. Should complaints be received a further noise assessment shall be carried out by the applicant at the request of the Local Planning Authority to confirm that noise levels are within stated limits.

Reason: To reduce or remove adverse impacts on health and the quality of life, especially for people living and/or working nearby, in accordance with Local Plan Policy POLL1.
- 8 During works, construction or demolition related activity shall only take place onsite between the hours of 0800 to 1800 Monday to Friday and 0900 to 1400 on Saturdays and at no time on Sundays or Bank Holidays

Reason: To reduce or remove adverse impacts on health and the quality of life, especially for people living and/or working nearby, in accordance with Local Plan Policy POLL1.
- 9 The site shall be developed with separate systems of drainage for foul and surface water on and off site. The separate systems should extend to the points of discharge to be agreed.

Reason: In the interest of satisfactory and sustainable drainage.
- 10 Notwithstanding the provisions of the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) and the Town and Country Planning (Use Classes) Order 1987, or any Order revoking and re-enacting that Order with or without modification), the development hereby approved shall only be used/occupied by uses falling within Use Class E(b)- sale of food and drink, and for no other purpose (including any other purpose in Class E of the Schedule to the Use Classes Order).

Reason: To ensure that the function of the retail park is not harmed in accordance with Local Plan Policy TC4.

Informative(s)

Pursuant to article 35 (2) of the Town and Country Planning (Development Management Procedure) Order 2015 (as amended), the Local Planning Authority have, where possible, made a pre-application advice service available, and otherwise actively engaged with the applicant in dealing with the application in a positive and proactive manner.

- 1 The food and drink sold at the site should be predominantly consumed on-site. Should more food/drink be consumed off-site than on-site, then the development would not fall within Use Class E(b) and would instead constitute as a hot food takeaway (Use Class Sui Generis). Should more than half of the food be consumed off-site, the operator could be in breach of the permission hereby approved.

Please be aware that the Council monitors construction sites and open land within the vicinity of such sites in an attempt to prevent fly tipping (i.e. unauthorised deposit of waste on land), which is illegal under the Environmental Protection Act 1990. The penalties for fly-tipping can include:

- a fine of up to £50,000 and
- up to six months imprisonment on conviction.

Therefore, if necessary, please ensure that all demolition waste and waste associated with the construction of any development is disposed of via approved methods and that documents are retained to prove this.

Signed:

Dated: 5 December 2024



Garry Hildersley

Head of Planning, Policy & Building Control
Growth & Sustainability Directorate

The grant of this consent does not constitute or imply permission, approval or consent by the Local Authority for any other purpose.

NOTES:-

Appeals to the Secretary of State

If you are aggrieved by the decision of the Council to grant permission for the proposed development subject to conditions then you can appeal to the Secretary of State for the Environment, Transport and Regions under Section 78 of the Town and Country Planning Act. If you want to appeal, then you must do so within six months of the date of this notice, using a form which you can get from The Planning Inspectorate, Room 3/24 Hawk Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

The Secretary of State can allow a longer period for giving notice of an appeal, but he will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal. The Secretary of State need not consider an appeal if it seems to him that the Local Planning Authority could not have granted planning permission for the proposed development or could not have granted it without the conditions it imposed, having regard to the statutory requirements, to the provisions of the development order and to any directions giving under the order. In practice, the Secretary of State does not refuse to consider appeals solely because the Local Planning Authority based its decision on a direction given by him.

Purchase Notices

If either the Local Planning Authority or the Secretary of State for the Environment, Transport and Regions refuses permission to develop land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor can he render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted. In these circumstances, the owner may serve a purchase notice on the Council in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of part VI of the Town and Country Planning Act 1990.

Compensation

In certain circumstances compensation may be claimed from the Local Planning Authority if permission is refused or granted subject to conditions by the Secretary of State on appeal or on reference to the application to him. These circumstances are set out in Sections 114 and related provisions of the Town and Country Planning Act 1990.

STATUTORY BIODIVERSITY NET GAIN CONDITION

DEEMED CONDITION

(As required Schedule 7a of the Town and Country Planning Act 1990 (as amended) and inserted by the Environment Act 2021)

Development may not be begun unless:

1. A Biodiversity Gain Plan has been submitted to the planning authority; and
2. The Local Planning Authority has approved the plan.

The Biodiversity Gain Plan must include:

- a) information about the steps taken or to be taken to minimise the adverse effect of the development on the biodiversity of the onsite habitat and any other habitat;
- b) the pre-development biodiversity value of the onsite habitat;
- c) the post-development biodiversity value of the onsite habitat;
- d) any registered offsite biodiversity gain allocated to the development and the biodiversity and the biodiversity value of that gain in relation to the development;
- e) any biodiversity credits purchased for the development; and
- f) any such other matters as the Secretary of State may by regulations specify.

In addition, under Articles 37C(2) and 37C(4) of The Town and Country Planning (Development Management Procedure) (England) Order 2015, the following specified matters are required, where development is not to proceed in phases:

- g) name and address of the person completing the Plan, and (if different) the person submitting the Plan;
- h) a description of the development and planning permission reference number (to which the plan relates);
- i) the [relevant date](#), for the purposes of calculating the pre-development biodiversity value of onsite habitats and if proposing an earlier date, the reasons for using this earlier date;
- j) [the completed biodiversity metric calculation tool\(s\)](#), stating the publication date of the tool(s), and showing the calculation of the pre-development onsite value on the [relevant date](#), and post-development biodiversity value;
- k) a description of arrangements for maintenance and monitoring of habitat enhancement to which paragraph 9(3) of Schedule 7A to the 1990 Act applies (habitat enhancement which must be maintained for at least 30 years after the development is completed);
- l) (except for onsite irreplaceable habitats) a description of how the biodiversity gain hierarchy will be followed and where to the extent any actions (in order of priority) in that hierarchy are not followed and the reason for that;
- m) pre-development and post-development plans showing the location of onsite habitat (including any irreplaceable habitat) on the [relevant date](#), and drawn to an identified scale and showing the direction of North;
- n) a description of any [irreplaceable habitat](#) on the land to which the plan relates which exist on the [relevant date](#), and any part of the development for which planning permission is granted where the onsite habitat of that part is irreplaceable habitat arrangements for compensation for any impact the development has on the biodiversity of the irreplaceable habitat; and
- o) if [habitat degradation](#) has taken place:
 - i. a statement to this effect,
 - ii. the date immediately before the degradation activity,
 - iii. the completed biodiversity tool showing the calculation of the biodiversity value of the onsite habitat on that date, and
 - iv. any available supporting evidence for the value.

INFORMATIVE 1

When calculating the post-development biodiversity value of a habitat, the Local Planning Authority can only take into account an increase in biodiversity value post-development where it is satisfied that the habitat creation or enhancements delivering the increase will be maintained for at least 30 years after the development is completed. This must be secured either by a planning condition, planning obligation, or conservation covenant

INFORMATIVE 2

The General Biodiversity Gain Condition has a separate legal basis in contrast to other planning conditions and will apply to all planning permissions, unless exempt. The General Biodiversity Gain Condition will therefore not appear on the decision notice along with the list of planning conditions imposed on the application, rather it will be referenced separately.

The General Biodiversity Gain Condition cannot be varied or removed by an application under section 73 of the Town and Country Planning Act. It also cannot be discharged as part of the grant of planning permission.

INFORMATIVE 3

A Biodiversity Net Gain Template can be found here:

<https://www.gov.uk/government/publications/biodiversity-gain-plan>

INFORMATIVE 4

The statutory deemed condition above is relevant to all major applications submitted since 12th February 2024 and to all non-major applications submitted after 2nd April 2024, unless exempt. The onus is on the applicant/agent to notify the Local Planning Authority at developmentmanagement@barnsley.gov.uk if the application was exempt and provide the reasons for the exemption. Exemptions can be found at this link <https://www.gov.uk/guidance/biodiversity-net-gain-exempt-developments>

Appendix B



YorkshireWater

**Yorkshire Water Services
Developer Services
Pre-Development Team
PO BOX 52
Bradford
BD3 7AY**

**Portobello House
Portobello Way
Warwick
CV34 5GJ
alex.gowers@jnpgroup.co.uk**

Tel: 0345 120 8482

Fax:

Email:

**technical.sewerage@yorkshirewater.co.
uk**

**Your Ref:
Our Ref: A002717**

**For telephone enquiries ring:
George Mullaney on 0345 120 8482**

14th June 2024

Dear Mr Gowers,

Burger King Barnsley, Tesco Extra Carpark, Wombwell Lane, Barnsley, S70 3NS - Pre-planning Enquiry V520002

Thank you for your recent enquiry and remittance. Our official VAT receipt has been sent to you under separate cover. Please find enclosed a complimentary extract from the Statutory Sewer Map which indicates the recorded position of the public sewers. Please note that as of October 2011 and the private to public sewer transfer, there are many uncharted Yorkshire Water assets currently not shown on our records.

The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site and are valid for a maximum period of twelve months:

Existing Infrastructure

There is a 600mm diameter public surface water sewer recorded crossing the site. No buildings, or other obstructions, are to be erected within 3.5 (three point five) metres is required at each side of the sewer centre-line, no trees planted within 5 (five) metres of this public sewer. It may not be acceptable to raise or lower ground levels over the sewer, nor to restrict access to the manholes on the sewer. If you wish to have this sewer diverted under Section 185 of the Water Industry Act 1991 an application should be made in writing. To discuss this matter, please telephone 0345 120 84 82.





There is a 225mm diameter public combined sewer recorded on the site. In this instance, building-over may take place under the control of Part H4 Building Regulations 2010. No trees planted within 5 (five) metres of this public sewer. It may not be acceptable to raise or lower ground levels over the sewer, nor to restrict access to the manholes on the sewer. If you wish to have this sewer diverted under Section 185 of the Water Industry Act 1991 an application should be made in writing. To discuss this matter, please telephone 0345 120 84 82.

Foul Water

Development of the site should take place with separate systems for foul and surface water drainage. The separate systems should extend to the points of discharge to be agreed.

Foul water domestic waste can discharge to the 225 mm diameter public combined sewer recorded crossing the site.

Foul water from kitchens and/or food preparation areas of any restaurants and/or canteens etc. must pass through a fat and grease trap of adequate design before any discharge to the public sewer network.

Surface Water

The developer's attention is drawn to Requirement H3 of the Building Regulations 2010. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to soakaway, infiltration system and watercourse in that priority order.

Sustainable Drainage Systems (SuDS), for example the use of soakaways and/or permeable hardstanding etc, may be a suitable solution for surface water disposal appropriate in this situation. You are advised to seek comments on the suitability of SuDS in this instance from the appropriate authorities.

If other methods of surface water disposal are not viable and subject to providing satisfactory evidence as to why they have been discounted, curtilage surface water discharges to the public sewer will be restricted to the level of run-off - i.e. same rate of discharge - to that from the existing use of the site less a 30% reduction in the existing discharge. Any discharge of surface water from the site should discharge to similar points of connection to that of the existing use of the site. You will need to demonstrate positive drainage, based on a 1 in 1 year storm, to the public sewer to Yorkshire Water by means of investigation and calculation carried out at your expense.

To do this, Yorkshire Water requires to see existing drainage layouts with pipe sizes, gradients, gullies, downpipes and connection points, measured impermeable areas of the present use of the site, along with the calculations that show the existing and proposed



discharge rate from the site to the public sewer.

Please note further restrictions on surface water disposal from the site may be imposed by other parties. You are strongly advised to seek advice/comments from the Environment Agency/Land Drainage Authority/Internal Drainage Board, with regard to surface water disposal from the site.

Surface water run-off from communal parking (greater than 800 sq metres or more than 50 car parking spaces) and hardstanding must pass through an oil, petrol and grit interceptor/separator of adequate design before any discharge to the public sewer network. Roof water should not pass through the interceptor/separator. It is good drainage practice for any interceptor/separator to be located upstream of any on-site balancing, storage or other means of flow attenuation that may be required.

Other Observations

Any new connection to an existing public sewer will require the prior approval of Yorkshire Water. You may apply online or obtain an application form from our website (www.yorkshirewater.com/developers/sewerage/sewerage-connections/) or by telephoning 0345 120 84 82.

Under the provisions of section 111 of the Water Industry Act 1991 it is unlawful to pass into any public sewer (or into any drain or private sewer communicating with the public sewer network) any items likely to cause damage to the public sewer network or interfere with the free flow of its contents or affect the treatment and disposal of its contents. Amongst other things this includes fat, oil, nappies, bandages, syringes, medicines, sanitary towels and incontinence pants. Contravention of the provisions of section 111 is a criminal offence.

Prospectively adoptable sewers and pumping stations must be designed and constructed in accordance with the Code for Adoption, pursuant to an agreement under Section 104 of the Water Industry Act 1991. We are happy to offer pre-development technical advice on any prospective sites that you would like to put forward for adoption, prior to submission of your adoption application.

An application to enter into a Section 104 agreement must be made in writing prior to any works commencing on site. Please contact our Sewer Adoption, Diversion and Requisition (telephone 0345 120 84 82) or email technical.sewerage@yorkshirewater.co.uk or visit - <https://www.yorkshirewater.com/developers/sewerage/sewer-adoptions/> for further information.

All the above comments are based upon the information and records available at the present time and are valid for a period of 12 months. The information contained in this letter together with that shown on any extract from the Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith. Please note that capacity in the public sewer network is not reserved for specific future development. It is used up on a 'first come, first served' basis. You should visit the site and establish the line and level



YorkshireWater

of any public sewers affecting your proposals before the commencement of any design work.

Yours sincerely

George Mullaney
Development Control Technician

Appendix C

Legend	
	Indicative Site Boundary
	Existing Impermeable Area Boundary
	Extent of existing site developed and served by proposed surface water network
	Existing Private Road Gully
	Existing Private Surface Water Sewer
	Yorkshire Water Surface Water Sewer
	Yorkshire Water Combined Sewer

General Notes

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Due to modelling limitations, a 1 Year event could not be assessed. The FEH data available for analysis is cannot be assessed for return periods below 2 years as the calculations involved encounter instability.

Brownfield Discharge Rate Assessment for entire area within existing site boundary 2286m ²	Brownfield Discharge Rate Assessment for entire area within developed site 1015m ²
2 Year Event - 38.7 l/s	2 Year Event - 17.3 l/s
30 Year Event - 105.0 l/s	30 Year Event - 46.9 l/s
100 + 40%CC Year Event - 188.1 l/s	100 + 40%CC Year Event - 84.1 l/s

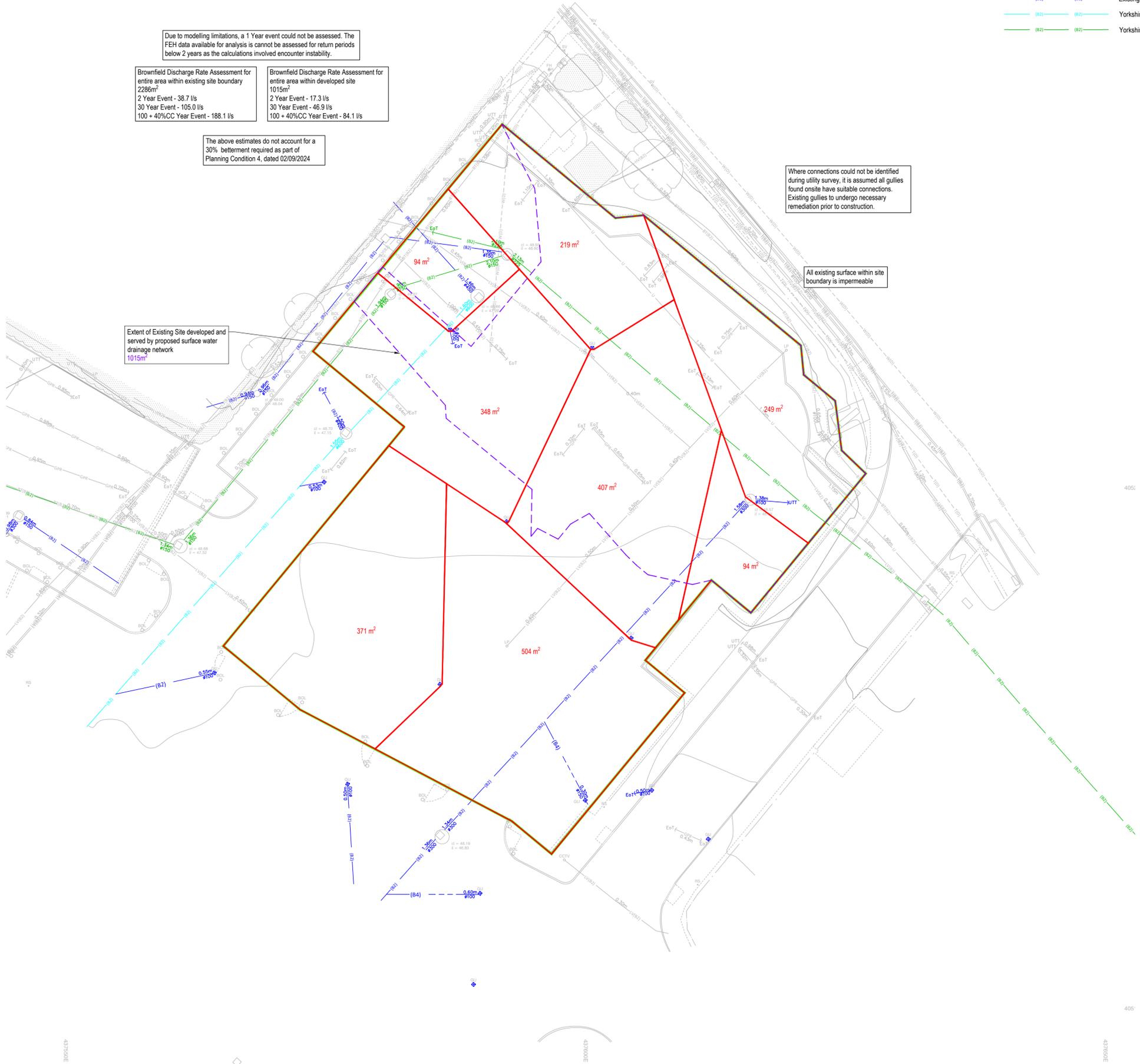
The above estimates do not account for a 30% betterment required as part of Planning Condition 4, dated 02/09/2024

Where connections could not be identified during utility survey, it is assumed all gullies found onsite have suitable connections. Existing gullies to undergo necessary remediation prior to construction.

All existing surface within site boundary is impermeable

Extent of Existing Site developed and served by proposed surface water drainage network 1015m²

Site Survey and Utility Traces provided by Interlock Surveys
Ref No: 240291
Date: 08/05/2024



Rev	Date	Description	Drn / Crk / Appl
P01	31/01/2025	First Issue	AG / AMc / AMc
Substity			
S4 - Suitable for Stage Approval			

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CONSULTING ENGINEERS

Amersham • Brighouse • Bristol • Glasgow
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Client: BKUK Group Ltd
Job: Burger King Barnsley
Title: Existing Site Surface Water Drainage Assessment

Classification: FI_60_20			
Scale @ A1: 1:200	Accredited Contractor	Constructionline	Supplier to sites

Project: Originator - Volume/System - Level/Location - Type - Discipline - Number
M44628-JNP-92-XX-DR-C-2006 P01

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	0.600
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Test Outflow			48.860	1200	437589.963	405218.813	1.300
Test 1	0.102	5.00	49.000	1200	437593.216	405216.282	1.410

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Test 1	Test Outflow	4.122	0.600	47.590	47.560	0.030	137.4	300	5.05	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.339	94.7	18.4	1.110	1.000	0.102	0.0	89	1.045

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	4.122	137.4	300	Circular	49.000	47.590	1.110	48.860	47.560	1.000

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Test 1	1200	Manhole	Adoptable	Test Outflow	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Test Outflow	437589.963	405218.813	48.860	1.300	1200	 1	1.000	47.560	300
Test 1	437593.216	405216.282	49.000	1.410	1200	 0	1.000	47.590	300

Simulation Settings

Rainfall Methodology	FEH-22	Drain Down Time (mins)	240	2 year (l/s)	3.6
Summer CV	1.000	Additional Storage (m ³ /ha)	20.0	30 year (l/s)	9.2
Analysis Speed	Normal	Check Discharge Rate(s)	✓	100 year (l/s)	11.6
Skip Steady State	x	1 year (l/s)	0.0	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Brownfield	Betterment (%)	0
Brownfield Method	MRM	Q 1 year (l/s)	
Contributing Area (ha)	0.229	Q 2 year (l/s)	3.6
PIMP (%)	100	Q 30 year (l/s)	9.2
CV	1.000	Q 100 year (l/s)	11.6
Time of Concentration (mins)	5.00		

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	Test Outflow	10	47.646	0.086	17.3	0.0000	0.0000	OK
15 minute summer	Test 1	10	47.687	0.097	17.4	0.2513	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	Test 1	1.000	Test Outflow	17.3	0.949	0.182	0.0751	7.5

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	Test Outflow	10	47.707	0.147	46.9	0.0000	0.0000	OK
15 minute summer	Test 1	10	47.763	0.173	47.2	0.4452	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	Test 1	1.000	Test Outflow	46.9	1.228	0.496	0.1575	20.4

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	Test Outflow	10	47.776	0.216	84.1	0.0000	0.0000	OK
15 minute summer	Test 1	10	47.854	0.264	84.7	0.6811	0.0000	OK

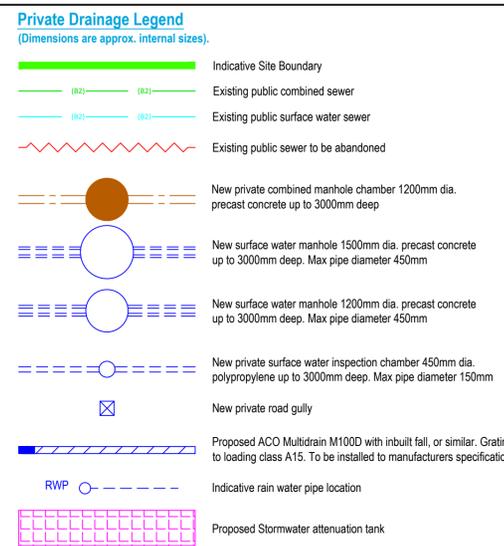
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	Test 1	1.000	Test Outflow	84.1	1.391	0.888	0.2475	36.6

Appendix D



Stormwater Attenuation Notes

- The tanks are designed for a vehicle loading classification for parking and a light access road with a max gross vehicle weight of 12,000 kg.
- The tanks are located within and adjacent to the drive through land where only light vehicles are expected.
- Due to the shallow depth of the tanks and potential for raised groundwater, additional excavation and Type 1 granular material replacement is recommended. Refer to the construction details on drawing number M44628-JNP-92-XX-3000.



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Private Drainage Notes

- This drawing is to be read in conjunction with and checked against all other drawings, engineering details, specification and any structural, geotechnical or other specialist documents provided.
- All lateral connections for house drainage shall be 100mm unless stated otherwise and must extend a minimum of 500mm behind the back of the footpath.
- All pipes to be vitrified clay or UPVC and shall be 100mmØ laid to a fall of 1:80 unless noted otherwise or indicated by size and invert levels. All connections when laid shall be plugged, protected as necessary and marked with a stake for future use.
- Building drainage shall comply with BS 8301 1985, BS EN 752 and Building Regulations Part H. Inspection chambers located within garages to have double seal bolt down covers.
- Gully top and manhole cover specification to be in accordance with BS EN 124 and located in accordance with the intended use and loading classification as described within groups 1-6:
- This drawing is schematic for clarity only, positions of pipe runs and manholes may vary on site due to site conditions.
- Connections to pre-formed inspection chamber bases should ensure the main channel is used in all cases. High velocity discharges (e.g. from SVP's) should use the main channel where practicable.
- Cover and invert levels are indicative and may vary on site. In any case the following minimum cover to depth of cover to the crown of pipes without protection shall be as follows:
 - Domestic gardens and pathways without any possibility of vehicular access - 0.35m
 - Domestic driveways, parking areas and yards with height restrictions to prevent entry by vehicles with a gross weight in excess of 7.5 tonnes - 0.5m
 - Domestic driveways, parking areas and narrow streets without footways (e.g. Mews developments) with limited access for vehicles with a gross weight in excess of 7.5 tonnes - 0.9m
 - Agricultural land and public open space - 0.9m
 - Other highways and parking areas with unrestricted access to vehicles with a gross weight in excess of 7.5 tonnes - 1.2m
- Note: any protection required where drainage does not comply with a-e above shall be as follows:
 - Vitrified clay pipes - provide a 100 mm min. thick concrete bed and surround (instead of class 'S' bedding) and a 13 mm thick compressible filler at each joint.
 - UPVC pipes - provide a concrete bridging (in addition to class 'S' bedding) in accordance with appendix A15, Building Regulations part 'H'.
- Note: in-situ concrete used in connection with a) and b) above shall be standard mix GEN3 in accordance with BS 5328.
- Drainage runs should be laid at a minimum of 5m from the rear of properties where practicable to allow for future extensions.
- Where pipes pass under buildings, unless beam & block floors are used, they are to be surrounded in concrete.
- All branch drains, or connections, are to discharge to the collectors obliquely, and in the direction of the main flow.
- Finished floor levels (FFLs), assumed to be typically a minimum of 150mm above finished ground level outside, refer to architects drawing for details.
- All new private shallow 225mm diameter surface water and foul inspection chambers and rodding eyes shown without cover levels (CL) shall be assumed to be at external ground level, and invert levels (IL) are to be typically between 450 and 600mm below CL, subject to the length of the internal house connections.
- All low spots on hardstanding areas to have double gullies.
- Prior to topsoiling of rear gardens, the gardens should be reworked, rotovated or decompacted to a depth of 600mm. Once this is carried out, no plant is to access these areas, any further consolidation of subsoil to be reworked as necessary. Before reworking or rotovating the Contractor is to mark all drain runs in the area.
- Pipe bedding to be Class 'S' bedding (100mm granular bed and surround).
- Excavations for manholes, pipe runs etc located within a 45 degree load distribution splay from any adjoining existing foundations, are to be adequately supported for the duration of the works and building drainage protected.
- Foundations adjacent to pipe runs or manholes are to have their formation level set above the invert level no higher than the equivalent of the horizontal distance between the pipe/excavation trench and the foundation, minus 500 mm.
- Where excavations for pipe runs are parallel and in close proximity to each other and/or other service trenches, the contractor shall ensure that adequate safety measures, including temporary shoring, are provided in line with current health & safety Legislation and good practice. Particular attention is to be paid to adjacent trenches of differing invert levels.
- All existing drainage found on site during the works shall be investigated, its operational status confirmed, and the following applied:
 - Inoperative drainage shall be cut back and pipe runs filled with concrete grout.
 - 'Live' drainage shall be temporarily re-routed to allow the new drainage to be constructed.
- Where existing drainage is to be re-used including road, building and external drainage systems, the contractor shall ensure that all chambers and drainage runs are cleaned, de-silted and made good.
- Covers to existing chambers to be re-used shall be replaced where necessary to suit proposed development loading class, see note 5. Chamber covers shall also be adjusted to suit final ground levels as necessary.
- Where necessary, existing chambers shall be re-benched to suit new pipework arrangement.
- The Contractor shall consider and take adequate measures to ensure surface water runoff during construction is managed to prevent pollution of surface water receptors and increased flood risk.



Site Layout based on UrbanEdge Site Plan
Dwg No: 2763-URB-BA-ZZ-DR-A-203901
Date: 03/01/2025

Site Survey provided by
Interlock Surveys
Ref No: 240291
Date: 08/05/2024

Rev.	Date	Description	Drn/Chk/Aspl
P04	31/01/2025	Layout updated for Drive-through Arrangement	AG / AMc / AMc
P03	23/10/2024	1:100 Scale Bar added	AG / AMc / AMc
P02	05/06/2024	Retaining walls added to layout	AG / AMc / AMc
P01	30/05/2024	First Issue	AG / AMc / AMc

Subsidiary: **S4 - Suitable for Stage Approval**



Client: **BKUK Group Ltd**

Site: **Burger King Barnsley**

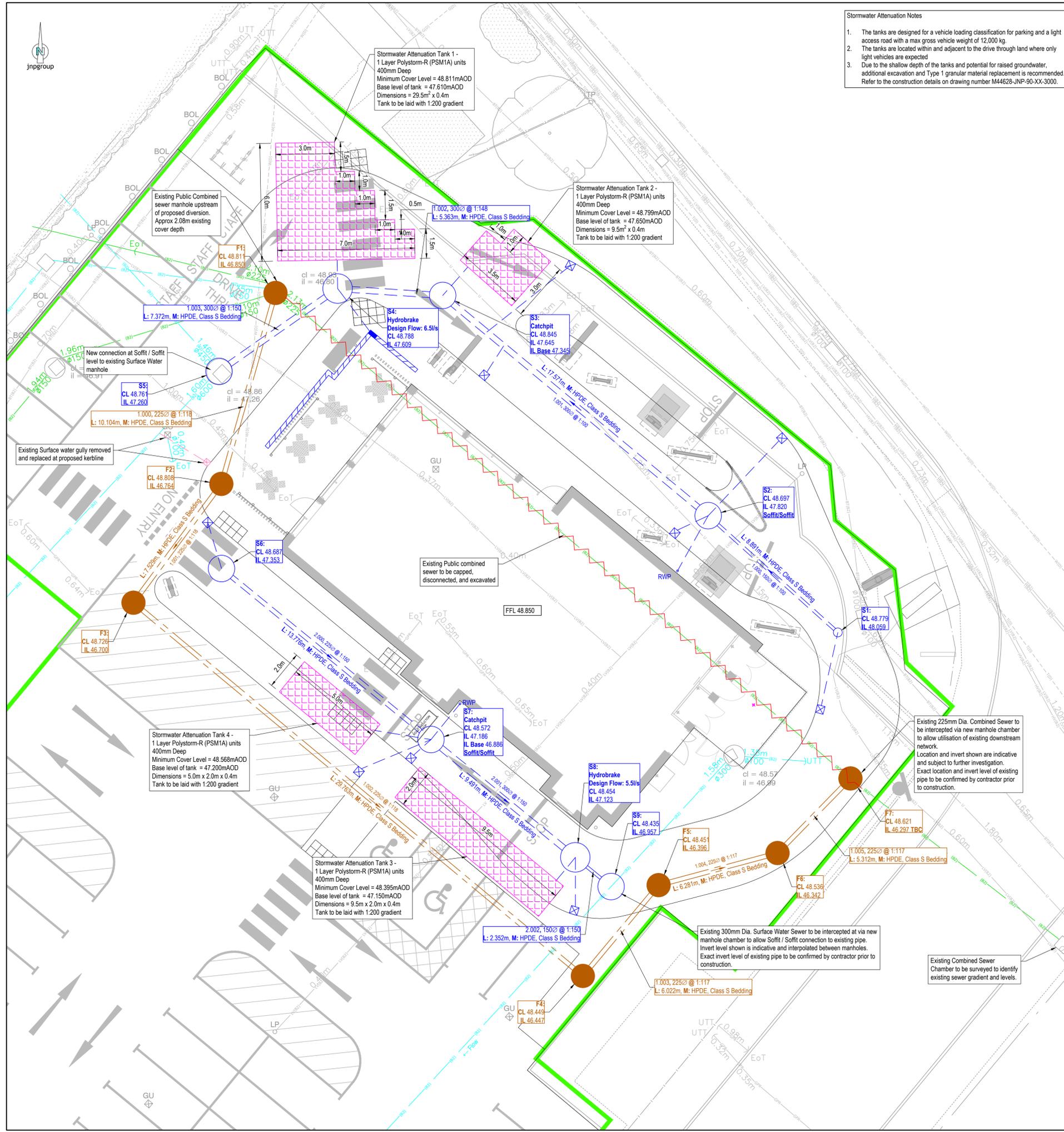
Title: **Private Drainage Layout**

Classification: **FI_60_20**
Scale @ A1: **1:100**

Project: **M44628-JNP-92-XX-DR-C-2002**

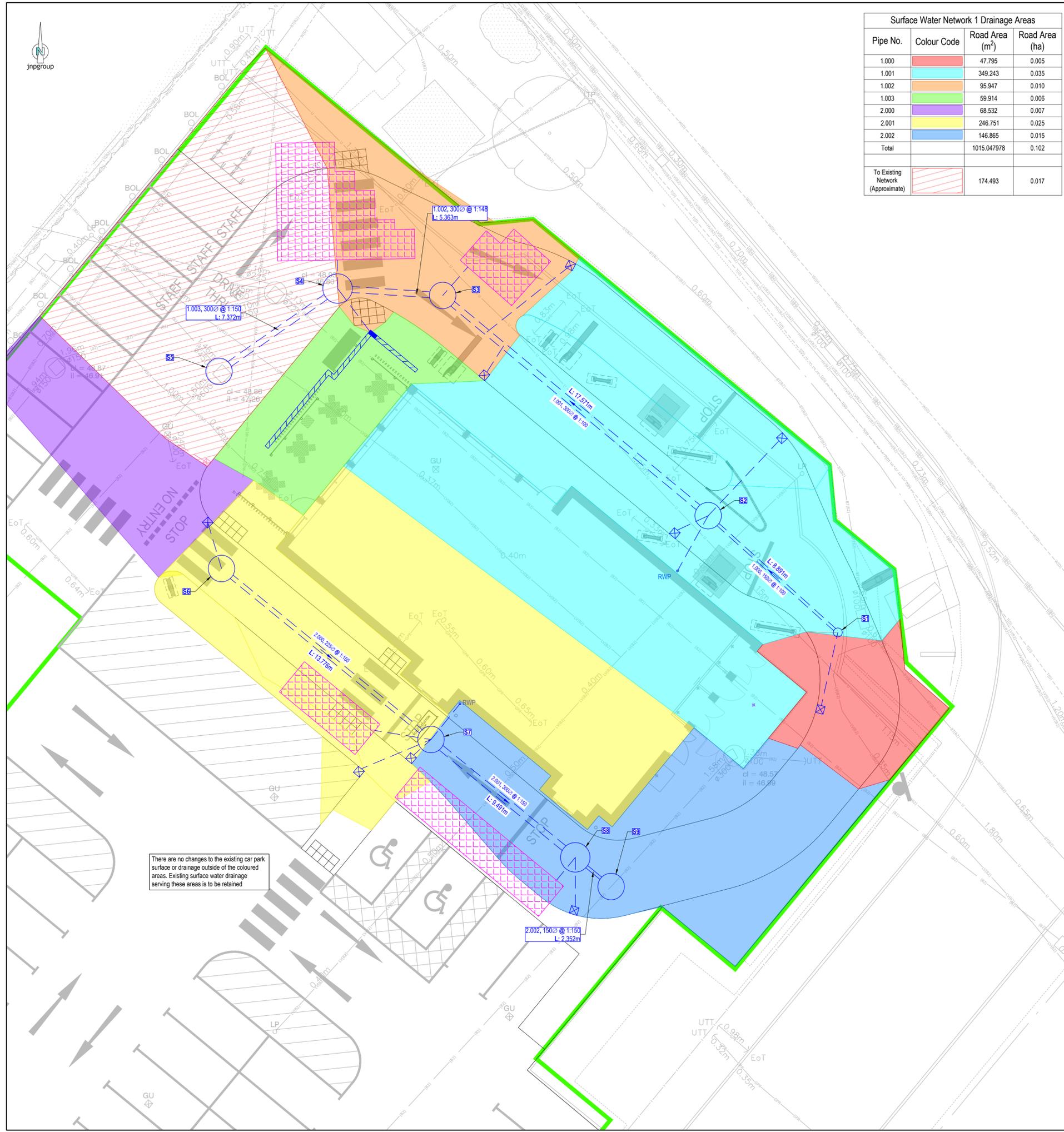
Revision: **P04**

Document/Drawing Number





jnpgroup



Surface Water Network 1 Drainage Areas			
Pipe No.	Colour Code	Road Area (m ²)	Road Area (ha)
1.000	[Red]	47.795	0.005
1.001	[Cyan]	349.243	0.035
1.002	[Orange]	95.947	0.010
1.003	[Green]	59.914	0.006
2.000	[Purple]	68.532	0.007
2.001	[Yellow]	246.751	0.025
2.002	[Blue]	146.865	0.015
Total		1015.047978	0.102
To Existing Network (Approximate)	[Hatched]	174.493	0.017

Private Drainage Legend

(Dimensions are approx. internal sizes).

- Indicative Site Boundary
- New surface water manhole 1500mm dia. precast concrete up to 3000mm deep. Max pipe diameter 450mm
- New surface water manhole 1200mm dia. precast concrete up to 3000mm deep. Max pipe diameter 450mm
- New private surface water inspection chamber 450mm dia. polypropylene up to 3000mm deep. Max pipe diameter 150mm
- New private road gully
- Proposed ACO Multidrain M100D with inbuilt fall, or similar. Grating to loading class A15. To be installed to manufacturers specification.
- Indicative rain water pipe location
- Proposed Stormwater attenuation tank

Private Drainage Notes

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2. All lateral connections for house drainage shall be 100mm unless stated otherwise and must extend a minimum of 500mm behind the back of the footprint.
3. All pipes to be vitrified clay or UPVC and shall be 100mmØ laid to a fall of 1:80 unless noted otherwise or indicated by size and invert levels. All connections when laid shall be plugged, protected as necessary and marked with a stake for future use.
4. Building drainage shall comply with BS 8301 1985, BS EN 752 and Building Regulations Part H. Inspection chambers located within garages to have double seal bolt down covers.
5. Gully top and manhole cover specification to be in accordance with BS EN 124 and located in accordance with the intended use and loading classification as described within groups 1-6:
6. This drawing is schematic for clarity only, positions of pipe runs and manholes may vary on site due to site conditions.
7. Connections to pre-formed inspection chamber bases should ensure the main channel is used in all cases. High velocity discharges (e.g. from SVP's) should use the main channel where practicable.
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 - d. Agricultural land and public open space - 0.9m
 - e. Other highways and parking areas with unrestricted access to vehicles with a gross weight in excess of 7.5 tonnes - 1.2m

Note: any protection required where drainage does not comply with a-e above shall be as follows:-

 - a) Vitrified clay pipes - provide a 100 mm min. thick concrete bed and surround (instead of class 'S' bedding) and a 13 mm thick compressible filler at each joint.
 - b) UPVC pipes - provide a concrete bridging (in addition to class 'S' bedding) in accordance with appendix A15, Building Regulations part 'H'.

Note: in-situ concrete used in connection with a) and b) above shall be standard mix GEN3 in accordance with BS 5328.
9. Drainage runs should be laid at a minimum of 5m from the rear of properties where practicable to allow for future extensions.
10. Where pipes pass under buildings, unless beam & block floors are used, they are to be surrounded in concrete.
11. All branch drains, or connections, are to discharge to the collectors obliquely, and in the direction of the main flow.
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13. All new private shallow 225mm diameter surface water and foul inspection chambers and rodding eyes shown without cover levels (CL) shall be assumed to be at external ground level, and invert levels (IL) are to be typically between 450 and 600mm below CL, subject to the length of the internal house connections.
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16. Pipe bedding to be Class 'S' bedding (100mm granular bed and surround).
17. Excavations for manholes, pipe runs etc located within a 45 degree load distribution splay from any adjoining existing foundations, are to be adequately supported for the duration of the works and building drainage protected.
18. Foundations adjacent to pipe runs or manholes are to have their formation level set above the invert level no higher than the equivalent of the horizontal distance between the pipe/excavation trench and the foundation, minus 500 mm.
19. Where excavations for pipe runs are parallel and in close proximity to each other and/or other service trenches, the contractor shall ensure that adequate safety measures, including temporary shoring, are provided in line with current health & safety Legislation and good practice. Particular attention is to be paid to adjacent trenches of differing invert levels.
20. All existing drainage found on site during the works shall be investigated, its operational status confirmed, and the following applied:-
 - a) Inoperative drainage shall be cut back and pipe runs filled with concrete grout.
 - b) 'Live' drainage shall be temporarily re-routed to allow the new drainage to be constructed.
21. Where existing drainage is to be re-used including road, building and external drainage systems, the contractor shall ensure that all chambers and drainage runs are cleaned, de-silted and made good.
22. Covers to existing chambers to be re-used shall be replaced where necessary to suit proposed development loading class, see note 5. Chamber covers shall also be adjusted to suit final ground levels as necessary.
23. Where necessary, existing chambers shall be re-benched to suit new pipework arrangement.
24. The Contractor shall consider and take adequate measures to ensure surface water runoff during construction is managed to prevent pollution of surface water receptors and increased flood risk.

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3. Do not scale from this drawing. Only figured dimensions are to be relied upon. Don't hesitate to get in touch with JNP Group if additional information is required.
4. Any discrepancies between drawings of different scales and between drawings and specifications, where appropriate, to be reported to JNP Group for decision.
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Site Layout based on UrbanEdge Site Plan
Dwg No: 2763-URB-BA-ZZ-DR-A-203901
Date: 03/01/2025

Site Survey provided by
Interlock Surveys
Ref No: 240291
Date: 08/05/2024

Rev.	Date	Description	AG / AMc / AMc
P01	31/01/2025	First Issue	AG / AMc / AMc
Subtotal: S4 - Suitable for Stage Approval			

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Client: **BKUK Group Ltd**

Job: **Burger King Barnsley**

Title: **Surface Water Allocation Plan**

Classification: **FI_60_20**
Scale @ A1: **1:100**

Project - Originator - Volume/System - Level/Location - Type - Discipline - Number: **M44628-JNP-92-XX-DR-C-2005**

Reason: **P01**

Document/Revision Number

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	0.600
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.005	5.00	48.779	450	437621.506	405205.522	0.720
2	0.035	5.00	48.694	1350	437614.895	405211.467	0.874
3	0.010	5.00	48.777	1350	437601.377	405222.674	1.132
4	0.006	5.00	48.788	1500	437596.071	405223.028	1.179
5			48.761	1350	437589.963	405218.813	1.201
Att.Tank 1		5.00	48.811		437595.763	405225.991	1.201
Att.Tank 2		5.00	48.799		437603.480	405224.724	1.149

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	8.891	0.600	48.059	47.970	0.089	99.9	150	5.15	50.0
1.001	2	3	17.571	0.600	47.820	47.645	0.175	100.4	300	5.33	50.0
1.002	3	4	5.363	0.600	47.645	47.609	0.036	149.0	300	5.40	50.0
1.003	4	5	7.372	0.600	47.609	47.560	0.049	150.4	300	5.50	50.0
Att.Tank 1	Att.Tank 1	4	2.979	0.600	47.610	47.609	0.001	2979.0	150	5.28	50.0
Att.Tank 2	Att.Tank 2	3	2.937	0.600	47.650	47.645	0.005	587.4	150	5.12	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.005	17.8	0.9	0.570	0.574	0.005	0.0	23	0.519
1.001	1.569	110.9	7.2	0.574	0.832	0.040	0.0	51	0.892
1.002	1.286	90.9	8.9	0.832	0.879	0.049	0.0	63	0.825
1.003	1.279	90.4	10.0	0.879	0.901	0.055	0.0	67	0.851
Att.Tank 1	0.175	3.1	0.0	1.051	1.029	0.000	0.0	0	0.000
Att.Tank 2	0.408	7.2	0.0	0.999	0.982	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	8.891	99.9	150	Circular	48.779	48.059	0.570	48.694	47.970	0.574
1.001	17.571	100.4	300	Circular	48.694	47.820	0.574	48.777	47.645	0.832
1.002	5.363	149.0	300	Circular	48.777	47.645	0.832	48.788	47.609	0.879
1.003	7.372	150.4	300	Circular	48.788	47.609	0.879	48.761	47.560	0.901
Att.Tank 1	2.979	2979.0	150	Circular	48.811	47.610	1.051	48.788	47.609	1.029
Att.Tank 2	2.937	587.4	150	Circular	48.799	47.650	0.999	48.777	47.645	0.982

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	450	Manhole	Adoptable	2	1350	Manhole	Adoptable
1.001	2	1350	Manhole	Adoptable	3	1350	Manhole	Adoptable
1.002	3	1350	Manhole	Adoptable	4	1500	Manhole	Adoptable
1.003	4	1500	Manhole	Adoptable	5	1350	Manhole	Adoptable
Att.Tank 1	Att.Tank 1		Junction		4	1500	Manhole	Adoptable
Att.Tank 2	Att.Tank 2		Junction		3	1350	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	437621.506	405205.522	48.779	0.720	450				
						0	1.000	48.059	150
2	437614.895	405211.467	48.694	0.874	1350				
						0	1.001	47.820	300
						1	Att.Tank 2	47.645	150
3	437601.377	405222.674	48.777	1.132	1350				
						2	1.001	47.645	300
						0	1.002	47.645	300
4	437596.071	405223.028	48.788	1.179	1500				
						1	Att.Tank 1	47.609	150
						2	1.002	47.609	300
						0	1.003	47.609	300
5	437589.963	405218.813	48.761	1.201	1350				
						1	1.003	47.560	300
Att.Tank 1	437595.763	405225.991	48.811	1.201					
						0	Att.Tank 1	47.610	150
Att.Tank 2	437603.480	405224.724	48.799	1.149					
						0	Att.Tank 2	47.650	150

Simulation Settings

Rainfall Methodology	FEH-22	Drain Down Time (mins)	240	2 year (l/s)	0.4
Summer CV	1.000	Additional Storage (m ³ /ha)	20.0	30 year (l/s)	0.9
Analysis Speed	Normal	Check Discharge Rate(s)	✓	100 year (l/s)	1.2
Skip Steady State	x	1 year (l/s)	0.4	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	FEH	Growth Factor 100 year	2.48
Positively Drained Area (ha)	0.200	Betterment (%)	0
SAAR (mm)	634	QMed	0.4
Host	1	QBar	0.5
BFIHost	0.511	Q 1 year (l/s)	0.4
Region	1	Q 2 year (l/s)	0.4
QBar/QMed conversion factor	1.111	Q 30 year (l/s)	0.9
Growth Factor 1 year	0.85	Q 100 year (l/s)	1.2
Growth Factor 2 year	0.90		

Node 4 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	47.609	Product Number	CTL-SHE-0126-6500-0525-6500
Design Depth (m)	0.525	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	6.5	Min Node Diameter (mm)	1200

Node Att.Tank 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	47.610
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	48

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	29.5	29.5	0.400	29.5	29.5	0.401	0.0	29.5

Node Att.Tank 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	47.650
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	42

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	9.5	9.5	0.400	9.5	9.5	0.401	0.0	9.5

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	1	11	48.081	0.022	0.8	0.0065	0.0000	OK
15 minute summer	2	10	47.871	0.051	6.8	0.1128	0.0000	OK
15 minute summer	3	12	47.705	0.060	8.3	0.0968	0.0000	OK
120 minute summer	4	70	47.688	0.079	4.5	0.1479	0.0000	OK
15 minute summer	5	1	47.560	0.000	2.7	0.0000	0.0000	OK
120 minute summer	Att.Tank 1	70	47.688	0.078	1.9	2.1971	0.0000	OK
15 minute summer	Att.Tank 2	12	47.707	0.057	2.1	0.5111	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	1	1.000	2	0.8	0.504	0.045	0.0141	
15 minute summer	2	1.001	3	6.7	0.789	0.061	0.1544	
15 minute summer	3	1.002	4	6.5	0.572	0.072	0.0612	
120 minute summer	4	Hydro-Brake [®]	5	3.2				9.0
120 minute summer	Att.Tank 1	Att.Tank 1	4	-1.9	-0.332	-0.629	0.0279	
15 minute summer	Att.Tank 2	Att.Tank 2	3	-2.1	-0.616	-0.293	0.0187	

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	1	10	48.096	0.037	2.2	0.0107	0.0000	OK
15 minute summer	2	10	47.905	0.085	18.4	0.1897	0.0000	OK
60 minute summer	3	40	47.810	0.165	15.4	0.2647	0.0000	OK
60 minute summer	4	40	47.810	0.201	14.7	0.3759	0.0000	OK
15 minute summer	5	1	47.560	0.000	6.5	0.0000	0.0000	OK
60 minute summer	Att.Tank 1	40	47.810	0.200	7.7	5.6138	0.0000	SURCHARGED
60 minute summer	Att.Tank 2	40	47.810	0.160	2.1	1.4476	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	1	1.000	2	2.2	0.668	0.122	0.0288	
15 minute summer	2	1.001	3	18.2	0.942	0.164	0.3816	
60 minute summer	3	1.002	4	12.8	0.534	0.140	0.2413	
60 minute summer	4	Hydro-Brake®	5	6.5				18.2
60 minute summer	Att.Tank 1	Att.Tank 1	4	-7.7	-0.514	-2.488	0.0524	
60 minute summer	Att.Tank 2	Att.Tank 2	3	-2.1	-0.247	-0.288	0.0517	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
60 minute summer	1	45	48.133	0.074	2.7	0.0217	0.0000	OK
60 minute summer	2	44	48.134	0.314	22.8	0.7007	0.0000	SURCHARGED
60 minute summer	3	44	48.135	0.490	28.3	0.7850	0.0000	SURCHARGED
60 minute summer	4	44	48.134	0.525	23.5	0.9808	0.0000	SURCHARGED
15 minute summer	5	1	47.560	0.000	6.5	0.0000	0.0000	OK
60 minute summer	Att.Tank 1	44	48.136	0.526	15.9	11.2240	0.0000	SURCHARGED
60 minute summer	Att.Tank 2	44	48.135	0.485	5.6	3.6145	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
60 minute summer	1	1.000	2	2.7	0.711	0.152	0.1169	
60 minute summer	2	1.001	3	22.8	0.763	0.206	1.2373	
60 minute summer	3	1.002	4	20.1	0.478	0.221	0.3777	
60 minute summer	4	Hydro-Brake®	5	6.5				33.5
60 minute summer	Att.Tank 1	Att.Tank 1	4	-15.9	-0.904	-5.135	0.0524	
60 minute summer	Att.Tank 2	Att.Tank 2	3	-5.6	-0.402	-0.780	0.0517	

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	0.600
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
6	0.007	5.00	48.687	1350	437590.092	405208.774	1.334
7	0.025	5.00	48.572	1350	437600.769	405200.068	1.386
8	0.015	5.00	48.454	1500	437608.124	405194.071	1.331
9			48.435	1350	437609.947	405192.584	1.328
Att.Tank 3		5.00	48.395		437606.389	405192.159	1.245
Att.Tank 4		5.00	48.568		437597.851	405200.462	1.368

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
2.000	6	7	13.776	0.600	47.353	47.261	0.092	149.7	225	5.22	50.0
2.001	7	8	9.491	0.600	47.186	47.123	0.063	150.7	300	5.34	50.0
2.002	8	9	2.352	0.600	47.123	47.107	0.016	147.0	150	5.39	50.0
Att.Tank 3	Att.Tank 3	8	2.582	0.600	47.150	47.123	0.027	95.6	150	5.04	50.0
Att.Tank 4	Att.Tank 4	7	2.944	0.600	47.200	47.186	0.014	210.3	150	5.07	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
2.000	1.066	42.4	1.3	1.109	1.086	0.007	0.0	27	0.480
2.001	1.278	90.4	5.7	1.086	1.031	0.032	0.0	51	0.721
2.002	0.826	14.6	8.4	1.181	1.178	0.046	0.0	82	0.855
Att.Tank 3	1.028	18.2	0.0	1.095	1.181	0.000	0.0	0	0.000
Att.Tank 4	0.689	12.2	0.0	1.218	1.236	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
2.000	13.776	149.7	225	Circular	48.687	47.353	1.109	48.572	47.261	1.086
2.001	9.491	150.7	300	Circular	48.572	47.186	1.086	48.454	47.123	1.031
2.002	2.352	147.0	150	Circular	48.454	47.123	1.181	48.435	47.107	1.178
Att.Tank 3	2.582	95.6	150	Circular	48.395	47.150	1.095	48.454	47.123	1.181

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.000	6	1350	Manhole	Adoptable	7	1350	Manhole	Adoptable
2.001	7	1350	Manhole	Adoptable	8	1500	Manhole	Adoptable
2.002	8	1500	Manhole	Adoptable	9	1350	Manhole	Adoptable
Att.Tank 3	Att.Tank 3		Junction		8	1500	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
Att.Tank 4	2.944	210.3	150	Circular	48.568	47.200	1.218	48.572	47.186	1.236

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
Att.Tank 4	Att.Tank 4		Junction		7	1350	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
6	437590.092	405208.774	48.687	1.334	1350				
						0	2.000	47.353	225
7	437600.769	405200.068	48.572	1.386	1350				
						1	Att.Tank 4	47.186	150
						2	2.000	47.261	225
						0	2.001	47.186	300
8	437608.124	405194.071	48.454	1.331	1500				
						1	Att.Tank 3	47.123	150
						2	2.001	47.123	300
						0	2.002	47.123	150
9	437609.947	405192.584	48.435	1.328	1350				
						1	2.002	47.107	150
Att.Tank 3	437606.389	405192.159	48.395	1.245					
						0	Att.Tank 3	47.150	150
Att.Tank 4	437597.851	405200.462	48.568	1.368					
						0	Att.Tank 4	47.200	150

Simulation Settings

Rainfall Methodology	FEH-22	Drain Down Time (mins)	240	2 year (l/s)	0.4
Summer CV	1.000	Additional Storage (m ³ /ha)	20.0	30 year (l/s)	0.9
Analysis Speed	Normal	Check Discharge Rate(s)	✓	100 year (l/s)	1.2
Skip Steady State	x	1 year (l/s)	0.4	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	FEH	Growth Factor 100 year	2.48
Positively Drained Area (ha)	0.200	Betterment (%)	0
SAAR (mm)	634	QMed	0.4
Host	1	QBar	0.5
BFIHost	0.511	Q 1 year (l/s)	0.4
Region	1	Q 2 year (l/s)	0.4
QBar/QMed conversion factor	1.111	Q 30 year (l/s)	0.9
Growth Factor 1 year	0.85	Q 100 year (l/s)	1.2
Growth Factor 2 year	0.90		

Node 8 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	47.123	Product Number	CTL-SHE-0116-5500-0593-5500
Design Depth (m)	0.593	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.5	Min Node Diameter (mm)	1200

Node Att.Tank 3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	47.150
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	47

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	19.0	19.0	0.400	19.0	19.0	0.401	0.0	19.0

Node Att.Tank 4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	47.200
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	40

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	10.0	10.0	0.400	10.0	10.0	0.401	0.0	10.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.90%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	6	11	47.379	0.026	1.2	0.0394	0.0000	OK
15 minute summer	7	11	47.231	0.045	5.3	0.0805	0.0000	OK
30 minute summer	8	22	47.212	0.089	6.4	0.1769	0.0000	OK
15 minute summer	9	1	47.107	0.000	3.5	0.0000	0.0000	OK
30 minute summer	Att.Tank 3	22	47.212	0.062	2.8	1.1269	0.0000	OK
15 minute summer	Att.Tank 4	13	47.225	0.025	0.9	0.2336	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	6	2.000	7	1.1	0.462	0.027	0.0340	
15 minute summer	7	2.001	8	4.5	0.424	0.049	0.1135	
30 minute summer	8	Hydro-Brake®	9	3.5				4.5
30 minute summer	Att.Tank 3	Att.Tank 3	8	-2.8	-0.622	-0.157	0.0230	
15 minute summer	Att.Tank 4	Att.Tank 4	7	-0.9	-0.442	-0.070	0.0084	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.90%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	6	10	47.395	0.042	3.2	0.0652	0.0000	OK
30 minute summer	7	23	47.344	0.158	13.2	0.2831	0.0000	OK
30 minute summer	8	23	47.344	0.221	14.5	0.4396	0.0000	SURCHARGED
15 minute summer	9	1	47.107	0.000	5.5	0.0000	0.0000	OK
30 minute summer	Att.Tank 3	23	47.344	0.194	8.1	3.5100	0.0000	SURCHARGED
30 minute summer	Att.Tank 4	23	47.344	0.144	4.5	1.3701	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	6	2.000	7	3.1	0.620	0.074	0.0878	
30 minute summer	7	2.001	8	8.7	0.446	0.096	0.4430	
30 minute summer	8	Hydro-Brake®	9	5.5				12.1
30 minute summer	Att.Tank 3	Att.Tank 3	8	-8.1	-0.558	-0.444	0.0455	
30 minute summer	Att.Tank 4	Att.Tank 4	7	-4.5	-0.450	-0.369	0.0515	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.90%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
60 minute summer	6	45	47.717	0.364	4.0	0.5580	0.0000	SURCHARGED
60 minute summer	7	44	47.715	0.529	18.2	0.9472	0.0000	SURCHARGED
60 minute summer	8	44	47.716	0.593	17.9	1.1773	0.0000	SURCHARGED
15 minute summer	9	1	47.107	0.000	5.5	0.0000	0.0000	OK
60 minute summer	Att.Tank 3	44	47.716	0.566	10.7	7.2290	0.0000	SURCHARGED
60 minute summer	Att.Tank 4	44	47.715	0.515	7.0	3.8048	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
60 minute summer	6	2.000	7	3.9	0.566	0.093	0.5479	
60 minute summer	7	2.001	8	9.5	0.344	0.105	0.6683	
60 minute summer	8	Hydro-Brake®	9	5.5				28.3
60 minute summer	Att.Tank 3	Att.Tank 3	8	-10.7	-0.605	-0.587	0.0455	
60 minute summer	Att.Tank 4	Att.Tank 4	7	-7.0	-0.396	-0.573	0.0518	