

FLOOD RISK ASSESSMENT

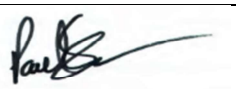
FOR

KFC/TACO BELL AT LINCOLNSHIRE GATEWAY BUSINESS PARK, SPALDING

ON BEHALF OF

ERINDALE LIMITED

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Flood Risk Assessment for KFC/Taco Bell at Lincolnshire Gateway Business Park, Spalding 2176/01r1			
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1.0 INTRODUCTION

1.1 Erindale Limited is proposing to develop a site at Lincolnshire Gateway Business Park, Goodison Road, Spalding, PE12 6FY with a restaurant/ drive thru takeaway. The application site is within Flood Zone 1, however, this Flood Risk Assessment has been prepared to support the planning application.

1.2 It is within the general development strategy of the country for development in areas where there is a risk of flooding to be assessed to avoid unacceptable impacts upon the proposed development itself and flood risk elsewhere. Under the National Planning Policy Framework (NPPF) (Communities and Local Government; June 2019) and the associated Planning Practice Guidance (PPG) (Communities and Local Government; October 2019), a Flood Risk Assessment Report should be prepared to consider the risk of flooding from all potential sources and make recommendations for any necessary flood mitigation measures.

1.3 ARP Associates have been appointed to implement appropriate consultations, carry out an assessment of the site, and prepare a Flood Risk Assessment Report, in accordance with the requirements of NPPF, to satisfy the requirements of the Planning Authority.

1.4 The consultations and site appraisal for this assessment were carried out between March and April 2021. Reference is made to historic consultations and associated planning applications.

1.5 The full planning application is for a proposed KFC/TACO BELL A3/A5 restaurant/drive thru takeaway. Proposed site plans are attached (Appendix H). The proposed development site is within a larger parcel of land which has outline planning permission for 'business park, hotel, public house/restaurant, conference and function centre, petrol filling station, restaurant/cafe with ancillary retail together with associated landscaping, access, highways, parking, drainage, utilities and services and infrastructure works'. As part of this outline permission, the larger parcel of land has been broken up into a number of parcels. The application site is also identified as an allocation within the South East Lincolnshire Local Plan, as a prestige employment site SP002.

1.6 A Flood Risk Assessment (FRA), reference 800/235r4 and dated January 2014 was prepared by ARP as part of the outline planning application for the "wider site", which subsequently received outline planning permission. The 2014 FRA references the "wider site" and this refers to an area of approximately 24.7ha, located towards the south-eastern edge of Spalding Town Centre. The "wider site" is split by the B1173 into two separate parcels of land. This current FRA is for a parcel of land within the smaller of the two areas that the 2014 FRA refers to. A new FRA is required to support the full application submission given the lapse in time from the original 2014 FRA.

1.7 It should be noted that the granting of planning permission does not guarantee the availability of flood insurance for new development. The Client is advised to contact their insurers or the Association of British Insurers, to seek advice prior to considering development in any area which may be at risk of flooding.

1.8 The report has been initially prepared for the use and reliance of the Client only. The report shall not be relied upon or transferred to any other parties without the written agreement of ARP Associates. For the avoidance of any doubt, where ARP Associates enters into a letter of reliance for the benefit of a third party, that third party will be permitted to rely on the report. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party without ARP Associates consent.

1.9 Attention is drawn to the requirements of the Construction Design and Management Regulations 2015, and in particular, the duties and obligations of the Client.

2.0 SITE DESCRIPTION

General

2.1 The site is centred on Ordnance Survey Grid Reference 524274, 319579 and is located off Goodison Road, Spalding, PE12 6FY.

2.2 A site location plan is presented in Appendix A.

2.3 The application site area is approximately 4005m^2 (0.4ha) in size.

Current Use

2.4 The proposed development site is derelict and undeveloped. Land adjacent and close to the site includes an operational Petrol Filling Station (PFS), Subway takeaway and Hotel / Public House, with associated access roads.

Boundaries

2.5 The west and southern physical boundaries are formed by highway embankments, with the A1175 on the south and Barrier Bank on the west. The site is open to former agricultural field land to the north and a Subway takeaway is located on the east of the site.

Topography and Vegetation

2.6 A copy of the topographical survey information for the site is presented in Appendix B. Although the ground is somewhat uneven, the general fall across the site is to the south-west. Levels range from approximately 3.8m Above Ordnance Datum (AOD) in the eastern side to 3.08m AOD in the south-west. There is an indicative gradient across the site of approximately 1 in 50. The site is covered in unkempt grass.

Hydrology

2.7 A ditch is present just outside of the southern site boundary. Currently, it is unknown where this drains to, however it is within the South Holland Internal Drainage Board (SHIDB) area of management. There are a number of similar ditches present to the south and east of the site. SHIDB have been consulted for further details the full response is included in Appendix F for reference purposes and discussed further in Section 3. The response indicates that the watercourse adjacent to the site boundary has not been adopted by the Board and is therefore a riparian watercourse. As discussed within the Foul and Surface Water Drainage Strategy report undertaken by ARP, reference 2176/01r2, the proposed surface water drainage strategy for this development is for proposed surface water to outfall ultimately into this watercourse. The IDB suggest the following:

> *"…works are proposed to alter this watercourse. To enable this proposal consent is required under Section 23 of the Land Drainage Act 1991 (and byelaw 4). Whilst the consenting process as set out under the Land Drainage Act 1991 and the aforementioned Byelaws are separate from planning, the ability to implement a planning permission may be dependent on the granting of these consents."*

2.8 To the west of the site, west of Barrier Bank, the land is within Welland and Deepings IDB area of management, and there are ditches present which drain into the River Welland. The River Welland is located approximately 485m west of the site at its closest point, and is classified as a Main River by the Environment Agency.

Existing Drainage

2.9 There is no known formal drainage system within the application site. Therefore, it is likely that surface water currently falling within the application site would infiltrate to some degree, with the remainder of the surface water following the topographical trend and outfalling into the ditch close to the southern boundary of the site.

2.10 Anglian Water is the Water Authority for the area and was consulted as part of the 2014 FRA. Their records indicate a public water main is present just to the east of the site. ARP prepared an Indicative Drainage Strategy in 2014 which shows the approximate location of water main. It should be noted that the drainage strategy is now superseded and is not considered further within this current assessment. The Water Authority records and superseded drainage strategy are provided in Appendix C for reference purposes.

2.11 As noted above, outline planning permission was granted for the "wider site", which now comprises separate land parcels subject to individual planning applications. Consequently, recent development works have been undertaken close to this current application site. Notably, access roads have been provided for new developments adjacent to the site, which included provision of new site-wide drainage infrastructure and systems. The existing drainage infrastructure arrangement is discussed in detail within the Foul and Surface Water Drainage Strategy report undertaken by ARP, reference 2176/01r2. A brief summary of the arrangement is as follows:

- Completed engineering works within the vicinity of the current application site include provision of new access roads to serve a petrol filling station, restaurant, takeaway and hotel.
- The access roads are drained by road gullies, outfalling into concrete carrier pipes laid underneath the roads.
- Surface water from the new developments outfalls into the same concrete carrier pipes.
- The pipes outfall into a balancing pond, located approximately 150m to the northeast of the current application site.
- The balancing pond is shown to outfall into the adjacent watercourse via a pump station.

3.0 CONSULTATION

Environment Agency

3.1 A consultation was requested from the Environment Agency, and the response, reference CNN/2021/211980, dated 15 April 2021 is included in Appendix D for reference purposes. Publicly available Environment Agency data has also been reviewed for reference and extracts from relevant online flood risk mapping are also included in Appendix D.

3.2 The Environment Agency flood map for planning show areas of land that could flood from rivers or the sea and are shaded blue. These areas do not take into account defences, as water can overtop them or the defences can fail in extreme conditions. The Zone classifications are:-

3.2.1 Flood Zone 1 - ''Low Probability'' is assessed as having a less than 1 in 1,000 annual probability of river or sea flooding in any year (less than 0.1%).

3.2.2 Flood Zone 2 - ''Medium Probability'' is assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding in any year (1% - 0.1%) and between a 1 in 200 and 1 in 1,000 annual probability of flooding from the sea (0.5% - 0.1%).

3.2.3 Flood Zone 3 - ''High Probability'' is assessed as having a 1 in 100 or greater annual probability of river flooding in any year (greater than 1%) and a 1 in 200 chance or greater annual probability of flooding from the sea (less than 0.5%).

3.3 The Environment Agency flood map shows that the application site is located entirely within Flood Zone 1. The EA confirmed that land within the proposed red line boundary for the site is designated as Flood Zone 1.

3.4 The Environment Agency note that in some locations, such as around the fens and the large coastal floodplains, showing the area at risk of flooding assuming no defences may give a slightly misleading picture in that if there were no flood defences, water would spread out across these large floodplains. This flooding could cover large areas of land but to relatively shallow depths and could leave pockets of locally slightly higher land as isolated dry islands. It is important to understand the actual risk of the flooding to these dry islands, particularly in the event of defence failure.

3.5 The Flood Map also shows the location of formal raised flood defences and flood storage reservoirs. It represents areas at risk of flooding for present day only and does not take account of climate change.

3.6 The Flood Map only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered flooding may occur from other sources such as surface water sewers, road drainage, and etcetera.

3.7 The Environment Agency provided a copy of the Historic Flood Event Outlines Map showing the extent of previous recorded flooding in the area. This only covers information the EA holds and it is possible recent flooding may have occurred which they are currently investigating, therefore this information may be subject to change. The Environment Agency stated that it is possible other flooding may have occurred which other organisations, such as the Lead Local Flood Authority (i.e. top tier council), Local Authority or Internal Drainage Board (where they exist), may have records. The record shows there is no record of flooding in the development site.

3.8 The Environment Agency stated that there are no ongoing capital projects to reduce or sustain the current flood risk to this site.

3.9 In respect of fluvial defence information, the existing fluvial defences reducing the risk of flooding to this site consist of Crowland-Cowbit washes and earth embankments. They are in fair condition and reduce the risk of flooding (at the defence) to a 1% (1 in 100) chance of

occurring in any year. The EA inspect these defences routinely to ensure potential defects are identified. This proposed development is adjacent to Barrier Bank. This bank is a designated flood defence, and it is essential that there are no adjustments or alterations to the bank at this location without prior consultation and approval (including relevant planning and permitting) from the Environment Agency.

3.10 The EA provided further detail including available modelled fluvial flood levels, flow data, flood extents and hazard mapping. This data is taken from the model named on the data table, which is the most up-to-date model currently available. It was noted these levels are "in-channel" levels and therefore may not represent the flood level on the floodplain, particularly where the channel is embanked or has raised defences. The models may not have the most up to date climate change allowances. In time the EA will update the models for the latest allowances. The developer should refer to 'Flood risk assessments: climate change allowances' to check if the allowances modelled are appropriate for the type of development proposed and its location. Further assessment of future flood risk may be required, using different allowances to ensure the assessment of future flood risk is based on best available evidence.

3.11 The Environment Agency surface water flood map shows areas where surface water only would be expected to flow or pond in England and Wales. The classifications of risk for surface water flooding are as follows:-

3.11.1 Very low - This area has a chance of flooding of less than 1 in 1000 (0.1%) in any given year.

3.11.2 Medium - This area has a chance of flooding between 1 in 100 (1%) and 1 in 30 (3.3%) in any given year.

3.11.3 Low - This area has a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%) in any given year.

3.11.4 High - This area has a chance of flooding greater than 1 in 30 in any given year (annual probability of flooding 3.3%).

3.12 The Environment Agency online risk of surface water flooding map demonstrates that the whole of the site is at a 'very low' risk of flooding from surface water.

3.13 The EA confirmed that the site is not considered to be at risk from tidal flooding.

3.14 The Environment Agency's online Flood Risk from Reservoirs map has also been reviewed as part of this study. This mapping shows the expected inundation area should a reservoir fail and release its capacity. The site is not located in an area shown to be at risk of flooding from this source.

Water Authority

3.15 Consultation has been undertaken with Anglian Water, which is the Water Authority for this area. As noted earlier in the report, historic consultation with Anglian Water from 2014 is provided in Appendix C for reference purposes. A recent consultation response dated 30th April 2021, reference PPE-0119084 is provided at Appendix E.

3.16 The consultation request advised that the surface water is proposed to discharge to watercourse, therefore the Water Authority response primarily relates to foul water. The response is covered in more detail within detailed within the Foul and Surface Water Drainage Strategy report undertaken by ARP, reference 2176/01r2). A brief summary is provided below.

3.16.1 There are no public water mains/public sewers or other assets owned by Anglian Water within the boundary of your development site. However, it is highly recommended that a thorough investigation of the proposed working area is carried out to establish whether any unmapped public or private sewers and lateral drains are in existence.

3.16.2 Due to the private sewer transfer in October 2011 many newly adopted public used water assets and their history are not indicated on our records. You also need to be aware that your development site may contain private water mains, drains or other assets not shown on our records. These are private assets and not the responsibility of Anglian Water but that of the landowner.

3.16.3 The foul drainage from the proposed development is in the catchment of Spalding Water Recycling Centre, which currently has capacity to treat the flows from the development site. Anglian Water cannot reserve capacity and the available capacity at the water recycling centre can be reduced at any time due to growth, environmental and regulation driven changes.

3.16.4 The foul water assessment has been based on development flows connecting to the nearest foul water sewer of the same size or greater pipe diameter to that required to drain the development site. A connection point has been determined in reference to the calculated discharge flow and on this basis, a 150mm internal diameter pipe is required to drain the development site. The nearest practicable connection is to the 150mm diameter sewer at manhole 1200 in Fen End Lane at National Grid Reference NGR TF2429820143. The cover level is 3.61 and the invert level is 1.88.

3.16.5 Please note that Anglian Water will request a suitably worded condition at planning application stage to ensure this strategy is implemented to mitigate the risk of flooding.

3.16.6 If the outfall is to a watercourse, the applicant will be required to obtain consent to discharge via the appropriate body. Therefore a capacity assessment has not been made on the public surface water network. However, should this situation change and you wish to have a surface water connection assessment on the local network, then we will provide this free of charge if requested within 12 months of this report and you are able to provide the relevant evidence that your original strategy was unviable.

3.16.7 As you may be aware, Anglian Water will consider the adoption of SuDs provided that they meet the criteria outline in our SuDs adoption manual on Anglian Water website.

3.16.8 The Water Authority note that there are no trade effluent requirements. Should this be required in the future the developer will need the Water Authority written formal consent.

3.16.9 A summary of charges was also provided.

Internal Drainage Board Authority

3.17 Consultation has been undertaken with South Holland Internal Drainage Board who is the Internal Drainage Board for this area. Their response, dated 26th April 2021 is included in Appendix F for reference purposes. A summary of the response is provided below:

3.17.1 The site is within the Internal Drainage District (IDD) of the South Holland Internal Drainage Board (IDB) and therefore the Board's Byelaws apply. A copy of the Board's Byelaws can be accessed on the website (https://www.wlma.org.uk/uploads/SHIDB_Byelaws.pdf), along with maps of the IDD (https://www.wlma.org.uk/uploads/210-SHIDB_Index.pdf). These maps also show which watercourses have been designated as 'Adopted Watercourses' by the Board. The adoption of a watercourse is an acknowledgement by the Board that the watercourse is of arterial importance to the IDD and as such will normally receive maintenance from the IDB.

3.17.2 To discharge surface water to a watercourse, the proposed development will require land drainage consent in line with the Board's byelaws (specifically byelaw 3).

3.17.3 It was stated that note there is a watercourse which has not been adopted by the Board (a riparian watercourse) adjacent to the site boundary and that works are

proposed to alter this watercourse. To enable this proposal consent is required under Section 23 of the Land Drainage Act 1991 (and byelaw 4).

3.17.4 The ability to implement a planning permission may be dependent on the granting of these consents. As such I strongly recommend that the required consent is sought prior to determination of the planning application.

Lead Local Flood Authority

3.18 A consultation response from Lincolnshire County Council, which is the Lead Local Flood Authority (LLFA) for this area, is included in Appendix G for reference purposes (dated 28th April 2021). A summary of the response is provided below:

3.18.1 The County Council, as Local Highway and Lead Local Flood Authority, does not wish to restrict the grant of permission.

3.18.2 The proposed development will be within the western portion of the previously Consented Lincolnshire Gateway Business Park where vehicular access to the highway network and surface water drainage infrastructure are already in place.

3.18.3 Whilst no detailed design of the surface water drainage within the Application Site itself appears to have been provided, it is proposed within the Application that the site will discharge all its surface water run-off into the top end of the existing surface water drainage system that has already been constructed as part of the existing Business Park. That system includes the necessary attenuation and storage of attenuated storm water with a pumped discharge into the watercourse on the north side of the Business Park. The surface water drainage system is also private.

3.18.4 Therefore, having given due regard to the appropriate local and national planning policy guidance (in particular the National Planning Policy Framework), Lincolnshire County Council (as Highway Authority and Lead Local Flood Authority) has concluded that the proposed development would not be expected to have an unacceptable

impact upon highway safety, or a severe residual cumulative impact upon the local highway network or increase surface water flood risk and does not wish to object to this planning application.

4.0 MATERIAL CONSIDERATION IN RESPECT OF NPPF AND PPG

Flood Classification

4.1 The online Environment Agency Flood Map for Planning has identified that the site falls within land assessed as having less than a 1 in 1000 (0.1%) annual probability of river flooding. In accordance with Table 1 of the PPG, the site falls within Flood Zone 1, "low probability".

Proposed End Use

4.2 The development proposals for the site are for the construction of a building for a restaurant and drive-thru takeaway, with associated delivery bays and parking. Access will be provided by connecting to the previous constructed “wider site” access roads. The proposals also include landscaped areas around the periphery of the site. The development proposals are illustrated in the Proposed Site Plan in Appendix H.

4.3 When applying Table 2 of the PPG, the flood risk vulnerability classification shows that the proposed end use is considered to be “Less Vulnerable'' development under the general designation “restaurants, cafes and hot food takeaways”.

Sequential Test

4.4 As set out in the NPPF, the aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. As the proposed properties are located within Flood Zone 1, the Sequential Test is considered to be passed.

Exception Test

4.5 When the proposed development is evaluated in accordance with Table 3 of the PPG, is determined that there is no requirement to apply the Exception Test to “Less Vulnerable” development in Flood Zone 1.

Flood Sources

4.6 Flooding from the Sea - The site is not located near enough to the sea to be at risk of flooding from this source, and the Environment Agency has confirmed this in its consultation response.

4.7 Flooding from Rivers - The site is located in Flood Zone 1, suggesting a 'low' probability of flooding from rivers. The River Welland is located approximately 485m west of the site at its closest point, and is classified as a Main River by the Environment Agency. The site is not shown to be at risk during the present day 1 in 100 year or 1 in 1000 year flood event.

4.8 The road which forms the western boundary of the site, Barrier Bank, lies between the site and the river. The road is raised above the surrounding topography and is classified as a flood defence by the Environment Agency, as shown on the Flood Map for Planning. The flood map demonstrates that the remainder of the land between the road and the River Welland is a flood storage area, also often referred to as Functional Floodplain.

4.9 The South East Lincolnshire Strategic Flood Risk Assessment (SEL SFRA) (March 2017) "Appendix B – Fluvial & Tidal Depth Mapping" demonstrates that the site is outside of any area shown to be at risk of fluvial or tidal flood risk for up to the 0.1% 2115 modelled event.

4.10 Based on the data available at the present time, the site is not considered to be at risk of flooding from rivers due to the physical barrier formed by Barrier Bank road and extent of flood risk shown within the South East Lincolnshire SFRA.

4.11 Flooding from Land – As noted above, the Environment Agency Risk of Flooding from Surface Water map suggests that the site is at 'very low' risk of pluvial flooding.

4.12 Flooding from Groundwater - Flooding from groundwater can happen when groundwater levels are high. This may be due to rainfall in the groundwater source area, but can also happen on floodplains if river levels are held above the level of the flood plain by embankments.

4.13 The South East Lincolnshire SFRA indicates that shallow groundwater is often found to be present within the geographic region. However at this time, site-specific information is not available.

4.14 Based on the above, a risk of high groundwater and potential groundwater flooding at the site cannot be ruled out. Further intrusive ground investigations could be required in due course to assess geological conditions at the site further, to inform detailed development proposals, and this should include consideration of potential groundwater levels. However, the design of building and external levels, and the implementation of a robust surface water drainage strategy would be expected to adequately mitigate this risk.

4.15 Flooding from Sewer - There are no public sewers within the site. Based on the topography of the site, any flooding which occurred from existing drainage systems / sewers would not be expected to impact upon the proposed development. On this basis the risk of flooding from existing sewers is considered low.

4.16 It is possible that any blockage of the on-site drainage system will result in flooding from the lowest cover level of manholes or gullies. This will need to be considered as part of any proposed development.

4.17 Flooding from Reservoirs, Canals or Artificial Sources - The Environment Agency produce maps which show the expected inundation area should a reservoir fail and release its capacity, but the site is not shown to be in an area at risk of flooding from this source.

4.18 There are no further canals or artificial sources located near to the site, therefore the risk of flooding from this source is deemed to be low.

Climate Change

4.19 The NPPF and PPG have indicated that the Global sea level will continue to rise, depending on greenhouse gas emissions, and the sensitivity of the climate system and there will be an

increase in rainfall across the country. United Kingdom climate change guidance was revised in February 2016 for peak river flows and peak rainfall intensities.

4.20 Impact on River Flooding - With regards to peak river flows, a regionalised approach has now been adopted to climate change impacts based upon the river basin district of the proposed development site, the flood risk vulnerability of the proposed development and the Flood Zone classification.

4.21 The development site is situated within the Anglian river basin district and the proposed building is located in Flood Zone 1. Specific guidance on the application of climate change allowances to Flood Zone 1 is not given by the current climate change guidance, but it is considered reasonable to at least consider the impacts of the "central" climate change scenario in this case. Based on the "central" climate change scenario, peak river flows could be expected to increase by 25% by 2115.

4.22 As the proposed development is located entirely within Flood Zone 1 and will be topographically higher than the present-day flood extents, an increase of 25% on the 1 in 100 year flows in the watercourse is deemed unlikely to affect the proposed development.

4.23 As part of its consultation response, the Environment Agency provided modelled flood data for the 'defended' flood risk scenario during a 1 in 100 year plus 20% climate change allowance event, and a 1 in 1000 year plus 20% climate change allowance event. Although the 1 in 100 year plus 20% allowance is less than the suggested 1 in 100 year plus 25% allowance, as the site remains unaffected in the more onerous 1 in 1000 year plus 20% climate change allowance event it is deemed unlikely that the1 in 100 year plus 25% allowance would affect the proposed development.

4.24 Impact on Rainfall Intensity - In accordance with the revised climate change data, the published figures show that for an expected development life of greater than 50 years, the anticipated increase in rainfall intensity could range from 20% to 40%, subject to the location within the country.

4.25 At this stage the outline surface water drainage strategy (detailed within the Foul and Surface Water Drainage Strategy report undertaken by ARP, reference 2176/01r2) has been defined with respect to a 30% allowance, as per the anticipated requirements of the regulatory authorities.

Flood Mitigation

4.26 The site falls within Flood Zone 1, and the risk from the majority of sources has been assessed as being low. However, there is a need to consider the potential future fluvial flood levels (due to the potential impacts of climate change), a requirement to consider topography of the site in terms of the potential for surface water to enter buildings, and a potential risk of groundwater flooding has been identified which requires further investigation. The following precautionary mitigation measures are, therefore, recommended:-

4.26.1 Ground floor finished floor levels (FFL) of the proposed building should be set at least 150mm above existing general external levels.

4.26.2 The proposed ground floors shall comprise solid concrete slabs or beam and block floors with screed construction.

4.26.3 Incoming electricity supplies shall be raised above ground floor level and ground floor electric sockets shall be served by loops from upper levels.

4.26.4 A sustainable surface water drainage systems shall be provided to manage surface water run-off from the site itself up to the 1 in 100 year plus climate change event (see further details within the Foul and Surface Water Drainage Strategy report undertaken by ARP, reference 2176/01r2).

4.26.5 External levels should be designed with falls to direct overland flows away from the building entrances where possible, so that any flooding remains in less vulnerable

areas such as landscaped areas, car parking areas or the access road, where the consequences of surface water flooding would be less significant. Where falls towards buildings are unavoidable, additional cut-off drainage and gullies/channel drains should be provided to prevent water entering buildings during extreme events.

4.27 Any mitigation measures, including drainage systems, would require suitable maintenance systems to be implemented, so that the design standard is maintained over the lifetime of the development.

Surface Water Drainage

4.28 It is a requirement of the NPPF to ensure that surface water run-off from any proposed development has negligible consequence on downstream areas either in terms of impact upon downstream sewer capacity or flood risk impacts due to discharge to a watercourse. The existing and proposed surface water run-off is considered below.

4.29 Existing Surface Water Run-off - The land appears unused and is considered to be essentially derelict with no formal drainage system in place. It is likely that surface water currently falling within the development site would infiltrate to some degree, with the remainder of the surface water following the topographical trend and outfalling into the watercourse to the south of the site. The site would be considered to be 'greenfield'.

4.30 Proposed Surface Water Drainage - The proposed means of managing surface water runoff from the proposed development is considered within the Foul and Surface Water Drainage Strategy report undertaken by ARP, reference 2176/01r2, with respect to the discharge hierarchy set out in Building Regulations Part H (2010). It is expected that utilising the previously designed/ constructed "wider site" drainage infrastructure will be the most appropriate measure for discharging proposed surface water. The Lead Local Flood Authority has agreed to this proposal, as noted within the consultation response.

4.31 The assessment above is subject to agreement with the Regulatory Authorities.

4.32 Further detail on the proposed drainage strategy is given in the ARP Foul and Surface Water Drainage Strategy report (reference 1506-35r2).

5.0 SUMMARY

5.1 The proposed buildings are located in Flood Zone 1, indicating a 'low' risk of flooding from rivers and the sea. On this basis, application of the NPPF Sequential Test and Exception Test is not required.

5.2 Flood risk from the majority of sources is considered to be low. However, there is a need to consider the topography of the site in terms of the potential for surface water to enter buildings, and a potential risk of groundwater flooding cannot be ruled out, which requires further investigation. The following precautionary mitigation measures are, therefore, recommended:-

5.2.1 Ground floor finished floor levels (FFL) of the proposed building should be set at least 150mm above existing general external levels.

5.2.2 The proposed ground floors shall comprise solid concrete slabs or beam and block floors with screed construction.

5.2.3 Incoming electricity supplies shall be raised above ground floor level and ground floor electric sockets shall be served by loops from upper levels.

5.2.4 A sustainable surface water drainage systems shall be provided to manage surface water run-off from the site itself up to the 1 in 100 year plus climate change event (see further details within the Foul and Surface Water Drainage Strategy report undertaken by ARP, reference 2176/01r2).

5.2.5 External levels should be designed with falls to direct overland flows away from the building entrances where possible, so that any flooding remains in less vulnerable areas such as landscaped areas, car parking areas or the access road, where the consequences of surface water flooding would be less significant. Where falls towards buildings are unavoidable, additional cut-off drainage and gullies/channel

drains should be provided to prevent water entering buildings during extreme events.

5.3 It is expected that utilising the previously designed/ constructed "wider site" drainage infrastructure will be the most appropriate measure for discharging proposed surface water. Further details of the proposed surface water drainage strategy are set out in the ARP Foul and Surface Water Drainage Strategy report (reference 2176/01r2).

5.4 Any mitigation measures, including drainage systems, would require suitable maintenance systems to be implemented, so that the design standard is maintained over the lifetime of the development.

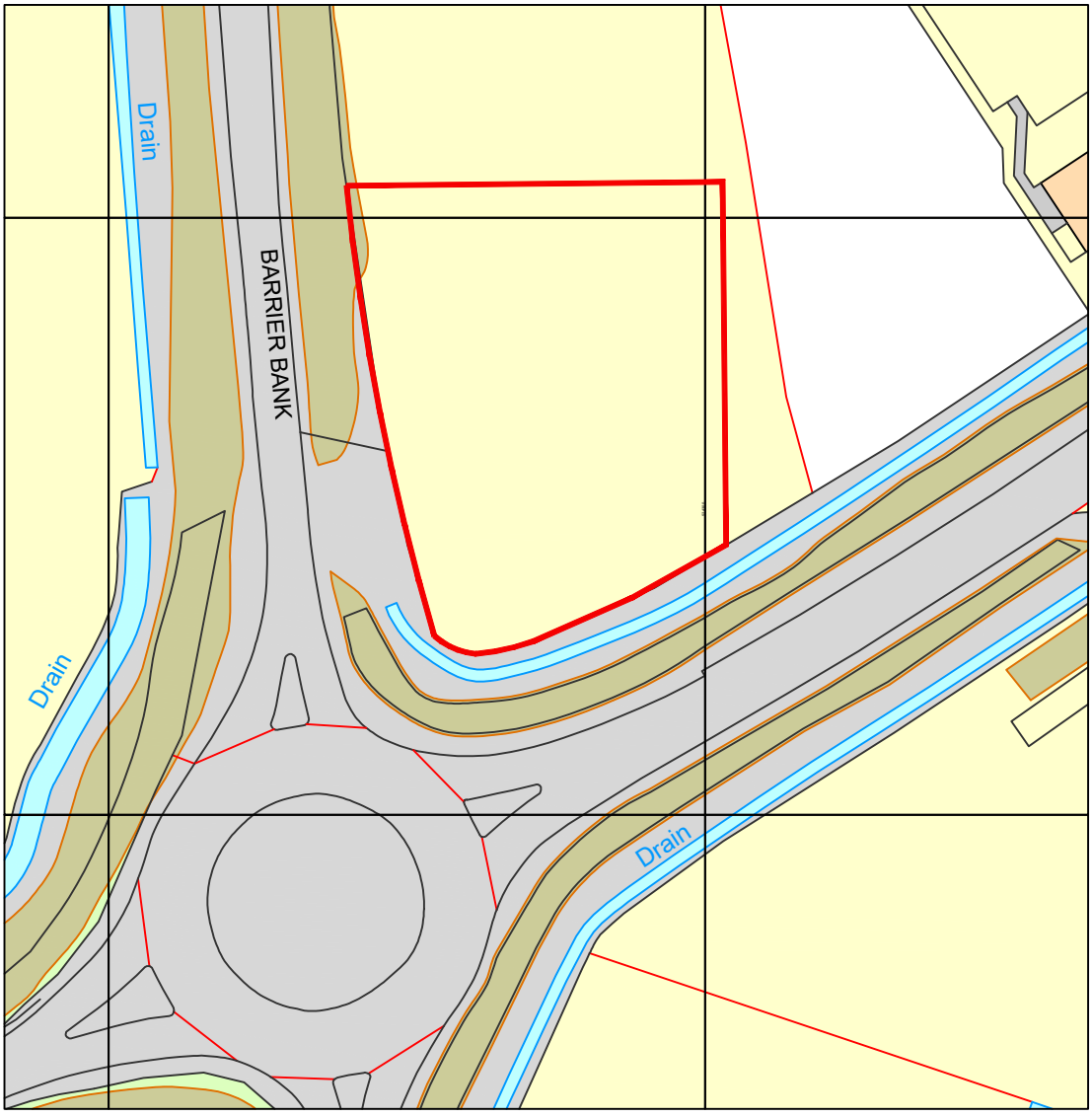
5.5 The Lead Local Flood Authority stated within their consultation response that they have concluded that the proposed development would not be expected to increase surface water flood risk and does not wish to object to this planning application.

5.6 The findings of this report are subject to the approval of the Regulatory Authorities. The detailed design / calculations shall be submitted to the Planning Authority for approval prior to construction on the development site.

5.7 Subject to compliance with the above, the proposed development can satisfy the requirements of the National Planning Policy Framework and the Planning Practice Guidance in relation to flood risk.

APPENDIX A

SITE LOCATION PLAN



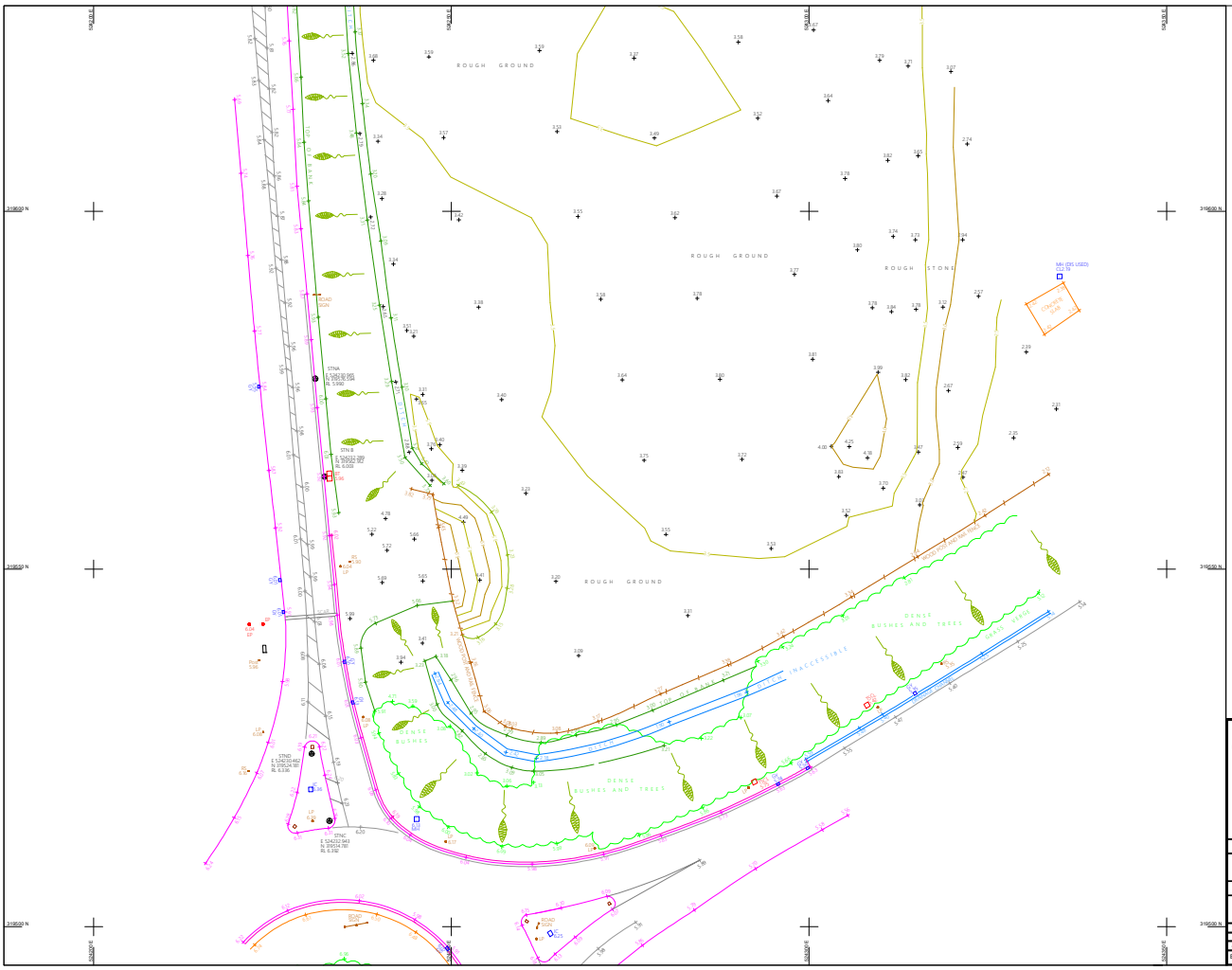
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LOCATION PLAN

scale - 1:1250 @ A4

APPENDIX B

TOPOGRAPHICAL SURVEY



NOTES

ALL LEVELS ARE IN METRES RELATED TO ORDNANCE SURVEY LEVEL

ALL CO-ORDINATES ARE IN METRES RELATED TO NATIONAL GRID CO-ORDINATES FIXED BY G P S

ALL SERVICES & MANHOLES SHOWN VISIBLE AT TIME OF SURVEY

ALL DIMENSIONS TO BE CHECKED PRIOR TO COMMENCEMENT OF WORK

Topographical Survey Legend

Bol	Bollard	MP	Mile post
Bin	Litter bin	Pt	Post
BL	Bed level	PM	Parking meter
BS	Bus stop	PP	Power point
BT	British Telecom	RE	Rodding eye
Com	Security Camera	Ridge	Roofridge level
CATV	Cable television cover	RS	Road sign
CL	Cover level	Rwp	Rain water pipe
DR	Drain	SL	Soffit level
Elec	Electrical ic	Slab	Slab level
EC	Electric Cable	Stay	Cable stay
EL	Eaves level	Step	Step level
EP	Elec. pole	SV	Stop valve
ER	Earth rod	Svp	Soil pipe
FP	Flagpole	TL	Traffic light
FA	Fitness Apparatus	ToB	Top of Building
FT	Floodlight	ToW	Top of wall level
GY	Gully	TP	Telegraph pole
GP	Gate post	TS	Traffic Signal
GV	Gas valve	TT	Tac Tile
FH	Hydrant	VP	Vent pipe
FL	Floor level	WL	Water level
IC	Inspection cover	WM	Water meter
IL	Invert level	UTL	Unable to lift
LP	Lamp post	ZCB	Zebra Crossing Beacon
MH	Manhole		
Mkr	Utility marker		

CTES SURVEYING

110 SOUTH ROAD, BRETHERTON
Nr PRESTON, LANCS PR26 9AH

TEL No 01772 683863
FAX No 01772 683863

MOBILE No 07973 673057
E MAIL ctesurveys@yahoo.co.uk

CLIENT

ERINDALE LIMITED

JOB TITLE

PROPOSED KFC TACO BELL
APPLE GRANGE SERVICE STATION
SPALDING (PE12 6FY)

SCALE	DATE	REVISIONS
1:250	MAY 2020	

JOB REF

ER (PROPOSED KFC TACO BELL SPALDING)

APPENDIX C

HISTORIC WATER AUTHORITY CONSULTATION / SUPERSEDED DRAINAGE STRATEGY

800/235

Pre Planning

Assessment Report

Barrier Bank, SPALDING
ARP Associates

Reference Number: 0905/SP100(001)

Anglian Water Services contact:
Sandeep Bains
Growth Planning Advisor
Thorpe Wood House
Thorpe Wood
Peterborough
PE3 6WT
Telephone Number: 01733 414690
Please use the above reference number in all communications

YOUR DEVELOPMENT SITE: Barrier Bank, SPALDING

The information provided within this report has been generated based on the following information provided in your application form:

- The grid reference for the site is TF24602000.
- The site currently does not have planning permission and is located on a Greenfield site.
- The development site will contain 20 commercial units and 2 hotels across 24.7 Hectares.

The comments contained within this report relate to the public water mains and sewers indicated on our records. Your attention is drawn to the disclaimer in the useful information section of this report.

Due to the recent adoption of private sewers in October 2011 many newly adopted public wastewater assets and their history are not indicated on our records. You also need to be aware that your development site may contain private water mains, drains or other assets not shown on our records. These are private assets and not the responsibility of Anglian Water but that of the landowner.

ASSETS AFFECTED

Our records indicate that we have a public water main within the boundary of your development site. Additionally, it is highly recommended that you carry out a thorough investigation of your proposed working area to establish whether any unmapped public or private sewers and lateral drains are in existence.

We are unable to permit development either over or within the easement strip without prior consent. The extent of the easement is provided in the table below. Please be aware that the existing underground assets should be located in highway or open space and not in private gardens. This is to ensure available access for any future maintenance and repair. This should be taken into consideration when planning your site layout.

Water Easement Information	
Pipe Size (inch)	Total Easement Required (m)
3	2.25m either side of the centre line

If it is not possible to avoid our asset then the water main may need to be diverted in accordance with Section 185 of the Water Industry Act (1991). We have a duty to divert our sewerage infrastructure if requested to do so although this would be at your expense. You will need to make a formal application if you would like a diversion to be considered. A copy of the section 185 diversion application form can be found at www.anglianwater.co.uk /developers

WASTEWATER SERVICES

In examining the wastewater system we assess the ability for your site to connect to the public sewerage network without causing a detriment to the operation of the system. We also assess the receiving sewage works and determine whether the sewage works can cope with the increased flow and influent quality arising from your development.

Wastewater Treatment

The foul drainage from this development is in the catchment of Spalding Sewage Treatment Works, which has capacity to treat the flows from your development site. Anglian Water cannot reserve capacity at this sewage works and you are recommended to formally apply for a connection at your earliest convenience. Please note that capacity at the sewage works can be reduced at any time due to increased requirements from existing businesses and houses, from new housing and new commercial developments as well as from environmental and regulation driven changes.

Foul Sewerage Network

As per your request we have assessed a gravity solution to your preferred connection point in Fen End Lane. As you are no doubt aware, the sewers in this area are of a small diameter and designed to serve the current connected properties only, therefore we can confirm that there is insufficient capacity in this sewer to accommodate your site.

Taking into consideration the proposed site usage, we have assessed alternative connection points; unfortunately the nearest point where capacity would be available is some 6.2 kilometres north of the site in West Marsh Road north of Spalding where the sewer increases in diameter to 1050mm. As a river crossing will be required, the flows would need to be pumped and the anticipated connection point would be to manhole 9302 in West Marsh Road at grid reference TF2592124355.

To assist in your budgeting process, we have calculated that the cost of the necessary works to connect flows to the system would be £2,054,225. Please be aware that this is an indicative solution and should planning approval be granted, we would carry out detailed modelling and optioneering under the requisition process in order to provide the most cost effective solution.

The Water Industry Act enables the developer to benefit from any wastewater revenue generated from the commercial site they have built. In simplified terms, future revenue from the new development is offset from the scheme cost. Instead of paying the full contribution the developer pays the difference between their capital contribution and the future revenue. This is calculated on an annual basis for 12 years. The developer has the option of paying this annually (relevant deficit) or upfront as a commuted sum (discounted aggregate deficit). The developer contribution applicable for this site can be provided on submission of firm site usage details.

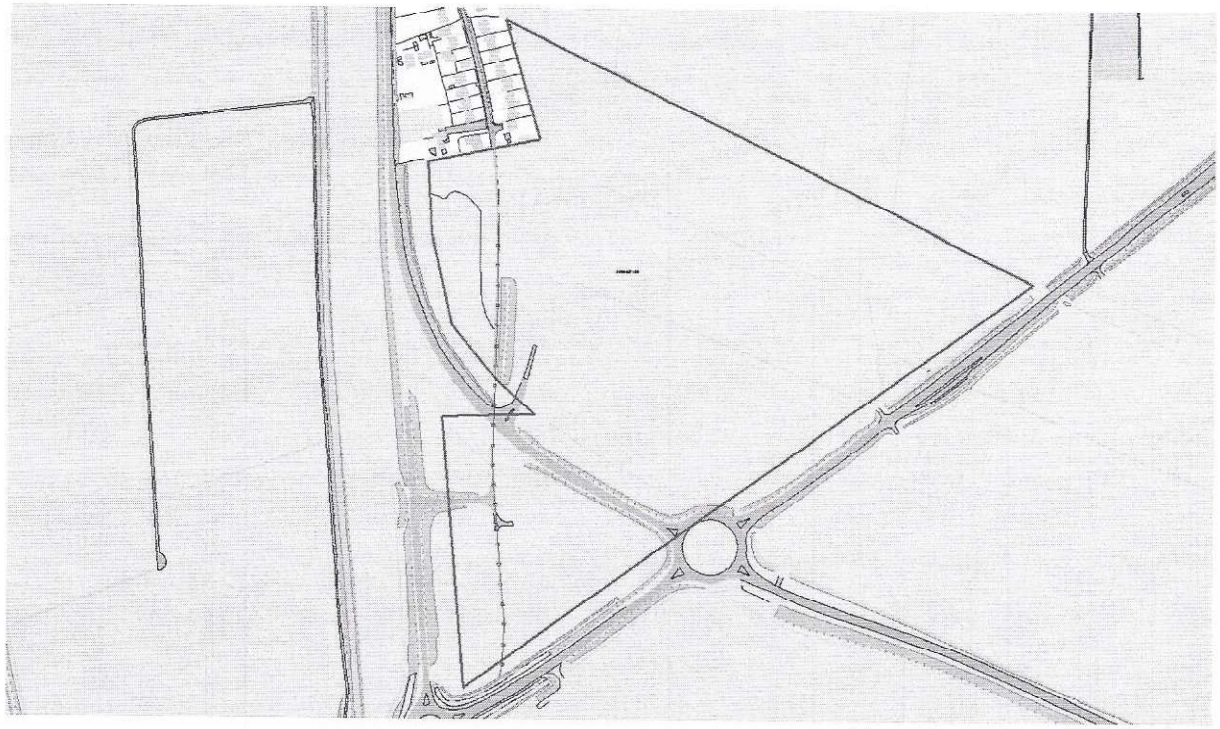
Surface Water Disposal
The proposed method of surface water disposal is not relevant to Anglian Water; we suggest that you contact the future SuDS Approving Body for the area, the Environment Agency, the Internal Drainage Board.

Trade Effluent
Trade effluent to the public sewerage system will need our written formal consent. This is in accordance with Section 118 of the Water Industry Act (1991). To proceed with the trade effluent application you will need to contact your local Catchment Quality Scientist. The Scientist for this area is Andy Gunn and he is available on 07710608720. You are advised to contact them before any work commences in order to discuss your proposed trade waste process. Please note that it is an offence to discharge a trade effluent without our consent.

Wastewater Budget Costs
It has been assumed that the onsite foul network will be provided under a section 104 Water Industry Act application. It is recommended that you also budget for both infrastructure charges and connection costs. The 2013/14 charges are:

Infrastructure Charge	£337.00 per connection
S104 Supervision and inspection costs	2.5% of estimated construction costs
S104 Surety costs	10% of estimated construction costs

Map of proposed development site



USEFUL INFORMATION

Sustainable Drainage Systems: Many existing urban drainage systems can cause problems of flooding, pollution or damage to the environment and are resilient to climate change in the long term. Therefore our preferred method of surface water disposal is through the use of Sustainable Drainage Systems (SuDS). SuDS are a range of techniques that aim to mimic the way surface water drains in natural systems within urban areas. For more information on SuDS, please visit our website at http://anglianwater.co.uk/developers/sewer-connection/suds.aspx. We also recommend that you contact the future SuDS Approving Body (SAB) for the area to discuss your application.

Water Industry Act – Key Wastewater Sections:

- Section 98: This provides you with the right to requisition a new public sewer. The new public sewer can be constructed by Anglian Water on your behalf. Alternatively, you can construct the sewer yourself under section 30 of the Anglian Water Authority Act 1977.
- Section 102: This provides you with the right to have an existing sewerage asset vested by us. It is your responsibility to bring the infrastructure to an adoptable condition ahead of the asset being vested.
- Section 104: This provides you with the right to have a design technically vetted and an agreement reached that will see us adopt your assets following their satisfactory construction and connection to the public sewer.
- Section 106: This provides you with the right to have your constructed sewer connected to the public sewer.
- Section 185: This provides you with the right to have a public sewerage asset diverted.

Details on how to make a formal application for a new sewer, new connection or diversion are available on our website at www.anglianwater.co.uk/developers/application-form or via our Developer Services team on 08457 60 66 087.

Private Sewer Transfers: Sewers and lateral drains connected to the public sewer on the 1 July 2011 transferred into Water Company ownership on the 1 October 2011. This follows the implementation of the Floods and Water Management Act (FWMA). This included sewers and lateral drains that were subject to an existing Section 104 Adoption Agreement and those that were not. There were exemptions and the main non-transferable assets were as follows:

- Surface water sewers and lateral drains that did not discharge to the public sewer, e.g. those that discharged to a watercourse.
- Foul sewers and lateral drains that discharged to a privately owned sewage treatment/collection facility.
- Pumping stations and rising mains will transfer between 1 October 2011 and 1 October 2016.

The implementation of Section 42 of the FWMA will ensure that future private sewers will not be created. It is anticipated that all new sewer applications will need to have an approved section 104 application ahead of a section 106 connection.

Encroachment: Anglian Water operates a risk based approach to development encroaching close to our wastewater infrastructure. We assess the issue of encroachment if you are planning to build within 400 metres of a Sewage Treatment Works or, within 15 metres to 100 metres of a pumping station. We have more information available on our website at http://anglianwater.co.uk/developers/ encroachment.aspx

Water Industry Act – Key Water Sections:

- Section 41: This provides you with the right to requisition a new water main to connect your site to the public water network.
- Section 45: This provides you with a right to have a connection from a building or part of a building to the public water main.
- Section 51A: This provides you with the right to provide the water main or service connection yourselves and for us to vest them into our company.
- Section 185: This provides you with the right to have a public water asset diverted. Details on how to make an application and the s185 form is available on our website at www.anglianwater.co.uk /developers/application-forms or via our Developer Services team on 08457 60 66 087.

Details on how to make a formal application for a new water main, new connection or diversion are available on our website at www.anglianwater.co.uk/developers/ application-form or via our Developer Services team on 08457 60 66 087.

If you have any other queries on your rights to requisition or connect your housing to the public water and wastewater infrastructure then please contact our developer services team at: Developer Services, Anglian Water, PO Box 495, Huntingdon, PE29 6YY or Tel: 0845 60 66 087 or Email: developerservices@anglianwater.co.uk

Self Lay of Water Mains: A list of accredited Self Lay Organisations can be found at www.lloydsregister.co.uk/schemes/WIRS/providers-list.aspx.

Water pressure and flow rate: The water pressure and consistency that we must meet for your site is laid out in the Water Industry Act (1991). This states that we must supply a flow rate of 9 litres per second at a pressure of 10 metres of head to the external stop tap. If your water pressure requirements exceed this then you will need to provide and maintain any booster requirements to the development site.

Locating our assets: Maps detailing the location of our water and wastewater infrastructure including both underground assets and above ground assets such as pumping stations and treatment works are available from www.digdat.co.uk . All requests from members of the public or non-statutory bodies for maps showing the location of our assets will be subject to an appropriate administrative charge. We have more information on our website at: www.anglianwater.co.uk/developers/our-assets/

Summary of charges: A summary of this year's water and wastewater connection and infrastructure charges can be found at www.anglianwater.co.uk/developers /charges/

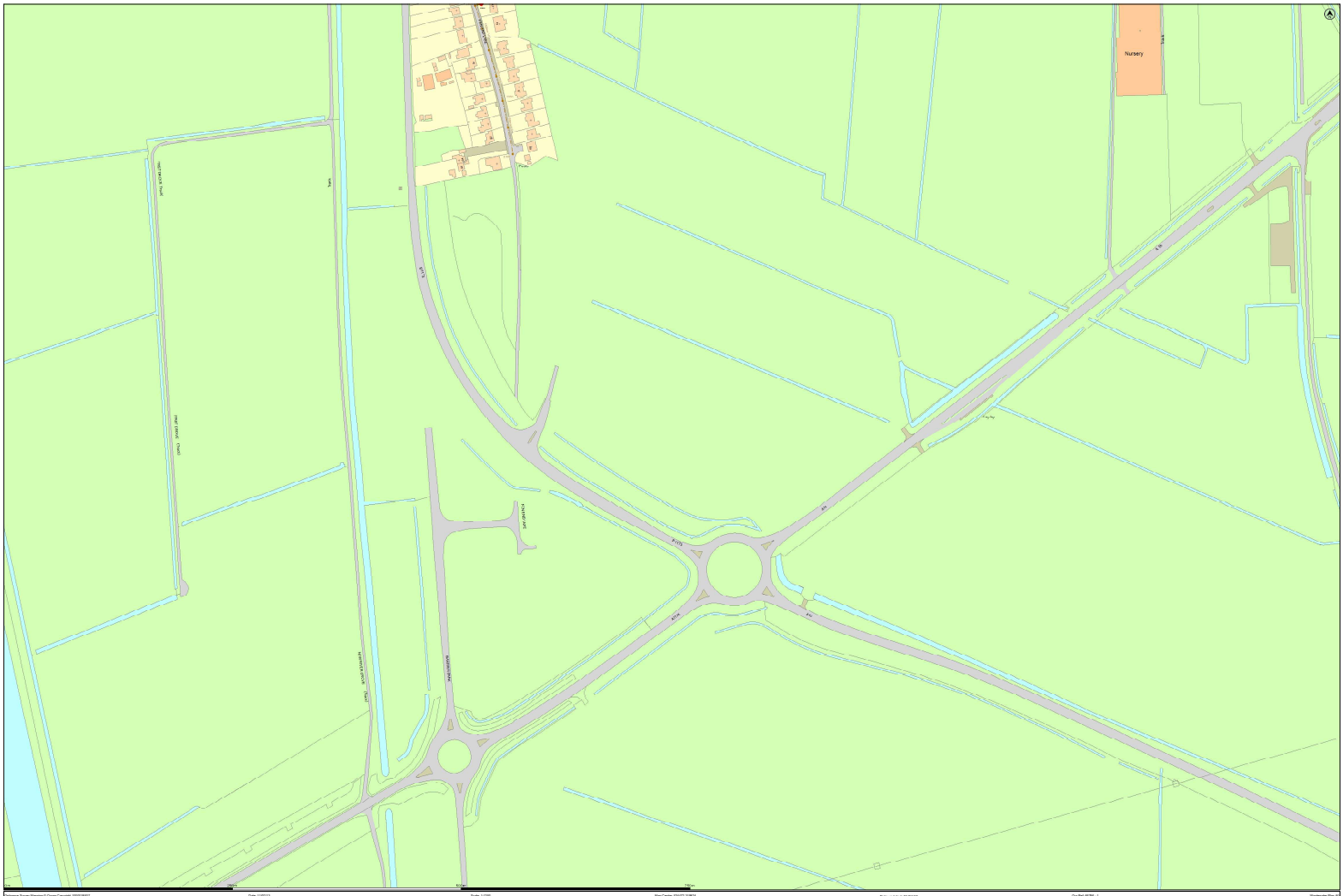
Disclaimer: The information provided within this report is based on the best data currently recorded, recorded within the last 12 months or provided by a third party. The position must be regarded as approximate. If there is further development in the area or for other reasons the position may change.

The accuracy of this report is therefore not guaranteed and does not obviate the need to make additional appropriate searches, inspections and enquiries. You are advised therefore to renew your enquiry should there be a delay in submitting your application for water supply/sewer connection to re-confirm the situation.

Any cost calculations provided within the report are estimated only and may be subject to change.

No liability whatsoever including liability for negligence is accepted by Anglian Water Services Limited for any error or inaccuracy or omission including the failure to accurately record or record at all, the location of any water main, discharge pipe, sewer, or drain or disposal main or any item of apparatus.

Contacting us: If you have any comments or suggestions based on the information provided in this report then please feel free to contact me on 01733 414690.



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Date: 11/07/13 | Scale: 1:1250 | Map Centre: 524472,319624 | Data updated: 01/04/13 | Our Ref: 89795 - 1 | Wastewater Plan 02

This plan is provided by Anglian Water pursuant to section 199 of the Water Industry Act 1991 and the Water Industry (Information) Regulations 2004 solely for the purpose of providing information about the location of Anglian Water's sewerage apparatus. The accuracy of the information shown on this plan cannot be guaranteed and service pipes are not normally shown. Neither this map nor any part of it forms any part of any contract. Persons using this map should not excavate in the vicinity of the apparatus without first taking all necessary precautions to locate the exact position of the apparatus. Anglian Water assumes no responsibility and shall have no liability for any loss, damage, injury, cost or expense whatsoever caused by anyone using, relying upon or otherwise relating to the contents of this map. Anglian Water does not exclude liability for death or personal injury arising from its negligence, nor any liability for fraud or fraudulent misrepresentation. Unless specifically agreed in writing, no employee or agent of Anglian Water has any authority to bind Anglian Water in relation to any statement or representation contained in this plan. Plans must be returned to Anglian Water on request. The Copyright and other intellectual property rights in this plan are and remain the property of Anglian Water Services Limited and Anglian Water Business (National) Limited. In supplying this plan Anglian Water does not grant any licence or assignment of any such rights, whether express or implied, except to the extent necessary for the reasonable use of this plan in connection with the purpose for which it was supplied by Anglian Water. Any other uses of this map (with or without copies) is not permitted. The Customer shall indemnify Anglian Water against any claims, costs, damages and losses, arising out of or in connection with any breach of the Customer's obligations set out in this boilerplate.

Foul Sewer
Surface Water
Combined Sewer
Overflow Pipe
Pump Main
Private Sewers (Dotted Lines)
Known Sewers (Solid Lines)
Abandoned Sewers

Outfall (Colour denotes effluent type)
Inlet (Colour denotes effluent type)
Manhole (Colour denotes effluent type)
Sewage Treatment Works
Pumping Station

anglianwater@pipexmedia.co.uk
Anglian Water