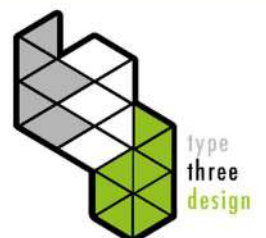

Leicester Road, Hinckley

Outline Drainage Strategy

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1 Introduction

1.1 Appointment and Brief

TYPETHREE DESIGN has been commissioned by Merrywell Properties Ltd to provide a formal site-specific Outline Drainage Strategy in support of a Planning Application for a proposed residential development off Leicester Road in Hinckley.

The site is located in Hinckley, Leicester and has an approximate postcode reference LE10 1LT.

The site is to be developed to provide 7 residential units. The planning application site extends to circa 0.31ha and is located in Flood Zone 1.

1.2 Report Structure

The Existing and Proposed site is described in terms of topography, existing drainage, development quantum etc in Section 2.0. Details of proposed foul drainage are provided in Section 3.0, Surface Water is recorded in Section 4.0 and a statement on potential Flood Risk included in Section 5.0. Section 6.0 provides a summary.

1.3 Objective of Strategy

The objective of the strategy is to provide information and present proposals relating to the following.

- The existing surface and foul water drainage systems within and in the vicinity of the site;
- Proposed surface water and foul water flows;
- Proposed surface water and foul water discharge points;
- Proposed surface water storage volumes;
- Proposed off-site reinforcement works;
- Constraints imposed by the regulatory bodies including the Environment Agency, the local water and highway authorities.

In accordance with the National Planning Policy Framework the drainage strategy takes account of climate change over the longer term of the development and gives priority to the use of sustainable drainage systems.

1.4 Limitations

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TTD has endeavoured to assess all information provided to them during this appraisal. The report summarises from a number of external sources and cannot offer any guarantees or warranties for the completeness or accuracy of information relied upon.

This report has been undertaken with the assumption that the site will be developed in accordance with the above proposals without significant change. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

An intrusive site investigation for the development has also not been undertaken and it is therefore recommended that this is carried out prior to detailed design.

Some permeability testing has been undertaken however it is noted that this was relatively limited and it is recommended that further testing is undertaken prior to detailed design.

2.0 Site Context

2.1 Site Location

The site is located on land to the rear of 84 Leicester Road, Hinckley. The proposed overall development comprises 9 residential properties two of which have already been constructed facing Leicester Road under a separate Planning Application. This application and drainage strategy relates to the further 7 properties which will be constructed on the remainder of the site.

An approximate postcode for the site is LE10 1LT.

2.2 Site Characterisation/ Land-Use

Area		The gross site area is approximately 0.31 hectares (ha).
Existing Surfacing		The majority of the site is predominantly covered with grass and vegetation as it was formerly the garden to No. 84 Leicester Road. A small portion of the site has been surfaced to provide access to a garage associated with the first two plots described above. This area will form the private drive access to the proposed additional 7 properties.
Current Use		As highlighted above, the majority of the site is covered with grass however historically a residential property was present until recently when it was demolished to make way for development at the site. No existing buildings or structures are currently present within the proposed planning boundary.
Boundaries	North	Existing residential properties and Island Close
	East	Existing residential properties
	South	Leicester Road
	West	Existing residential properties
Access	Vehicular	Access can be obtained from Leicester Road
	Pedestrian	Unrestricted pedestrian access can be obtained from Leicester Road

2.3 Nature of the development

The proposed development comprises the construction of 7 residential units and associated drives, garages and hard and soft landscaping. The development is classed as minor development.

2.4 Topography

A topographical survey of the site was undertaken by NJC Surveys in January 2015. A copy of the survey is included in Appendix B.

The topography of the site generally slopes from south east to north west. At the north western corner of the site levels are recorded at approximately 129.76m AOD with levels in the region of 131.40m AOD recorded to the south eastern boundary.

2.5 Existing Public Sewers

Severn Trent Water sewer records (Appendix F) show that the surrounding area is well served by a network of public combined sewers. These have recently been upgraded as part of Flood Alleviation works along Leicester Road as it is understood that the current network is hydraulically inadequate. New 750, 1600 and 3000mm diameter pipework is now present in Leicester Road to alleviate these issues.

A request has been submitted to STW for updated records which define these recent works. However, at the time of writing these had yet to be received and therefore details will be entered into the final version of this report when received.

In addition to the public combined sewers, a surface water sewer is shown running eastward along Leicester Road before turning north and flowing through land immediately adjacent to the development site. This surface water sewer appears to discharge to a pond located within Ashby Road Cemetery.

No other public sewers are located in the vicinity of the site.

2.6 Existing Private Drainage

Merrywell Properties have provided sketch details of the existing private drainage constructed as part of the initial development phase (Appendix G).

This consists of a small private foul drainage network which has been installed to serve the initial two properties that have been constructed facing Leicester Road. This foul drainage has been extended slightly into the site to provide a point of connection for the remaining development and currently discharges by gravity to the public combined sewer network. A non-return valve is fitted in the final manhole.

The only surface water drainage present is that which has been constructed to serve the first two development plots highlighted above. This collects runoff from hardsurfaces and roof areas and conveys it to an existing well on site where it is allowed to infiltrate naturally.

Further investigation work will be required at detailed design stage to establish the exact location and invert level of the existing foul drainage on-site.

3.0 Foul Water Drainage

3.1 Introduction

It is proposed to install a new foul water drainage system to serve the proposed residential development which will utilise the existing drainage infrastructure already constructed.

The foul water system will be designed and constructed in accordance with the current Building Regulations, BS EN:752 drainage and sewer systems outside buildings, the local authority building control specifications and requirements, Sewers for Adoption 7th Edition and the Civil Engineering Specification for the Water Industry 7th Edition.

3.2 Foul Water Discharge Rates

The estimated design Dry Weather Flow (DWF) generated by the proposed development, based on a gravity system, has been calculated as **0.32 litres per second** which is based on the recognised 4000 litres per dwelling per day defined in Sewers for Adoption.

3.3 Foul Water Capacity and Point of Connection

A pre-development enquiry was submitted to Severn Trent Water and a response has been received which confirms that foul water from the development can discharge into the existing 225mm dia. public combined sewer network in Leicester Road.

It is intended that the development will utilise the existing local drainage infrastructure subject to confirmation of level and location on-site.

3.4 Gravity Drainage System

A gravity connection to either the private foul drainage network within the site or public combined sewer in Leicester Road will not be possible based on the anticipated invert levels and site topography. It is therefore intended to provide a package pumping station to lift foul flows up to the existing private drainage network within the site.

A twin pump system operating on a duty/ standby basis will be provided along with 24-hour emergency storage to comply with Building Regulations.

A preliminary specification has been provided by the client which has been indicated on the drainage strategy drawing in Appendix D. This will be reviewed and updated as necessary at detailed design stage.

Notwithstanding the above, as previously advised sewer improvement works have recently been completed in Leicester Road which may allow a gravity connection to be achieved to these new STW assets. To confirm this updated sewer records have been requested from STW. Should a gravity connection be possible then this would be the preferred solution as it avoids the requirement for a pumping station.

Details will be entered into the final version of this report when received.

3.5 Adoption and Maintenance

The proposed foul drainage system including the package pumping station will not be offered for adoption under a S185 agreement to Severn Trent Water as the site access road will remain in private ownership. However, further discussions will be held with STW's Developer Services Team to understand which elements of the proposed drainage scheme they would be willing to take responsibility for as a result of the Private Sewerage Transfer Regulations 2011 and 2016.

A maintenance strategy for all drainage within the site will be developed at detailed design stage and submitted to the local authority for review at the appropriate time.

4.0 Surface Water Drainage

4.1 Introduction

The National Planning Policy Framework (NPPF) and accompanying Technical Guidance indicate that surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management.

Consideration should therefore firstly be given to using sustainable urban drainage (SUDS) techniques including soakaways, infiltration trenches, permeable pavements, grassed swales, ponds and wetlands to reduce flood risk by attenuating the rate and quantity of surface water run-off from a site. This approach can also offer other benefits in terms of promoting groundwater recharge, water quality improvement and amenity enhancements. Approved document Part H of the Building Regulations (2015) sets out a hierarchy for the disposal of surface water which encourages a SUDS approach.

4.2 Pre-development Surface Water Runoff

For the purposes of determining the existing rate of surface water runoff the site is considered to be Greenfield. The total area of the proposed development site is circa 0.31 hectares (ha). The following table summarises the existing permeable and impermeable catchment areas.

Site Area (ha)	Impermeable Area (ha)	Permeable Area (ha)
0.31	0.042	0.268

Runoff from Greenfield Areas

The runoff rates from the permeable (Greenfield) areas of the site have been calculated using the Institute of Hydrology Report 124 Flood Estimation for Small Catchments (1994). The publication provides the essential design elements for determining the estimated Greenfield runoff rate which is based on the site area, soil type, and average annual rainfall, which is influenced by the location of the site within the United Kingdom. This methodology is recommended within R&D Technical Report W5-074/A/TR/1 'Preliminary Rainfall Runoff Management for Developments'(2012).

The IOH 124 equation to calculate runoff is:

$$Q_{bar} = 0.00108 \cdot SAAR^{0.89} \cdot SOIL^{1.17} \cdot A^{2.17}$$

Where:

Q_{bar} = Mean Annual Flood (m³/s). A return period in the region of 2.3 years.

SAAR = Standard Average Annual Rainfall (mm)

A = Area (ha) of the catchment.

SOIL = Soil index value obtained from soil maps in the Flood Studies Report or the WRAP map of the Wallingford Procedure.

The analysis for determining the peak Greenfield discharge rate uses 50 ha in the formula and linearly interpolates the flow rate value based on the ratio of the development to 50ha (Interim Code of Practice for Sustainable Urban Drainage Systems, 2004).

The table below summarises the existing greenfield runoff rates for the existing development for a range of storm return periods.

Area (ha)	Q_{bar} (l/s)	Q_1 (l/s)	Q_{30} (l/s)	Q_{100} (l/s)	$Q_{100+40\%}$ (l/s)
0.268	1.17	0.97	2.33	2.99	4.18

4.3 Post-development Surface Water Runoff

The existing site is permeable and therefore based on the nature of the proposals there will be an increase in impermeable area post development. The proposed impermeable area for the development plot is summarised in the table below. Catchments are also identified on the Proposed Catchment Plan in Appendix C.

Site Area (ha)	Impermeable Area (ha)	Permeable Area (ha)
0.31	0.18	0.13

The industry standard Modified Rational Method has been used in the calculation of runoff rates from proposed hardstanding areas. Rainfall intensity data was obtained from WinDes and a standard runoff coefficient of 0.9 was applied to the areas of each catchment assessed to be impermeable.

The table below summarises the proposed peak flow for a range of storm return periods. It is assumed that runoff from landscaped (permeable) areas will infiltrate and not contribute to the proposed drainage network.

Impermeable Area (ha)	Q_1 (l/s)	Q_{30} (l/s)	Q_{100} (l/s)	$Q_{100+40\%}$ (l/s)
0.18	18.14	44.51	56.60	80.88

4.4 Climate Change

There are indications that the climate in the UK is changing significantly and it is widely believed that the nature of climate change will vary greatly by region. Current expert opinion indicates the likelihood that future climate change would produce more frequent short duration and high intensity rainfall events with the addition of more frequent periods of long duration rainfall.

The NPPF Technical Guidance Table 5 states that the recommended national precautionary sensitivity ranges for increase of peak rainfall intensity is 30% until 2115. However, The Environment Agency issued new advice which updated previous climate change allowances outlined in the NPPF. Table 2 below shows anticipated changes in extreme rainfall intensity in small and urban catchments. The Environment Agency recommend both the central and upper end allowances are assessed to understand the range of impact.

Table 2 peak rainfall intensity allowance in small and urban catchments (use 1961 to 1990 baseline)

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

The Lead Local Flood Authority has not detailed a specific percentage increase to be assessed however, it is anticipated that they would expect compliance with the latest guidance. It is therefore intended that a 40% increase in peak rainfall will be considered for the purpose of surface water drainage design and assessment of exceedance flow pathways.

4.5 Sustainable Drainage Systems (SuDS)

Current policy and best practice encourages the use of Sustainable Drainage Systems (SUDS) and in particular, infiltration systems.

The Environment Agency recommends that “surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management. This approach involves using a range of techniques including soakaways, infiltration trenches, permeable pavements, grassed swales, ponds and wetlands to reduce flood risk by attenuating the rate and quantity of surface water run-off from a site. This approach can also offer other benefits in terms of promoting groundwater recharge, water quality improvement and amenity enhancements. Approved document Part H of the Building Regulations (2000) sets out a hierarchy for surface water disposal which encourages a SUDS approach” (Environment Agency, 2004).

Soakage testing in the form of a variable head percolation test was undertaken as part of preliminary site investigation at the site (Appendix H). This testing suggests that the site infiltration rate was in the region of 1.3×10^{-7} m/s which can be considered poor but appropriate for the silt fine sand/ sandy silt encountered 6.8m below ground.

A further borehole has been drilled on-site with the intention of carrying out additional infiltration testing. However, based on the ground conditions encountered during the preliminary site investigations as a minimum, shallow infiltration systems would not be appropriate.

The design of any SUDs features would be undertaken at the detailed design stage in conjunction with the design of the piped drainage systems.

4.6 Methods of Surface Water Management

There are three methods that have been reviewed for the management and discharge of surface water for the proposed development which are detailed below; these may be applied individually or collectively to form a complete strategy. They should be applied in the order of priority as listed.

- Discharge via infiltration;

- Discharge to watercourse;
- Discharge to public sewerage system.

4.7 Discharge via infiltration

Any impermeable areas that can drain to soakaway or an alternative method of infiltration would significantly improve the sustainability of any surface water systems.

Intrusive investigation in the form of one ten metre percussion borehole has been carried out at the site to investigate the presence of granular horizons within the predominantly cohesive strata (Appendix H). Soakage testing in the form of one falling head permeability test was undertaken in the borehole. The results of this testing suggest an infiltration rate of 1.3×10^{-7} m/s.

Based on this information, it is considered that infiltration rates are too low to be considered as a feasible method of surface water disposal for the development. Furthermore, this testing relied upon soakage directly into the groundwater table which is unlikely to be acceptable to the EA, except in exceptional circumstances, as travel times for any contaminants discharged directly into the groundwater table would be very fast.

However, it is considered that before completely discounting infiltration further testing, comprising three tests as a minimum, should be undertaken in the new borehole which has been positioned elsewhere on the site. This would enable a more accurate assessment of the sites infiltration potential to be gauged.

If favourable infiltration rates are returned from this additional testing, surface water arising from the proposed development will be discharged via a number of plot level deep bore soakaways into the underlying granular strata, subject to further discussions with the LLFA and EA.

The design standard will be no surface flooding for storm events up to and including the 30-year return period in accordance with the SuDS Manual. For return periods beyond this, up to and including the 100 year plus climate change event, surface water will be managed within the site to ensure that it does not pose a risk to properties and residents.

The resultant storage volume will depend on the infiltration rate. Assuming that individual plot level soakaways would be provided to serve each plot, the current infiltration rate would require circa 22m³ of storage which could be provided in a 3.0m diameter chamber at 4.0m deep. However, the poor infiltration rate results in a half drain time which exceeds 7 days and therefore the design is currently considered unsatisfactory.

4.8 Discharge to a Watercourse

Based on available information there is no watercourse in the vicinity of the site which could be used for the discharge of surface water runoff from the development and this option has not been considered further.

4.9 Discharge to a Public Sewer

Severn Trent Water Records indicate the presence of a surface water sewer in the vicinity of the site which could potentially be used for the disposal of surface water run-off. This sewer is 225mm diameter and flows through third party land immediately adjacent to the site. Record information suggests that the nearest manhole (5702) is located on the opposite side of Leicester Road and has an invert level of 131.22m AOD.

Based on preliminary design, a gravity connection to this manhole would not be achievable and therefore a package pumping station would be required to lift flows up to the sewer subject to confirmation of capacity from Severn Trent Water.

The next available manhole downstream is located in Island Close to the north which has an invert level of 126.86m AOD. This suggests that a gravity connection to this length of sewer would be achievable however a requisition would be required through third party land to achieve this.

Severn Trent Water have advised that the requisition of a connection to this sewer on behalf of Merrywell Properties would be feasible. An application has been submitted and details will be entered into the final version of this report when confirmation has been received. Correspondence relating to STW's agreement in principle to this solution can be found in Appendix I.

It is intended that a CCTV survey will be undertaken to the existing surface water sewer to establish the precise alignment and condition of this STW asset. These works will be completed in due course and details will be entered into the final version of this report when received.

Should discharge to this surface water sewer not be feasible for whatever reason then a further potential option would be to discharge surface water to the existing private foul network at the final manhole, prior to its outfall to the existing public combined sewer in Leicester Road. As previously stated, these combined sewers are currently undergoing improvement works as part of a flood alleviation scheme which will increase capacity and the discharge of surface water, at a controlled rate, may be acceptable.

Severn Trent Water have confirmed that this option would be acceptable as a 'last resort only' once all other options had been exhausted. STW advised that sewer modelling would be necessary should this be the only viable option. However, given the recent improvements works in the area and the limited discharge from the site it is not anticipated that this would present a problem.

If it is ultimately determined that it is not feasible to discharge surface water runoff via infiltration pending further infiltration testing, then it is proposed to requisition a new connection to the adjacent surface water sewer. As discussed above, an application has been submitted to STW for formal approval.

Given the size of the development and its greenfield nature then a restricted discharge of 5.0 l/s will be provided through vortex flow control device. This figure is considered the practicable minimum to avoid blockages due to the small orifice size.

Any attenuation proposed for the development would likely take the form of oversized pipework fed by drainage channels, road gullies etc. Given the limited landscaped areas available and required storage volumes, swales, detention basins etc would not be feasible methods of conveyance or storage.

A drainage strategy drawing can be found in Appendix D.

4.10 Attenuation Requirements

The proposed restricted discharge of 5.0 l/s and calculated post-development runoff rates generate a storage requirement during periods of intense rainfall.

The Microdrainage WinDes 'Quick Storage Estimate' module has been used to estimate the storage volume required on-site for both a 1 in 30 year and 1 in 100 year storm event plus a 40% allowance for climate change. These volumes are detailed in the table below.

Permissible Discharge (l/s)	Impermeable Area (ha)	Q ₃₀ Volume (m ³)	Q _{100+40%} Volume (m ³)
5.0	0.18	38	85

The total storage volume for the entire development, for the 100 year plus climate change return period is estimated as 85m³. This volume is indicative only and is subject to confirmation at detailed design stage.

As noted above, should infiltration be used as a method of surface water run-off then this is likely to increase the volumes of attenuation required across the site due to the poor infiltration rate.

4.11 Outline Surface Water Drainage Strategy

As described above, the hierarchy for surface water disposal, as set out in Part H of the Building Regulations (2010) indicates that priority should be given to the use of infiltration systems; second priority to discharge to a watercourse and third priority to discharge to the public sewer.

As indicated above, further infiltration testing is to be undertaken to categorically rule out soakaways as a method of surface water disposal. The initial site investigation and testing suggests that shallow SuDS solutions are not viable and infiltration at depth is also poor.

The general principle therefore of the preferred surface water drainage strategy for the development is to collect runoff from buildings, drives and associated hardstanding and attenuate this within oversized pipework with discharge to the existing surface water sewer at a restricted rate. Severn Trent Water will need to requisition a new connection to their existing sewer which they have confirmed as a viable solution. A formal application has been submitted and a response is awaited.

Discharge rates would need to be formally agreed with Severn Trent Water however, it is considered that the reduced peak flow rate of 5.0 litres per second detailed above would be acceptable.

Should discharge to the existing surface water sewer not be feasible then the final option available would be to pump flows to the on-site foul drainage system at the final manhole which subsequently discharges to the combined sewer network in Leicester Road. A gravity connection may be achievable to the new STW assets which have recently been constructed but this cannot be confirmed until revised sewer records have been received.

A drainage strategy drawing detailing the options outlined above along with indicative cover levels, inverts and pipe sizes is contained in Appendix D.

4.12 Adoption and Maintenance

The proposed on-site surface water drainage system will not be offered for adoption under a S185 agreement to Severn Trent Water as the site access road will remain in private ownership. However, further discussions will be held with STW's Developer Services Team to understand which elements of the proposed drainage scheme they would be willing to take responsibility for as a result of the Private Sewerage Transfer Regulations 2011 and 2016.

Should a new gravity sewer be requisitioned through third party land then this will be adopted by Severn Trent Water.

A maintenance strategy for all private drainage within the site will be developed at detailed design stage and submitted to the local authority for review at the appropriate time.

5.0 Flood Risk Statement

5.1 Flood Mapping

The Environment Agency Flood Zone Map indicates that the proposed development is located in Flood Zone 1 (low risk).

This is land designated as having a less than 0.1% annual probability of flooding from rivers or the sea in any year (less than a 1 in 1000 annual probability of flooding).

Flood zone designation ignores the presence of any flood defences and only considers flooding from fluvial and tidal sources.

5.2 Sources of Flood Risk

SOURCE	LIKELIHOOD
Fluvial	Low
Coastal – Sea	Not Applicable
Coastal – Estuarine	Not applicable
Pluvial Flooding	Low
Sewer	Low
Groundwater	Low
Other Sources	Low

5.3 Fluvial Flood Risk

Information relating to flood risk at the site has been obtained from the Environment Agency website. As noted above, examination of the Flood Map shows that the site is located within an area classified as Flood Zone 1 and the risk of flooding from Rivers or the Sea is considered to be low.

5.4 Pluvial Flood Risk

Pluvial flooding is defined as flooding resulting from rainfall-generated overland flow, before runoff enters any watercourse or sewer.

It is usually associated with high intensity rainfall events but can also occur with low intensity rainfall or melting snow where ground is saturated, frozen, developed or otherwise has low permeability resulting in overland flow and ponding in depressions in the topography. Large catchment areas are particularly prone to this type of flooding.

The topography of the site and surrounding area means that there is little likelihood of significant flows impacting on the proposed development or on land and property adjacent to the development. The only flows that are likely to be present on site are from direct rainfall on areas of hardstanding.

The proposed new development will be served by a new surface water drainage network and any underground/surface attenuation if required which will be designed to accommodate surface water flows within the site for up to and including the 100 year plus climate change storm event.

The proposed buildings will be raised (where reasonable) when compared to the adjacent ground and floor levels will be set a minimum of 150mm above external levels. This will direct surface water flows away from buildings preventing inundation.

Therefore, considering all of the above the risk of flooding from overland flow is considered to be low. Residual risk remains for extreme events in excess of 100 year plus climate change event however; site levels within the site will remain as close to existing as possible to maintain any existing surface water flow paths through the development.

5.5 Sewer & Highway Drainage Flood Risk

The Lead Local Flood Authority have advised that they have a number of historic records of flood incidents in the vicinity which are associated with public sewers and/or highway drainage; these are as follows

- Island Close – Property flooding attributed to the highway and Severn Trent Water system;
- Sutton Close – Highway flooding associated with surface water;
- Stoneygate Drive – Flooding onto property from highway and surface water during intense storm;
- Barwell Lane – External property flooding from surface water and highway drainage;
- Middlefield Lane – Internal property flooding due to issues with existing drainage systems.

With the exception of Island Close, all other locations are considered to be of sufficient distance away from the site so that any inadequacies within the sewer or drainage system would not pose a risk.

With respect to Island Close, this is to the north of the site and is in the region of 2-3 metres lower than the lowest site level. Again, the flooding issues here are not considered to pose a risk to the development.

At the time of writing a response was awaited from Severn Trent Water however, it is understood that there are existing capacity issues associated with the combined sewer system in Leicester Road. However, improvements to these sewers are currently under construction to increase capacity and therefore increase protection to any properties at risk of flooding during periods of heavy rainfall.

The proposed site surface water drainage system will be designed to consider storm events up to and including the 100 year plus climate change return period. The application of a surcharged outfall within the hydraulic design will replicate the likely conditions within the receiving sewer from these extreme storm events.

Based on the above it is considered that the risk of flooding to the site from surcharged sewers or highway drainage is low.

5.6 Groundwater Flood Risk

In general terms groundwater flooding can occur from three main sources, raised water tables, seepage and percolation, and groundwater recovery or rebound.

If groundwater levels are naturally close to the surface then this can present a flood risk during intense rainfall.

Preliminary site investigation in the form of one ten metre percussion borehole was undertaken in February 2016. Ground conditions at the site broadly comprise the following:

- Topsoil/ Made Ground – Topsoil over loose fill including black ash and gravel to a depth of approximately 0.5m;

- Glacial Deposits – Strata interpreted as being representative of glacial origin were encountered from 0.5m to 6.8m. The strata encountered were described as being orange brown clay with gravel;
- Mercia Mudstone – Strata interpreted as being representative of the Mercia Mudstone Group were encountered at a depth of 6.8m. The material encountered comprised laminated orange brown silty clay with occasional silty, fine sand bands but became sandier between 8.5m and the base at 10.0m.

At the time of the site investigation, the level of groundwater was measured and found to be 4.55m below ground level.

Based on the above it is considered that the risk of flooding to the site from groundwater is low.

5.7 Flooding from Other Sources

Non-natural or artificial sources of flooding can include reservoirs, lakes and canals etc.

No other potential sources of flood risk have been identified in the vicinity of the site.

5.8 Historical and Anecdotal Flooding Information

Other than the flooding issues identified above, no record of any other historic flooding in the immediate vicinity has been identified.

5.9 Flood Risk Vulnerability Classification

The proposed development is residential and can be considered as 'Less vulnerable' within *Table 2: Flood Risk Vulnerability Classification* in the NPPF. This type of development would be wholly appropriate for Flood Zone 1.

Table 3: Flood risk vulnerability and flood zone 'compatibility'
'Technical Guidance to the National Planning Policy Framework (NPPF)'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
 × Development should not be permitted.

5.10 Flood Risk Management Measures

The surface water drainage strategy for the new development site indicates an overall reduction in peak discharge flow rates.

As a result of this reduction in flow rate and increase in impermeable area attenuation has been proposed in the form of site control measures. The new private and adoptable drainage systems will be designed in accordance with current design guidance and standards and attenuation will be provided below ground and on the surface (where appropriate) for up to the 100 year return period storm event with an allowance for climate change.

The use of site control measures, with controlled release of surface water to the existing public sewer network will help to minimise the flood risk impact to the surrounding sewer networks.

Finished site levels will be engineered to provide positive drainage where required and prevent ponding. The accumulation of standing water will therefore not occur and thus not pose a risk.

Gradients of the hardstanding areas, where possible, will be designed to fall away from buildings such that any overland flow resulting from extreme events would be channelled away from entrances.

As the site and surrounding areas are located within Flood Zone 1, it is considered that access and egress should not be affected during flooding.

5.11 Off Site Impacts

To ensure that the proposed development will not increase flood risk elsewhere, surface water drainage discharge rates will be restricted. This restricted discharge in conjunction with surface water attenuation on site will mitigate against flood risk to other land.

By reducing the peak runoff prior to its point of discharge into the public sewer, this will reduce the potential for surface water flooding on the downstream network.

5.12 Residual Risks

The development and its drainage system will be designed to cope with the intense storm events up to and included the 100 year return period rainfall event with an allowance for climate change. If an extreme rainfall event exceeds the design criteria for the drainage network it is likely that there will be some overland flows which are unable to enter the system. It is therefore important that these potential overland flows are catered for within the proposed planning layout in the event that the capacity of the drainage system is exceeded.

Any overland flows generated by the proposed development must be directed away from the adjacent existing properties surrounding the site where it can follow natural flow paths.

As with any drainage system, blockages within the surface water system have potential to cause flooding or disruption. It is important that any drainage systems not be offered for adoption to either the Water Company or the Local Authority has an appropriate maintenance regime scheduled which can be advised to prospective property owners where appropriate.

6.0 Summary

The proposed development comprises the construction of 7 residential units and associated hardstanding and soft landscaping.

The site is in an area identified as having a 'low' probability of flooding on the Environment Agency Flood Map and is located in Flood Zone 1.

The primary option for surface water disposal is via infiltration. However, initial testing suggest this will not be feasible and further testing is to be undertaken imminently to categorically confirm either way whether this is a potential solution.

If it is ultimately determined that it is not feasible to discharge surface water runoff via infiltration then it is intended to provide suitable attenuation within oversized pipework and requisition a new gravity sewer through adjacent third-party land. Severn Trent Water have confirmed that this is a viable solution and a Sewer Requisition application has been submitted.

Discharge rates would need to be formally agreed with Severn Trent Water however, it is considered that the reduced peak flow rate of 5.0 litres per second detailed above would be acceptable. When a formal response to the requisition application has been received, details will be entered into the final version of this report.

Should discharge to the existing surface water sewer not be feasible then the remaining option available would be to pump flows to the on-site foul drainage system at the final manhole which subsequently discharges to the combined sewer network in Leicester Road. Severn Trent Water have confirmed that this would be acceptable as a last resort only. Sewer modelling may be required however, based on recent improvement works that have been undertaken in the area it is anticipated that the discharge of surface water at a restricted rate will not be an issue.

The restricted flow generates a storage requirement during periods of intense rainfall. The resultant storage volume for the 1 in 100 year return period storm event plus 40% allowance for climate change is approximately 85m³.

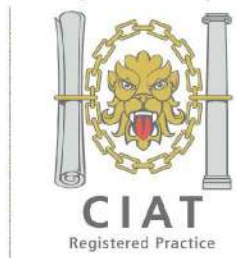
It is not feasible to discharge surface water flows directly to a watercourse as there are none in the vicinity.

A drainage strategy drawing detailing the options outlined above along with indicative cover levels, inverts and pipe sizes is contained in Appendix D.

Appendix A

Development Masterplan

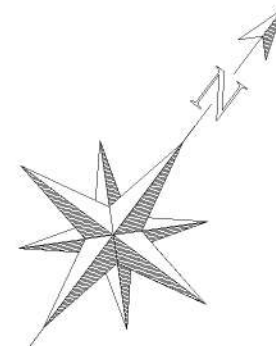
rev D_Site plan and elevational section drawing - 84, Leicester Road, Hinckley



1:500 Site Plan D E



1:1250 site location plan



1:200 internal street scene A_A



1:200 internal street scene B_B



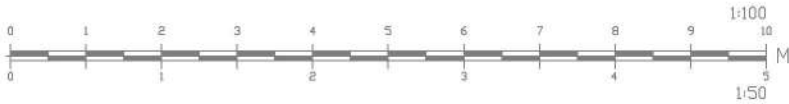
1:200 internal street scene C_C



1:200 internal street scene D_D



1:200 internal street scene E_E



Appendix B

Topographic Survey

Survey Notes

- 1: This Survey is related to Ordnance Survey grid using a best fit method.
- 2: All Levels are related to Ordnance Survey Spot height on Leicester Road.
- 3: The information Shown on this drawing is surveyed to the accuracy of the base scale shown.
- 4: Man entry to sewers has not been undertaken. Depths and pipe sizes are measured / estimated from the ground. This should be checked with Local Authority records or on site prior to the commencement of any works.
- 5: Boundaries shown are physical features and may not represent legally conveyed ownership.
- 6: Where adjacent buildings have been surveyed remotely all walls may not be shown due to obstructions along lines of sight.
- 7: This plan should only be used for its original purpose. NJC Surveys LTD accepts no responsibility for this plan if it is supplied to any party other than the original client.

Survey Key

Street Furniture Symbols & Abbreviations			Fence Types & Abbreviations		
BB	Bathtub Beacon	MP	Marker Post	CP	Chestnut Paving
BH	Borshole	PB	Pillar Box	CL	Chain Link
BS	Bus Stop	PI	Pipe	CP/C	Concrete Panel
Dr	Drain	PM	Parking Meter	CI	Corrugated Iron
EP	Electric Pole	PO	Post	CB	Crash Barrier
FL	Flood Light	RE	Roading Eye	EL	Electric
FS	Flag staff	RP	Reflector Post	H&M	Hit and Miss
GP	Gate Post	RS	Road Sign	HD	Hoarding
GU	Gully	ST	Stop Tap	IR	Iron Railings
GV	Gas Valve	SI	Sign	IR	Iron Railings
IC	Inspection Cover	Su	Stump	OL	Overlap
LB	Linear Bin	SV	Stop Valve	PK	Picket
LP	Lamp Post	TP	Telegraph Pole	PK	Picket (Wooden)
TL	Traffic Light	VP	Vent Pipe	PWB	Post & Barbed Wire
MH	Manhole	TC	Telecommunication	PC	Post & Chain
NP	Name Plate	WT	Water Tap	PR	Post & Rail
FH	Fire Hydrant	KO	Kerb Outlet	PW	Post & Wire
WO	Wash Out	AV	Air Valve	PM	Post & Wire Mesh
WM	Water Meter	TB	Tel Call Box	T/R	Trip Rail
TV	Cable Television	T/P	Trial Pit		
		STN	Survey Control Station		

Feature Lines

Hedge	Overhead Power Line
Fence	Individual Tree-Sized
Gate	
Stile	
Footpath	Structure
Kerbline	Building
Verge/Edge of Track or Change of Surface	Wall
FW	Wall
SW	Retaining Wall
Ditch / Embankment etc	

REV	DATE	DESCRIPTION	BY	APP.
-----	------	-------------	----	------



The Old Police Station,
South Street,
Ashby de la Zouch,
Leicestershire
LE65 1BS

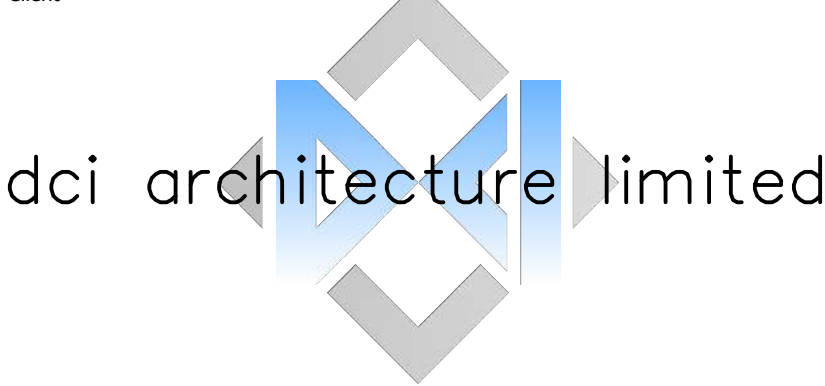
Telephone 01530 414251
Mobile 07876 792994

Email nclarke@njcsurveys.co.uk

Web www.njcsurveys.co.uk

Topographical Surveys • Building Surveys • GPS Surveys • Setting Out
Dimensional Control • Monitoring Surveys • Ground Modelling • Volumetric Calculations

Client



Drawing Title

Leicester Road,
Hinckley

Topographical
Survey

Drawn	TMB	Checked	NJC	Authorised	NJC
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Date	30/01/2015	Scale	1/200	Sheet size	A1
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Drp. No.	S1383/01	Revision	
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Appendix C

Proposed Catchment Plan



- NOTES:
TYPE THREE DESIGN shall have no responsibility for any use made of this drawing other than that for which it was prepared and issued.
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DO NOT SCALE FROM THIS DRAWING.
Any drawing errors or divergences should be brought to the attention of TYPE THREE DESIGN at the address shown below.
1. All dimensions are in metres unless stated otherwise.
 2. This drawing shall be read in conjunction with all other relevant engineering details, drawings and specifications.
 3. Any discrepancies should be reported to the engineer immediately so that clarification can be sought prior to the commencement of work.
 4. Underground services are present in the area. the contractor shall establish the precise line and depth of all services prior to commencing any excavation works.

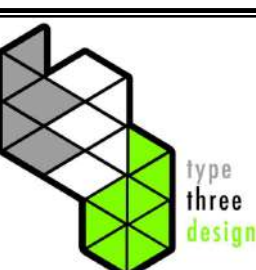
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Issued with DRAFT Drainage Strategy 25/08/17 ARJ

REVISIONS

For Planning

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67 Bevesey Street
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Cheshire WA2 7JQ
tel: +44 (0) 1925 205833
email: info@type3-d.com
www.type3-d.com

Project Job Number 1708
Leicester Road, Hinckley
Proposed Residential Development

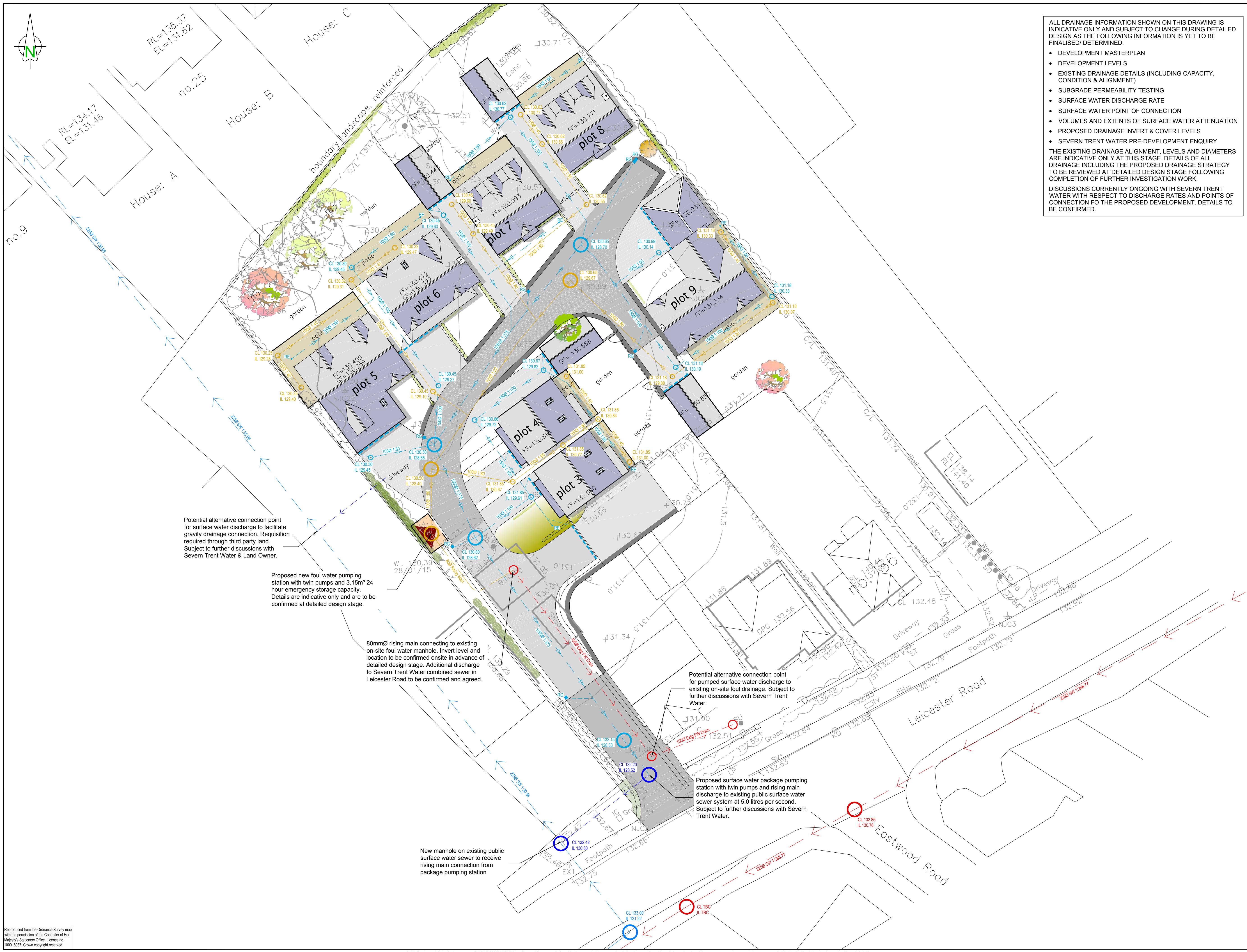
Client
Merrywell Properties Ltd

Drawing Title Drawing Size A1
Surface Water
Catchment Plan

Drawn TS	Date 19/08/17	Scale 1:200	Cadfile
Reviewed by ARJ	Drawing No. D101	Rev. -	

Appendix D

Proposed Drainage Strategy



ALL DRAINAGE INFORMATION SHOWN ON THIS DRAWING IS INDICATIVE ONLY AND SUBJECT TO CHANGE DURING DETAILED DESIGN AS THE FOLLOWING INFORMATION IS YET TO BE FINALISED/ DETERMINED.

- DEVELOPMENT MASTERPLAN
- DEVELOPMENT LEVELS
- EXISTING DRAINAGE DETAILS (INCLUDING CAPACITY, CONDITION & ALIGNMENT)
- SUBGRADE PERMEABILITY TESTING
- SURFACE WATER DISCHARGE RATE
- SURFACE WATER POINT OF CONNECTION
- VOLUMES AND EXTENTS OF SURFACE WATER ATTENUATION
- PROPOSED DRAINAGE INVERT & COVER LEVELS
- SEVERN TRENT WATER PRE-DEVELOPMENT ENQUIRY

THE EXISTING DRAINAGE ALIGNMENT, LEVELS AND DIAMETERS ARE INDICATIVE ONLY AT THIS STAGE. DETAILS OF ALL DRAINAGE INCLUDING THE PROPOSED DRAINAGE STRATEGY TO BE REVIEWED AT DETAILED DESIGN STAGE FOLLOWING COMPLETION OF FURTHER INVESTIGATION WORK.

DISCUSSIONS CURRENTLY ONGOING WITH SEVERN TRENT WATER WITH RESPECT TO DISCHARGE RATES AND POINTS OF CONNECTION FO THE PROPOSED DEVELOPMENT. DETAILS TO BE CONFIRMED.

- NOTES:
TYPE THREE DESIGN shall have no responsibility for any use made of this drawing other than that for which it was prepared and issued.
All dimensions should be checked on site.
DO NOT SCALE FROM THIS DRAWING.
Any drawing errors or divergences should be brought to the attention of TYPE THREE DESIGN at the address shown below.
1. All dimensions are in metres unless stated otherwise.
 2. This drawing shall be read in conjunction with all other relevant engineering details, drawings and specifications.
 3. Any discrepancies should be reported to the engineer immediately so that clarification can be sought prior to the commencement of work.
 4. Underground services are present in the area. the contractor shall establish the precise line and depth of all services prior to commencing any excavation works.

Potential alternative connection point for surface water discharge to facilitate gravity drainage connection. Requisition required through third party land. Subject to further discussions with Severn Trent Water & Land Owner.

Proposed new foul water pumping station with twin pumps and 3.15m³ 24 hour emergency storage capacity. Details are indicative only and are to be confirmed at detailed design stage.

80mmØ rising main connecting to existing on-site foul water manhole. Invert level and location to be confirmed onsite in advance of detailed design stage. Additional discharge to Severn Trent Water combined sewer in Leicester Road to be confirmed and agreed.

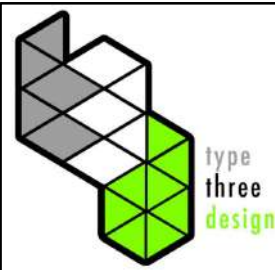
Potential alternative connection point for pumped surface water discharge to existing on-site foul drainage. Subject to further discussions with Severn Trent Water.

Proposed surface water package pumping station with twin pumps and rising main discharge to existing public surface water sewer system at 5.0 litres per second. Subject to further discussions with Severn Trent Water.

New manhole on existing public surface water sewer to receive rising main connection from package pumping station

Issued with DRAFT Drainage Strategy 25/08/17 ARJ
REVISIONS

For Planning



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Cheshire WA2 7JQ
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www.type3-d.com

Project	Job Number	1708
Leicester Road, Hinckley		
Proposed Residential Development		
Client		
Merrywell Properties Ltd		
Drawing Title		Drawing Size A1
Foul & Surface Water		
Drainage Strategy		
Drawn TS	Date 19/08/17	Scale 1:200
Reviewed by	Drawing No.	Rev.
ARJ	D100	-

Appendix E

Surface Water Calculations

Calculated by: Andrew James

Site name: Leicester Road

Site location: Hinckley, Leicestershire

Site coordinates

Latitude: 52.54944° N

Longitude: 1.35953° W

This is an estimation of the greenfield runoff rate limits that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the SuDS Manual, C753 (Ciria, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Reference: 6089763

Date: 2017-09-01T16:42:23

Methodology

IH124

Site characteristics

Total site area (ha)	0.268
----------------------	-------

Methodology

Qbar estimation method	Calculate from SPR and SAAR
SPR estimation method	Calculate from SOIL type

	Default	Edited
SOIL type	4	4
HOST class	---	---
SPR/SPRHOST	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm)	640	640
Hydrological region	4	4
Growth curve factor: 1 year	0.83	0.83
Growth curve factor: 30 year	2	2
Growth curve factor: 100 year	2.57	2.57

Notes:

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consents are usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set in which case blockage work must be addressed by using appropriate drainage elements

(3) Is $SPR/SPRHOST \leq 0.3$?

Greenfield runoff rates

	Default	Edited
Qbar (l/s)	1.17	1.17
1 in 1 year (l/s)	0.97	0.97
1 in 30 years (l/s)	2.33	2.33
1 in 100 years (l/s)	2.99	2.99

PROPOSED RUN-OFF CALCULATIONS

LEICESTER ROAD, HINCKLEY

Runoff from Proposed Impermeable Areas

The industry-standard Modified Rational Method has been used in the calculation of runoff rates from proposed impermeable areas and uses the following equation to calculate the peak rate of runoff generated the development.

$$Q_p = 2.78 C_v C_R i A$$

Where:

CV = Volumetric Runoff Coefficient

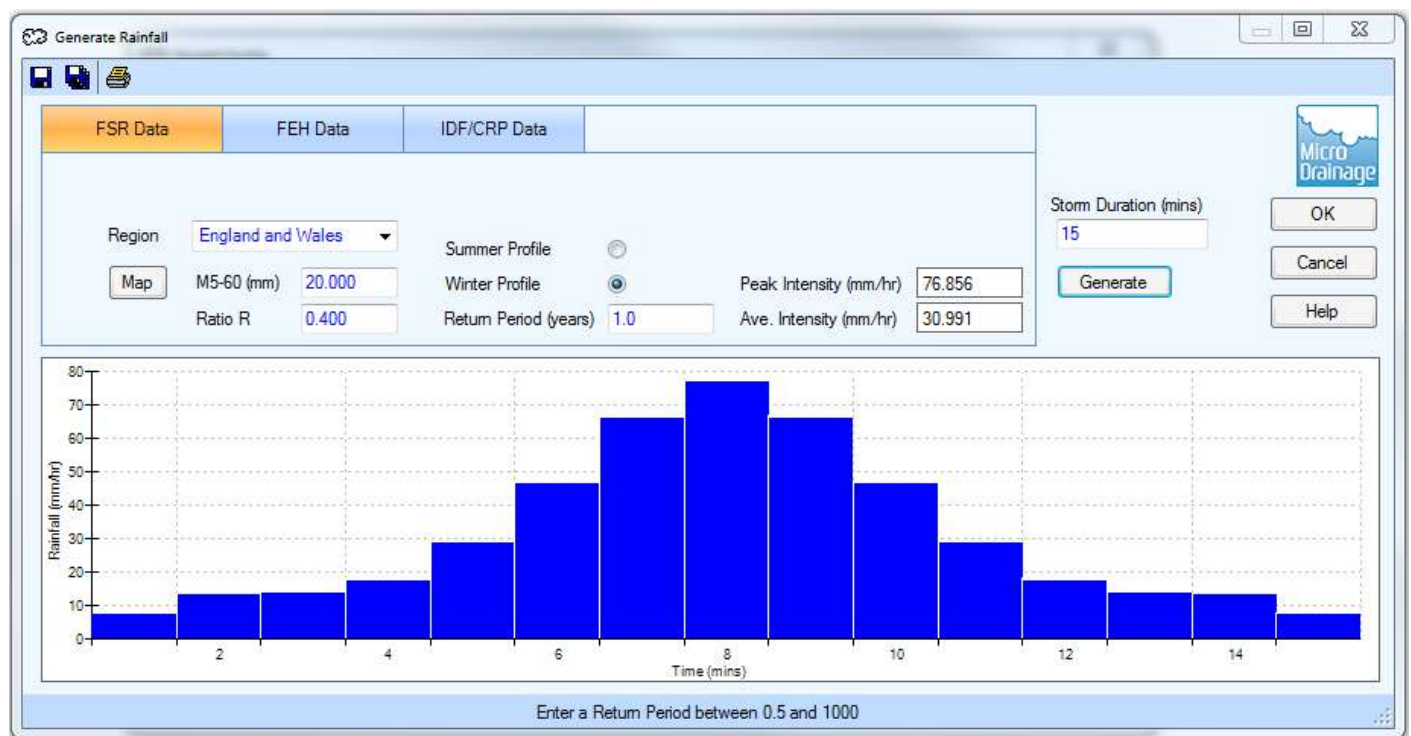
C_R = 1.3 (Routing Coefficient)

i = Rainfall Intensity (mm/h)

A = Area (ha)

2.78 = Coefficient which accounts for the differences in units used for the inputs and the outputs of the equation.

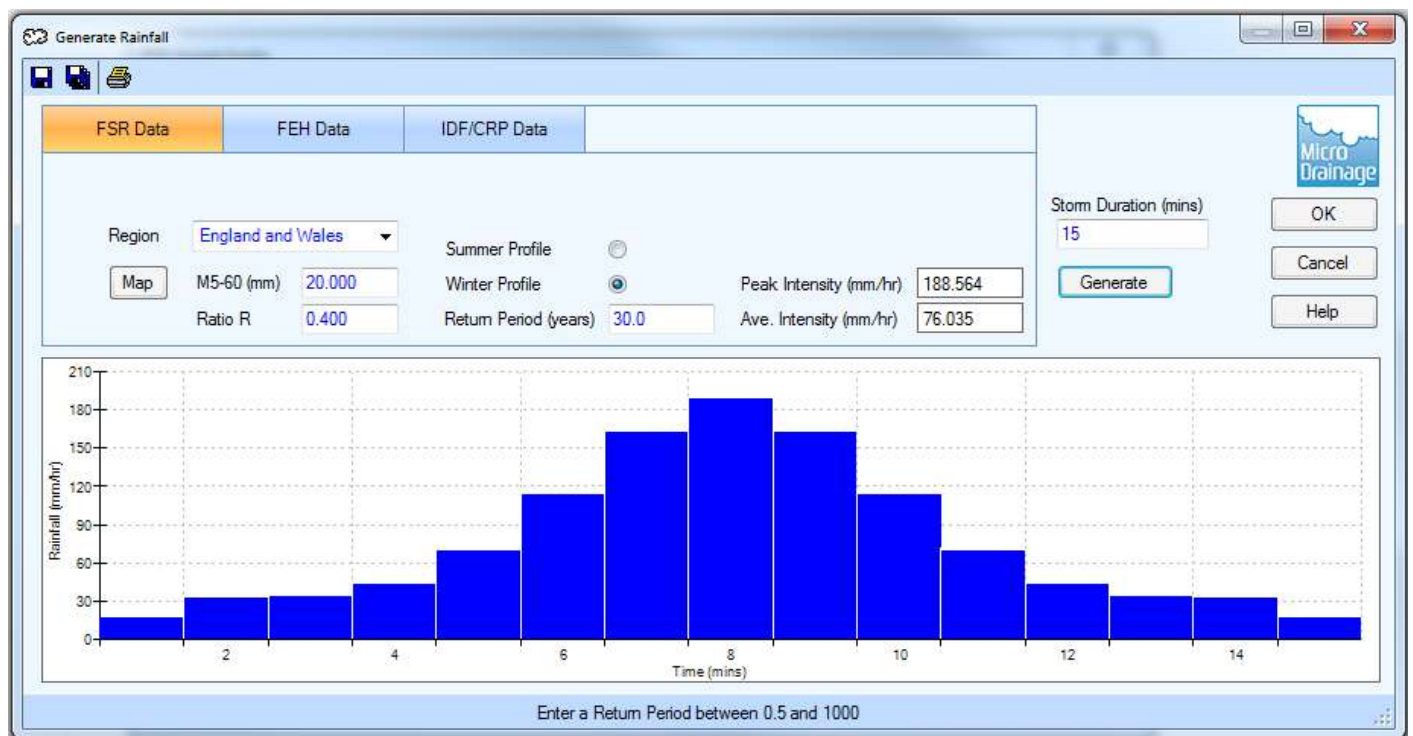
Rainfall intensity data has been obtained from the Microdrainage design software by XP Solutions, peak rainfall intensities have been generated for a range of storm return periods for a 15 minute duration winter storm. Output from the software is shown below along with a table summarising the average rainfall intensity.



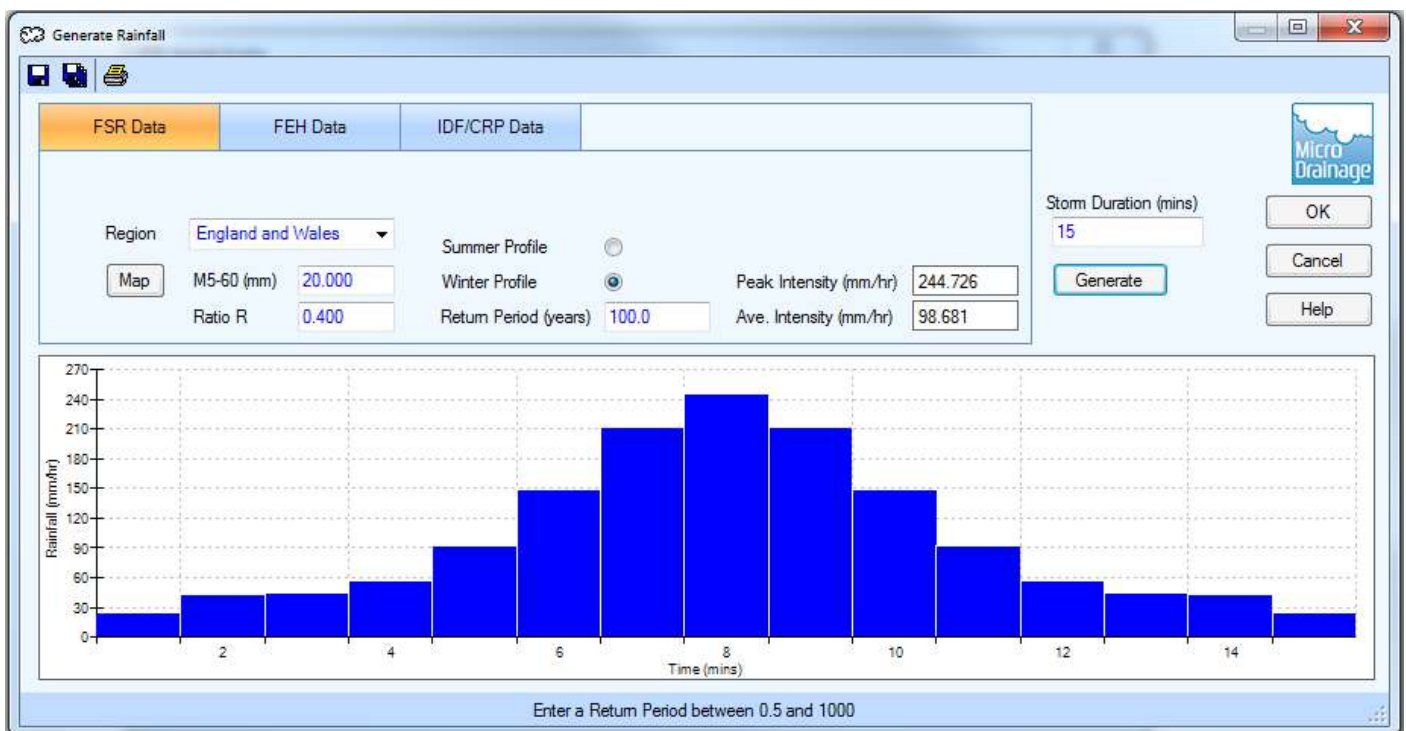
100% AEP Rainfall Event

PROPOSED RUN-OFF CALCULATIONS

LEICESTER ROAD, HINCKLEY



3.33% AEP Rainfall Event



1% AEP Rainfall Event

PROPOSED RUN-OFF CALCULATIONS

LEICESTER ROAD, HINCKLEY

Storm Return Period	Average Rainfall Intensity (i mm/hr) 15min Winter Profile
1 Year	30.99
30 Year	76.03
100 Year	98.68
100 Year +40%	138.15

A standard runoff coefficient of 0.9 was applied to each catchment assessed as impermeable. The variable C_v is a coefficient that describes the proportion of rainfall entering the surface water drainage system. C_R is a routing coefficient added to the Rational Method to represent runoff characteristics of a particular site or area in a more accurate manner.

The table below details the peak brownfield runoff rates generated by the proposed development based on the assumption that the permeable areas do not contribute.

Impermeable Area (ha)	Permeable Area (ha)	Q_1 (l/s)	Q_{30} (l/s)	Q_{100} (l/s)	$Q_{100+40\%}$ (l/s)
0.18	0.13	18.14	44.51	56.60	80.88

Appendix F

Sewer Records

Sewer Node		Sewer Pipe Data								
REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP43944602	134.96	132.74	nil	C	VC	C	225	nil	0.33	nill
SP43944603	nil	nil	132.81	S	nil	nil	nil	nil	0.00	nill
SP43944604	133.89	132.77	131.99	S	VC	C	225	nil	66.23	nill
SP43944701	133.42	130.45	128.53	C	VC	C	225	nil	44.49	nill
SP43944702	130.78	128.48	127.26	C	VC	C	225	nil	31.64	nill
SP43944703	130.53	129.18	127.80	S	VC	C	150	nil	21.17	nill
SP43944801	129.53	127.72	126.39	F	VC	C	150	nil	42.03	nill
SP43944802	128.27	126.86	122.63	S	VC	C	225	nil	31.88	nill
SP43944803	128.06	126.37	125.63	F	VC	C	225	nil	56.20	nill
SP43944804	127.87	125.44	122.52	C	VC	C	225	nil	19.47	nill
SP43944805	128.06	126.94	126.89	S	VC	C	150	nil	878.60	nill
SP43944806	129.22	127.78	126.96	S	VC	C	150	nil	40.39	nill
SP43944807	129.13	127.22	125.48	C	VC	C	225	nil	25.76	nill
SP43944901	127.70	124.97	124.68	F	VC	C	225	nil	264.45	nill
SP43944902	128.74	126.74	126.11	F	VC	C	225	nil	61.98	nill
SP43944903	127.63	125.62	125.12	S	VC	C	225	nil	133.20	nill
SP43944904	128.88	127.26	126.42	S	VC	C	225	nil	43.33	nill
SP43945601	135.36	133.51	nil	F	VC	C	225	nil	0.68	nill
SP43945701	133.26	131.94	131.59	S	VC	C	225	nil	122.89	nill
SP43945702	133.00	131.22	126.86	S	VC	C	225	nil	30.96	nill
SP43945703	132.85	130.76	nil	C	VC	C	225	nil	0.17	nill
SP43945704	nil	nil	130.46	C	nil	nil	nil	nil	0.00	nill
SP43945901	131.08	129.40	128.93	F	VC	C	150	nil	88.09	nill
SP43945902	131.07	129.79	129.53	S	VC	C	150	nil	104.62	nill
SP43945903	130.97	129.50	129.02	S	VC	C	150	nil	107.25	nill
SP43945905	129.73	128.42	126.89	S	VC	C	150	nil	36.54	nill
SP43946601	135.56	133.88	132.73	C	VC	C	225	nil	64.52	nill
SP43946701	133.50	130.98	130.76	C	VC	C	225	nil	288.77	nill
SP43946702	134.29	132.71	130.81	C	VC	C	225	nil	40.77	nill
SP43946703	134.21	132.17	131.14	C	VC	C	225	nil	65.83	nill
SP43946801	133.71	131.06	131.01	C	VC	C	225	nil	453.40	nill
SP43946901	131.89	130.60	nil	S	VC	C	150	nil	0.00	nill
SP43946902	131.92	130.18	129.01	F	VC	C	150	nil	70.27	nill

MATERIALS

-	- NONE	PE	- POLYETHYLENE
AC	- ASBESTOS CEMENT	PF	- PITCH
BR	- BRICK	PP	- POLYPROPYLENE
CC	- CONCRETE BOX CULVERT	PSC	- PLASTIC STEEL COMPOSITE
CI	- CAST IRON	PVC	- POLYVINYL CHLORIDE
CO	- CONCRETE	RPM	- REINFORCED PLASTIC MATRIX
CSB	- CONCRETE SEGMENTS (BOLTED)	SI	- SPUN (GREY) IRON
CSU	- CONCRETE SEGMENTS (UNBOLTED)	ST	- STEEL
DI	- DUCTILE IRON	U	- UNKNOWN
GRC	- GLASS REINFORCED CONCRETE	VC	- VITRIFIED CLAY
RP	- GLASS REINFORCED PLASTIC	XXX	- OTHER
MAC	- MASONRY IN REGULAR COURSES		
MAR	- MASONRY RANDOMLY COURSED		

SHAPE

C	- CIRCULAR	C	- COMBINED
E	- EGG SHAPED	E	- FINAL EFFLUENT
O	- OTHER	F	- FOUL
R	- RECTANGLE	L	- SLUDGE
S	- SQUARE	S	- SURFACE WATER
T	- TRAPEZOIDAL		
U	- UNKNOWN		

PURPOSE

TABULAR KEY

- Sewer pipe data refers to downstream sewer pipe.
- Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.
- Gradient is stated a 1 in...



Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0845 601 6616

SEWER RECORD DATA TABLE

O/S Map scale:	1:1750	This map is centred upon: O / S Grid reference:
Date of issue:	01.09.17	x: 443541
Sheet No.	2 of 2	y: 294812

Disclaimer Statement:
1. Do not scale off this Map.
2. This map and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this Map and any information shown on it must not be relied upon in the event of any development or works (including but not limited to excavations) in the vicinity of Severn Trent Water's assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems.
3. On **1 October 2011** most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012 (date to be confirmed). Private pumping stations, which form part of these sewers or lateral drains, will transfer to the ownership of Severn Trent Water on or before 1 October 2016.
Severn Trent Water does not possess complete records of these assets.
These assets may not be displayed on this Map.
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The Customer
Hinckley,
Leicestershire

Project Title:
Hinckley, Island Close Flood Alleviation
Our ref: BB6114010

We posted this to you: 27 March 2017

Dear customer
**We're making some
improvements
that may affect you**

- Foul sewer construction will start on 10 April 2017 on Leicester Road and is expected to last for 4 months.
- During this period Leicester Road will be closed, accept for access, from the junction with Stoneygate Drive and the Junction with Spa Lane
- We will restore the area to its current condition on completion of our work.



Why we are doing this work

We recently contacted you to inform you about our plans to upgrade the sewerage system in your area. This is needed to increase protection to a number of properties at risk of flooding from the public sewer during periods of heavy rainfall. We are writing to let you know that we are about to start the main phase of work, which involves the construction of a section of new foul water sewer in Leicester Rad.

What we are doing

We are laying a new length of 1600mm dia and 750mm dia foul sewer pipe from the junction with Stoneygate Drive down Leicester Road to between Trafford Road and De Montfort Road. We will also be laying two additional rider sewers to collect low lying connections and carry this flow to the main system.

How we will keep disruption to a minimum

Sewer works by their nature can be disruptive, so we are working with our contract partner NMCNomenca to make sure that we minimise the potential impact of the work on residents in the area.

- We will be working in 50m sections to reduce the impact we have on adjacent properties.
- We will always have both footpaths open for pedestrians to use in both directions on Leicester Road
- We will keep the number of construction deliveries to a minimum.
- Some properties may not have access to their driveway for up to two weeks during construction. We will always give 48 hours prior notice before restricting access.

Appendix G

Private Drainage Information



1997

Appendix H

Preliminary Site Investigation

29th February 2016

Our Ref: KAB/21821/4257

BY EMAIL ONLY

Mr P. Morris
Merrywell Properties Ltd
208 Binley Road
Coventry
CV3 1HG

Dear Paul,

**PROPOSED RESIDENTIAL DEVELOPMENT, HINCKLEY
BOREHOLE SOAKAGE TESTING**

Further to your recent instructions, M-EC has visited the above site, between 3rd and 8th February 2016, to carry out ground investigation (GI) works. The works involve the drilling of one ten metre cable percussion borehole to investigate the presence of granular horizons within the predominantly cohesive strata. On completion of the drilling, slotted pipework was installed to the base of the borehole to allow soakage testing to be carried out.

The borehole, which was positioned by the client, is shown on the borehole location plan. A copy of which is presented in Appendix A, along with a copy of the drillers borehole logs.

Background Information

The published 1:50,000 geological map for the area (Sheet 169 'Coventry'), indicates that superficial deposits are absent from the site area and the site is underlain by solid strata of the Mercia Mudstone Group – mudstone with occasional siltstone and sandstone bands.

Fieldwork

The single borehole, which was advanced to a depth of approximately 10m begl, encountered the following ground conditions:

- Topsoil/Made Ground – The borehole encountered topsoil over loose fill including black ash and gravel to a depth of approximately 0.5m.
- Glacial Deposits – Strata interpreted as being representative of glacial origin were encountered from 0.5m to 6.8m. The strata encountered were described as being orange brown clay with gravel. The strength of the strata was recorded as soft from shallow depth but stiffened with depth.
- Mercia Mudstone - Strata interpreted as being representative of the Mercia Mudstone Group were encountered at a depth of 6.8m. The material encountered comprised laminated orange brown silty clay with occasional silty, fine sand bands but became sandier between 8.5m and the base at 10m.

The borehole was terminated at 10m and the installation pipework installed to the full depth including slotted pipe/gravel pack from the base to 5m begl and plain pipe/bentonite seal up to 2m begl. The clay arising were used to complete the backfilling works to the surface.

Soakage Testing

Prior to commencing the soakage test, the level of the groundwater was measured and found to have risen up the pipe to a depth of 4.55m, which is above the level of the top of the main granular horizon and at a similar level to the nearby well. The borehole was then filled with water to ground level and the falling level was measured over time to determine the infiltration rate.

Due to time constraints and the rate of fall of the groundwater level, only one test was carried out and the final plotted data required extrapolation using engineering judgement to determine the infiltration rate. The results of the testing suggest an infiltration rate of 1.3×10^{-7} , which is considered appropriate for the silty fine sand/sandy silt encountered below 6.8m. A copy of the infiltration testing data, including the plotted data, is presented in Appendix B.

Recommendations

The results of the preliminary testing is considered to have produced a low infiltration rate, appropriate to the fine grained granular strata encountered but should be assessed by a drainage engineer before inclusion within the site's surface water drainage design and should take into account a suitable factor of safety. Further testing, comprising three tests within the existing or future boreholes, is likely to be required to produce the final design values for the soakaways.

It is also recommended that the Local Authority and Environment Agency be consulted with regards to the use of borehole soakaways.

We trust this is suitable for you current requirements, should you require any further information or would like any clarification of the points raised please do not hesitate to contact us.

Yours sincerely,



Kevin Bullock BSc(Hons) MSc FGS
Associate Geo-Environmental Engineer
kevin.bullock@m-ec.co.uk

-3-

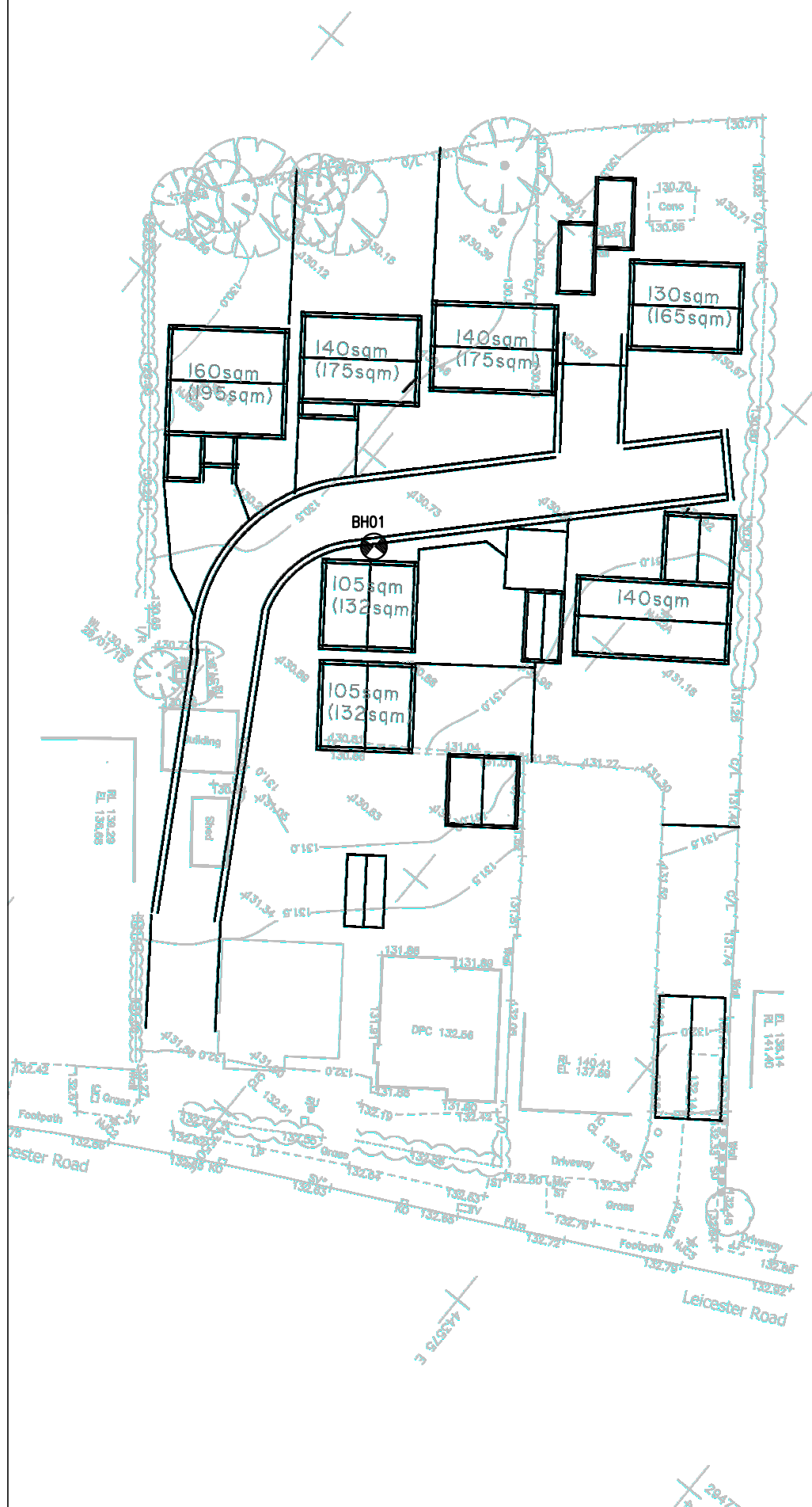
Mr P. Morris
Merrywell Properties Ltd
28th February 2016
Our Ref: KAB/21821/4257



APPENDICES

- A. EXPLORATORY HOLE LOCATION PLAN
DRILLERS CABLE PERCUSSION BOREHOLE LOGS
- B BOREHOLE SOAKAGE TEST DATA
PLOT OF THE SOAKAGE TEST DATA
- C NOTES ON LIMITATIONS

APPENDIX A



1. DO NOT SCALE THIS DRAWING.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS, ARCHITECTS AND SPECIALIST DESIGN DRAWINGS AND DETAILS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE. ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
4. THIS DRAWING IS FOR STRATEGY PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

 BOREHOLE LOCATION

REV:	AMENDMENTS:	DRN:	CHK:	DATED:
PROJECT:				
LEICESTER ROAD HINCKLEY				
DRAWING TITLE:				
EXPLORATORY HOLE LOCATION PLAN				
CLIENT:				
MERRYWELL PROPERTIES LTD				
DRAWING NUMBER:				
21821_04_140_01				
REVISION:	-	SHEET SIZE:	A4	SCALE:
		1:500		
DRAWN BY:	VP	CHECKED BY:	JP	DATE:
		29.02.16		
STATUS:				
-				
		Wellington House Leicester Road Hothock Leicestershire LE16 7HP T: 01530 264 753 F: 01530 588 116 info@mc-c.co.uk www.mc-c.co.uk		
ORDNANCE SURVEY © CROWN COPYRIGHT 2014. ALL RIGHTS RESERVED. LICENCE NUMBER 100022432.				

DAILY BOREHOLE LOG

Project 84 Leicester Rd, Hinckley

Borehole No BH1

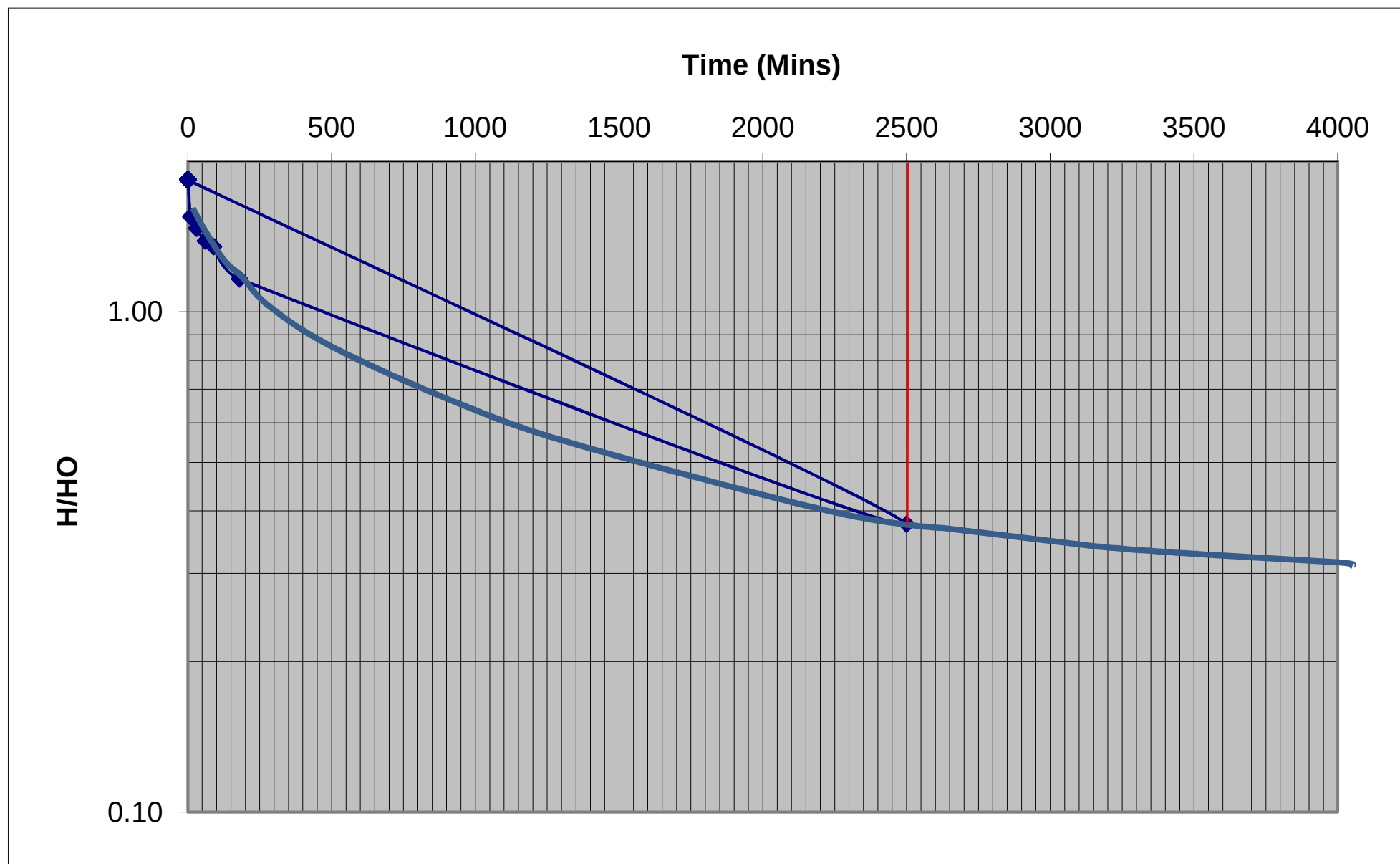
Project No 21821

Date February 3rd 2016

Sheet 1 of 1

[illegible]

APPENDIX B



APPENDIX C

NOTES ON LIMITATIONS

General

Mewies Engineering Consultants Ltd (M-EC) has completed the attached report for the use of the Client detailed on the front cover and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed.

Third parties should not use or rely upon the contents of the report unless written approval has been gained from M-EC; (due to legal requirements, a charge may be levied against such approval).

M-EC accepts no responsibility or liability for:

- a) the consequences of this documentation being used for any purpose or project other than that for which it was commissioned, and
- b) this document to any third party with whom approval for use has not been agreed.

Phase I Environmental Risk Assessments, Desk Studies and Site Audits

The work completed and utilised to provide this report comprises a study of available documentation. The opinions and results presented in this report have been arrived at by utilising the finite amount of data available at the time of writing and are relevant only to the purpose for which the report was commissioned. The data which has been reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative information pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, M-EC reserves the right to review this information and, if warranted, to modify the opinions presented in the report accordingly.

It should be noted that the risks which are identified in this report are perceived risks based on the available information at the time of writing and that the actual risks associated can only be assessed following a physical investigation of the site.

Phase II Intrusive Investigations

The intrusive investigation has been completed to provide information concerning the type and degree of contamination present along with ground and groundwater conditions which facilitates a reasonable risk assessment to be completed. The stated objectives of the ground investigation have been limited to assessing the proven risks which are associated with potential human targets, building materials, the environment (including adjacent land), and to surface and groundwater.

The amount of exploratory work, chemical testing and monitoring completed has potentially been restricted by the short timescale available, and the locations of exploratory holes undertaken have potentially been restricted to areas unoccupied by buildings(s) and buried services. A more comprehensive post demolition / decommission investigation may be required if the site is to be redeveloped. For these reasons any costs included in relation to site remediation must be considered as tentative only at this time.

The exploratory holes investigate only a small volume of the ground in relation to the size of the site and therefore, can only provide a “snap shot” or general indication of ground conditions located on the site. The fact that the site has been investigated does not preclude the existence of localised “hotspots” of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided in this report take into account currently available guidance values relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

Intrusive Geo-environmental Investigations

The intrusive investigation of the site has been completed to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions to provide a reasonable assessment of any associated risks together with engineering and development implications.

The exploratory holes investigate only a small volume of the ground in relation to the size of the site and therefore, can only provide a “snap shot” or general indication of ground conditions located on the site. The opinions provided and recommendations given in this report are based only on the ground conditions apparent at the site of the exploratory holes. It should be noted that there may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

The comments concerning groundwater conditions are based on observations made at the time of completion of site work, it should be noted that groundwater levels will vary owing to seasonal, tidal and weather related effects.

The scope of the investigation completed was selected on the basis of the specific development being proposed by the Client and is likely to be inappropriate to another form of development or scheme.

The risk assessment and opinions provided in this report take in to consideration currently available guidance values relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

Civil Engineering

Drainage

Flood Risk

Transport

Highways

Structures

Geotechnics

Contamination

Sustainability

Environment

Services

Surveying



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LE67 6HP

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F: 01530 588 116
ibstock@m-ec.co.uk
www.m-ec.co.uk

Consulting **Development** Engineers

Appendix I

Correspondence

Date: 28th April 2017
My ref: 2017/0298/04/FCON
Your ref: --
Contact: Christopher Cant
Phone: 0116 305 0001
Fax:
Email: flooding@leics.gov.uk

Dear Sir/Madam

Note: This response has been prepared by WSP | Parsons Brinckerhoff on behalf of Leicestershire County Council.

RE: Erection of seven dwellings with associated garages and drives (Ref 17/00096/FUL)

The applicant submitted a planning application for the development of 7 dwellings to the rear of 84 Leicester Road, Hinckley. The development is classified as minor development and as such the Lead Local Flood Authority provided no comment to this application and provided its standing advice for minor development. The application has since been withdrawn however is likely to be resubmitted. As such, the Local Planning Authority has requested pre-consultation advice which can be passed onto the applicant.

From review of the Environment Agency's Flood Map for Planning, the site is located within Flood Zone 1 and is therefore in the most appropriate location for development. The Environment Agency's Flood Risk from Surface Water shows a surface water flow route from Eastwoods road through the proposed development into Island Close.

As the development is classed as minor and is located within Flood Zone 1, a full Flood Risk Assessment is not required. However some assessment commensurate with the scale of the development should be made to the existing flood risk. When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding.

From review of the records held by the LLFA, there are a number of reported historic flood incidents in the vicinity; these are as follows

- Island Close - Property flooding attributed to the highway and Severn Trent Water system (unknown date)
- Sutton Close – Highway flooding associated with surface water (unknown date)
- Stonegate Drive – Flooding onto property from highway and surface water during intense storm (10th August 2014)

Environment and Transport Department
Leicestershire County Council, County Hall, Glenfield. Leicestershire LE3 8RJ
Telephone: 0116 305 0001 Fax: 0116 305 0006 Minicom: 0116 305 0007
Email: etd@leics.gov.uk

Phil Crossland, Director

www.leicestershire.gov.uk

- Barwell Lane – External Property Flooding from surface water and highway drainage (unknown date)
- Middlefield Lane – Internal property flooding due to issues with existing drainage systems (unknown date)

From the information provided, the applicant is proposing to discharge the water via infiltration through the use of deep bore soakaways; this is in principle acceptable to the LLFA. Any forthcoming planning application should include a drainage strategy showing how the site is proposed to be drained and the surface water drainage should accommodate the runoff from all events up to and including the 1 in 100 year event plus a suitable allowance for climate change.

Where the development is proposing to infiltrate, evidence is required demonstrating that this is a viable means of draining the site; proof should be in the form of testing broadly in accordance with BRE Digest 365.

Notwithstanding the above, consideration should be given to the long term maintenance of any soakaways proposed. The design of the site should allow for the maintenance of any drainage elements over the lifetime of the development and to this end the LLFA discourages the use of plot level soakaways. In light of this, the LLFA would recommend exploring a connection to Severn Trent Water and discharging to a public surface water sewer.

Levels within the site should also remain as existing as close as possible to maintain but not exacerbate the surface water flow path through the proposed development. Property finished floor levels should however be situated 150mm above the existing ground in order to mitigate for the residual risk of flooding.

If you have any further questions, please do not hesitate to contact us.

Kind Regards

Chris Brammeier
Engineer (WSP)
On behalf of LCC Technical Services



Severn Trent Water

Severn Trent Water Ltd
Leicester Water Centre
Gorse Hill
Anstey
Leicester
LE7 7GU

Tel: 024 777 16843

www.stwater.co.uk
net.dev.east@severntrent.co.uk

Contact: Emma Nowak
net.dev.east@severntrent.co.uk

Typethree Design,
Warrington Business Centre,
67 Bewsey Street,
Warrington,
Cheshire,
WA2 7JQ.

F.A.O: Andrew James

13th September 2017

Dear Andrew,

Our ref: 8279105

**Proposed Residential Development (7 Dwellings) at: 84 Leicester Road,
Hinckley, Leicester, LE10 1LT.
X: 443526 / Y:294771**

I refer to your recent Development Enquiry Request in respect of the above site. Please find a copy of the sewer records and 'Additional Guidance Notes' enclosed for your information.

Sewer Crossing

There are no public sewers shown on the records located within the development site, however please note: *On 1st October 2011 many private sewers were transferred into the ownership of Severn Trent Water as public sewers, where two or more properties in separate ownership are served by those sewers. Most of these former private sewers will not be shown on the public sewer records, therefore a full site survey should be carried out prior to any layout design or construction works to identify where these sewers may be and to avoid later delays and possible added costs.*

Foul Water Drainage

A gravity foul discharge from 7 dwellings is very small (approx. 0.1 l/s) and can be accommodated in the 225mm dia public combined sewer in Leicester Road. I would prefer that all proposed foul discharges from the site reflect the existing drainage discharge routes where possible. The submitted drainage drawing illustrates that the existing FW connection into the CWS is proposed to be maintained and reused. This is acceptable.

Surface Water Drainage

Under the terms of Section H of the Building Regulations 2000, the disposal of surface water by means of soakaways should be considered as the primary method. If this is

not practical and no watercourse is available as an alternative, the use of sewerage should be considered. In addition, other sustainable drainage methods should also be explored before a discharge to the public sewerage system is considered.

If these are found to be unsuitable, satisfactory evidence will need to be submitted. The evidence should be either percolation test results or by the submission of a statement from the SI consultant (extract or a supplementary letter).

Subject to the above, can you please provide further information, to demonstrate how the former impermeable areas on the site are currently drained, if indeed they are positively drained, identifying which impermeable areas drain to which pipeline and the connections/outfalls to the public sewerage system identified. Ideally, a drainage survey of the existing site is required. I would like to see a site survey drawing showing all the existing SW connections on the site and their connection points to the public sewers. As with the foul, I would prefer that all proposed SW discharges from the site reflect the existing drainage discharge routes where possible.

The submitted drainage drawing shows that a new SW connection is proposed to discharge into the CWS on Leicester Road. Severn Trent prefers all SW to drain to either soakaways or a SW if preferable before a connection to a CWS is considered (unless a CW connection was used for the previous site, however evidence will be needed to confirm this.) Our Sewer Records show a 225mm dia SW sewer running parallel to the site. Has this option been considered? Evidence will be needed to determine why this option cannot be used before the CW water connection can be accepted.

Please also be aware that Severn Trent's brownfield development policy requires a minimum of a 30% reduction of proven SW flows from the existing site, for the new development flows. Where there is to be an increase in FW flows, then the equivalent amount should be added to the 30% to compensate.

Any flows generated by the site in excess of the permitted discharge rate will have to be attenuated within the development site.

For any new connection(s) into the public sewer network **or the reuse of an existing sewer connection(s)**, you will need to apply under Section 106 Water Industry Act 1991 as amended by the Water Act 2003. Our New Connections Team currently processes Section 106 applications, please contact them on 0800 707 6600 for an application pack and guidance notes (or visit www.stwater.co.uk). Applications to make such connections should be made separately from any application for adoption

of the related sewers under Section 104 Water Industry Act 1991 as amended by the Water Act 2003.

I must inform you that this evaluation is only valid for 6 months from the date of this letter. Please quote 8279105, in all future correspondence.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Emma Nowak', written over a faint, light blue circular watermark.

Emma Nowak.
Asset Protection East.
Asset Management.
Wholesale Operations.



Severn Trent Water

Andy James

To: 'Nowak, Emma'
Cc: 'net.dev.east@severntrent.co.uk'
Subject: RE: Developer Enquiry response for 84 Leicester Road, Hinckley, Leiceste, LE10 1LT
- Our Ref : 8279105

From: Nowak, Emma [<mailto:Emma.Nowak@severntrent.co.uk>]

Sent: 17 October 2017 16:36

To: 'Andy James' <andy.james@type3-d.com>

Subject: RE: Developer Enquiry response for 84 Leicester Road, Hinckley, Leiceste, LE10 1LT - Our Ref : 8279105

Afternoon Andy,

Please find your previous queries below, with my comments in read for clarity.

Thanks for your email below and apologies for the delay in responding. I have a number of further queries I am hoping you could assist with?

1. Drainage Records - The drawing provided does not include the recent improvement works that have been undertaken within Leicester Road. Please see attached document issued by Severn Trent to local residents. Can you please provide details of the improvement works including pipe diameters, invert levels etc so that we can understand whether a gravity connection to any of these sewers is achievable. **Having spoken with our Asset Creation department who deal with the GISST updates, they confirmed that the updates for these improvements were submitted on 29/09/2017 and at present, are in the process of being updated to the system. I have contacted AC as to whether I can have these files sooner. They got back to me today saying they will transfer the files ASAP so I shall send these over to you as soon as I receive them.**
2. Foul Water Drainage – We intend to use the existing gravity connection from the site and will achieve this by installing a package pumping station to serve the second phase of 7 properties. Based on current records it would not be possible to obtain a gravity connection to either the existing on-site drainage or the sewers in Leicester Road due to the level of these in relation to the site. We will review this pending receipt of the information requested in Point 1 above. **Please see above.**
3. Surface Water Drainage – We have considered the use of soakaway drainage and consider that this is appropriate due to the ground conditions. Infiltration at shallow depths is not achievable as the site is underlain by several metres of clay. Infiltration testing at greater depths was undertaken to establish whether deep bore soakaways could be used as a feasible method of surface water disposal. Unfortunately this testing returned poor results and therefore soakways have been discounted. I have attached the Site Investigation report for your information.

The single residential property previously present on-site drained both foul and surface water via a single connection to the public combined sewer. We are unable to provide any survey information relating to this as the house has been demolished and replaced by the initial phase of 2 dwellings which re-uses this connection.

Our current drainage strategy shows a number of options for the disposal of surface water. Our preference would be to obtain a connection to the existing 225 dia. SW Sewer which flows through the adjacent property. However, this is located in land outside of our control and we would require Severn Trent Water to requisition a connection to this on behalf of

our client. Please confirm if this would be feasible and what steps we would need to make to progress this. Discharge would be restricted to 5.0 l/s as this is the lowest reasonable flow achievable to mitigate any risk associated with blockage due to the small orifice size required. A requisition would be feasible, however you will need to fill out a requisition form from us and send it back with all the relevant information. I have attached this for you should you consider to go down this route.

Notwithstanding the above, we have undertaken a walkover on-site and cannot find any evidence of the existing Surface Water Sewer shown on Severn Trent Records. The manholes shown in Leicester Road cannot be located and we would like assistance from Severn Trent with locating this asset so that we can establish whether this would be a feasible solution. Usually, if you seek to establish manholes which are not in the road, we do not offer assistance in this instance. We do advise that a metal detector is used to find the manholes. However, manholes that are buried tarmac can be a common problem, which may ultimately involve you having to carry out one or two trial holes at your own risk. If the manholes are buried in the highways we can then request that our Service Delivery team, raise those manholes. To report buried manholes that you cannot gain access to for connecting purposes please call 0800 783 4444 for further assistance.

Should we be unable to locate this sewer then the only option available to us would be a pumped discharge to the Combined Sewer network in Leicester Road. If we exhaust all options available to use, please confirm that in principle this would be acceptable. A pumped discharge to the combined sewer network would be a last resort only, with evidence provided as to why other options were not viable. If this was the route you decided to go down, then sewer modelling would be necessary.

I trust that the above and the attached are all clear? I would welcome the chance to discuss this with you in more detail.

I hope this information is sufficient for now, apologies for the delay. I shall aim to send you the GISST update files from the improvement works as soon as I have them.

Kind Regards

Emma Nowak

Senior Evaluation Technician
Asset Protection East
Wholesale Operations

From: Nowak, Emma [<mailto:Emma.Nowak@severntrent.co.uk>]

Sent: 12 October 2017 16:35

To: 'andy.james@type3-d.com' <andy.james@type3-d.com>

Subject: RE: Developer Enquiry response for 84 Leicester Road, Hinckley, Leiceste, LE10 1LT - Our Ref : 8279105

Afternoon Andy,

Many thanks for your response. I apologise for the delay in getting back to you. I am currently working through a backlog of work.

I have gone through your points raised in the email trail below and have had to consult our Asset Creation team for the information you require. They are aware this is urgent and will aim to get back to me with this ASAP. I am on annual leave from tomorrow but will be back on Monday 16th October in which I shall be able to give you a response.

Kind Regards,
Emma

Emma Nowak

Senior Evaluation Technician
Asset Protection East
Wholesale Operations

From: Andy James [<mailto:andy.james@type3-d.com>]

Sent: 29 September 2017 10:41

To: 'net.dev.east@severntrent.co.uk' <net.dev.east@severntrent.co.uk>

Subject: RE: Developer Enquiry response for 84 Leicester Road, Hinckley, Leiceste, LE10 1LT - Our Ref : 8279105

Hi Emma,

Thanks for your email below and apologies for the delay in responding. I have a number of further queries I am hoping you could assist with?

1. Drainage Records - The drawing provided does not include the recent improvement works that have been undertaken within Leicester Road. Please see attached document issued by Severn Trent to local residents. Can you please provide details of the improvement works including pipe diameters, invert levels etc so that we can understand whether a gravity connection to any of these sewers is achievable.
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The single residential property previously present on-site drained both foul and surface water via a single connection to the public combined sewer. We are unable to provide any survey information relating to this as the house has been demolished and replaced by the initial phase of 2 dwellings which re-uses this connection.

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Notwithstanding the above, we have undertaken a walkover on-site and cannot find any evidence of the existing Surface Water Sewer shown on Severn Trent Records. The

manholes shown in Leicester Road cannot be located and we would like assistance from Severn Trent with locating this asset so that we can establish whether this would be a feasible solution.

Should we be unable to locate this sewer then the only option available to us would be a pumped discharge to the Combined Sewer network in Leicester Road. If we exhaust all options available to use, please confirm that in principle this would be acceptable.

I trust that the above and the attached are all clear? I would welcome the chance to discuss this with you in more detail.

I look forward to hearing from you.

Kind Regards

Andy James

t: 01925 205833 | m: 07854263010 | e: andy.james@type3-d.com | www.type3-d.com

typethree design

From: Emma.Nowak@severntrent.co.uk [<mailto:Emma.Nowak@severntrent.co.uk>] **On Behalf Of** net.dev.east@severntrent.co.uk

Sent: 13 September 2017 11:38

To: andy.james@type3-d.com

Subject: Developer Enquiry response for 84 Leicester Road, Hinckley, Leiceste, LE10 1LT - Our Ref : 8279105

Dear Andrew,

Please find attached below our Developer Enquiry response letter, along with a sewer record extract and supplementary guidance notes with regard to the above site.

If you have any further queries with regard to our response, please do not hesitate to contact us on the number / email address mentioned below. Please refrain from sending responses to a certain individual directly. Our email address below will ensure that your response is logged and tracked for a response. When responding, please quote our reference number above in all return correspondence.

Regards,

Asset Protection Waste Water
Tel 024 777 16843

(reply to net.dev.east@severntrent.co.uk)

