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ENVIRONMENT

Taylor Wimpey Strategic Land
Land at Light Hall
Solihull
Flood Risk Scoping Study

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				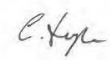	
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				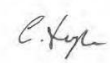	
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				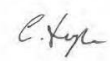	

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1. INTRODUCTION

Summary Information

1.1 This Flood Risk Scoping Study (FRSS) summarises a desktop study into the possible sources of flood risk posed to a potential development on Land at Light Hall. It has been prepared on behalf of Taylor Wimpey Strategic Land to advise on the development potential of the site from a flood risk and drainage perspective.

1.2 The report is based on readily available information and has included consultation with the Lead Local Flood Authority (LLFA) as flood risk consultees. Previous consultation with the Environment Agency (EA) and other flood risk consultees, undertaken as part of a preceding study in 2017, has been referred where appropriate.

Site Details

1.3 The site is located on the southern edge of Solihull, approximately 2km from the town centre.

1.4 A site location plan is shown in **Figure 1.1**, with details provided within **Table 1.1**. The entire site is approximately 80ha and the area under Taylor Wimpey Strategic Land control is approximately 55ha with 25ha falling within the wider site allocation.

Table 1.1: Site Summary

Site Name	Land at Light Hall
Location	Solihull
NGR (approx.)	412295, 277005
Study Site Area (ha)	80ha (55ha Taylor Wimpey Strategic Land)
Development Type	Mixed Use
Flood Zone Classification	Flood Zones 1-3
NPPF Vulnerability	More Vulnerable
Environment Agency Office	West Midlands
Lead Local Flood Authority	Solihull Metropolitan Borough Council
Sewage Undertaker	Severn Trent Water
Local Planning Authority	Solihull Metropolitan Borough Council

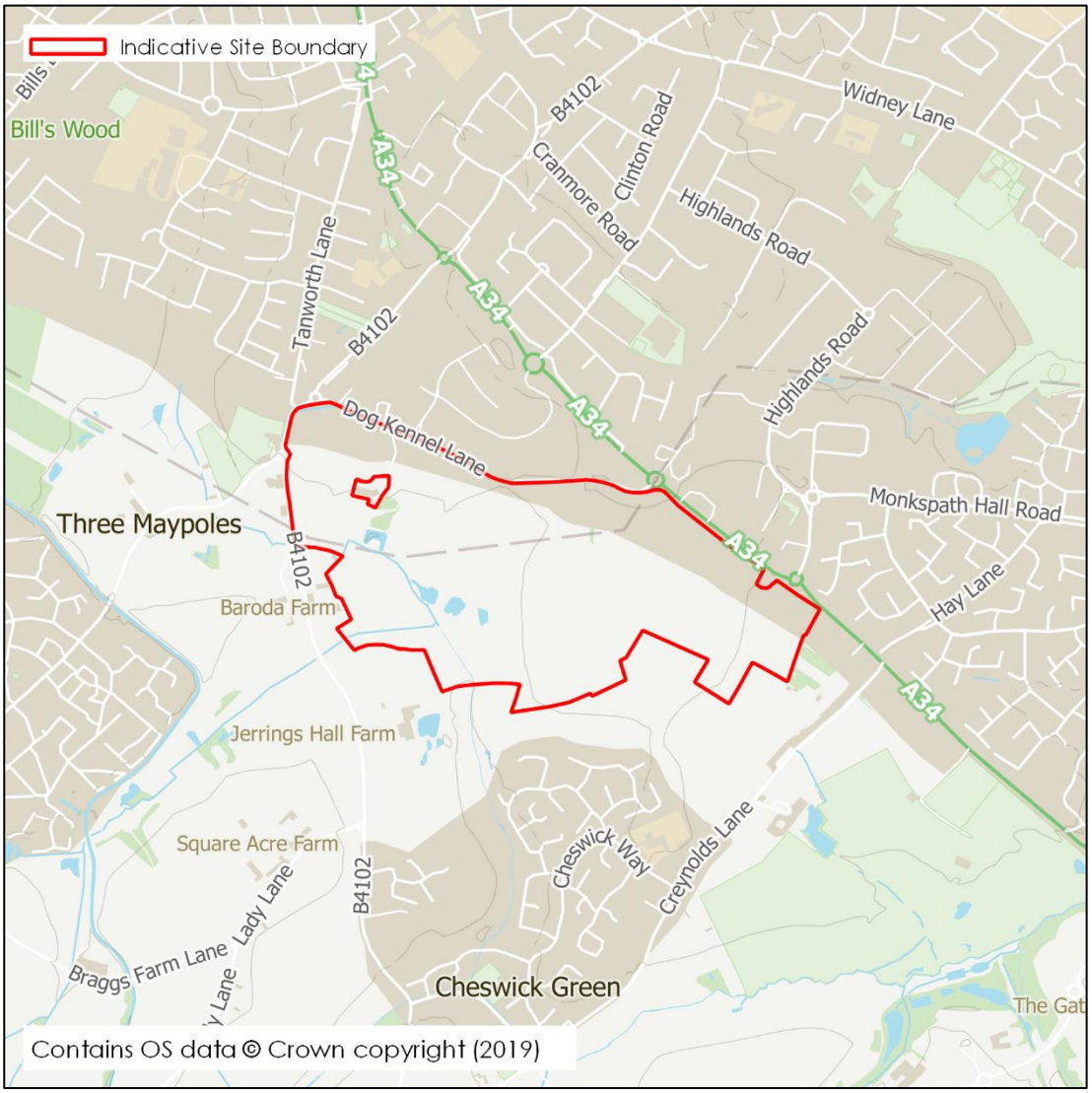

Figure 1.1: Site Location

1.5 The land is currently agricultural, farmed as pasture to the east and arable crop to the west. Along its northern boundary the site is contiguous with the existing urban edge, bordered by Dog Kennel Lane. To the east the site adjoins Stratford Road while the B4102 defines its eastern boundary. Open countryside and the settlement of Cheswick Green lie to the south. The red line surrounding Light Hall Farm represents the exclusion of these buildings from the site boundary.

1.6 A topographical survey is available and is included for reference as **Appendix 1**. An area in the centre of the development site was not included in the topographical survey so information here has been supplemented with Environment Agency 1m resolution Light Detection and Ranging (LiDAR) data. The topographical survey shows the site to be divided into two principal topographic areas with the west of the site falling towards the Mount Brook. The eastern portion of the site slopes gently from a high point in the centre of the site towards several low points along Stratford Road.

1.7 The site includes a section of the Mount Brook and an Unnamed Ordinary Watercourse (UOW) which is a tributary of the Mount Book and joins from the south west within the

site boundary. The Mount Brook flows in a southerly direction and joins the River Blythe approximately 1km south of the site. The Mount Brook and the River Blythe are classified as Main Rivers and as such fall under the jurisdiction of the EA. The UOW falls under the responsibility of the LLFA. These watercourses on site are shown in **Figure 1.2.**

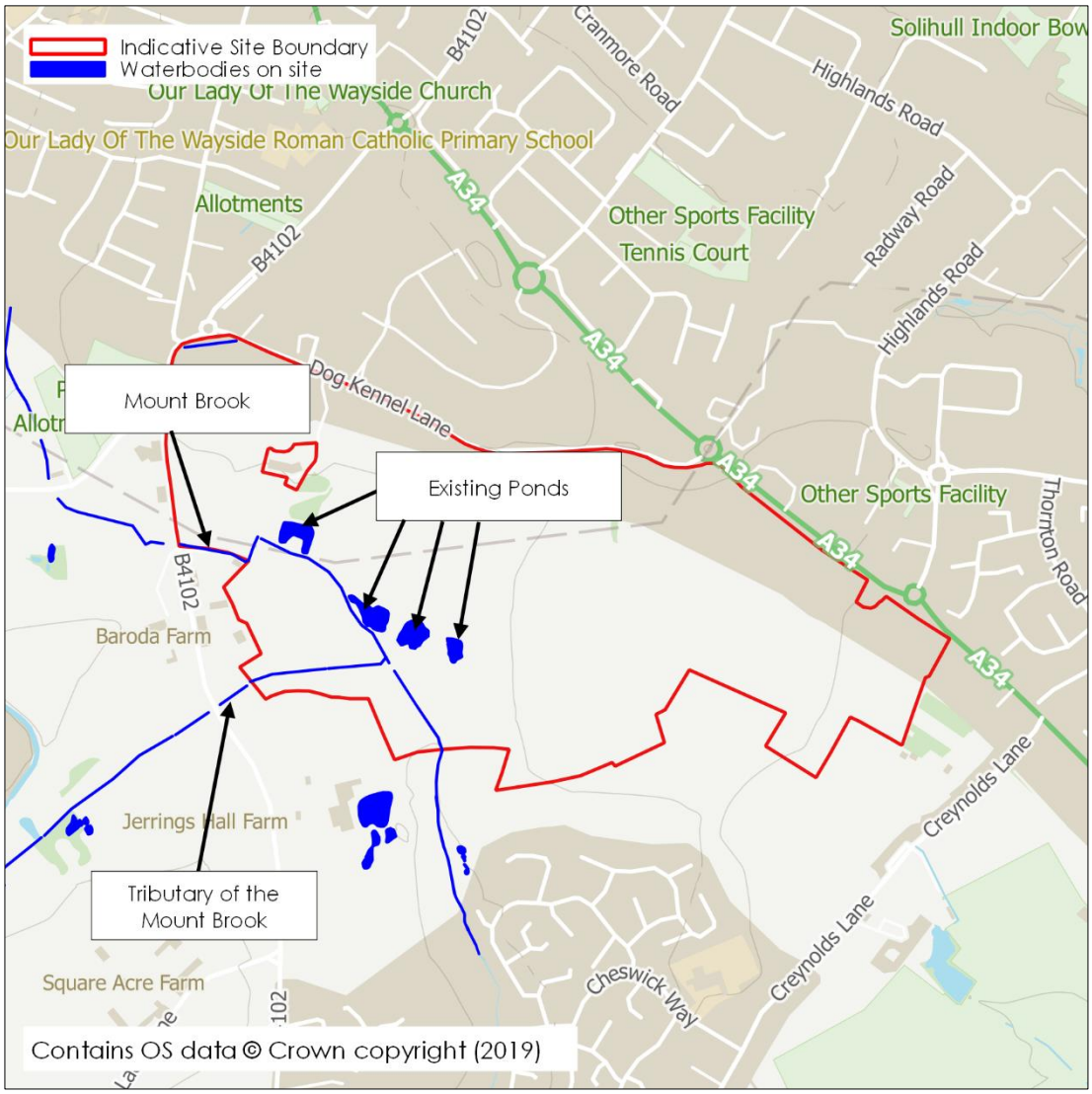

Figure 1.2: Waterbodies on site

1.8 A site visit was undertaken by BWB Consulting in February 2019 to identify the conditions on site and structures present along the Mount Brook and its tributary. The Mount Brook was seen to be flowing during the site visit with clean water and a reasonable depth, becoming less clear towards the point at which it leaves the site (downstream of the incoming tributary towards Jerrings Hall Farm). The conditions observed at the point which the Mount Brook enters the site are shown in **Figure 1.3**. The conditions observed at the point which the Mount Brook leaves the site are shown in **Figure 1.4**.

Figure 1.3: Condition of the Mount Brook as it enters site

Figure 1.4: Condition of the Mount Brook as it leaves the site

1.9 Several culverts were identified within the site boundary along the Mount Brook. There were no significant blockages or apparent operational issues associated with these structures at the time of the site visit.

1.10 The site visit also noted a number of culverts and pipes that flow into the site from the west near Jerrings Hall Farm and these are shown in **Figure 1.5**. These appear to be related to surface water sewers. The Severn Trent Water mapping (included as **Appendix 2**) indicates the presence of a 225mm surface water outfall upstream of the unnamed tributary incoming to the Mount Brook on the site.

Figure 1.5: Outfalls into the Mount Brook close to Jerrings Hall Farm

Proposed Development

1.11 The proposed development is located within the existing Metropolitan Green Belt and is to be promoted for a predominately residential development through the Emerging Solihull Metropolitan Borough Council (SMBC) Local Plan. The current draft Local Plan[1] was reviewed and includes part of the Land at Light Hall site. It is to be taken forward by SMBC as a housing allocation with the capacity for approximately 1200 houses and associated community facilities.

1.12 It is anticipated that the proposed development will be divided into four phases. An extract of the indicative phasing plan is included as **Figure 1.6**.

1 Solihull Local Plan Review DRAFT Concept Masterplans (Solihull Metropolitan Borough Council, January 2019)

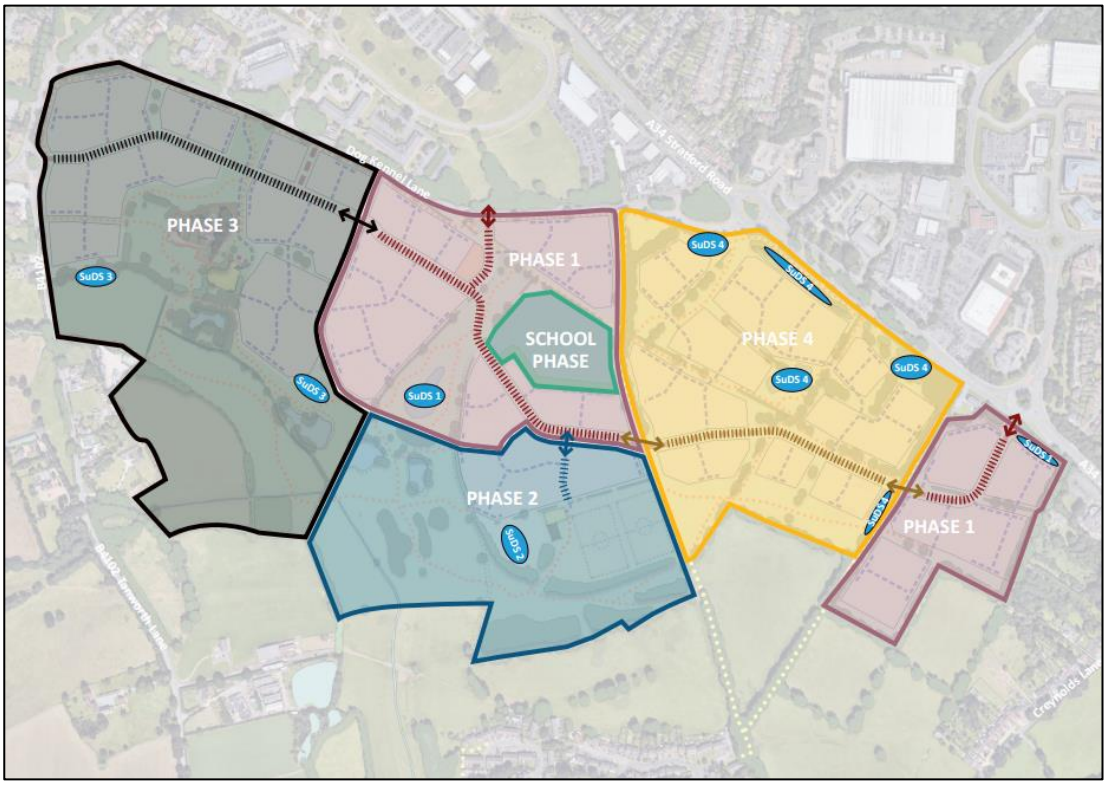

Figure 1.6: Extract of Indicative Phasing Plan

1.13 The proposed concept masterplan (Drawing 675A-28F) and indicative phasing plan (675A-35B) are included as **Appendix 3**.

1.14 The proposed development parcels are located primarily to the north of the site and therefore are set back from the Mount Brook watercourse. The nearest development parcel to is 60m from the Mount Brook. On this basis, the topography of the site suggests that the nearest development parcels will be elevated at least 3m above the Mount Brook channel according to the EA LiDAR data.

1.15 The proposed development would also look to include additional fluvial flood storage areas to provide a positive impact on downstream flood risk by attenuating fluvial flood flows on site during flood events. The flood storage areas would also seek to improve the site aesthetically, as well as to provide ecological benefits.

Relevant Policy and Guidance

Strategic Flood Risk Assessment

1.16 The SMBC Level 1 Strategic Flood Risk Assessment[2] (SFRA) has been read in relation to the site and will be referenced in **Sections 2** and **3** of this report where appropriate.

2 Level 1 Strategic Flood Risk Assessment (Solihull Metropolitan Borough Council, April 2017)

1.17 The SMBC SFRA noted that all sites proposed for development require SuDS, greenfield discharge rates and on-site attenuation for the 1 in 100-year event with an allowance for climate change.

Preliminary Flood Risk Assessment

1.18 The SMBC Preliminary Flood Risk Assessment[3] (PFRA) and January 2017 update[4] have been reviewed to understand records of past flooding and potential future flood risk to the site. These assessments refer to historic incidents of flooding from fluvial, surface water, groundwater and artificial sources. The PFRA and 2017 update will be referenced in this report where appropriate.

Local Flood Risk Management Strategy

1.19 A Local Flood Risk Management Strategy (LFRMS) is prepared by the LLFA to help understand and manage flood risk at a local level. The LFRMS aims to ensure that the knowledge of local flood risk issues is communicated effectively so that they can be better managed. The LFRMS also aims to promote sustainable development and environmental protection.

1.20 The Solihull LFRMS[5] has been reviewed in the context of the site. In particular, it was noted that SMBC have committed themselves to partnership working with developers where development can demonstrate minimal flood risk and a positive impact on the wider Borough. The LFRMS will be referenced throughout this report where appropriate.

A Guide to SuDS and Drainage in Solihull

1.21 The SMBC Guide to SuDS and Drainage in Solihull[6] has been reviewed in order to inform the conceptual drainage strategy and will be discussed in **Section 3**. It is recommended that local guidance is reviewed at the time of an outline or full planning application in case updates have been made to these policies. Furthermore, the assumptions made in the production of the conceptual drainage strategy may require updating in line with a finalised masterplan.

Flood Investigation Report – 27th May 2018

1.22 The SMBC Flood Investigation Report – 27th May 2018[7] was reviewed in order to understand flooding mechanisms and impacts during a recent flood event in the area. Whilst the report did not directly refer to impacts within the site boundary, it did note flooding of the Mount Brook generally and specifically downstream at Cheswick Green. The report highlighted potential resistance and resilience measures including the construction of flood storage areas upstream of the places affected by the 27th May 2018 flood, to store flood flows and control release of flood flows back into the watercourse following a flood event. The report includes an indicative map of these measures which highlights that some water from Shirley and Dickens Heath may be

3 Preliminary Flood Risk Assessment (Solihull Metropolitan Borough Council, May 2011)
4 Preliminary Flood Risk Assessment Update (Solihull Metropolitan Borough Council, January 2017)
5 Solihull Local Flood Risk Management Strategy (Solihull Metropolitan Borough Council, October 2015)
6 A Guide to SuDS and Drainage in Solihull (Solihull Metropolitan Borough Council. No Date)
7 Flood Investigation Report – 27th May 2018 (Solihull Metropolitan Borough Council, January 2019)

stored in ponds and wetlands within the proposed Land at Light Hall development site to try and manage downstream flood risk.

Flood Risk Management – Annual Update

1.23 The SMBC Flood Risk Management – Annual Update[8] was also reviewed and included information pertaining to flood risk management in Solihull since November 2017. The Annual Update refers to possible ways to reduce the risk of flooding and its impacts including control of development by Solihull Council.

8 Flood Risk Management – Annual Update (Solihull Metropolitan Borough Council, November 2018)

2. DATA REVIEW

Fluvial Flood Risk

Environment Agency Flood Map for Planning

2.1 The EA Flood Map for Planning identifies areas potentially at risk of fluvial or tidal flooding. An extract of the mapping is included as **Figure 2.1**.

2.2 **Figure 2.1** shows that the majority of the site is located within Flood Zone 1 (Low Probability). This Flood Zone is defined in the NPPF as land assessed as having less than 1 in 1000 (>0.1% AEP) annual probability of river or sea flooding in any year.

2.3 The Mount Brook is located within the western part of the site with areas of Flood Zone 2 and 3.

2.4 Flood Zone 2 (Medium Probability) is defined as land having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1% AEP); or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1% AEP).

2.5 Flood Zone 3a (High Probability) is defined as land having a 1 in 100 or greater annual probability of river flooding (>1% AEP); or land having a 1 in 200 or greater annual probability of flooding from the sea (>0.5% AEP). This is represented by "Flood Zone 3" on the Flood Map for Planning. Flood Zone 3b (The Functional Floodplain) is defined as land where water has to flow or be stored in times of flood. This is not identified or separately distinguished from Zone 3a on the Flood Map for Planning.

2.6 The proposed development will be located entirely within Flood Zone 1. The development is therefore at overall low risk of flooding from this source.

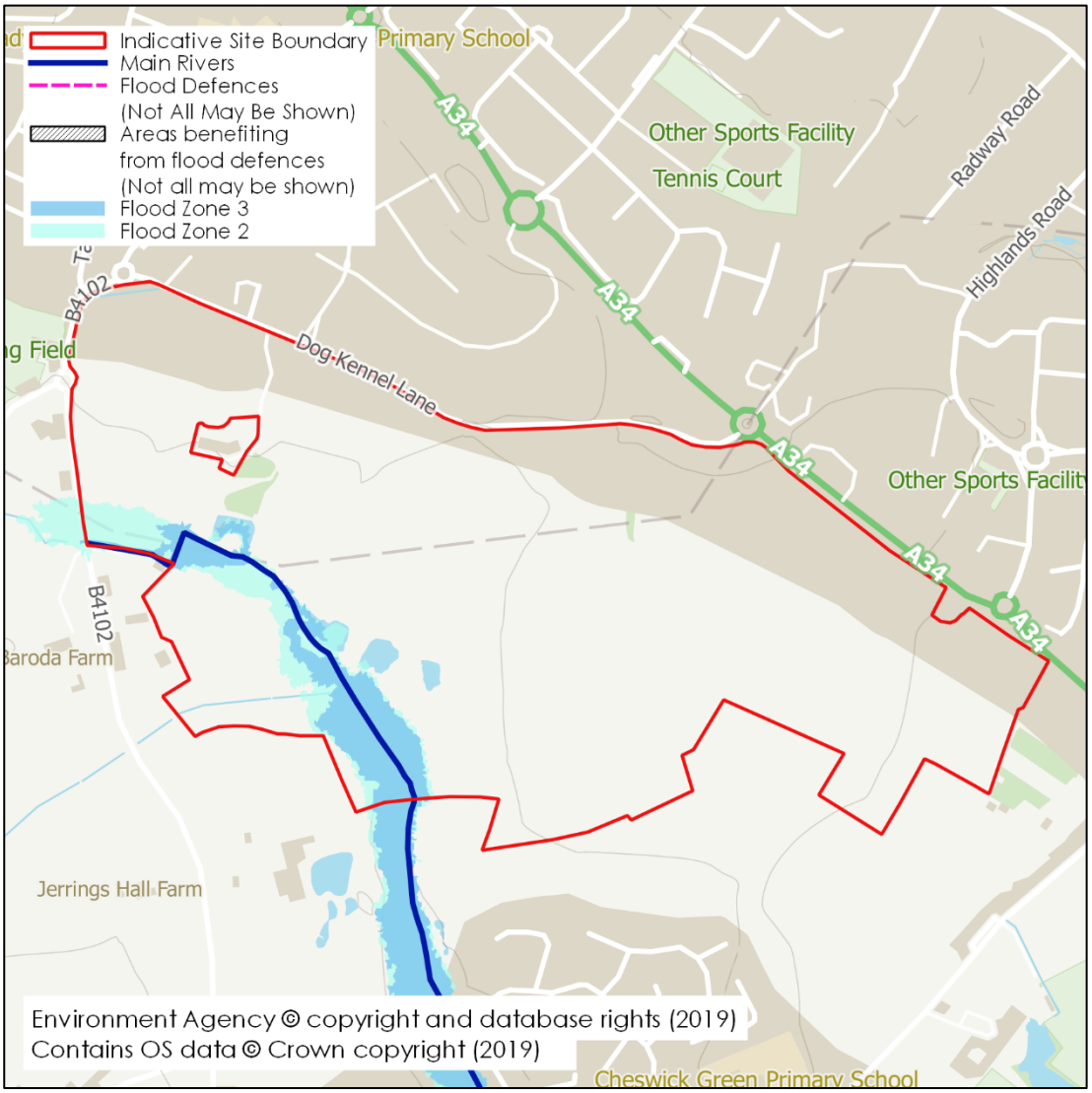

Figure 2.1: Environment Agency Flood Map for Planning

2.7 The previous EA correspondence from November 2017 (**Appendix 4**) noted that the SMBC holds strategic hydraulic modelling along the Mount Brook which includes a range of flood levels and extents to the site. This data has been requested and, when provided, will be used to test the proposed conditions on the site following development.

2.8 In view of the distance of the proposed development parcels from the floodplain area, fluvial flooding is not considered a risk to the site. When site specific flood levels become available a more detailed assessment would be possible to support this assumption.

Unnamed Ordinary Watercourse

2.9 The EA advised that there is no modelling for the UOW which joins the Mount Brook within the site boundary. Historical correspondence with the EA is included as **Appendix 4**.

2.10 The UOW has recently been modelled as part of the SMBC strategic model for the area and is part of the dataset that has been requested. Historical correspondence with the

LLFA confirmed they did not hold any model of this area at the time and do not hold any records of historic flooding on this site up to 2017.

2.11 Given that the proposed development will not impact on the area around this watercourse it is not considered to pose a significant flood risk to the site. Previous correspondence with the LLFA is included as **Appendix 5**.

Recorded Flood Outlines

2.12 The SMBC SFRA noted a history of flood events across the Solihull region with fluvial sources being common. In July 2007 flooding was reported in Cheswick Green, downstream of the site, and was exacerbated due to localised surface water and ordinary watercourse flooding. The SMBC PFRA update noted that the 2007 flooding in Cheswick Green was exacerbated by high levels in the Mount Brook and River Blythe causing overtopping. Further flooding was reported across the region and is summarised in **Table 2.1** below.

Table 2.1: Historic Flood Events

Date	Cause of Flooding	Areas Impacted	Impacts
July 2007	Fluvial and Surface Water	Solihull Borough, including downstream Cheswick Green	Internal flooding of over 20 properties
June 2012	Surface Water	Solihull town	External Flooding
November 2012	Culvert Blockage	Hampton in Arden, Dickens Heath	Internal Flooding of 10 Properties
September 2015	Surface Water	-	Internal Flooding of 68 Properties, External Flooding
June 2016	-	North/West of Borough	45 Reported Incidences
September 2016	Fluvial	-	Internal Flooding of 1 Property, External Flooding
27th May 2018	Fluvial	Solihull Borough, including downstream Cheswick Green	Flooding of 300 Properties and Transport Networks

2.13 Whilst the SMBC PFRA mapping did not include any historic records of flooding within the site boundary, it did include a historic flooding incidence upstream of the site on the Mount Brook incoming from the north of Dickens Heath. The event is listed as a Council Record of Historic Floods, however there is no indication of the potential source.

Canal Flood Risk

2.14 The Stratford-upon-Avon Canal is located approximately 450 metres to the south east of the site. The Canal is flowing in a southerly direction at its closest point to the site. The

topographical survey and EA LiDAR data suggest that in the event of a breach of the canal, flow will be directed along the Mount Brook valley away from the proposed development area.

2.15 The SMBC PFRA noted that there has only been one reported flood event associated with artificial sources in the Solihull Borough. This was a breach of the Grand Union Canal which had no known consequences.

2.16 The Earlswood Lakes, at the upstream extent of the Main River section of the River Blythe, appear to be hydraulically connected to the Stratford-upon-Avon canal. The SMBC Flood Investigation Report into the 27th May 2018 flood event found that the Earlswood Lakes feeder system was inundated with flood flows from the River Blythe. This led to a surge of flood water from the Earlswood Lakes into an unbroken stretch of the Stratford-upon-Avon Canal from Lapworth and Birmingham. This led to overtopping in places and subsequent flooding of properties.

2.17 In the event of future overtopping of the Stratford-upon-Avon Canal the site is considered to be at low risk due to the topography of the area which would direct flows along the Mount Brook valley and therefore away from the proposed built development.

2.18 Therefore, canal flooding is considered to pose only a low, residual risk to the site.

Reservoir Failure Flood Risk

2.19 Reservoir failure flood risk mapping has been prepared by the EA and shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The mapping displays the worst-case scenario and is only intended as a guide. An extract

of the reservoir risk mapping is included as

2.20 **Figure** 2.2.

2.21 The site is shown to fall outside the area at risk of reservoir failure by 500m. The risk in this area is associated with the Earlswood Lakes at the upstream of the River Blythe. The site is therefore considered to be at low risk from this source.

Figure 2.2: Environment Agency Maximum Reservoir Flooding Extent Mapping

Surface Water Flood Risk Maps

2.22 Surface water (pluvial) flooding can occur during prolonged or intense storm events when the infiltration potential of soils, and the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

2.23 Risk of Flooding from Surface Water mapping has been prepared by the EA, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. An extract for mapping is included as **Figure 2.3**.

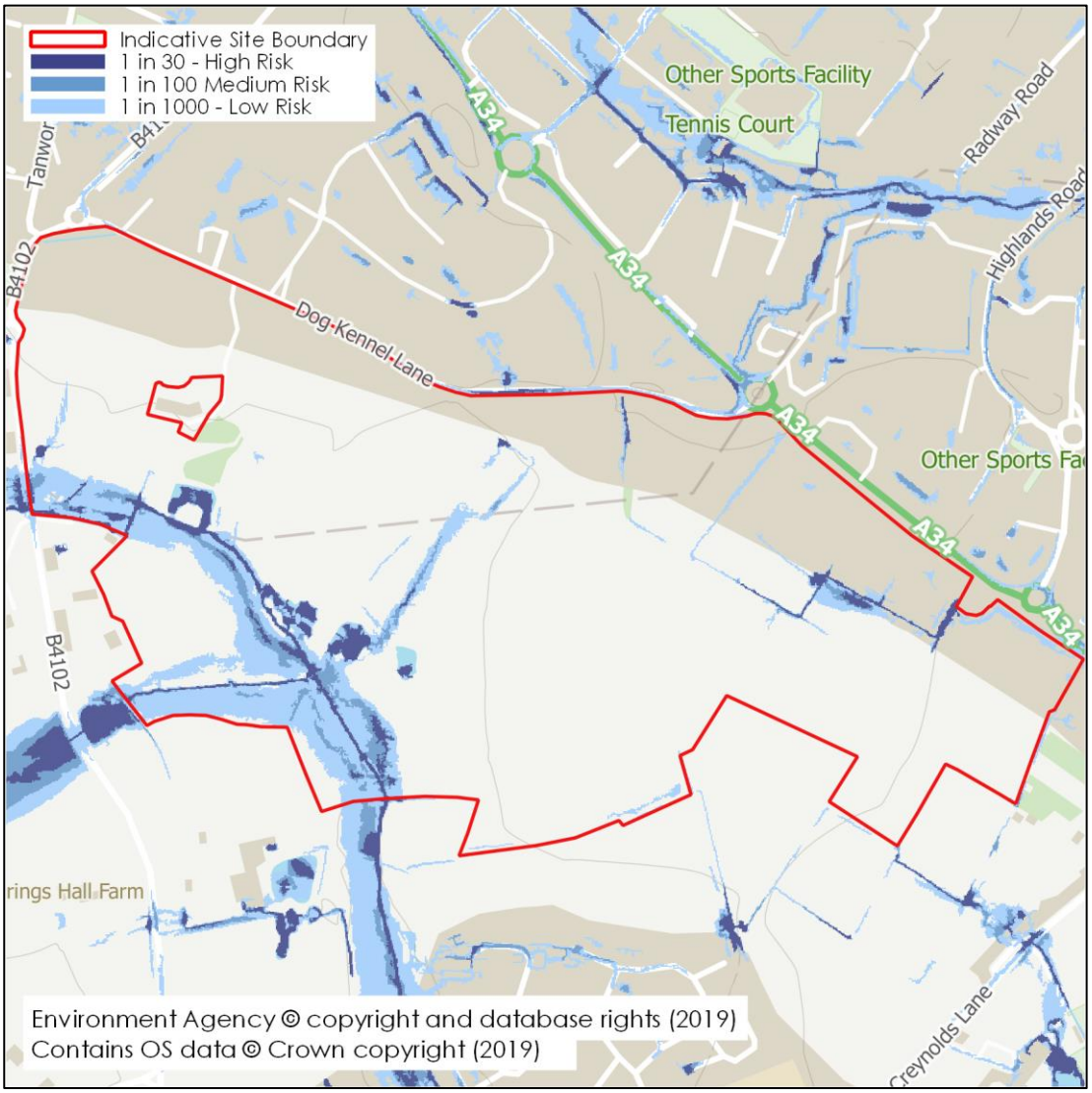

Figure 2.3: Surface Water Risk Mapping

2.24 The majority of the site is shown to be at very low to low risk of surface water flooding.

2.25 There are several existing ponds on site along the Mount Brook valley. A review of more detailed mapping identifies this to pose a 'high' hazard with depths of up to 600mm. These ponds will be retained within the development proposals and are therefore unlikely to pose a risk to development.

2.26 There are a number of surface water flow routes that range from low to high risk. These flow routes are located principally at the existing ditches along the field boundaries which will be retained within the development proposals. The most significant of these is through the centre of the Taylor Wimpey Strategic Land site boundary. The site visit undertaken in February 2019 indicated that there is a valley line here but no ditch or channel.

2.27 The SMBC PFRA mapping displays areas considered to be at surface water risk across Solihull at a strategic scale. The site is shown to be at 'less to more' risk. Areas of risk were

concentrated along the flow route of the Mount Brook and known ditch systems within the site.

2.28 The site access roads along Tanworth Lane, Dog Kennel Lane and Stratford Road are predominately shown to be at low risk of surface water flooding. The southerly site pedestrian access point along the western boundary with Tanworth Lane is shown to be at risk, however given that this is one access point of many it is anticipated that emergency access/egress would be available via other points in the event of inundation. Hence, this is not thought to pose a barrier to development on the site.

2.29 As the proposed development areas are to be located on areas of very low risk, pluvial flooding is considered to pose a low risk to the development. Existing surface water flow routes and areas of pooling will be retained as to avoid the interruption of overland flow routes. Appropriate mitigation measures for any residual risk should be considered as part of a Flood Risk Assessment (FRA).

Flood Risk from Sewers

2.30 The local sewerage undertaker is Severn Trent Water (STW). Their asset records for the area are included for reference as **Appendix 2** and an extract is shown in **Figure 2.4**.

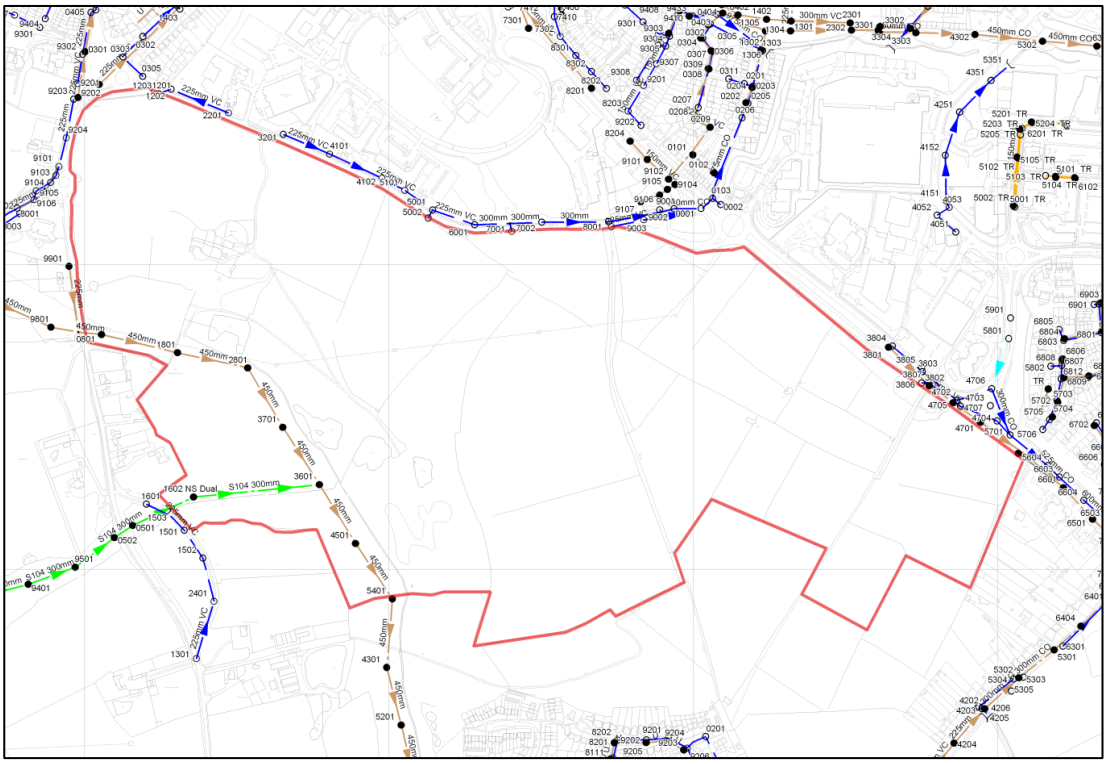

Figure 2.4: Extract of Severn Trent Water Sewer Mapping

2.31 STW records show that there is a 450mm diameter foul water sewer located on site adjacent to the right bank of the Mount Brook running from west to south along the brook. The depth of the manholes on this sewer below cover level is between 2.08-2.74m. Given this reasonable depth and the distance of the sewer network from the proposed development parcels it is considered that this network will not pose a

significant risk to the site. Furthermore, in the event of sewer exceedance flows will be directed away from the development parcels, following the natural topography.

2.32 Along the site boundaries there are several networks:

i. A 225mm – 300mm diameter surface water sewer network is located at the access road, Dog Kennel Lane running in an easterly direction.

ii. A 225mm diameter surface water sewer network is also located at Dog Kennel Lane running in a westerly direction.

iii. A surface water sewer and a foul water sewer are located at Stratford Road running in an easterly direction.

2.33 The SMBC SFRA does not provide precise locations, but it does note that the Severn Trent Water Sewer Flood Risk Register included one reported flood incident in the B90 4 postcode area, in which the site is located.

2.34 In the event of the foul sewers within the site boundary surcharging, it is predicted that flows will follow the topography of the area and flow away from the site. The sewer networks outside of the boundary along Dog Kennel Lane and Stratford Road flow away from the site by gravity. Sewer flooding from these sources may pose a low, residual risk to parts of the site.

2.35 Overall, flood risk from the sewer network is therefore considered to be low.

Groundwater Flood Risk

2.36 The site is underlain entirely by the Mercia Mudstone Group – Mudstone which is classified by the EA as a Secondary B aquifer. These layers are considered to have lower permeability and may store limited amounts of groundwater.

2.37 The site is underlain by a number of superficial deposits including: Glaciofluvial Deposits, Mid Pleistocene – Sand and Gravel; Glaciolacustrine Deposits, Mid Pleistocene – Clay and Silt, Alluvium – Clay, Silt, Sand and Gravel; and Till, Mid Pleistocene - Diamicton. These layers are classified as Secondary A aquifers by the Environment Agency and are therefore permeable layers capable of supporting local scale water supplies. The superficial deposits are shown in **Figure 2.5** below.

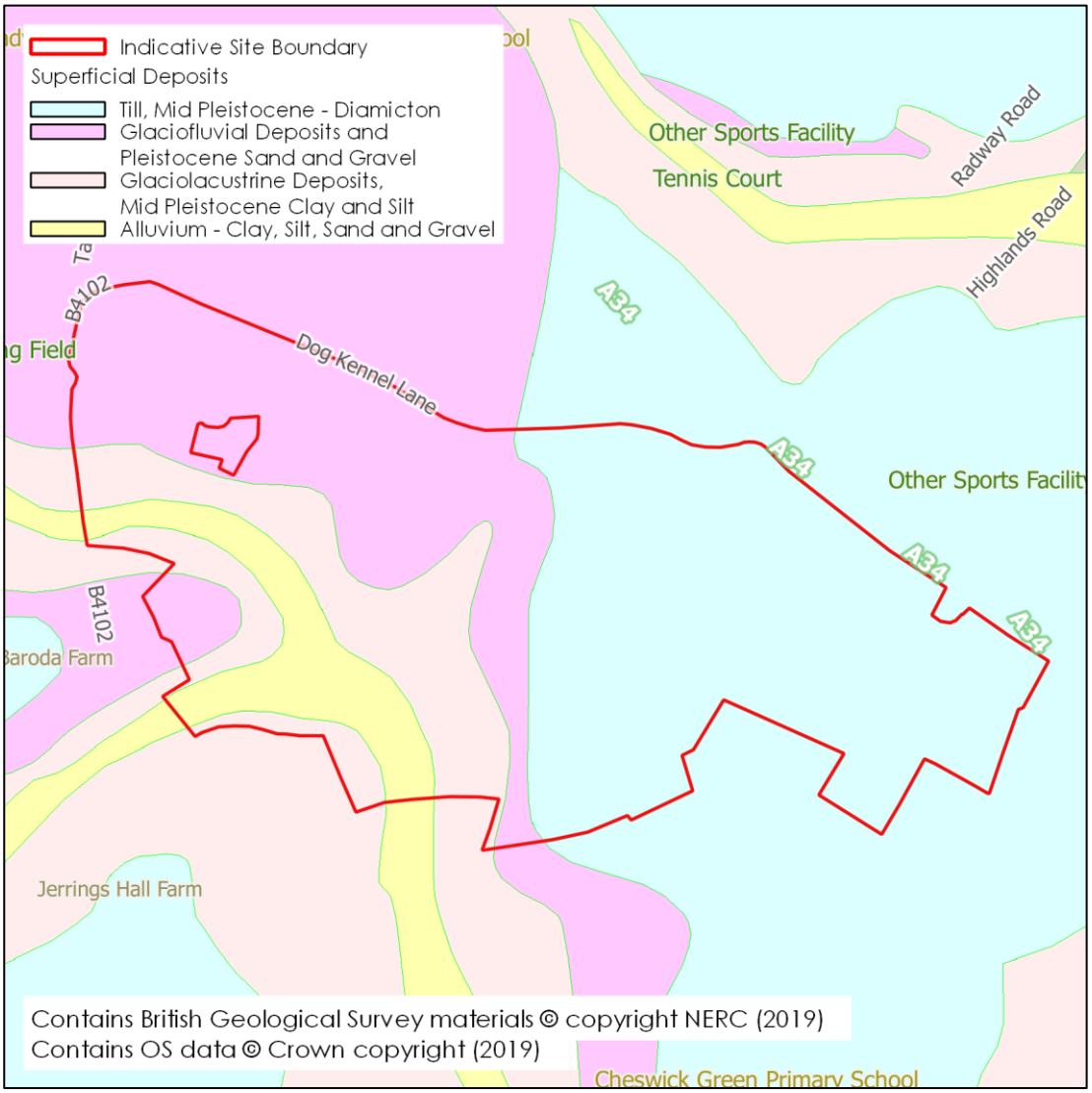

Figure 2.5: British Geological Mapping

2.38 According to the LFRMS:

'There are no confirmed records of groundwater flooding within the Borough. There has however been a recent increase of unsubstantiated reports of groundwater emergence beneath the floors of properties, particularly within the Shirley area. This may suggest that there has been a recent increase in the occurrence of groundwater flooding within Solihull.'

2.39 The SMBC PFRA noted that the site area has a 25-75% susceptibility to groundwater flooding. These percentage susceptibility values are based on grid squares and therefore it is unclear how areas outside of the site boundary have affected the susceptibility within the grid.

2.40 British Geological Survey borehole log data was reviewed and confirmed the presence of Mercia Mudstone silt, clay, sand and glacial deposits on site. One log in the eastern portion of the site noted that water was struck at 2.5m below the surface level. The

remaining two logs on site, located adjacent to the Mount Brook did not include a recording of water level.

2.41 While it is possible that groundwater ingress could be a potential flood mechanism at the site, groundwater flooding is infrequent and is most likely to occur within the lower topography of the Mount Brook floodplain.

2.42 In the unlikely event it does occur, it is proposed to landscape the site in such a way that any overland flow mechanisms are directed to the nearby green spaces and watercourses, away from people and property.

2.43 As such, the risk of flooding from groundwater within this area is considered to be low.

2.44 The groundwater table at the site may have hydraulic connectivity with the ponds. Given that the proposed development will be set above the existing ponds, groundwater should not pose a risk. Mitigation measures should be considered as part of a future Flood Risk Assessment and accompanying Sustainable Drainage Statement as part of a planning application.

3. POTENTIAL IMPLICATIONS TO FUTURE DEVELOPMENT

Sequential & Exception Test

3.1 As the site includes areas located in Flood Zones 2 and 3 the Sequential Test may need to be satisfied as part of the planning and allocation process. However, it should be noted that the proposed area for residential dwellings and all vehicular access has been shown to be deliverable with Flood Zone 1. As such, satisfying the Sequential Test through the strategic planning (allocation) process on this basis should be acceptable in principle and the development viewed as sequentially preferable in flood risk terms.

3.2 The only proposed works that may take place within Flood Zones 2 and 3, associated with the development itself, would be drainage outfalls from the on-site surface water drainage network. All attenuation associated with the development would be located outside of Flood Zones 2 and 3.

3.3 The LLFA has identified the site as a potential location for flood mitigation (storage) measures. Such measures would naturally occur within and immediately adjacent to Flood Zones 2 and 3. However, the development is not dependent on the delivery of flood mitigation works and therefore such works should be considered separately on their own merits, as part of a separate standalone application, and not be required to form part of the Sequential Test requirements for the development.

3.4 If parts of the application boundary are shown to lie within Flood Zone 3, the requirements of the Exception Test should be met. As detailed in paragraph 102 of the NPPF, for the Exception Test to be passed:

i. It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a SFRA where one has been prepared; and

ii. A site-specific Flood Risk Assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

3.5 The Exception Test would not be required if the application site were restricted to just Flood Zone 1 or 2.

Potential Impact of a Future Development

<u>The Mount Brook</u>

3.6 The current masterplan illustrates that the proposed development parcels are more than 50m from the Mount Brook watercourse and therefore it is not considered to pose a significant flood risk to the proposed development.

3.7 Previous correspondence received from the EA in 2017 (**Appendix 4**) recommended that any new build development should have finished floor levels set at least 600mm above the 1 in 100 year plus climate change flood level.

3.8 In order to identify and document the required floor levels, the available flood data from the EA Mount Brook Hydraulic Model would be required. In light of the EA requirements concerning assessment of climate change impacts, the model itself could be obtained and re-run to establish flood levels that account for the latest required (February 2016) climate change allowances, assuming it is freely available and in an appropriate format. The hydraulic model for the Mount Brook has been requested in order to update the climate change simulations and to test the feasibility of online flood storage within the development site.

Flood Storage Area(s)

3.9 As outlined in the LFRMS Objective 4, SMBC are committed to working in partnership with developers where there is a demonstrated positive impact on the wider Borough as part of development. The Client is committed to working with the appropriate consultees (including both the EA and SMBC as the LLFA) to explore the opportunities to reduce downstream flood risk where possible within land ownership.

3.10 As part of the development proposals, it has been noted that the Land at Light Hall presents an opportunity to improve flood risk to downstream catchments. The SMBC PFRA and EA correspondence noted flooding from fluvial and pluvial sources in Cheswick Green, which is downstream of the site on the Mount Brook. The Flood Investigation Report – 27th May 2018 indicated that there may be the possibility of utilising the proposed development site for storing water coming from Shirley and Dickens Heath in ponds and wetlands.

3.11 At this stage a high-level theoretical Flood Storage Area Concept Plan has been created and is included for reference as **Appendix 6.** The plan identifies areas of land which may be available for use as flood storage and is subject to further, more detailed assessment.

3.12 The theoretical concept plan shows locations within the existing extreme floodplain areas of the Mount Brook within the site, with the aim of intercepting and attenuating flood water from the upstream catchments, thereby reducing pass on flows into the downstream system. The Flood Storage Areas would not be planned to act as Floodplain Compensation for the development, but instead provide additional volume to store flows from upstream settlements including Shirley and Dickens Heath. Such Flood Storage Areas would be separate from the SuDS proposed in the below Illustrative Surface Water Drainage Strategy.

3.13 The final design of the basins is subject to hydraulic assessment and earthwork strategies, and consultations with the LLFA. It is hoped that these features would contribute positively to open space through enhanced ecological conditions and improved aesthetics.

Access/Egress

3.14 Current Flood Zone extents show the expected vehicular site access routes from Dog Kennel Lane, Tanworth Lane and Stratford Road to be located entirely in Flood Zone 1.

3.15 The EA typically expect new developments to provide safe access above the 1 in 100-year return period flood level with an allowance for climate change, and for the emergency vehicular access to be possible during times of flood.

Easements

3.16 The development proposals are located entirely within Flood Zone 1 and therefore will surpass the Level 1 SFRA requirement which states developments within an area classified as Flood Zone 2 or 3 should be set back from the watercourse with an 8m buffer of undeveloped land. The current buffer between the watercourse and proposed development parcels is approximately 50m.

3.17 Further consideration should be given to overhead cables across the site. The masterplan identified a Pylon easement area in which no development may occur. The current illustrative drainage strategy does include ponds in this easement and this may require approval prior to development.

3.18 The 8m watercourse and pylon easements are shown within the illustrative masterplan.

Ecological Considerations

3.19 It is noted that there are several waterbodies currently present on the site. An ecological assessment of the minor ponds will likely be required, if further work is pursued.

Water Framework Directive

3.20 The Water Framework Directive (WFD) (2000/60/EC) encompasses all surface waters and groundwater in England and Wales. The EU WFD was transposed into law in England and Wales by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

3.21 As the proposed development may influence the Mount Brook through the discharge of surface water into the Brook, consideration of the influence on the water environment would be considered necessary.

3.22 The Mount Brook falls within the Humber River Basin District. However, it is not currently a classified water body. The Brook flows into the River Blythe, which is located approximately 1km downstream of the site boundary. This water body is designated as Moderate Status under the Water Framework Directive and is also a Site of Special Scientific Interest (SSSI).

3.23 As the impacts of the development on the water environment are expected to be limited, it is anticipated that the likelihood of undertaking a Water Framework Directive Compliance Assessment is low, however confirmation of this should be sought at the planning stage.

Surface Water Drainage

3.24 Current guidance requires that new developments implement means of storm water control, known as SuDS (Sustainable Drainage Systems), to maintain flow rates discharged to the surface water receptor at the pre-development condition and improve the quality of water discharged from the land.

3.25 The applicable SFRA underpins national guidance on the provision of storm water drainage, encouraging the use of sustainable means of drainage at new developments.

3.26 Surface water runoff generated by the development should be restricted to the existing greenfield rates to ensure no increase in flood risk elsewhere in accordance with local authority drainage guidance and on the recommendation of the EA.

3.27 The drainage hierarchy outlined in statuary guidance states that surface water should be discharged from development sites to a receptor in the following order of preference;

i. Soakaway/Infiltration
ii. Local Watercourse
iii. Sewer Network

3.28 The site will likely be unsuitable for infiltration or soakaway due to the clayey superficial deposits. However, this will need to be confirmed through infiltration testing.

3.29 The Severn Trent Water Pre-Development Enquiry (**Appendix 8**) advised that if soakaways are proved to be unsuitable then connections to existing onsite watercourses and ditch systems would be appropriate with the flow rate controlled to a greenfield value to be agreed with SMBC as the LLFA and statutory consultee in the planning process.

3.30 It is therefore proposed that the area in the west of the site should discharge to the Mount Brook and area in the east of the site, in the absence of a watercourse, should seek to discharge to existing surface water sewer at north east area.

3.31 The site phasing plan (as shown in Figure 1.6) has been utilised during the illustrative drainage strategy. The strategy has been produced such that the Phases could be brought forward as follows: Phase 1 and 2 combined, Phase 3 independently and Phase 4 independently.

3.32 An illustrative drainage strategy plan is included as **Appendix 7.** The nearest watercourse to the proposed attenuation basins is the Mount Brook. This will be the proposed surface water outfall for Catchments A-C in the western portion of the site as the topography will direct overland flows from the development towards the Mount Brook. The detention basins will require a piped connection to the Mount Brook.

3.33 The topography of the site prevents the eastern portion of the development from discharging to the Mount Brook. As such permission will need to be sought for

Catchments D, E, and F in the eastern portion of the site to connect to the nearby surface water network. The site phasing plan dictates that three separate applications will be required to connect to the public surface water sewer network at three different points. The nearest public surface water sewer to the northern part of Catchment D is located at the junction of Dog Kennel Lane and Stratford Road. The nearest public surface water sewer to the southern part of Catchment D and Catchment E is located on Stratford Road. The proposed outfall for Catchment F would also be a public surface water sewer on Stratford Road, south of the junction with Monkspath Hall Road.

3.34 Given the site characteristics the site will have a suitable SuDS strategy produced which uses the most appropriate and beneficial techniques and follows the national and local guidance.

Existing Site Runoff

3.35 The existing site is greenfield with no positive drainage connections and is therefore considered wholly permeable.

3.36 An assessment of the existing surface water runoff rates should be undertaken using the ICP SUDS calculation method within Micro Drainage, in accordance with the latest EA guidance and utilising an assumed impermeable area based upon the masterplan.

3.37 Due to the topography of the area, it is considered appropriate to divide the site into a number of smaller catchments, each with a detention basin and outfall point. The suggested drainage catchments are outlined in **Figure 3.1** below. However, at the planning application stage these should be confirmed alongside the development parcels within the finalised masterplan and should include an updated distribution of the spine road into appropriate drainage catchments based on the most up to date alignment.

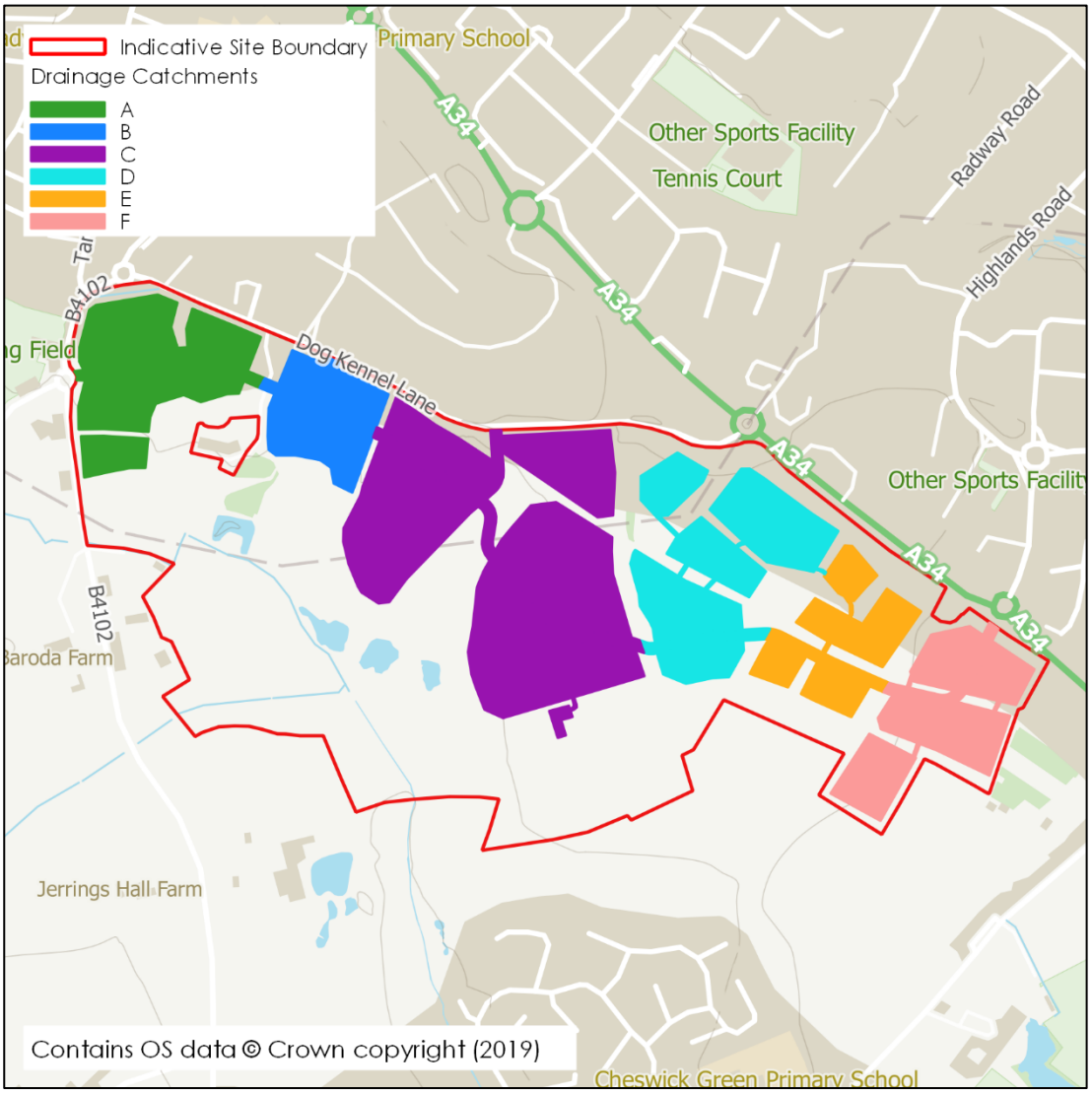

Figure 3.1: Drainage Catchments

Proposed Site Runoff

3.38 Runoff rates should be prorated based on their size relative to the total catchment as informed by the current masterplan. The proposed basins should be designed to be 1m deep with a 300mm freeboard for the 1 in 100-year + 40% climate change event. The basin depth may be revised during the production of a Sustainable Drainage Statement (SDS) in line with levels at suitable outfall points. The basins should be set to have a slope of 1:3 in line standard guidance.

3.39 SMBC do not specify an urban creep allowance within their current SuDS guidance. Therefore, SMBC should be contacted as part of a future SDS to confirm an appropriate urban creep allowance for basin sizing.

3.40 Solihull SuDS Guide encourages developments which accord with the principles of sustainability in design, including appropriate measures to minimise the impact of surface water drainage.

3.41 Solihull SuDS Guide advises all SuDS applications will require a maintenance plan that shows what operations will be required to maintain the asset. The plan should be based on Chapter 32 of the CIRIA SuDS Manual 2015 and it should be clear about which operations are required and which party or parties are to be responsible for them.

3.42 SMBC encourage the adoption of SuDS either as part of the highway or as Public Open Space. In either case a commuted sum will be payable. The commuted sum will be calculated on a bespoke basis based on the maintenance requirements for the SuDS features.

Foul Water Drainage

3.43 A Severn Trent Water Pre-Development Enquiry was undertaken in 2017 and indicated that there is an existing 450mm public foul sewer within the site. Severn Trent Water require an easement for maintenance access which would be 5m either side of the network. This easement has been adhered to within the current masterplan as development parcels are more than 60m removed from the sewer. A further 300mm Section 104 foul sewer connects to this 450mm public foul sewer within the site. This 300mm sewer will also require an easement which is specified by Severn Trent Water to be 10m.

3.44 The previous Pre-Development Enquiry highlighted concerns relating to the impact a development of this magnitude may have on the existing sewerage system. Severn Trent Water noted that they would need to undertake a hydraulic assessment of the impact of the proposed residential development on the nearby system. It is recommended that a new Pre-Development Enquiry is made to Severn Trent Water as part of a future planning application, in order for their assessment works to proceed.

3.45 For any new connections to the public sewerage system, the developer will need to submit Section 106 application forms to Severn Trent Water.

3.46 The historic Severn Trent Water Pre-Development Enquiry response is included in **Appendix 8**.

4. SUMMARY

4.1 BWB Consulting were instructed by Taylor Wimpey Strategic Land to update a previous desktop study into the possible sources of flood risk posed to a potential development and a preliminary drainage assessment for the Land at Light Hall site. This document supports a wider promotion of the site into the SMBC Local Plan by Taylor Wimpey Strategic Land.

4.2 The development parcels are located entirely within Flood Zone 1 and are therefore at low risk of fluvial flooding. The site includes a corridor of Flood Zones 2 and 3 associated with the Mount Brook, however the development parcels are at least 50m from these. The site is considered to be at low risk of sewer, canal, reservoir and groundwater flooding. Areas of pluvial flood risk on the site appear to be related to existing ditches and the Mount Brook. Mitigation measures to protect people and property from pluvial flooding should be considered as part of a future Flood Risk Assessment.

4.3 The EA will expect a FRA to be provided that demonstrates the development is situated outside the high-risk floodplain of the Mount Brook based upon site specific flood level data. These will need to be obtained from the Mount Brook model which is currently owned by the SMBC and has been requested.

4.4 The proposed masterplan identifies the development parcels to be located well outside the Mount Brook floodplain. It is expected that it can be readily demonstrated by the Mount Brook model that the proposed built development will be well elevated from the floodplain, including an allowance for climate change. Should this not be possible to demonstrate, it is anticipated that relevant mitigation measures can be recommended based upon the site-specific flood levels.

4.5 The site will likely be unsuitable for infiltration or soakaway due to the clayey superficial deposits. This will need to be confirmed through testing.

4.6 Discharge from the site will be at greenfield rates, prorated based on a number of smaller drainage catchments. It is proposed that four of these catchments will discharge to the Mount Brook and three catchments will connect to the existing Severn Trent Water surface water sewer network at the north-east corner of the site.

4.7 The LLFA has identified the site as having potential to provide betterment to downstream flood risk through the inclusion of Flood Storage Areas. The Client has committed to work collaboratively with the LLFA and EA in assessing the potential for such mitigation measures within the site. An indicative theoretical concept plan identifying areas of the site which may support such measures has been provided, but is subject to further detailed assessment and consultations.

4.8 A full FRA and SDS will be required to accompany a planning application for any proposed development on this site. A topographical survey should also be undertaken for the TRW parcel.

APPENDICES

APPENDIX 1: Topographical Survey

Level Datum:	**O.S (G.P.S Verified)**
Grid Orientation:	**O.S (G.P.S Verified)**

Station Information:

Station	Easting (m)	Northing (m)	Level (m)	Description
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P6	412668.136	276493.975	138.099	Wooden Peg
P7	412818.631	276625.796	142.444	Wooden Peg
P8	412398.885	276605.653	130.648	Wooden Peg
P9	412317.257	276805.813	131.617	Wooden Peg
S1	411994.307	277282.274	142.073	PK Nail
S2	412088.217	277299.708	142.023	PK Nail
S3	412291.510	277222.992	143.033	PK Nail
S4	412865.802	277073.180	140.032	PK Nail
S50	412423.532	276940.827	139.370	Wooden Peg
S51	412468.727	276769.831	135.519	Wooden Peg
JL1	413454.532	276676.948	138.498	Wooden Peg
JL2	413418.865	276584.358	138.782	Wooden Peg
JL3	413300.844	276506.622	139.029	Wooden Peg
JL4	413391.087	276794.676	139.363	PK Nail
JL5	413484.192	276737.404	137.954	PK Nail
MB3	413509.738	276768.422	137.999	PK Nail
MB4	413585.718	276677.171	135.967	PK Nail

Survey Notes

This plan should be used for its original purpose only. M–EC accepts no responsibility for its drawings if they are supplied to any other party other than the original client.

The information shown has been surveyed in accordance to the accuracy of the base scale shown.

Boundaries shown are physical site features and may not represent legally conveyed ownership.

Man entry to sewers has not been undertaken. Depths and pipe sizes are estimated from ground level. This should be checked with local authority records or on site prior to the commencement of any works.

Reference numbers allocated to manholes are assigned by ourselves and are for identification purposes only.

Some services may have been omitted due to parked vehicles.

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Topographical Legend

Feature Lines

- Buildings
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- Roof Extent
- Walls
- Road
- Centre Line
- Line Marking
- Barrier
- Track
- Verge
- Top of Bank
- Bottom of Bank
- Security Fence
- Panel Fence
- Open Fence
- Overhead Powerline
- Edge of Water
- 50.00 Contour Major
- 50.00 Contour Minor
- Boundary Line

Drainage

IC	Inspection chamber
MH	Manhole
Gy	Gully
BGy	Back Gully
DP	Down Pipe
CL	Cover Level
IL	Pipe Invert Level
ø250mm	Pipe diameter
→	Direction of flow Surface
→	Direction of flow Foul
→	Direction of flow Combined

Symbols

□ ○ △	Chamber
	Hedge
	Gate
Bush Sap	Tree/Bush/Sapling
	Tadpole
⌖ BH1	Borehole
☒ TH1	Trial Hole
⌖ P1	Stakeout

Utilities

Water	Water
Gas	Gas
Elec	Electric
BT	British Telecom
Fh	Fire Hydrant
St	Stop Tap
Sv	Stop Valve
Wo	Wash Out
Wm	Water Meter
CaMkr	Cable Marker
SMkr	Service Marker
Re	Rodding Eye
Av	Air Valve
Lp	Lamp Post
Sp	Sign Post
Ep	Electricity Post
Tp	Telegraph Post
TL	Traffic Light
Bus	Bus Stop
Fl	Floodlight
Fp	Flagpole
Lb	Litter Bin
LBx	Letter Box
Bo	Bollard
IBo	Illuminous Bollard
TCB	Telephone Call Box
Re	Rodding Eye
Er	Earth Rod
GPI	Gas Pipe Inlet
WPI	Water Pipe Inlet

Abbreviations

Inv.Lvl	Invert Level
So.Lvl	Soffit Level
WL	Water level
SprLvl	Springing Level
Bed Lvl	Bed Level
IFL	Internal floor level
THL	Threshold level
Wall Lvl	Wall Level
Fence Lvl	Fence Level
Hedge Lvl	Hedge Level
Tree Lvl	Top of Tree Level
RL	Ridge Level
EL	Eaves Level

Stations

100.00m	Station Level
△ MEC1	Station and Name

REV:	AMENDMENTS:	DRN:	CHK:	DATE:

PROJECT:
LIGHT HALL FARM
SOLIHULL

DRAWING TITLE:
TOPOGRAPHICAL SURVEY

CLIENT:
TAYLOR WIMPEY UK LIMITED
WARWICK

DRAWING NUMBER:
20578_06_170_01.1

REVISION:	SHEET SIZE:	DATE:
–	A0	26.02.2015
DRAWN BY:	**CHECKED BY:**	**SCALE:**
JL	DH	1:500

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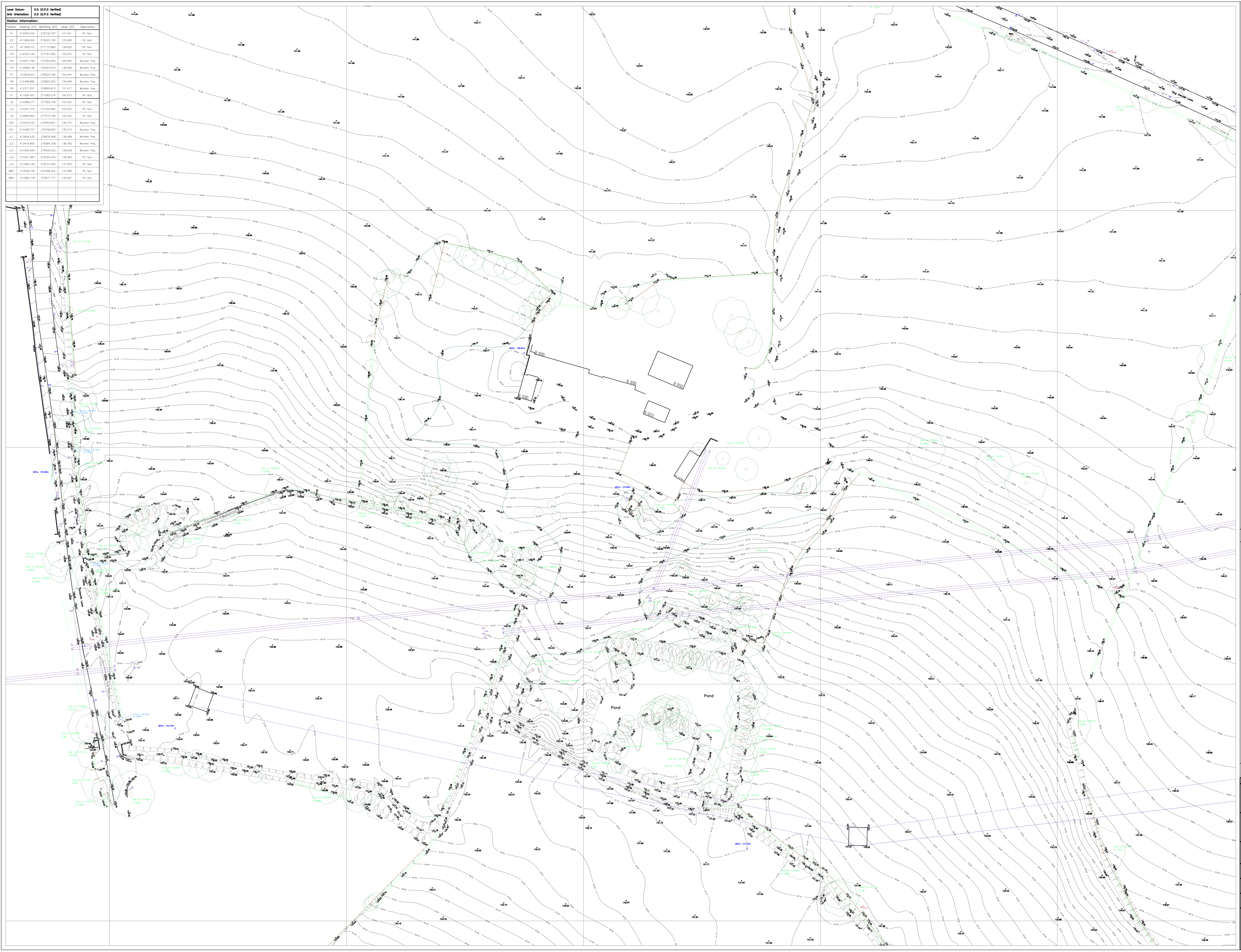

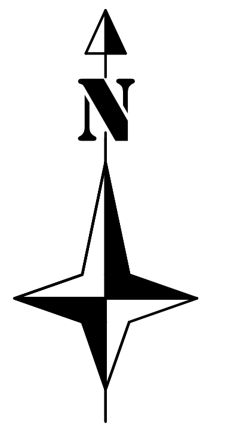

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Gas	Gas
Elec	Electric
BT	British Telecom
Fh	Fire Hydrant
St	Stop Tap
Sv	Stop Valve
Wo	Wash Out
Wm	Water Meter
CaMkr	Cable Marker
SMkr	Service Marker
Re	Rodding Eye
Av	Air Valve
Lp	Lamp Post
Sp	Sign Post
Ep	Electricity Post
Tp	Telegraph Post
TL	Traffic Light
Bus	Bus Stop
Fl	Floodlight
Fp	Flagpole
Lb	Litter Bin
LBx	Letter Box
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IBo	Illuminous Bollard
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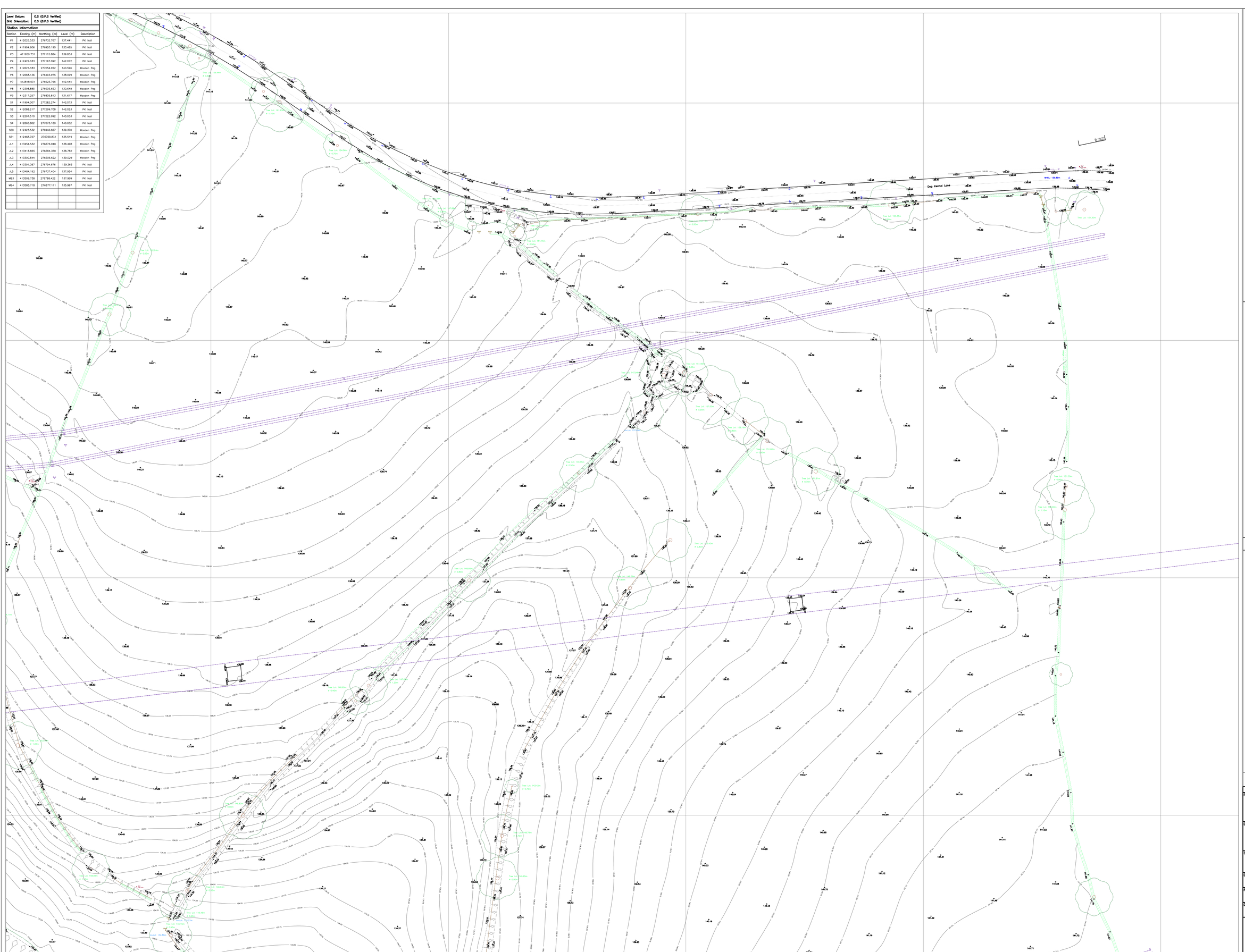

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P7	412818.631	276625.795	142.444	Wooden Peg
P8	412398.885	276605.653	130.648	Wooden Peg
P9	412317.257	276805.813	131.617	Wooden Peg
S1	411994.307	277282.274	142.073	PK Nail
S2	412088.217	277299.708	142.023	PK Nail
S3	412291.510	277222.992	143.033	PK Nail
S4	412865.802	277073.180	140.032	PK Nail
S50	412423.532	276940.827	139.370	Wooden Peg
S51	412468.727	276769.831	135.519	Wooden Peg
JL1	413454.532	276676.948	138.498	Wooden Peg
JL2	413418.865	276584.358	136.782	Wooden Peg
JL3	413300.844	276506.622	139.029	Wooden Peg
JL4	413391.087	276794.676	139.363	PK Nail
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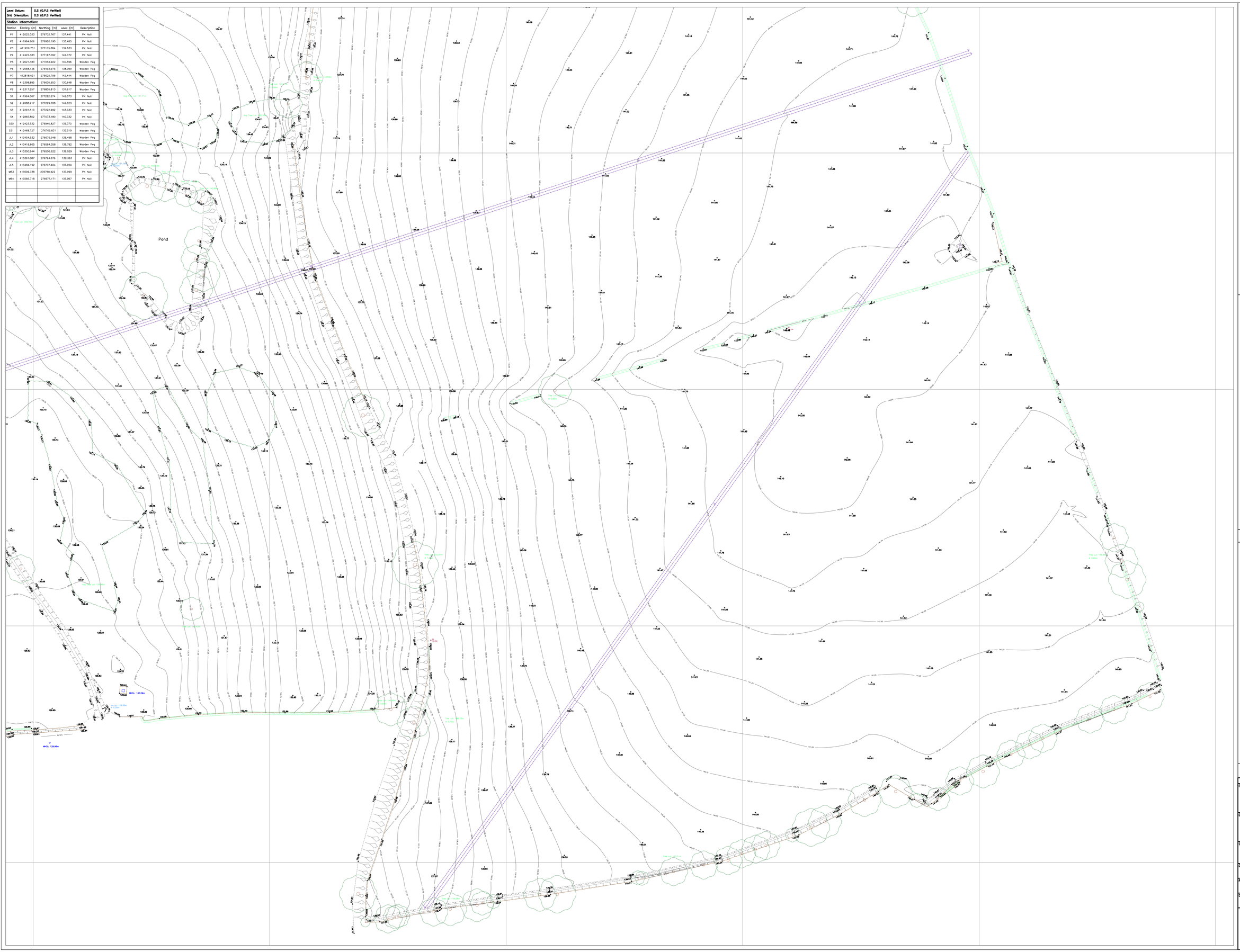

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Water	Water
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Elec	Electric
BT	British Telecom
Fh	Fire Hydrant
St	Stop Tap
Sv	Stop Valve
Wo	Wash Out
Wm	Water Meter
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SMv	Service Marker
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Lp	Lamp Post
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IC	Inspection chamber
MH	Manhole
Cy	Gully
BGy	Back Gully
DP	Down Pipe
CL	Cover Level
IL	Pipe Invert Level
⌀250mm	Pipe diameter
	Direction of flow Surface
	Direction of flow Foul
	Direction of flow Combined

Symbols

	Chamber
	Hedge
	Gate
	Tree/Bush/Sapling
	Tadpole
BH1	Borehole
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Inv Lvl	Invert Level
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100.00m	Station Level
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PROJECT:
LIGHT HALL FARM
SOLIHULL

DRAWING TITLE:
TOPOGRAPHICAL SURVEY

CLIENT:
TAYLOR WIMPEY UK LIMITED
WARWICK

DRAWING NUMBER:
20578_06_170_01.4

REVISION:	SHEET SIZE:	DATE:
–	A0	26.02.2015
DRAWN BY:	**CHECKED BY:**	**SCALE:**
JL	DH	1:500

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Level Datum:	O.S (G.P.S Verified)
Grid Orientation:	O.S (G.P.S Verified)

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Pond

Pond

Pond

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- Gas — Gas
- Elec — Electric
- BT — British Telecom
- Fh — Fire Hydrant
- St — Stop Tap
- Sv — Stop Valve
- Wo — Wash Out
- Wm — Water Meter
- CaMa — Cable Marker
- SMkr — Service Marker
- Re — Rodding Eye
- Av — Air Valve
- Lp — Lamp Post
- Sp — Sign Post
- Ep — Electricity Post
- Tp — Telegraph Post
- TL — Traffic Light
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Stations

- 100.00m — Station Level
- MEC1 — Station and Name

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LIGHT HALL FARM
SOLIHULL

DRAWING TITLE:
TOPOGRAPHICAL SURVEY

CLIENT:
TAYLOR WIMPEY UK LIMITED
WARWICK

DRAWING NUMBER:
20578_06_170_01.5

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DRAWN BY:	**CHECKED BY:**	**SCALE:**
JL	DH	1:500

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Level Datum:	**O.S (G.P.S Verified)**
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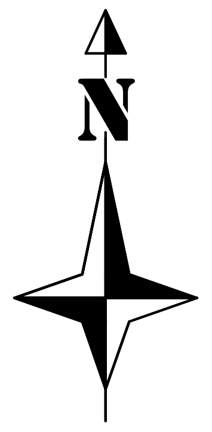

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- 50.00 **Contour Major**
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Drainage

IC	**Inspection chamber**
MH	**Manhole**
Gy	**Gully**
BGy	**Back Gully**
DP	**Down Pipe**
CL	**Cover Level**
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→	**Direction of flow Surface**
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Symbols

□ ○ △	**Chamber**
	Hedge
	Gate
Bush Sap	**Tree/Bush/Sapling**
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Tree Lvl	**Top of Tree Level**
RL	**Ridge Level**
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100.00m	**Station Level**
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LIGHT HALL FARM
SOLIHULL

DRAWING TITLE:
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CLIENT:
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WARWICK

DRAWING NUMBER:
20578_06_170_01.6

REVISION:	SHEET SIZE:	DATE:
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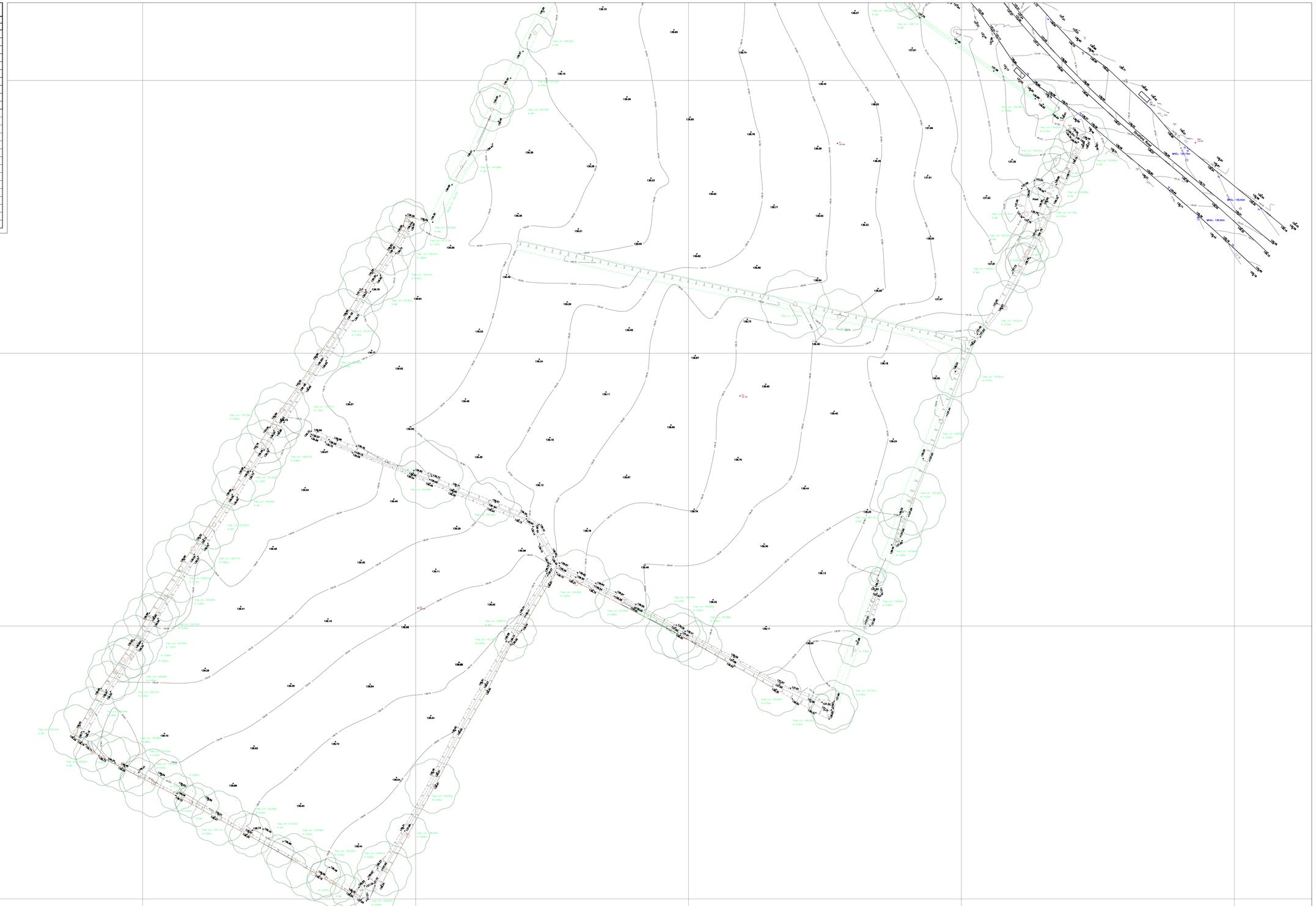

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LIGHT HALL FARM
SOLIHULL

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CLIENT:
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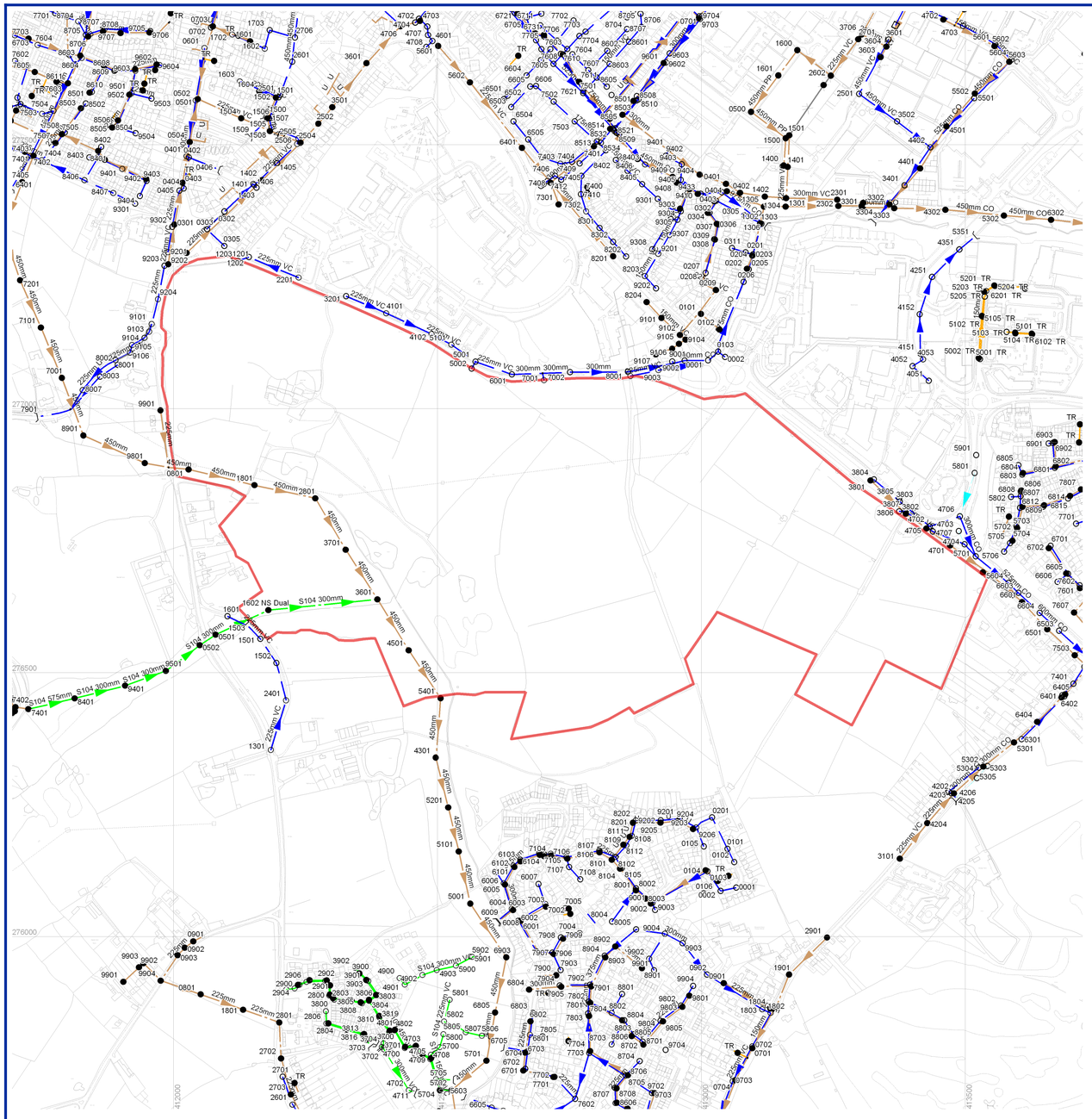
APPENDIX 2: Severn Trent Water Correspondence



Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP11759901	nil	nil	nil	F	nil	nil	nil	nil	0.00	nill
SP11759902	nil	nil	nil	F	nil	nil	nil	nil	0.00	nill
SP11759903	nil	nil	nil	F	nil	nil	nil	nil	0.00	nill
SP11759904	nil	nil	nil	F	nil	C	nil	nil	0.00	nill
SP11766428	140.02	135.83	nil	F	VC	C	nil	nil	0.00	nill
SP11767401	nil	nil	nil	F	nil	nil	575	nil	0.00	nill
SP11767402	nil	nil	nil	F	nil	nil	nil	nil	0.00	nill
SP11768401	nil	nil	nil	F	nil	nil	300	nil	0.00	nill
SP11768901	134.19	131.60	131.05	F	nil	C	450	nil	231.87	nill
SP11769401	nil	nil	nil	F	nil	nil	300	nil	0.00	nill
SP11769501	nil	nil	nil	F	nil	nil	300	nil	0.00	nill
SP11769801	133.51	131.05	nil	F	nil	C	450	nil	0.00	nill
SP11769901	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP11776703	139.11	137.41	137.09	S	nil	C	225	nil	145.75	nill
SP11777001	135.92	132.77	131.60	F	nil	C	450	nil	99.38	nill
SP11777101	136.44	133.04	132.77	F	nil	C	450	nil	382.19	nill
SP11777201	137.22	133.20	133.04	F	nil	C	450	nil	609.19	nill
SP11777401	137.53	134.53	133.65	F	nil	C	225	nil	20.23	nill
SP11777402	138.00	135.66	nil	S	nil	C	1425	nil	0.00	nill
SP11777403	137.88	133.65	133.59	F	nil	C	450	nil	908.67	nill
SP11777404	137.75	136.09	135.66	S	nil	C	225	nil	52.05	nill
SP11777405	137.75	133.59	133.41	F	nil	C	450	nil	543.78	nill
SP11777501	138.05	136.85	136.63	S	nil	C	225	nil	63.05	nill
SP11777502	137.98	136.63	136.34	S	nil	C	225	nil	156.41	nill
SP11777503	137.56	136.34	135.76	S	nil	C	225	nil	37.69	nill
SP11777504	138.06	135.76	135.66	S	nil	C	1425	nil	953.50	nill
SP11777505	137.44	134.44	133.71	F	nil	C	225	nil	45.07	nill
SP11777506	137.94	133.71	133.65	F	CO	C	450	nil	725.00	nill
SP11777507	137.51	135.55	134.44	F	nil	C	225	nil	18.18	nill
SP11777508	137.49	136.39	nil	S	nil	C	225	nil	0.00	nill
SP11777509	nil	136.06	134.53	F	nil	C	225	nil	35.39	nill
SP11777601	138.37	137.37	136.85	S	nil	C	225	nil	121.10	nill
SP11777602	138.72	137.59	137.37	S	nil	C	225	nil	113.86	nill
SP11777603	137.74	135.54	133.97	F	nil	C	225	nil	14.09	nill
SP11777604	138.74	137.09	136.59	S	nil	C	225	nil	127.60	nill
SP11777605	138.16	136.07	135.54	F	nil	C	225	nil	84.89	nill
SP11777701	138.17	136.87	136.58	S	nil	C	225	nil	162.17	nill
SP11777702	137.95	135.70	134.75	F	nil	C	225	nil	73.29	nill
SP11777703	138.86	135.98	134.75	F	nil	C	225	nil	64.47	nill
SP11778001	138.69	137.83	nil	S	U	C	225	nil	0.00	nill
SP11778002	138.42	137.13	136.01	S	nil	C	225	nil	36.18	nill
SP11778003	137.30	136.01	nil	S	nil	C	225	nil	0.00	nill
SP11778007	nil	nil	nil	S	U	C	225	nil	0.00	nill
SP11778401	140.50	nil	134.44	F	nil	C	225	nil	0.00	nill
SP11778402	139.85	138.51	137.93	S	nil	C	225	nil	36.24	nill
SP11778403	139.56	138.02	137.93	S	nil	C	225	nil	185.56	nill
SP11778404	140.17	137.93	137.48	S	nil	C	225	nil	111.56	nill
SP11778405	140.33	137.72	nil	F	VC	C	225	nil	0.00	nill
SP11778406	140.05	137.48	136.09	S	nil	C	225	nil	64.15	nill
SP11778407	141.34	139.38	137.48	S	nil	C	225	nil	31.80	nill
SP11778501	137.94	135.97	135.26	F	nil	C	225	nil	82.70	nill
SP11778502	137.81	136.81	136.39	S	nil	C	225	nil	161.12	nill
SP11778503	137.76	136.01	134.44	F	nil	C	225	nil	38.98	nill
SP11778504	139.67	137.48	136.93	F	nil	C	225	nil	96.45	nill
SP11778505	139.73	137.90	137.48	F	nil	C	225	nil	42.50	nill
SP11778506	139.78	138.27	137.53	S	nil	C	225	nil	95.18	nill
SP11778601	138.30	134.75	134.08	F	nil	C	225	nil	35.39	nill
SP11778602	138.27	136.61	135.95	S	nil	C	225	nil	31.67	nill
SP11778603	138.13	134.08	133.97	F	nil	C	450	nil	514.45	nill
SP11778604	138.15	136.35	135.95	S	nil	C	225	nil	45.80	nill
SP11778605	138.25	135.95	135.76	S	nil	C	1425	nil	508.42	nill
SP11778606	138.46	135.26	134.08	F	nil	C	225	nil	40.40	nill
SP11778607	138.52	136.57	136.35	S	nil	C	225	nil	207.18	nill
SP11778608	138.54	135.94	135.26	F	nil	C	225	nil	35.04	nill
SP11778609	138.68	136.68	136.57	S	nil	C	225	nil	187.27	nill
SP11778610	137.96	136.86	136.57	S	nil	C	225	nil	183.83	nill
SP11778611	138.05	133.97	133.71	F	nil	C	450	nil	417.96	nill
SP11778704	138.25	136.58	136.00	S	nil	C	300	nil	49.07	nill
SP11778705	138.45	136.00	135.95	S	nil	C	1350	nil	1203.40	nill
SP11778706	138.42	134.13	134.08	F	nil	C	450	nil	799.20	nill
SP11778707	138.25	136.85	136.00	S	nil	C	225	nil	44.58	nill
SP11778708	138.20	136.36	134.13	F	nil	C	225	nil	13.30	nill
SP11779101	140.90	140.01	139.03	S	VC	C	225	nil	16.59	nill
SP11779103	139.86	139.03	138.75	S	VC	C	225	nil	51.54	nill
SP11779104	139.58	138.75	138.50	S	VC	C	225	nil	108.00	nill
SP11779105	139.94	138.50	138.30	S	VC	C	225	nil	73.80	nill
SP11779106	139.84	138.30	137.83	S	VC	C	225	nil	65.09	nill
SP11779201	141.64	140.52	140.31	S	nil	C	225	nil	230.33	nill
SP11779202	141.88	139.74	139.58	F	VC	C	225	nil	475.94	nill
SP11779203	141.86	141.11	140.80	S	nil	C	225	nil	210.74	nill
SP11779204	141.86	140.80	140.01	S	nil	C	225	nil	60.67	nill
SP11779301	141.82	139.82	139.38	S	nil	C	225	nil	103.77	nill
SP11779302	141.27	140.31	140.10	S	nil	C	225	nil	334.33	nill
SP11779401	140.69	138.41	137.93	S	nil	C	225	nil	105.85	nill
SP11779402	141.42	139.31	137.76	F	VC	C	225	nil	55.77	nill
SP11779403	141.35	139.78	138.41	S	nil	C	225	nil	37.41	nill
SP11779404	141.59	139.95	139.78	S	nil	C	225	nil	185.41	nill
SP11779501	139.69	137.53	137.04	S	nil	C	225	nil	87.88	nill
SP11779502	139.69	136.93	136.39	F	nil	C	225	nil	90.93	nill
SP11779503	140.53	139.17	137.53	S	nil	C	225	nil	23.83	nill
SP11779504	140.31	138.71	138.27	S	nil	C	225	nil	88.61	nill
SP11779601	139.69	136.39	135.94	F	nil	C	225	nil	84.04	nill
SP11779602	140.34	137.63	136.39	F	nil	C	225	nil	33.77	nill
SP11779603	139.74	137.04	136.68	S	nil	C	225	nil	111.39	nill
SP11779604	140.38	138.34	137.04	S	nil	C	225	nil	36.50	nill

Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP11779705	139.57	137.97	136.85	S	nil	C	225	nil	77.40	nill
SP11779706	139.50	138.34	136.57	F	nil	C	225	nil	31.37	nill
SP11779707	138.39	136.57	136.36	F	nil	C	225	nil	156.48	nill
SP11750801	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP12750901	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP12750902	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP12750903	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP12751801	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP12752601	138.09	131.13	128.41	S	nil	C	225	nil	25.41	nill
SP12752701	134.64	133.05	131.13	S	nil	C	225	nil	29.15	nill
SP12752702	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP12752703	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP12752800	135.40	133.05	132.60	F	VC	C	150	nil	20.41	nill
SP12752801	nil	nil	nil	F	nil	C	225	nil	0.00	nill
SP12752802	138.66	137.24	137.15	S	VC	C	225	nil	172.28	nill
SP12752803	135.29	133.58	133.07	S	VC	C	300	nil	24.02	nill
SP12752804	133.87	131.90	130.35	F	VC	C	150	nil	23.01	nill
SP12752805	134.66	133.20	132.19	S	VC	C	225	nil	23.17	nill
SP12752806	133.92	132.19	130.59	S	VC	C	225	nil	25.25	nill
SP12752900	138.52	137.17	135.92	F	VC	C	150	nil	18.97	nill
SP12752901	137.99	135.92	134.65	F	VC	C	150	nil	25.63	nill
SP12752902	136.80	134.65	134.05	F	VC	C	150	nil	19.20	nill
SP12752903	136.25	134.05	133.05	F	VC	C	150	nil	17.21	nill
SP12752904	138.71	137.15	137.07	S	VC	C	225	nil	147.18	nill
SP12752905	138.49	137.07	136.57	S	VC	C	225	nil	28.30	nill
SP12752906	138.15	136.57	135.34	S	VC	C	225	nil	28.89	nill
SP12752907	136.93	135.34	134.70	S	VC	C	225	nil	17.21	nill
SP12752908	136.35	134.62	133.58	S	VC	C	300	nil	19.13	nill
SP12753700	131.00	129.41	128.80	S	U	U	nil	nil	12.11	nill
SP12753701	130.88	128.80	nil	S	VC	C	300	nil	0.00	nill
SP12753702	130.76	128.70	128.05	S	VC	C	300	nil	139.34	nill
SP12753800	134.93	132.60	131.69	F	VC	C	150	nil	38.98	nill
SP12753801	133.73	131.69	131.19	F	VC	C	150	nil	34.87	nill
SP12753802	133.44	131.19	130.89	F	VC	C	150	nil	54.70	nill
SP12753803	134.08	132.02	130.89	F	VC	C	150	nil	14.58	nill
SP12753804	133.49	130.89	130.29	F	VC	C	150	nil	31.93	nill
SP12753805	134.78	132.99	132.09	S	CO	C	375	nil	30.49	nill
SP12753806	134.19	132.49	131.53	S	VC	C	300	nil	20.91	nill
SP12753807	133.45	131.45	130.85	S	CO	C	375	nil	19.91	nill
SP12753808	133.41	131.59	131.45	S	CO	C	375	nil	103.04	nill
SP12753809	133.69	132.09	131.59	S	CO	C	375	nil	50.74	nill
SP12753810	132.70	130.29	129.31	F	VC	C	150	nil	34.88	nill
SP12753811	131.58	129.43	129.31	F	VC	C	150	nil	132.68	nill
SP12753812	131.42	129.67	129.43	F	VC	C	150	nil	135.64	nill
SP12753813	131.95	129.75	129.67	F	VC	C	150	nil	131.95	nill
SP12753814	132.63	130.35	129.75	F	VC	C	150	nil	57.97	nill
SP12753815	132.55	130.51	130.32	S	VC	C	300	nil	168.60	nill
SP12753816	131.96	130.32	128.90	S	VC	C	300	nil	8.56	nill
SP12753817	131.24	128.90	128.80	S	U	U	nil	nil	77.51	nill
SP12753817	131.24	129.60	129.47	S	U	C	225	nil	239.17	nill
SP12753818	131.50	129.47	129.41	S	U	C	225	nil	209.37	nill
SP12753819	132.65	130.77	130.02	S	CO	C	450	nil	44.07	nill
SP12753900	135.80	133.50	133.17	F	VC	C	150	nil	54.74	nill
SP12753901	135.32	133.17	132.02	F	VC	C	150	nil	29.48	nill
SP12753902	136.07	134.10	133.69	S	VC	C	225	nil	86.52	nill
SP12753903	135.17	133.69	132.56	S	VC	C	225	nil	28.73	nill
SP12754700	131.28	128.75	128.45	F	VC	C	150	nil	26.52	nill
SP12754701	131.21	129.32	129.19	S	CO	C	450	nil	69.19	nill
SP12754702	129.00	127.97	127.93	S	CO	C	375	nil	0.00	nill
SP12754703	131.38	128.45	128.11	F	VC	C	150	nil	58.74	nill
SP12754704	130.85	128.11	127.61	F	VC	C	150	nil	36.27	nill
SP12754705	130.54	127.61	127.26	F	VC	C	150	nil	27.62	nill
SP12754706	131.33	129.19	128.82	S	CO	C	450	nil	58.38	nill
SP12754707	130.78	128.82	128.33	S	CO	C	450	nil	33.46	nill
SP12754708	130.62	128.33	127.76	S	CO	C	450	nil	20.14	nill
SP12754709	130.79	129.11	128.48	S	VC	C	300	nil	13.59	nill
SP12754710	129.69	127.68	127.58	S	CO	C	525	nil	265.00	nill
SP12754800	131.92	129.31	129.20	F	VC	C	150	nil	89.84	nill
SP12754801	nil	129.20	128.75	F	VC	C	150	nil	83.45	nill
SP12754802	132.50	129.88	129.32	S	CO	C	450	nil	69.13	nill
SP12754803	131.93	130.02	129.88	S	CO	C	450	nil	74.80	nill
SP12754900	134.64	133.20	133.00	S	VC	C	225	nil	78.19	nill
SP12754901	134.48	133.00	132.45	S	VC	C	225	nil	69.42	nill
SP12754902	133.96	132.45	131.55	S	VC	C	300	nil	32.02	nill
SP12754903	132.98	131.55	129.71	S	VC	C	300	nil	20.33	nill
SP12755700	131.31	129.42	129.11	S	VC	C	300	nil	70.40	nill
SP12755701	128.68	124.26	123.62	F	nil	C	450	nil	135.25	nill
SP12755702	128.28	123.62	123.55	F	nil	C	450	nil	1097.00	nill
SP12755703	129.53	127.26	126.71	F	VC	C	150	nil	28.47	nill
SP12755704	128.75	126.71	123.92	F	VC	C	150	nil	8.16	nill
SP12755800	131.89	129.98	129.42	S	VC	C	300	nil	45.48	nill
SP12755801	132.37	130.95	130.70	S	VC	C	225	nil	169.88	nill
SP12755802	132.44	130.62	130.23	S	VC	C	300	nil	31.19	nill
SP12755803	132.04	130.23	129.63	S	VC	C	300	nil	28.91	nill
SP12755804	131.18	129.63	128.83	S	VC	C	300	nil	22.41	nill
SP12755805	130.37	128.83	127.83	S	VC	C	300	nil	31.53	nill
SP12755806	129.03	127.83	nil	S	VC	C	300	nil	0.00	nill
SP12755900	131.39	129.71	128.01	S	VC	C	300	nil	20.28	nill
SP12755901	129.55	127.94	127.80	S	CO	C	375	nil	62.41	nill
SP12756605	nil	nil	nil	S	nil	nil	nil	nil	0.00	nill
SP12756701	127.94	125.74	nil	F	nil	C	225	nil	0.00	nill
SP12756702	127.97	126.89	126.46	S	nil	C	225	nil	77.30	nill
SP12756704	127.94	126.46	nil	S	nil	C	450	nil	0.00	nill
SP12756801	127.75	126.65	126.46	S	nil	C	225	nil	165.26	nill
SP12756802	127.79	126.25	nil	F	nil	C	225	nil	0.00	nill

- Abandoned Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Public Combined Gravity Sewer
- Public Foul Gravity Sewer
- Public Surface Water Gravity Sewer
- Trunk Combined Gravity Sewer
- Trunk Foul Use Gravity Sewer
- Trunk Surface Water Gravity Sewer
- Combined Use Pressurised Sewer
- Foul Use Pressurised Sewer
- Surface Water Pressurised Sewer
- Highway Drain
- Combined Lateral Drain (SS)
- Foul Lateral Drain (SS)
- Surface Water Lateral Drain (SS)

- Cable, Earthing
- Cable Junction
- Cable, Optical Fibre/Instrumentation
- Cable, Low Voltage
- Cable, High Voltage
- Cable, Other
- Housing, Building
- Housing, Kiosk
- Disposal Site
- Sewage Treatment Works
- Housing, Other
- Pipe Support Structure
- Sewage Pumping Facility
- Sewer Facility Connection Inlet / Outlet

- Blind Shaft
- Combined Use Manhole
- Flushing Chamber
- Foul Use Manhole
- Grease Trap
- Head Node
- Hydrobrake
- Lamphole
- Outfall
- Overflow
- Penstock
- Petrol Interceptor

- Sewer Chemical Injection Point
- Sewer Junction
- Sewerage Air Valve
- Sewerage Hatch Box Point
- Sewerage Isolation Valve
- Soakaway
- Surface Water Manhole
- Vent Column
- Waste Water Storage
- Culverted Watercourse
- Pre-1937 Properties

MATERIALS

AC	- ASBESTOS CEMENT
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	- CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRC	- GLASS REINFORCED CONCRETE
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHLENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
XXX	- OTHER

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
HD	- HIGHWAY DRAIN
S104	- SECTION 104

SHAPE

C	- CIRCULAR
E	- EGG SHAPED
O	- OTHER
R	- RECTANGLE
S	- SQUARE
T	- TRAPEZOIDAL
U	- UNKNOWN

PURPOSE

C	- COMBINED
E	- FINAL EFFLUENT
F	- FOUL
L	- SLUDGE
S	- SURFACE WATER

TABULAR KEY

A. Sewer pipe data refers to downstream sewer pipe.

B. Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.

C. Gradient is stated a 1 in...

All Private Sewers are shown in magenta
All section 104 sewers are shown in green
All Sewers that have been transferred to Severn Trent Water after the 1st October 2011, but have not been surveyed and confirmed by Severn Trent Water are shown in orange

N W E S

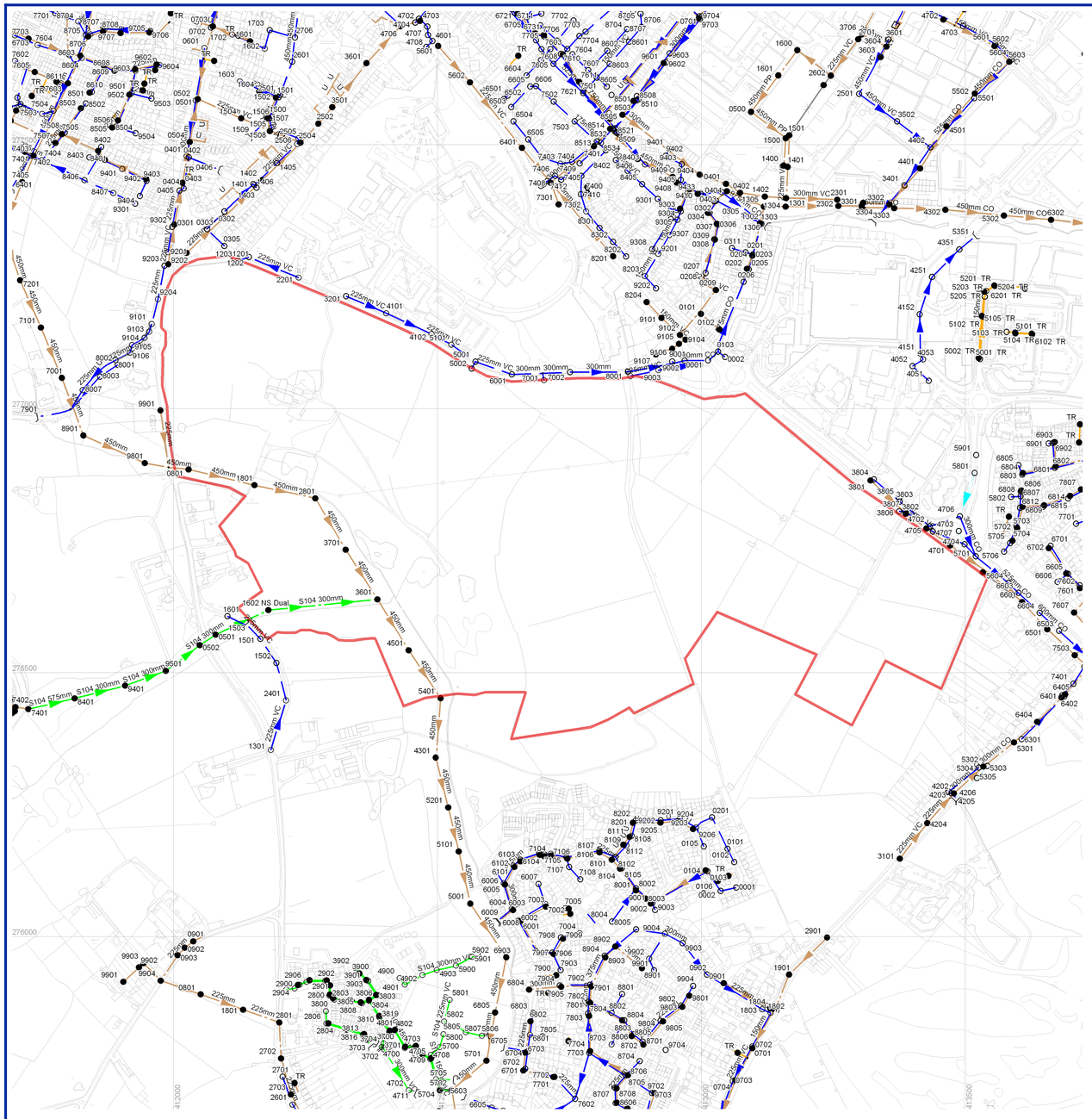
SEVERN TRENT WATER

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

SEWER RECORD (TABULAR)

O/S Map scale: 1:5000
Date of issue: 11.10.17
Sheet No. 1 of 4

This map is centred upon:
O / S Grid reference:
x : 412708
y : 276712



Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP12756803	127.86	126.90	126.65	S	nil	C	225	nil	169.20	nill
SP12756805	128.79	124.84	124.26	F	nil	C	450	nil	159.31	nill
SP12756903	128.55	125.15	124.84	F	nil	C	450	nil	341.65	nill
SP12756902	131.84	129.89	nil	S	nil	C	225	nil	0.00	nill
SP12757701	129.16	127.06	125.74	F	nil	C	225	nil	44.29	nill
SP12757702	129.35	nil	126.89	S	nil	C	225	nil	0.00	nill
SP12757703	132.77	131.02	129.89	S	nil	C	225	nil	80.35	nill
SP12757703	132.77	131.02	130.44	S	nil	C	450	nil	131.09	nill
SP12757704	132.76	130.52	129.96	F	nil	C	225	nil	119.70	nill
SP12757801	132.13	130.20	130.08	S	nil	C	450	nil	267.17	nill
SP12757802	132.15	129.62	129.28	F	nil	C	225	nil	94.18	nill
SP12757803	132.10	130.44	130.20	S	nil	C	450	nil	91.75	nill
SP12757804	132.13	129.96	129.62	F	nil	C	225	nil	70.82	nill
SP12757805	127.84	126.82	126.65	S	nil	C	225	nil	142.29	nill
SP12757900	nil	nil	nil	F	VC	U	150	nil	0.00	nill
SP12757901	132.04	129.28	126.33	F	nil	C	225	nil	19.32	nill
SP12757902	132.04	130.08	127.26	S	nil	C	450	nil	20.57	nill
SP12757903	128.58	127.58	127.40	S	nil	C	225	nil	201.39	nill
SP12757905	128.83	126.33	126.02	F	nil	C	300	nil	194.52	nill
SP12757906	128.75	127.40	127.11	S	nil	C	225	nil	103.69	nill
SP12757907	128.72	126.93	126.74	F	nil	C	300	nil	153.00	nill
SP12757908	nil	nil	127.40	S	nil	C	225	nil	0.00	nill
SP12757909	nil	nil	126.93	F	nil	C	300	nil	0.00	nill
SP12758604	136.48	nil	nil	F	nil	C	225	nil	0.00	nill
SP12758605	136.67	134.69	134.33	S	nil	C	225	nil	80.61	nill
SP12758606	136.71	nil	nil	F	nil	C	225	nil	0.00	nill
SP12758701	138.06	nil	nil	F	nil	C	225	nil	0.00	nill
SP12758702	138.06	136.18	134.91	S	nil	C	300	nil	17.95	nill
SP12758703	135.66	134.06	nil	S	nil	C	225	nil	0.00	nill
SP12758704	137.87	136.40	132.56	S	nil	C	225	nil	10.13	nill
SP12758705	137.35	132.56	131.02	S	nil	C	300	nil	52.45	nill
SP12758706	137.36	nil	130.52	F	nil	C	225	nil	0.00	nill
SP12758707	137.01	134.33	132.56	S	nil	C	225	nil	17.22	nill
SP12758708	137.36	nil	nil	F	nil	C	225	nil	0.00	nill
SP12758801	135.73	133.78	132.28	S	nil	C	225	nil	27.45	nill
SP12758802	134.98	132.28	130.20	S	nil	C	300	nil	23.22	nill
SP12758803	136.57	nil	129.62	F	nil	C	225	nil	0.00	nill
SP12758804	nil	nil	132.28	S	nil	C	300	nil	0.00	nill
SP12758805	137.46	nil	nil	F	nil	C	225	nil	0.00	nill
SP12758806	137.51	134.91	nil	S	nil	C	300	nil	0.00	nill
SP12758901	137.01	134.59	nil	F	nil	C	300	nil	0.00	nill
SP12758902	134.80	nil	nil	F	nil	C	225	nil	0.00	nill
SP12758903	133.65	nil	129.28	F	nil	C	225	nil	0.00	nill
SP12758904	133.65	132.08	130.08	S	nil	C	375	nil	30.86	nill
SP12759002	136.74	nil	nil	F	nil	C	225	nil	0.00	nill
SP12759703	136.76	nil	132.56	S	nil	C	225	nil	0.00	nill
SP12759801	139.34	nil	nil	F	nil	C	225	nil	0.00	nill
SP12759802	139.14	137.26	136.91	S	nil	C	225	nil	138.86	nill
SP12759803	139.19	nil	nil	F	nil	C	225	nil	0.00	nill
SP12759804	138.66	136.91	136.18	S	nil	C	225	nil	71.04	nill
SP12759805	138.67	nil	nil	F	nil	C	225	nil	0.00	nill
SP12759901	nil	nil	nil	S	nil	C	225	nil	0.00	nill
SP12759902	nil	nil	135.62	S	nil	C	225	nil	0.00	nill
SP12759903	138.84	135.96	135.62	S	nil	C	300	nil	110.56	nill
SP12759903	138.84	nil	136.57	S	nil	C	nil	nil	0.00	nill
SP12759904	139.47	137.79	137.26	S	nil	C	225	nil	83.21	nill
SP12760501	nil	nil	nil	F	nil	nil	300	nil	0.00	nill
SP12760502	nil	nil	nil	F	nil	nil	300	nil	0.00	nill
SP12760601	133.19	130.66	130.16	F	nil	C	450	nil	254.70	nill
SP12761301	137.63	136.80	134.83	S	VC	C	225	nil	50.57	nill
SP12761501	132.48	131.56	nil	S	VC	C	225	nil	0.00	nill
SP12761502	133.57	132.66	131.56	S	VC	C	225	nil	49.93	nill
SP12761601	132.49	131.73	nil	S	VC	C	225	nil	0.00	nill
SP12761602	nil	nil	nil	F	nil	nil	300	nil	0.00	nill
SP12761801	132.66	130.16	129.17	F	nil	C	450	nil	120.65	nill
SP12762401	136.17	134.83	132.66	S	VC	C	225	nil	33.76	nill
SP12762801	131.78	129.17	128.66	F	nil	C	450	nil	221.61	nill
SP12763601	130.96	128.22	127.75	F	nil	C	450	nil	239.74	nill
SP12763701	131.17	128.66	128.22	F	nil	C	450	nil	253.45	nill
SP12764301	129.61	126.63	126.41	F	nil	C	450	nil	449.77	nill
SP12764501	130.38	127.75	127.26	F	nil	C	450	nil	221.33	nill
SP12765001	128.22	125.51	125.15	F	nil	C	450	nil	340.53	nill
SP12765101	128.66	125.95	125.51	F	nil	C	450	nil	230.00	nill
SP12765201	129.02	126.41	125.95	F	nil	C	450	nil	187.72	nill
SP12765401	129.98	127.26	126.63	F	nil	C	450	nil	179.81	nill
SP12766001	128.70	127.11	126.74	F	nil	C	300	nil	186.38	nill
SP12766002	128.66	127.38	127.11	S	nil	C	225	nil	252.22	nill
SP12766003	128.78	127.20	nil	F	nil	C	300	nil	0.00	nill
SP12766004	126.76	127.38	nil	S	nil	C	525	nil	0.00	nill
SP12766005	129.14	127.37	127.20	F	nil	C	300	nil	295.82	nill
SP12766006	129.12	127.54	127.38	S	nil	C	525	nil	320.25	nill
SP12766007	nil	nil	nil	S	nil	C	225	nil	0.00	nill
SP12766101	129.77	127.62	127.37	F	nil	C	225	nil	148.48	nill
SP12766102	129.74	127.74	127.54	S	nil	C	525	nil	194.75	nill
SP12766103	130.25	128.25	127.62	F	nil	C	225	nil	25.84	nill
SP12766104	130.40	128.66	127.74	S	nil	C	375	nil	17.70	nill
SP12766105	132.41	130.56	128.66	S	nil	C	375	nil	19.97	nill
SP12766106	132.43	130.15	128.25	F	nil	C	225	nil	19.97	nill
SP12766107	nil	nil	127.54	S	nil	C	nil	nil	0.00	nill
SP12767000	nil	nil	nil	F	PVC	C	100	nil	0.00	nill
SP12767001	nil	nil	nil	F	PVC	C	100	nil	0.00	nill
SP12767002	nil	nil	127.38	S	nil	C	225	nil	0.00	nill
SP12767003	nil	nil	127.11	F	nil	C	225	nil	0.00	nill
SP12767004	nil	nil	nil	S	nil	C	225	nil	0.00	nill
SP12767005	nil	nil	nil	S	PVC	C	100	nil	0.00	nill

Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP12767101	133.95	131.94	130.56	S	nil	C	375	nil	7.39	nill
SP12767102	133.77	131.32	130.15	F	nil	C	225	nil	7.88	nill
SP12767103	134.75	132.71	131.94	S	nil	C	375	nil	15.64	nill
SP12767104	134.82	132.29	131.32	F	nil	C	225	nil	13.44	nill
SP12767105	136.61	134.46	132.71	S	nil	C	375	nil	17.48	nill
SP12767106	136.68	134.00	132.29	F	nil	C	225	nil	18.47	nill
SP12767107	nil	nil	134.46	S	nil	C	225	nil	0.00	nill
SP12767108	nil	nil	nil	S	nil	C	225	nil	0.00	nill
SP12768001	138.89	136.59	136.31	S	nil	C	225	nil	166.50	nill
SP12768002	138.90	135.75	135.63	F	nil	C	225	nil	423.33	nill
SP12768003	138.72	135.95	135.75	F	nil	C	225	nil	120.40	nill
SP12768004	137.17	134.45	136.59	S	nil	C	225	nil	0.00	nill
SP12768005	137.04	134.36	132.08	S	nil	C	300	nil	34.25	nill
SP12768101	138.35	135.49	135.49	F	nil	C	225	nil	0.00	nill
SP12768102	nil	nil	135.90	S	nil	C	375	nil	0.00	nill
SP12768104	138.56	135.63	135.49	F	nil	C	225	nil	166.79	nill
SP12768105	138.57	nil	nil	S	VC	C	225	nil	0.00	nill
SP12768106	138.07	135.90	134.46	S	nil	C	375	nil	43.85	nill
SP12768107	138.35	135.49	134.00	F	nil	C	225	nil	41.72	nill
SP12768108	nil	nil	nil	S	VC	C	225	nil	0.00	nill
SP12768109	nil	nil	nil	S	VC	C	225	nil	0.00	nill
SP12768111	nil	nil	nil	F	U	U	nil	nil	0.00	nill
SP12768112	nil	nil	nil	F	U	U	nil	nil	0.00	nill
SP12768201	nil	nil	nil	F	U	U	nil	nil	0.00	nill
SP12768202	nil	nil	nil	S	VC	C	225	nil	0.00	nill
SP12769001	138.64	136.14	135.95	F	nil	C	225	nil	70.79	nill
SP12769002	138.64	136.84	136.59	S	nil	C	225	nil	161.44	nill
SP12769003	138.36	136.28	136.84	S	nil	C	150	nil	0.00	nill
SP12769004	138.32	135.62	134.36	S	nil	C	300	nil	44.11	nill
SP12769201	nil	nil	nil	S	VC	C	225	nil	0.00	nill
SP12769202	nil	nil	nil	S	VC	C	225	nil	0.00	nill
SP12769203	nil	nil	nil	F	U	U	nil	nil	0.00	nill
SP12769204	nil	nil	nil	F	U	U	nil	nil	0.00	nill
SP12769205	nil	nil	nil	F	U	U	nil	nil	0.00	nill
SP12769206	nil	nil	nil	S	VC	C	225	nil	0.00	nill
SP12770201	140.45	140.15	139.52	F	VC	C	225	nil	153.81	nill
SP12770301	141.28	139.58	139.23	F	VC	C	225	nil	229.74	nill
SP12770302	141.14	140.23	139.93	S	VC	C	225	nil	252.30	nill
SP12770303	141.77	140.44	140.23	S	VC	C	150	nil	228.95	nill
SP12770304	141.22	139.52	137.79	F	VC	C	225	nil	58.86	nill
SP12770305	142.00	140.92	140.44	S	VC	C	225	nil	97.27	nill
SP12770401	140.82	139.73	139.54	S	nil	C	300	nil	23.53	nill
SP12770402	140.95	139.54	nil	S	nil	C	300	nil	0.00	nill
SP12770403	140.84	139.23	138.89	F	VC	C	225	nil	230.18	nill
SP12770404	140.88	140.07	139.54	S	VC	C	225	nil	112.91	nill
SP12770405	140.92	140.10	140.07	S	VC	C	225	nil	298.00	nill
SP12770501	141.17	138.54	nil	F	VC	C	225	nil	0.00	nill
SP12770502	141.17	140.02	139.73	S	nil	C	300	nil	370.17	nill
SP12770504	140.88	138.89	138.54	F	VC	C	225	nil	238.17	nill
SP12770601	141.32	140.40	140.02	S	VC	C	225	nil	264.34	nill
SP12770602	141.36	139.02	138.54	F	VC	C	225	nil	181.52	nill
SP12770702	141.35	140.32	139.89	S	VC	C	225	nil	250.14	nill
SP12770703	141.37	139.22	139.02	F	VC	C	225	nil	265.80	nill
SP12771201	142.26	140.95	nil	S	VC	C	225	nil	0.00	nill
SP12771202	142.54	141.12	140.95	S	VC	C	225	nil	130.24	nill
SP12771401	140.70	139.91	139.67	S	VC	C	nil	nil	0.00	nill
SP12771402	138.87	137.79	137.47	F	VC	C	225	nil	318.22	nill
SP12771403	140.93	140.05	139.80	S	nil	C	225	nil	67.20	nill
SP12771405	140.00	139.52	139.39	S	nil	C	375	nil	406.38	nill
SP12771406	140.80	139.65	139.52	S	CO	C	375	nil	460.23	nill
SP12771501	139.97	138.82	138.75	S	nil	C	375	nil	71.43	nill
SP12771502	140.76	138.30	137.95	F	VC	C	225	nil	120.43	nill
SP12771503	139.95	137.95	137.77	F	VC	C	225	nil	136.22	nill
SP12771504	140.12	138.11	137.77	F	VC	C	225	nil	173.79	nill
SP12771505	140.05	137.77	nil	F	VC	C	225	nil	0.00	nill
SP12771507	140.30	139.11	138.82	S	CO	C	375	nil	136.41	nill
SP12771508	140.20	139.24	139.20	S	nil	C	375	nil	456.00	nill
SP12771601	140.91	139.95	139.22	F	VC	C	225	nil	103.27	nill
SP12771602	140.80	139.11	138.81	S	VC	C	225	nil	120.47	nill
SP12771603	140.92	139.68	138.82	S	VC	C	225	nil	91.77	nill
SP12771604	140.48	138.70	138.30	F	VC	C	225	nil	83.10	nill
SP12771702	140.99	139.56	139.11	S	VC	C	225	nil	150.27	nill
SP12771703	140.12	138.81	138.44	S	VC	C	225	nil	135.14	nill
SP12772201	143.03	141.64	141.12	S	VC	C	225	nil	195.71	nill
SP12772501	140.18	138.75	138.60	S	nil	C	450	nil	447.13	nill
SP12772502	141.17	137.30	136.95	F	VC	C	225	nil	115.60	nill
SP12772504	141.08	137.47	137.30	F	VC	C	225	nil	291.29	nill
SP12772505	141.00	139.37	139.24	S	nil	C	375	nil	427.00	nill
SP12772506	141.00	139.39	139.37	S	nil	C	375	nil	540.00	nill
SP12772601	140.15	138.60	138.44	S	nil	C	450	nil	289.19	nill
SP12772706	139.36	138.44	138.23	S	nil	C	450	nil	288.24	nill
SP12773201	143.12	141.50	140.66	S	VC	C	225	nil	98.17	nill
SP12773501	141.05	136.95	136.50	F	VC	C	225	nil	234.27	nill
SP12773601	140.38	136.50	136.00	F	VC	C	225	nil	189.70	nill
SP12774101	142.30	140.66	139.73	S	VC	C	225	nil	101.99	nill
SP12774102	141.78	139.73	139.22	S	VC	C	225	nil	84.20	nill
SP12774601	138.94	nil	nil	S	nil	nil	nil	nil	0.00	nill
SP12774602	138.74	138.03	137.85	S	VC	C	150	nil	90.44	nill
SP12774702	138.49	137.06	136.79	S	nil	C	450	nil	178.78	nill
SP12774703	138.70	135.86	135.53	F	VC	C	225	nil	210.70	nill
SP12774704	138.87	137.31	137.06	S	nil	C	450	nil	45.24	nill
SP12774705	139.05	138.16	137.94	S	VC	C	225	nil	222.00	nill
SP12774706	138.97	136.00	135.86	F	VC	C	225	nil	273.79	nill
SP12774707	nil	nil	nil	S	nil	nil	nil	nil	0.00	nill
SP12774708	nil	nil	nil	S	nil	nil	nil	nil	0.00	nill

- Abandoned Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Public Combined Gravity Sewer
- Public Foul Gravity Sewer
- Public Surface Water Gravity Sewer
- Trunk Combined Gravity Sewer
- Trunk Foul Use Gravity Sewer
- Trunk Surface Water Gravity Sewer
- Combined Use Pressurised Sewer
- Foul Use Pressurised Sewer
- Surface Water Pressurised Sewer
- Highway Drain
- Combined Lateral Drain (SS)
- Foul Lateral Drain (SS)
- Surface Water Lateral Drain (SS)

- Cable, Earthing
- Cable Junction
- Cable, Optical Fibre/Instrumentation
- Cable, Low Voltage
- Cable, High Voltage
- Cable, Other
- Housing, Building
- Housing, Kiosk
- Disposal Site
- Sewage Treatment Works
- Housing, Other
- Pipe Support Structure
- Sewage Pumping Facility
- Sewer Facility Connection Inlet / Outlet

- Blind Shaft
- Combined Use Manhole
- Flushing Chamber
- Foul Use Manhole
- Grease Trap
- Head Node
- Hydrobrake
- Lamphole
- Outfall
- Overflow
- Penstock
- Petrol Interceptor

- Sewer Chemical Injection Point
- Sewer Junction
- Sewerage Air Valve
- Sewerage Hatch Box Point
- Sewerage Isolation Valve
- Soakaway
- Surface Water Manhole
- Vent Column
- Waste Water Storage
- Culverted Watercourse
- Pre-1937 Properties

MATERIALS

AC	- ASBESTOS CEMENT
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	- CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRC	- GLASS REINFORCED CONCRETE
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHLENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
XXX	- OTHER

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
HD	- HIGHWAY DRAIN
S104	- SECTION 104

SHAPE

C	- CIRCULAR
E	- EGG SHAPED
O	- OTHER
R	- RECTANGLE
S	- SQUARE
T	- TRAPEZOIDAL
U	- UNKNOWN

PURPOSE

C	- COMBINED
E	- FINAL EFFLUENT
F	- FOUL
L	- SLUDGE
S	- SURFACE WATER

TABULAR KEY

A. Sewer pipe data refers to downstream sewer pipe.

B. Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.

C. Gradient is stated a 1 in...

All Private Sewers are shown in magenta
All section 104 sewers are shown in green
All Sewers that have been transferred to Severn Trent Water after the 1st October 2011, but have not been surveyed and confirmed by Severn Trent Water are shown in orange

N W E S

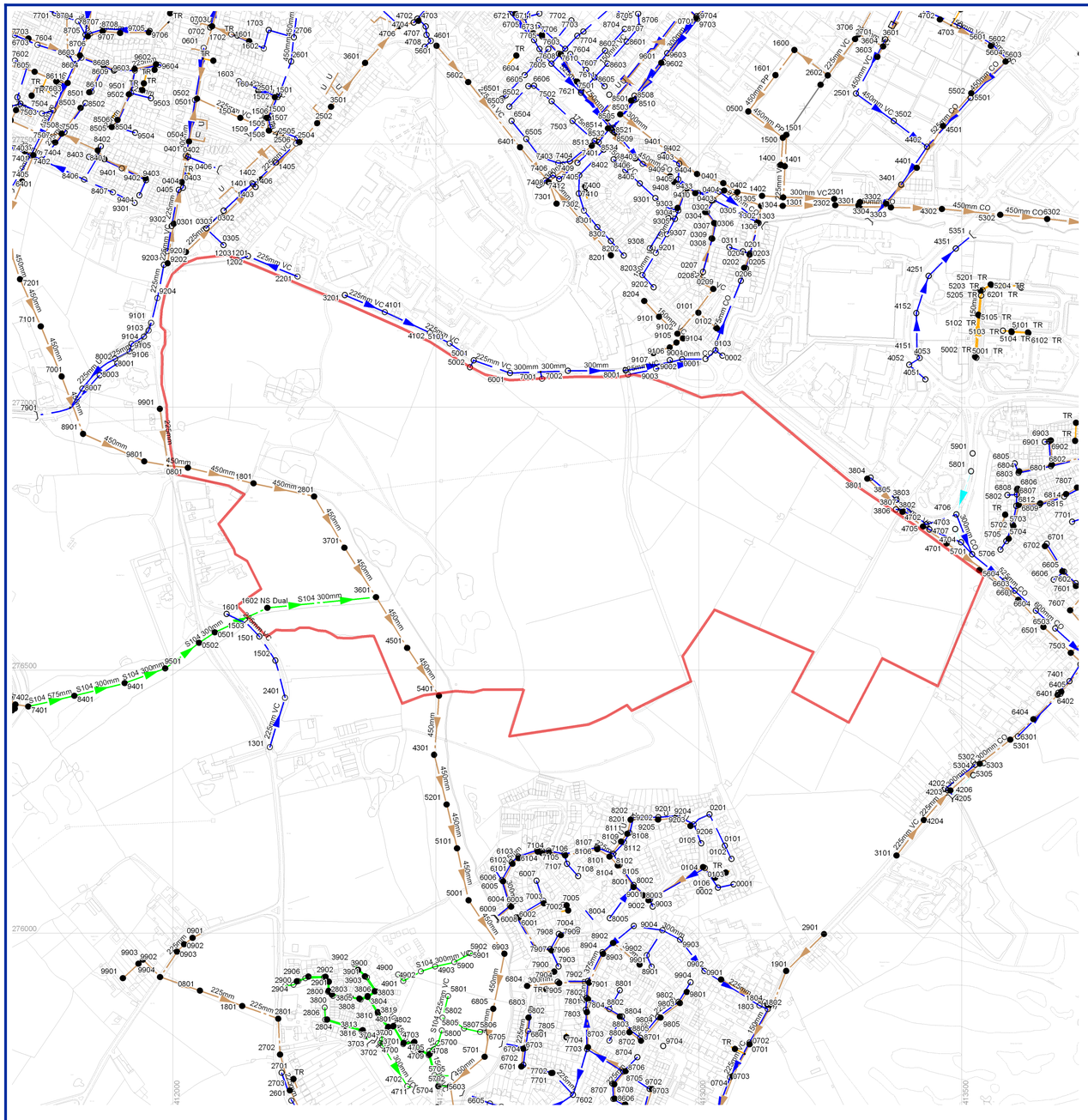
SEVERN TRENT WATER

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

SEWER RECORD (TABULAR)

O/S Map scale: 1:5000
Date of issue: 11.10.17
Sheet No. 2 of 4

This map is centred upon:
O / S Grid reference:
x : 412708
y : 276712



Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP12775001	140.96	139.04	138.88	S	VC	C	225	nil	456.56	nil
SP12775002	140.88	139.50	139.04	S	VC	C	225	nil	32.09	nil
SP12775101	141.26	139.22	139.04	S	VC	C	225	nil	306.78	nil
SP12775601	138.90	137.14	136.46	F	VC	C	225	nil	134.47	nil
SP12775602	138.64	136.46	135.44	F	VC	C	225	nil	154.95	nil
SP12776001	140.52	138.88	nil	S	nil	C	300	nil	0.00	nil
SP12776401	138.05	135.44	133.46	F	VC	C	225	nil	43.39	nil
SP12776402	137.14	136.18	135.46	S	VC	C	175	nil	51.39	nil
SP12776501	137.87	137.17	136.10	S	VC	C	150	nil	48.93	nil
SP12776502	138.01	137.59	137.17	S	VC	C	150	nil	23.57	nil
SP12776503	137.84	136.95	136.16	S	VC	C	150	nil	67.19	nil
SP12776504	137.76	137.18	136.77	S	VC	C	150	nil	107.44	nil
SP12776505	137.36	136.77	136.18	S	VC	C	150	nil	72.54	nil
SP12776601	136.55	134.78	134.54	S	nil	C	750	nil	82.17	nil
SP12776602	136.31	134.54	nil	S	nil	C	750	nil	0.00	nil
SP12776603	136.50	135.26	nil	S	VC	C	150	nil	0.00	nil
SP12776604	137.16	136.10	135.26	S	VC	C	150	nil	47.17	nil
SP12776605	137.07	136.16	136.16	S	VC	C	150	nil	0.00	nil
SP12776606	136.87	136.16	135.32	S	VC	C	150	nil	52.30	nil
SP12776705	136.97	135.36	nil	S	VC	C	150	nil	0.00	nil
SP12776706	136.77	135.88	135.36	S	VC	C	150	nil	55.50	nil
SP12776707	136.41	135.53	135.12	S	VC	C	150	nil	105.34	nil
SP12776711	137.41	134.77	nil	S	CO	C	750	nil	0.00	nil
SP12776721	137.22	133.89	133.70	F	CO	C	375	nil	264.47	nil
SP12776731	136.51	134.20	134.08	S	CO	C	750	nil	155.67	nil
SP12776741	136.49	133.68	133.59	F	CO	C	375	nil	180.89	nil
SP12777001	140.07	138.88	nil	S	VC	C	150	nil	0.00	nil
SP12777002	140.46	138.58	137.89	S	nil	C	300	nil	159.42	nil
SP12777301	137.62	133.75	133.46	F	nil	C	300	nil	150.55	nil
SP12777302	138.55	136.52	135.95	S	VC	C	150	nil	60.49	nil
SP12777303	138.73	136.26	133.46	F	VC	C	225	nil	32.97	nil
SP12777400	nil	nil	nil	F	VC	C	100	nil	0.00	nil
SP12777401	135.00	133.53	nil	F	CO	C	375	nil	0.00	nil
SP12777402	136.14	135.20	134.11	S	VC	C	175	nil	56.03	nil
SP12777403	136.70	135.46	135.20	S	VC	C	175	nil	85.38	nil
SP12777404	135.60	134.22	nil	S	nil	C	450	nil	0.00	nil
SP12777405	136.85	135.41	134.22	S	nil	C	450	nil	54.14	nil
SP12777406	137.02	135.88	135.41	S	nil	C	450	nil	40.34	nil
SP12777407	137.61	136.40	135.88	S	nil	C	450	nil	62.69	nil
SP12777408	137.36	133.46	133.55	F	nil	C	300	nil	0.00	nil
SP12777409	136.52	135.12	133.98	S	VC	C	150	nil	58.93	nil
SP12777410	137.76	135.95	135.12	S	VC	C	150	nil	42.18	nil
SP12777411	nil	136.40	135.88	S	nil	C	450	nil	51.08	nil
SP12777412	nil	136.40	135.88	S	nil	C	450	nil	32.37	nil
SP12777413	nil	nil	nil	F	VC	C	100	nil	0.00	nil
SP12777501	135.30	133.29	130.22	S	CO	C	750	nil	28.46	nil
SP12777502	136.39	135.32	134.72	S	VC	C	175	nil	91.95	nil
SP12777503	135.81	134.72	134.16	S	VC	C	175	nil	101.14	nil
SP12777601	136.01	135.11	134.84	S	VC	C	150	nil	92.00	nil
SP12777602	136.15	135.58	nil	S	VC	C	150	nil	0.00	nil
SP12777603	135.89	134.47	134.01	S	VC	C	225	nil	83.07	nil
SP12777604	135.94	134.87	134.38	S	VC	C	150	nil	86.59	nil
SP12777605	136.10	134.01	133.32	S	nil	C	525	nil	113.75	nil
SP12777607	135.65	134.38	134.25	S	VC	C	225	nil	163.54	nil
SP12777608	135.65	133.15	132.89	F	CO	C	450	nil	232.85	nil
SP12777610	135.80	133.74	133.65	S	CO	C	750	nil	916.56	nil
SP12777611	135.53	132.85	132.39	F	CO	C	450	nil	197.63	nil
SP12777701	135.35	133.65	nil	S	CO	C	750	nil	0.00	nil
SP12777702	136.44	135.67	135.12	S	VC	C	150	nil	89.16	nil
SP12777703	136.50	135.25	135.07	S	VC	C	225	nil	80.11	nil
SP12777704	136.41	135.07	134.76	S	VC	C	225	nil	109.58	nil
SP12777705	135.97	133.52	133.15	F	CO	C	450	nil	139.51	nil
SP12777706	135.99	134.07	133.75	S	CO	C	750	nil	143.66	nil
SP12778001	139.93	137.89	nil	S	nil	C	300	nil	0.00	nil
SP12778002	140.14	139.00	138.56	S	VC	C	225	nil	123.02	nil
SP12778201	139.28	137.68	136.26	F	VC	C	225	nil	63.40	nil
SP12778202	138.98	138.02	137.57	S	VC	C	150	nil	83.42	nil
SP12778203	nil	nil	136.12	S	VC	C	150	nil	0.00	nil
SP12778204	139.35	137.63	136.52	F	VC	C	150	nil	36.97	nil
SP12778301	138.99	137.08	136.52	S	VC	C	150	nil	72.25	nil
SP12778302	138.94	137.57	137.08	S	VC	C	150	nil	73.61	nil
SP12778401	135.03	133.98	nil	S	VC	C	150	nil	0.00	nil
SP12778402	135.08	133.40	133.05	S	VC	C	150	nil	88.97	nil
SP12778403	134.42	132.40	132.06	S	CO	C	1050	nil	176.18	nil
SP12778403	134.42	nil	132.20	S	CO	C	975	nil	0.00	nil
SP12778404	135.27	133.05	132.93	S	VC	C	150	nil	306.67	nil
SP12778405	134.95	132.93	132.71	S	VC	C	225	nil	186.55	nil
SP12778406	134.56	131.36	131.75	F	CO	C	450	nil	0.00	nil
SP12778502	136.10	133.74	132.55	F	VC	C	225	nil	28.08	nil
SP12778503	136.18	134.87	nil	S	nil	C	300	nil	0.00	nil
SP12778505	135.25	132.55	131.10	F	nil	C	300	nil	127.63	nil
SP12778506	134.74	130.01	132.99	S	CO	C	750	nil	0.00	nil
SP12778507	134.89	132.85	132.80	S	CO	C	750	nil	98.80	nil
SP12778508	136.56	nil	nil	S	nil	C	525	nil	0.00	nil
SP12778509	134.84	133.00	132.98	S	CO	C	750	nil	85.00	nil
SP12778510	136.37	nil	133.23	S	nil	C	525	nil	0.00	nil
SP12778511	134.77	nil	131.08	F	nil	C	450	nil	0.00	nil
SP12778513	135.06	133.92	nil	S	VC	C	225	nil	0.00	nil
SP12778514	135.00	132.29	nil	F	CO	C	450	nil	0.00	nil
SP12778521	134.80	132.88	132.90	S	CO	C	750	nil	0.00	nil
SP12778531	134.82	132.80	132.40	S	CO	C	1050	nil	186.45	nil
SP12778532	134.82	132.82	nil	S	CO	C	975	nil	0.00	nil
SP12778532	nil	130.22	130.01	S	CO	C	750	nil	28.44	nil
SP12778534	nil	nil	133.32	S	nil	C	450	nil	0.00	nil

Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP12778601	137.63	136.08	134.83	S	VC	C	150	nil	44.78	nil
SP12778602	136.09	134.94	134.38	S	VC	C	175	nil	92.18	nil
SP12778603	136.10	134.83	134.36	S	VC	C	175	nil	75.28	nil
SP12778604	135.46	134.24	133.63	S	VC	C	225	nil	63.95	nil
SP12778605	135.53	134.77	134.34	S	VC	C	225	nil	59.30	nil
SP12778704	138.66	137.51	136.80	S	VC	C	150	nil	45.86	nil
SP12778705	139.22	138.41	137.51	S	VC	C	150	nil	27.87	nil
SP12778706	138.92	137.51	136.08	S	VC	C	150	nil	25.79	nil
SP12778707	137.66	136.52	134.94	S	VC	C	150	nil	34.96	nil
SP12779001	139.66	138.71	nil	S	VC	C	150	nil	0.00	nil
SP12779002	139.36	nil	nil	S	CO	C	300	nil	0.00	nil
SP12779003	139.63	138.56	nil	S	VC	C	225	nil	0.00	nil
SP12779101	139.30	136.52	135.75	F	VC	C	150	nil	61.75	nil
SP12779102	138.94	nil	nil	F	VC	C	225	nil	0.00	nil
SP12779104	138.75	135.85	135.75	F	VC	C	225	nil	133.30	nil
SP12779105	139.01	138.28	135.85	F	VC	C	150	nil	5.93	nil
SP12779106	139.11	138.68	138.28	F	VC	C	100	nil	39.53	nil
SP12779107	140.16	139.40	138.68	F	VC	C	100	nil	45.68	nil
SP12779201	137.41	136.12	134.46	S	VC	C	150	nil	25.11	nil
SP12779202	139.21	138.02	nil	S	VC	C	150	nil	0.00	nil
SP12779301	134.68	132.71	132.50	S	VC	C	225	nil	149.52	nil
SP12779302	134.11	132.50	132.47	S	nil	C	300	nil	614.67	nil
SP12779303	134.07	132.47	131.83	S	nil	C	300	nil	64.80	nil
SP12779304	134.18	131.65	131.52	F	VC	C	150	nil	207.15	nil
SP12779305	134.36	133.29	132.47	S	VC	C	150	nil	20.84	nil
SP12779306	134.59	133.42	133.29	S	VC	C	150	nil	100.31	nil
SP12779307	135.58	134.46	133.29	S	VC	C	150	nil	27.91	nil
SP12779308	137.47	135.88	133.42	S	VC	C	150	nil	27.19	nil
SP12779401	135.01	133.31	133.16	S	nil	C	300	nil	95.47	nil
SP12779402	134.17	133.16	132.92	S	nil	C	300	nil	141.67	nil
SP12779403	134.06	132.92	132.58	S	nil	C	300	nil	88.44	nil
SP12779404	133.34	nil	130.75	F	VC	C	300	nil	0.00	nil
SP12779405	134.06	132.58	nil	S	nil	C	300	nil	0.00	nil
SP12779406	133.52	131.83	nil	S	nil	C	300	nil	0.00	nil
SP12779407	133.75	131.52	130.78	F	VC	C	150	nil	19.49	nil
SP12779408	134.11	130.59	130.45	F	CO	C	450	nil	191.64	nil
SP12779409	135.00	131.74	130.61	F	CO	C	450	nil	12.04	nil
SP12779410	nil	nil	130.06	F	CO	C	375	nil	0.00	nil
SP12779411	133.44	130.43	nil	F	CO	C	450	nil	0.00	nil
SP12779422	134.23	131.97	nil	S	CO	C	1350	nil	0.00	nil
SP12779422	134.23	nil	nil	S	CO	C	1050	nil	0.00	nil
SP12779433	nil	nil	130.48	S	CO	C	975	nil	0.00	nil
SP12779601	138.50	135.20	133.74	F	VC	C	225	nil	62.36	nil
SP12779602	138.49	136.13	134.87	S	VC	C	300	nil	72.39	nil
SP12779603	139.07	nil	nil	S	nil	C	525	nil	0.00	nil
SP12779703	141.30	137.24	135.20	F	VC	C	225	nil	53.44	nil
SP12779704	141.30	137.66	136.13	S	nil	C	300	nil	69.42	nil
SP12779705	141.28	nil	nil	S	nil	C	525	nil	0.00	nil
SP13750701	136.94	135.06	131.72	S	VC	C	225	nil	22.25	nil
SP13750702	136.77	134.37	131.13	F	VC	C	150	nil	20.99	nil
SP13750703	133.55	131.72	127.67	S	VC	C	225	nil	24.54	nil
SP13750704	133.62	131.13	127.37	F	VC	C	150	nil	25.93	nil
SP13750901	140.05	136.97	136.12	F	VC	C	150	nil	119.98	nil
SP13750902	139.87	136.57	137.40	S	nil	C	225	nil	0.00	nil
SP13751801	138.07	135.20	nil	F	VC	C	150	nil	0.00	nil
SP13751802	138.18	136.16	135.06	S	VC	C	225	nil	66.75	nil
SP13751803	138.48	137.40	136.16	S	VC	C	150	nil	14.64	nil
SP13751804	138.06	136.12	nil	F	nil	C	150	nil	0.00	nil
SP13751901	138.89	135.85	135.20	F	VC	C	150	nil	99.42	nil
SP13752901	138.38	136.76	135.85	F	VC	C	150	nil	110.35	nil
SP13760001	139.95	138.88	138.61	S	VC	C	225	nil	113.30	nil
SP13760002	139.66	138.51	138.18	S	VC	C	225	nil	131.32	nil
SP13760003	139.13	138.26	nil	S	VC	C	225	nil	0.00	nil
SP13760101	139.09	137.70	137.19	S	VC	C	225	nil	128.90	nil
SP13760102	139.54	138.23	137.73	S	VC	C	225	nil	56.36	nil
SP13760103	139.21	138.15	nil	S	VC	C	225	nil	0.00	nil
SP13760104	139.18	137.23	nil	F	VC	C	225	nil	0.00	nil
SP13760105	138.80	nil	nil	S	VC	C	225	nil	0.00	nil
SP13760106	139.57	138.36	137.27	F	VC	C	150	nil	27.96	nil
SP13762201	138.81	nil	nil	S	CO	C	375	nil	0.00	nil
SP13763101	136.87	134.13	133.29	F	VC	C	225	nil	101.90	nil
SP13763801	140.06	137.52	136.68	F	VC	C	225	nil	108.20	nil
SP13763802	139.32	136.66	136.36	F	VC	C	225	nil	160.03	nil
SP13763803	139.22	136.54	136.07	S	VC	C	225	nil	157.19	nil
SP13763804	139.98	138.23	136.59	S	VC	C	225	nil	39.35	nil
SP13763805	139.46	nil	nil	nil	nil	nil	nil	nil	0.00	nil
SP13763806	139.52	138.73	137.68	S	VC	C	225	nil	10.52	nil
SP13763807	139.38	137.66	136.95	S	VC	C	225	nil	92.68	nil
SP13764201	nil	nil	nil	S	VC	C	225	nil	0.00	nil
SP13764202	134.64	132.56	132.32	F	CO	C	300	nil	302.96	nil
SP13764203	nil	nil	nil	S	VC	C	225	nil	0.00	nil
SP13764204	135.89	133.26	132.62	F	VC	C	225	nil	119.16	nil
SP13764701	138.06	135.79	nil	F	VC	C	225	nil	0.00	nil
SP13764702	138.77	136.05	135.61	S	VC	C	225	nil	136.55	nil
SP13764703	138.20	nil	nil	nil	nil	nil	nil	nil	0.00	nil
SP13764704	137.58	135.18	135.04	S	VC	C	300	nil	222.43	nil
SP13764705	138.73	136.35	135.86	F	VC	C	225	nil	112.69	nil
SP13764706	138.40	135.53	135.02	S	CO	C	300	nil	160.22	nil
SP13764707	138.55	136.95	135.45	S	VC	C	225	nil	43.08	nil
SP13765301	136.21	132.00	131.78	F	CO	C	300	nil	267.27	nil
SP13765302	135.86	132.31	132.02	F	CO	C	300	nil	255.28	nil
SP13765303	nil	nil	nil	nil	nil	nil	nil	nil	0.00	nil
SP13765304	135.86	135.03	nil	S	VC	C	225	nil	0.00	nil
SP13765305	nil	nil	nil	nil	nil	nil	nil	nil	0.00	nil
SP13765602	136.33	nil	nil	F	VC	C	225	nil	0.00	nil

- Abandoned Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Public Combined Gravity Sewer
- Public Foul Gravity Sewer
- Public Surface Water Gravity Sewer
- Trunk Combined Gravity Sewer
- Trunk Foul Use Gravity Sewer
- Trunk Surface Water Gravity Sewer
- Combined Use Pressurised Sewer
- Foul Use Pressurised Sewer
- Surface Water Pressurised Sewer
- Highway Drain
- Combined Lateral Drain (SS)
- Foul Lateral Drain (SS)
- Surface Water Lateral Drain (SS)

- Cable, Earthing
- Cable Junction
- Cable, Optical Fibre/Instrumentation
- Cable, Low Voltage
- Cable, High Voltage
- Cable, Other
- Housing, Building
- Housing, Kiosk
- Disposal Site
- Sewage Treatment Works
- Housing, Other
- Pipe Support Structure
- Sewage Pumping Facility
- Sewer Facility Connection Inlet / Outlet

- Blind Shaft
- Combined Use Manhole
- Flushing Chamber
- Foul Use Manhole
- Grease Trap
- Head Node
- Hydrobrake
- Lamphole
- Outfall
- Overflow
- Penstock
- Petrol Interceptor

- Sewer Chemical Injection Point
- Sewer Junction
- Sewerage Air Valve
- Sewerage Hatch Box Point
- Sewerage Isolation Valve
- Soakaway
- Surface Water Manhole
- Vent Column
- Waste Water Storage
- Culverted Watercourse
- Pre-1937 Properties

MATERIALS

AC	- ASBESTOS CEMENT
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	- CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRC	- GLASS REINFORCED CONCRETE
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHLENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
XXX	- OTHER

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
HD	- HIGHWAY DRAIN
S104	- SECTION 104

SHAPE

C	- CIRCULAR
E	- EGG SHAPED
O	- OTHER
R	- RECTANGLE
S	- SQUARE
T	- TRAPEZOIDAL
U	- UNKNOWN

PURPOSE

E	- COMBINED
F	- FINAL EFFLUENT
L	- FOUL
S	- SLUDGE
S	- SURFACE WATER

All Private Sewers are shown in magenta
All section 104 sewers are shown in green
All Sewers that have been transferred to Severn Trent Water after the 1st October 2011, but have not been surveyed and confirmed by Severn Trent Water are shown in orange

TABULAR KEY

A. Sewer pipe data refers to downstream sewer pipe.

B. Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.

C. Gradient is stated a 1 in...

N W E S

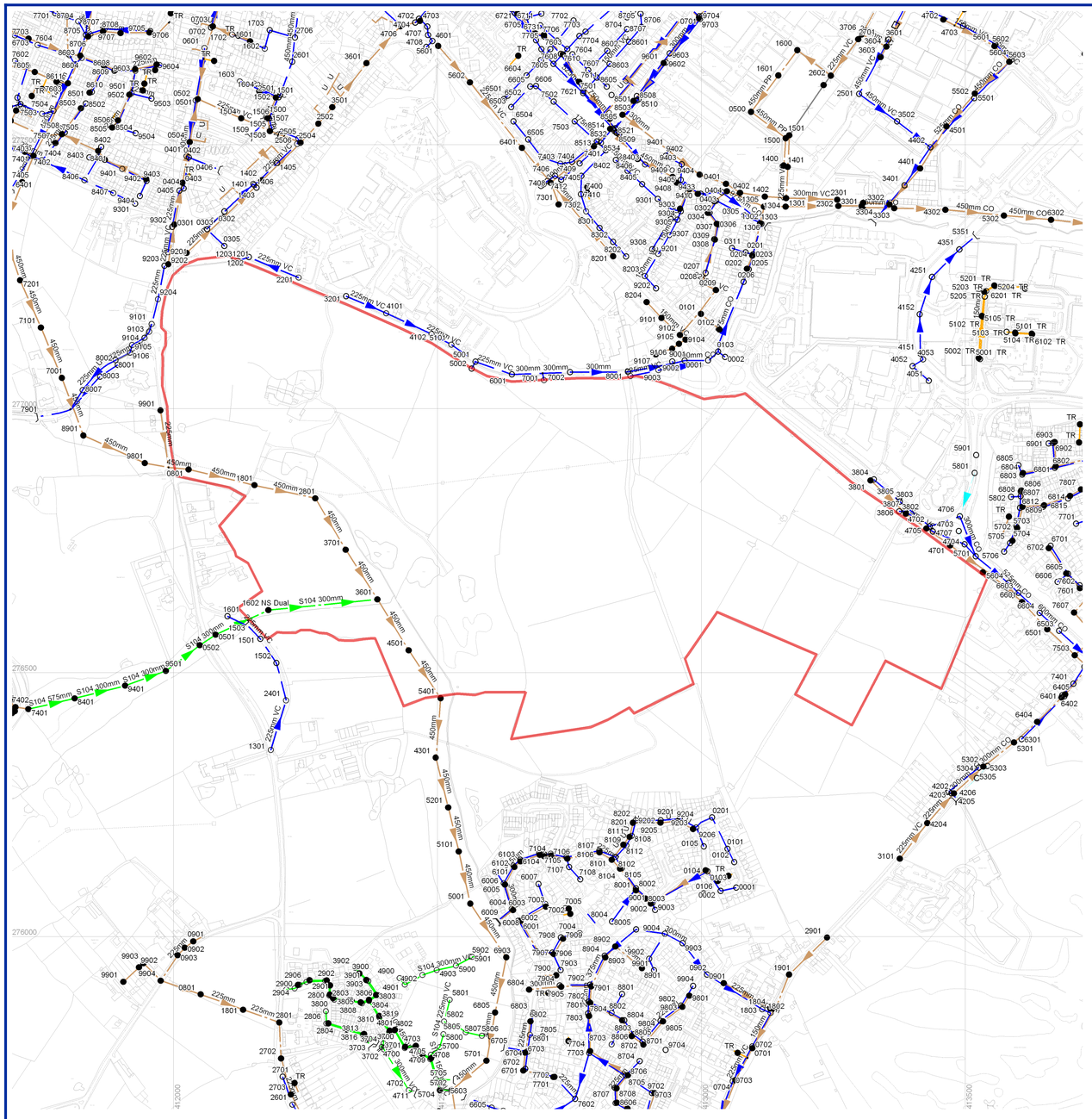
SEVERN TRENT WATER

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

SEWER RECORD (TABULAR)

O/S Map scale: 1:5000
Date of issue: 11.10.17
Sheet No. 3 of 4

This map is centred upon:
O / S Grid reference:
x : 412708
y : 276712



Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP13765603	nil	nil	133.98	S	VC	C	225	nil	0.00	nill
SP13765604	135.76	134.05	133.82	S	CO	C	525	nil	116.83	nill
SP13765701	137.27	134.94	134.33	S	CO	C	375	nil	130.57	nill
SP13765702	136.64	134.97	134.85	S	VC	C	225	nil	297.42	nill
SP13765703	136.62	134.65	134.40	F	VC	C	225	nil	164.92	nill
SP13765704	136.57	134.78	134.66	F	VC	C	225	nil	213.58	nill
SP13765705	136.54	135.24	134.99	S	VC	C	225	nil	136.72	nill
SP13765706	136.53	135.40	135.27	S	VC	C	225	nil	149.38	nill
SP13765801	nil	nil	nil	nil	nil	nil	nil	nil	0.00	nill
SP13765802	137.87	135.31	135.19	S	VC	C	225	nil	150.25	nill
SP13766301	136.08	nil	nil	S	VC	C	225	nil	0.00	nill
SP13766401	135.30	134.02	133.65	S	VC	C	225	nil	82.19	nill
SP13766402	135.26	nil	134.03	S	VC	C	225	nil	0.00	nill
SP13766403	135.31	131.54	131.45	F	CO	C	300	nil	102.44	nill
SP13766404	135.78	131.76	131.56	F	CO	C	300	nil	325.25	nill
SP13766405	135.28	131.42	131.11	F	CO	C	300	nil	215.19	nill
SP13766501	134.76	nil	131.49	F	VC	C	225	nil	0.00	nill
SP13766503	134.79	132.77	nil	S	CO	C	600	nil	0.00	nill
SP13766601	135.02	nil	nil	F	VC	C	225	nil	0.00	nill
SP13766603	135.48	133.78	133.31	S	CO	C	525	nil	114.94	nill
SP13766604	135.23	133.20	132.79	S	CO	C	600	nil	122.56	nill
SP13766605	134.91	133.46	133.15	S	VC	C	225	nil	100.35	nill
SP13766606	135.12	133.74	133.47	S	VC	C	225	nil	89.29	nill
SP13766607	134.96	133.08	132.82	F	VC	C	225	nil	146.96	nill
SP13766701	135.66	134.20	133.48	S	VC	C	225	nil	86.71	nill
SP13766702	135.65	133.77	133.10	F	VC	C	225	nil	86.94	nill
SP13766801	137.09	134.34	133.97	F	VC	C	225	nil	182.58	nill
SP13766802	137.04	134.68	133.44	S	VC	C	225	nil	57.31	nill
SP13766803	137.83	135.63	134.70	S	VC	C	225	nil	67.39	nill
SP13766804	137.82	135.19	134.37	F	VC	C	225	nil	76.33	nill
SP13766805	137.94	136.25	135.68	S	VC	C	225	nil	33.88	nill
SP13766806	137.73	134.84	134.44	F	VC	C	225	nil	77.65	nill
SP13766807	137.74	135.31	135.19	S	VC	C	225	nil	75.00	nill
SP13766808	137.65	135.17	134.88	S	VC	C	225	nil	75.93	nill
SP13766809	137.20	134.37	134.20	F	VC	C	225	nil	241.82	nill
SP13766811	137.23	134.83	134.66	S	VC	C	225	nil	259.12	nill
SP13766812	136.78	134.18	134.00	F	VC	C	225	nil	290.00	nill
SP13766813	136.77	134.65	134.35	S	VC	C	225	nil	160.16	nill
SP13766814	136.36	133.98	133.81	F	VC	C	225	nil	142.29	nill
SP13766815	136.20	134.31	133.17	S	VC	C	225	nil	56.50	nill
SP13766901	137.36	135.19	135.00	S	VC	C	225	nil	42.42	nill
SP13766902	137.25	134.99	134.74	S	VC	C	225	nil	188.68	nill
SP13766903	137.24	134.70	134.37	F	VC	C	225	nil	139.52	nill
SP13767401	134.90	133.63	133.20	S	VC	C	225	nil	89.02	nill
SP13767503	134.27	131.47	131.13	F	VC	C	225	nil	99.91	nill
SP13767601	134.58	133.10	132.86	S	VC	C	300	nil	139.71	nill
SP13767602	134.52	132.79	132.59	F	VC	C	225	nil	109.95	nill
SP13767607	134.91	nil	131.76	F	VC	C	225	nil	0.00	nill
SP13767701	nil	nil	133.85	S	VC	C	225	nil	0.00	nill
SP13767807	136.29	133.80	133.66	F	VC	C	225	nil	230.00	nill
SP13770001	nil	nil	nil	S	CO	C	375	nil	0.00	nill
SP13770002	nil	nil	nil	S	CO	C	375	nil	0.00	nill
SP13770101	nil	nil	nil	F	VC	C	150	nil	0.00	nill
SP13770102	nil	nil	nil	F	VC	C	150	nil	0.00	nill
SP13770103	nil	nil	133.79	S	CO	C	375	nil	0.00	nill
SP13770201	134.06	133.09	132.82	S	VC	C	150	nil	53.93	nill
SP13770202	134.43	133.39	133.09	F	VC	C	225	nil	89.77	nill
SP13770203	133.86	132.75	131.80	S	VC	C	225	nil	63.34	nill
SP13770204	133.93	133.06	132.16	F	VC	C	225	nil	69.80	nill
SP13770205	134.49	133.07	132.78	S	VC	C	225	nil	100.41	nill
SP13770206	135.01	133.76	133.08	S	VC	C	225	nil	38.24	nill
SP13770207	136.34	133.33	133.06	S	VC	C	225	nil	242.67	nill
SP13770208	137.14	133.48	133.06	F	VC	C	225	nil	212.41	nill
SP13770209	136.90	nil	133.51	F	VC	C	225	nil	0.00	nill
SP13770301	133.49	nil	130.28	F	VC	C	225	nil	0.00	nill
SP13770302	133.44	nil	nil	S	CO	C	1050	nil	0.00	nill
SP13770304	133.70	132.28	nil	S	VC	C	225	nil	0.00	nill
SP13770305	nil	nil	nil	S	CO	C	1050	nil	0.00	nill
SP13770306	134.00	132.43	132.29	F	VC	C	225	nil	193.00	nill
SP13770307	133.96	132.43	132.32	S	VC	C	225	nil	226.67	nill
SP13770308	134.79	133.03	132.45	F	VC	C	225	nil	49.88	nill
SP13770309	134.76	133.03	132.45	S	VC	C	225	nil	51.05	nill
SP13770310	133.70	132.27	nil	F	VC	C	225	nil	0.00	nill
SP13770311	134.35	133.63	133.12	S	VC	C	150	nil	52.31	nill
SP13770401	133.33	130.74	130.70	F	VC	C	300	nil	797.75	nill
SP13770402	133.24	130.70	130.38	F	VC	C	300	nil	148.50	nill
SP13770403	132.60	130.43	131.26	S	CO	C	975	nil	0.00	nill
SP13770404	134.24	130.08	129.68	F	CO	C	450	nil	194.28	nill
SP13770500	139.25	135.51	135.07	F	PP	C	450	nil	184.73	2013
SP13770701	141.37	136.61	nil	S	CO	C	375	nil	0.00	nill
SP13771301	133.00	130.16	129.50	F	VC	C	300	nil	147.05	nill
SP13771302	133.03	132.15	129.91	F	VC	C	225	nil	14.69	nill
SP13771303	133.01	131.77	nil	S	VC	C	225	nil	0.00	nill
SP13771304	132.63	129.34	128.72	F	CO	C	450	nil	158.73	nill
SP13771305	132.57	129.66	129.36	F	CO	C	450	nil	136.67	nill
SP13771400	137.90	135.02	133.93	F	PP	C	450	nil	7.57	2013
SP13771401	135.83	134.08	130.35	F	VC	C	225	nil	15.84	nill
SP13771402	132.90	130.35	130.17	F	VC	C	300	nil	222.83	nill
SP13771500	137.92	135.07	135.02	F	PP	C	450	nil	1107.25	2013
SP13771501	138.36	nil	134.15	F	VC	C	225	nil	0.00	nill
SP13771600	140.41	136.31	135.98	F	PP	C	450	nil	183.39	2013
SP13771601	140.22	135.98	135.51	F	PP	C	450	nil	183.77	2013
SP13772301	132.16	129.48	129.19	F	VC	C	300	nil	176.32	nill
SP13772302	132.00	128.71	128.47	F	CO	C	450	nil	183.33	nill
SP13772501	nil	nil	nil	S	VC	C	450	nil	0.00	nill

Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP13772602	140.25	136.75	136.31	F	PP	C	450	nil	179.43	2013
SP13772701	nil	nil	nil	F	VC	C	225	nil	0.00	nill
SP13773301	132.13	129.18	129.14	F	VC	C	300	nil	1252.25	nill
SP13773302	132.64	129.12	128.32	F	VC	C	300	nil	14.07	nill
SP13773303	132.28	128.10	127.44	F	CO	C	450	nil	149.31	nill
SP13773305	131.59	128.46	nil	F	CO	C	450	nil	0.00	nill
SP13773306	131.71	129.41	nil	F	VC	C	225	nil	0.00	nill
SP13773401	133.82	132.28	130.20	S	CO	C	525	nil	39.89	nill
SP13773502	nil	nil	136.08	S	CO	C	450	nil	0.00	nill
SP13773601	140.50	138.42	nil	S	VC	C	450	nil	0.00	nill
SP13773603	140.67	138.02	137.90	F	VC	C	225	nil	190.25	nill
SP13773604	140.56	137.87	nil	F	VC	C	225	nil	0.00	nill
SP13773706	nil	nil	nil	F	VC	C	225	nil	0.00	nill
SP13774051	nil	nil	nil	S	nil	C	nil	nil	0.00	nill
SP13774052	nil	nil	nil	S	nil	C	nil	nil	0.00	nill
SP13774053	nil	nil	nil	S	nil	C	nil	nil	0.00	nill
SP13774151	nil	nil	nil	S	nil	C	nil	nil	0.00	nill
SP13774152	nil	nil	nil	S	nil	C	nil	nil	0.00	nill
SP13774251	nil	nil	nil	S	nil	C	nil	nil	0.00	nill
SP13774302	131.83	127.39	126.73	F	CO	C	450	nil	169.00	nill
SP13774351	nil	nil	nil	S	nil	C	nil	nil	0.00	nill
SP13774401	135.92	133.21	129.36	F	VC	C	225	nil	23.22	nill
SP13774402	137.48	134.68	132.30	S	CO	C	525	nil	36.59	nill
SP13774501	138.59	134.67	133.23	F	VC	C	225	nil	65.97	nill
SP13774701	139.47	137.93	137.22	S	VC	C	300	nil	98.49	nill
SP13774702	139.16	137.34	136.15	F	VC	C	150	nil	91.71	nill
SP13774703	138.80	137.20	136.47	S	CO	C	375	nil	94.38	nill
SP13775001	138.10	136.29	135.35	S	VC	C	225	nil	85.38	nill
SP13775002	136.06	135.32	134.72	F	U	C	150	nil	133.20	nill
SP13775101	136.63	134.73	134.10	F	U	C	nil	nil	50.76	nill
SP13775102	136.78	135.28	133.64	S	U	C	300	nil	23.33	nill
SP13775103	136.82	135.40	135.18	S	U	C	225	nil	74.26	nill
SP13775104	136.61	135.11	134.68	S	U	C	300	nil	72.35	nill
SP13775105	136.73	134.72	132.58	F	U	C	150	nil	21.68	nill
SP13775201	134.78	131.58	129.92	F	U	C	150	nil	34.73	nill
SP13775202	135.28	133.56	133.20	S	U	C	375	nil	30.64	nill
SP13775203	134.78	133.20	132.65	S	U	C	375	nil	34.45	nill
SP13775204	134.23	132.65	131.35	S	U	C	375	nil	43.85	nill
SP13775205	134.81	132.58	131.58	F	U	C	150	nil	22.18	nill
SP13775302	129.41	126.71	126.11	F	CO	C	450	nil	148.93	nill
SP13775501	138.92	135.05	134.68	F	VC	C	225	nil	222.22	nill
SP13775502	138.80	135.36	134.72	S	CO	C	525	nil	194.77	nill
SP13775601	138.10	136.46	135.98	S	CO	C	375	nil	89.88	nill
SP13775602	138.15	136.12	135.60	F	VC	C	225	nil	77.43	nill
SP13775603	137.83	135.57	135.06	F	VC	C	225	nil	173.45	nill
SP13775604	137.75	135.97	135.38	S	CO	C	450	nil	169.72	nill
SP13776302	129.20	126.09	nil	F	CO	C	450	nil	0.00	nill
nil	nil	nil	nil	F	nil	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	nil	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	VC	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	VC	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	VC	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	PVC	nil	nil	nil	0.00	nill
nil	nil	nil	nil	S	VC	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	VC	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	VC	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	VC	nil	nil	nil	0.00	nill
nil	nil	nil	nil	F	VC	nil	nil	nil	0.00	nill

- Abandoned Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Public Combined Gravity Sewer
- Public Foul Gravity Sewer
- Public Surface Water Gravity Sewer
- Trunk Combined Gravity Sewer
- Trunk Foul Use Gravity Sewer
- Trunk Surface Water Gravity Sewer
- Combined Use Pressurised Sewer
- Foul Use Pressurised Sewer
- Surface Water Pressurised Sewer
- Highway Drain
- Combined Lateral Drain (SS)
- Foul Lateral Drain (SS)
- Surface Water Lateral Drain (SS)

- Cable, Earthing
- Cable Junction
- Cable, Optical Fibre/Instrumentation
- Cable, Low Voltage
- Cable, High Voltage
- Cable, Other
- Housing, Building
- Housing, Kiosk
- Disposal Site
- Sewage Treatment Works
- Housing, Other
- Pipe Support Structure
- Sewage Pumping Facility
- Sewer Facility Connection Inlet / Outlet

- Blind Shaft
- Combined Use Manhole
- Flushing Chamber
- Foul Use Manhole
- Grease Trap
- Head Node
- Hydrobrake
- Lamphole
- Outfall
- Overflow
- Penstock
- Petrol Interceptor

- Sewer Chemical Injection Point
- Sewer Junction
- Sewerage Air Valve
- Sewerage Hatch Box Point
- Sewerage Isolation Valve
- Soakaway
- Surface Water Manhole
- Vent Column
- Waste Water Storage
- Culverted Watercourse
- Pre-1937 Properties

MATERIALS

AC	- ASBESTOS CEMENT
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	- CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRC	- GLASS REINFORCED CONCRETE
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHLENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
XXX	- OTHER

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
HD	- HIGHWAY DRAIN
S104	- SECTION 104

SHAPE

C	- CIRCULAR
E	- EGG SHAPED
O	- OTHER
R	- RECTANGLE
S	- SQUARE
T	- TRAPEZOIDAL
U	- UNKNOWN

PURPOSE

C	- COMBINED
E	- FINAL EFFLUENT
F	- FOUL
L	- SLUDGE
S	- SURFACE WATER

All Private Sewers are shown in magenta
All section 104 sewers are shown in green
All Sewers that have been transferred to Severn Trent Water after the 1st October 2011, but have not been surveyed and confirmed by Severn Trent Water are shown in orange

TABULAR KEY

A. Sewer pipe data refers to downstream sewer pipe.

B. Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.

C. Gradient is stated a 1 in...

N W E S

SEVERN TRENT WATER

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

SEWER RECORD (TABULAR)

O/S Map scale: 1:5000
Date of issue: 11.10.17
Sheet No. 4 of 4

This map is centred upon:
O / S Grid reference:
x : 412708
y : 276712

APPENDIX 3: Illustrative Masterplan

SHIRLEY HEATH

Connection to Shirley Heath

Existing sports club

Existing allotments

Tanworth Lane

Main entrance to Country Park

Dog Kennel Lane

Connection to The Green

A34 Stratford Road

Existing pedestrian/cycle link to Hillfield Park

HILLFIELD PARK

Connection to Monkspath Business Park

Dickens Heath Road

B4102

Light Hall Farm

Village Green

Potential School Site (2 ha)

Boulevard

Development edge set back from Stratford Road to maintain green character along southern edge

MONKSPATH

Potential Community Cafe

Potential visitor car park

SuDS

Retained Agricultural Edge

Central Green

Connection to Monkspath Business Park

A34 Stratford Road

DICKENS HEATH

B4102 Tanworth Lane

Proposed formal recreation area with club house & parking

Creynolds Lane

Stratford Upon Avon Canal

New residential development currently under construction

CHESWICK GREEN

SHIRLEY GOLF CLUB

Land Ownership	Density per Ha	Net developable Area	No. Units
Taylor Wimpey			
High Density	*42.5*	*11.54 ha / 28.52 ac*	*490*
Medium Density	*32.5*	*4.73 ha / 11.69 ac*	*154*
Low Density	*27.5*	*2.38 ha / 5.88 ac*	*65*
Potential school site		*2.00 ha / 4.94 ac*	
TRW			
Medium / High Density	*37.5*	*8.23 ha / 20.34 ac*	*309*
Lowe Trustees			
Medium / High Density	*37.5*	*3.96 ha / 9.79 ac*	*149*
Total net developable area		*30.84 ha / 76.22 ac*	*1,167*

KEY:

- Site boundary - Taylor Wimpey
- Site boundary - TRW
- Site boundary - Lowe Trustees
- Existing trees/woodland
- Existing hedgerows
- Existing waterbodies
- Existing Public Rights of Way
- Proposed development cells
- Proposed retail/commercial
- Potential school site
- Proposed vehicular access
- Proposed vehicular access to country park
- Proposed primary spine road
- Proposed secondary roads
- Proposed pedestrian/cycle routes
- Proposed structural woodland planting
- Proposed hedgerow
- Proposed green space
- Proposed country park
- Retained agricultural fields
- Proposed formal sports pitch
- Proposed car park
- Proposed pedestrian and/or cycle connections to surrounding area
- Proposed club house for formal sports pitch
- Existing off-site pedestrian/cycle link to Hillfield Park
- Proposed SuDS

RANDALL THORP

LANDSCAPE ARCHITECTURE
ENVIRONMENTAL PLANNING
MASTERPLANNING
URBAN DESIGN

Canada House, 3 Chepstow Street,
Manchester M1 5FW
0161 228 7721 mail@randallthorp.co.uk
www.randallthorp.co.uk

Date: 12.03.19
Drawn by: SR
Checker: DL
Rev by: SR/YH
Rev checker: SR
QM Status: Checked
Product Status: Issue

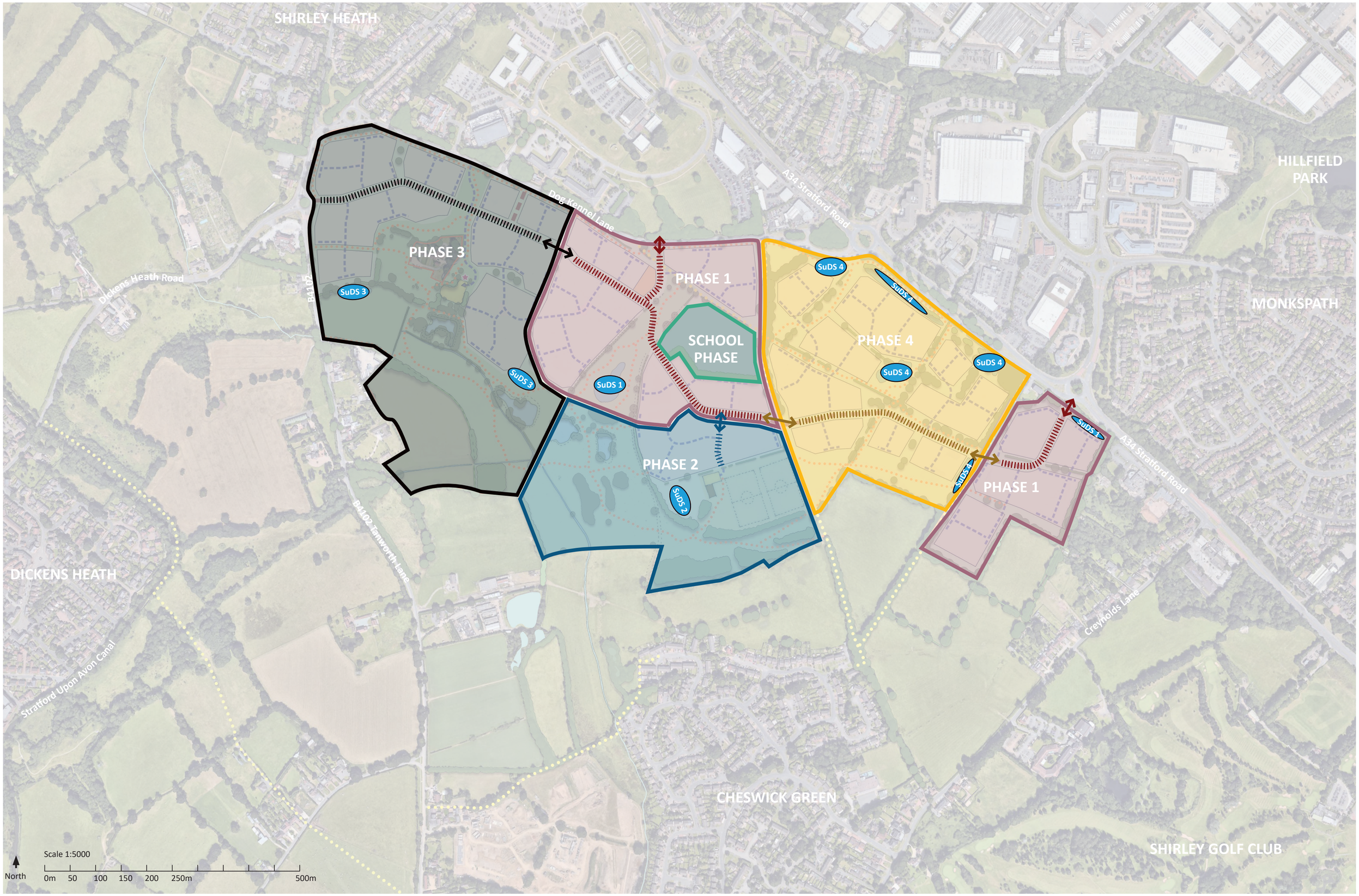
Taylor Wimpey

Light Hall Farm, Solihull

Illustrative Masterplan

Drwg No: 675A-28F

Scale: 1:5,000 @ A2



RANDALL THORP

LANDSCAPE ARCHITECTURE
ENVIRONMENTAL PLANNING
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URBAN DESIGN

Canada House, 3 Chepstow Street,
Manchester M1 5FW
0161 228 7721 mail@randallthorp.co.uk
www.randallthorp.co.uk

KEY:

- Site boundary
- SuDS X — Indicative potential SuDS pond location
- Indicative school development phase
- Indicative phase 1 development
- Indicative phase 2 development
- Indicative phase 3 development
- Indicative phase 4 development
- Indicative phase 1 access
- Indicative phase 2 access
- Indicative phase 3 access
- Indicative phase 4 access
- Indicative phase 1 haul route
- Indicative phase 2 haul route
- Indicative phase 3 haul route
- Indicative phase 4 haul route

Date: 12.03.19
Drawn by: SR
Checker: DL
Rev by: SR/YH
Rev checker: SR
QM Status: Checked
Product Status:
Issue

Taylor Wimpey

Light Hall Farm, Solihull

Anticipated Indicative Phasing Plan

Drwg No: 675A-35B

Scale: 1:5,000 @ A2

APPENDIX 4: Historic Environment Agency Correspondence

Esther Bradshaw
BWB Consulting Limited
E-mail:
Esther.Bradshaw@bwbconsulting.com

Our ref: 66757

Date: 21 November 2017

Dear Esther Bradshaw

Enquiry regarding Product-6 and 7 for FRA Mount Brook - for land at Light Hall Farm, Dog Kennel Lane, Shirley, Solihull B90 4BH

Thank you for your enquiry which was received on 14/11/2017.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

Flood Mapping & Data

The model CaVMID Input & Output data for 2012 Cheswick Green Hazard Mapping Study (Infoworks)

Flood Risk Assessment for land at Light Hall Farm, Dog Kennel Lane, Shirley, Solihull B90

Name	Product-6 and 7
Description	The model CaVMID Input & Output data for 2012 Cheswick Green Hazard Mapping Study (Infoworks) Calibrated and Verified Model Input Data for land at Light Hall Farm, Dog Kennel Lane, Shirley, Solihull B90
Licence	This information is not immediately available with a licence for use. Please contact us if you want to know if, and under what conditions, we would be able to license you.
Information Warning	This model is not available from the EA therefore please contact David Kearney at JBA. Contact details David.Kearney@jbaconsulting.com or 01675 437750.

	Please let us know when you have received the model by contacting Enquiries_Westmids@environment-agency.gov.uk and quoting reference # 66757.
Attribution	Contains third party information. May contain Environment Agency information © Environment Agency and/or database rights.

Data Available Online

Many of our flood datasets are available online:

- Flood Map For Planning (Flood Zone 2, Flood Zone 3 ,Flood Storage Areas, Flood Defences, Areas Benefiting from Defences, ,)
- Risk of Flooding from Rivers and Sea
- Historic Flood Map
- Current Flood Warnings

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely

Matthew Weston
Customers & Engagement Officer
West Midlands Area

For further information please contact the Customers & Engagement team on
Tel. 02084 747856
Direct e-mail:- enquiries_WestMids@environment-agency.gov.uk

Flood Zones

According to our published Flood Map for Planning, which provides a general estimate of the **probability** of flooding disregarding the presence and effect of any defences, the area is shown to be **partially within Zone 3**

Zone 3 - High Probability - Land having a 1 in 100 (1%) or greater annual probability of river flooding. (Land shown in dark blue on the Flood Map)

The information provided is largely based on modelled data and is therefore indicative rather than specific. The information indicates the flood risk to areas of land and is not sufficiently detailed to show whether an individual property is at risk of flooding, therefore properties may not always face the same chance of flooding as the areas that surround them. This is because we do not hold details about properties and their floor levels.

The associated Dataset is available here: https://data.gov.uk/dataset/flood-map-for-planning-rivers-and-sea-flood-zone-3

Main River

The nearest 'Main River' is the Mount Brook. 'Main rivers' are usually larger streams and rivers, but some of them are small watercourses of significance. All other watercourses are 'ordinary watercourses'. On these watercourses the Lead Local flood Authority or, if within an Internal Drainage District, the Internal Drainage Board are the responsible authority.

The associated Dataset is available here: https://data.gov.uk/dataset/statutory-main-river-map1

Bank Top ePlanning Tool

Local Authorities have the responsibility to consult the Environment Agency on any new development falling within 20 metres of the top of the bank of a Main River. This tool allows the Local Planning Authority to determine if new development falls within these areas and triggers the consultation.

Model Levels and Data

As discussed in the telephone call with Havya (I apologise if this is the incorrect spelling of your name) on 17 November 2017 there are no flood levels with the Environment Agency for this model. The River Blythe model which is the Cheswick Green Hazard Mapping Study 2012 is a Infoworks software model and was undertaken by JBA. The Environment Agency do not have access to this model and therefore the customer needs to contact David Kearney to obtain the data direct. His details are David.Kearney@jbaconsulting.com and telephone number 01675 437750. A conditional licence is attached for this dataset.

Allowance for Climate Change

In the flood risk data supplied the allowance for climate change is based on the 1% annual probability flood including an additional 20% increase on peak flows to account for climate change impacts, unless otherwise stated. You should refer to 'Flood risk assessments: climate change allowances' to check if this allowance is still appropriate for the type of development you are proposing and its location. You may need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

Flood Defences

There are no Environment Agency raised flood defences affecting this site. You may wish to contact the Local Authority to obtain further information regarding localised flooding from

drains, culverts and small watercourses, and regarding existing or planned flood defence measures.

Historic Flood Event Outlines

Examination of our records of historical flooding shows that an area near to the site was flooded in 2007. The Flood Event Outlines take into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding. It includes flood extents that may have been affected by overtopping, breaches or blockages. Any flood extents shown do not necessarily indicate that properties were flooded internally. It is also possible that the pattern of flooding in this area has changed and that this area would now flood or not flood under different circumstances.

You may also wish to contact your local authority or internal drainage board, to see if they have other relevant local flood information.

The associated Dataset is available here: https://data.gov.uk/dataset/recorded-flood-outlines1

Flood Risk from Surface Water

Managing the risk of flooding from surface water is the responsibility of Lead Local Flood Authorities. The Flood Risk from Surface Water map has been produced by the Environment Agency on behalf of government, using information and input from Lead Local Flood Authorities. The map can be found on the Long Term Flood Risk Information website: https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?map=SurfaceWater

For further information please contact your Lead Local Flood Authority.

Flood Risk from Reservoirs

The Flood Risk from Reservoirs map can be found on the Long Term Flood Risk Information website: https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?map=Reservoirs

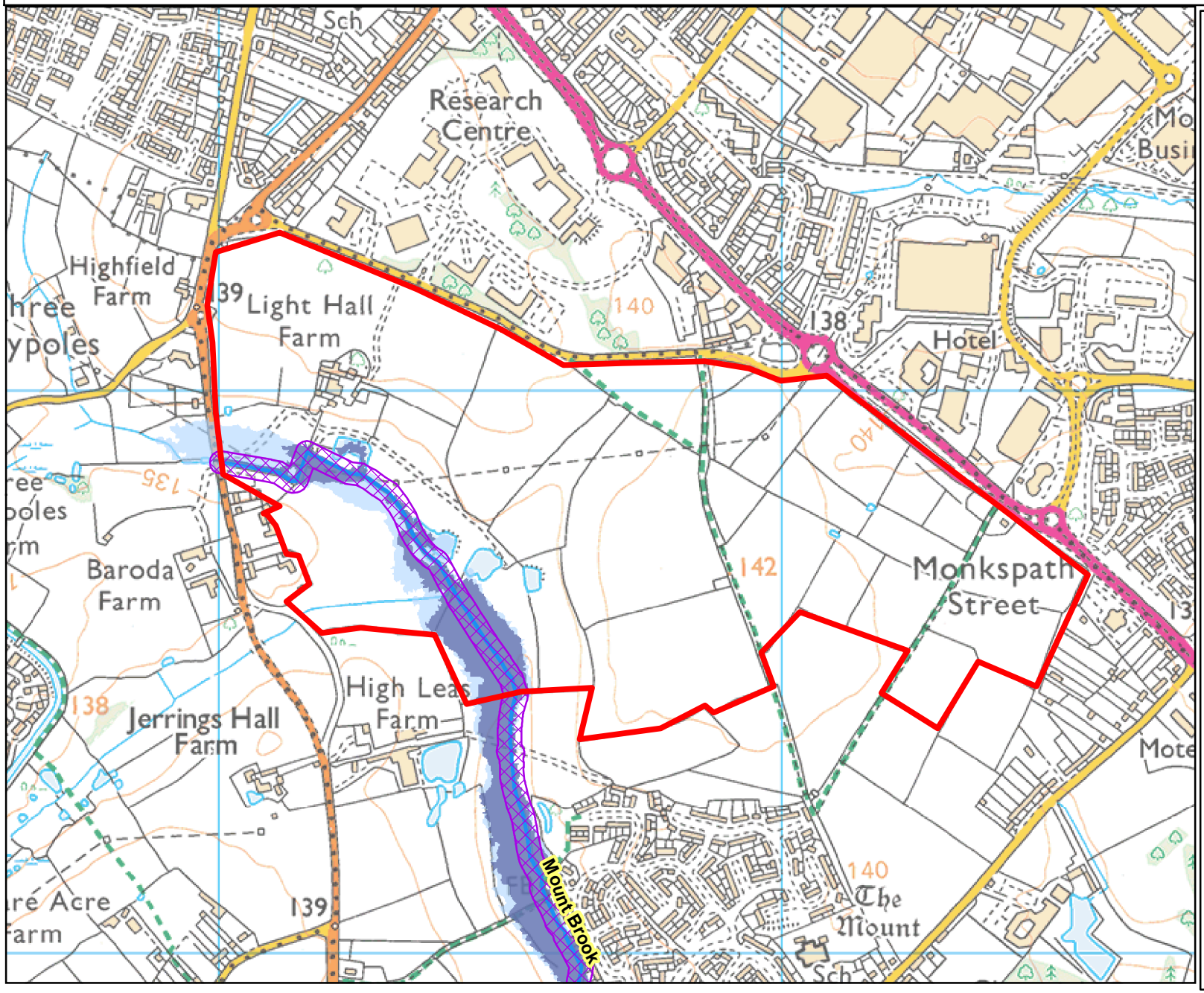
Flood Alert Area

This site is within a pink shaded Flood Alert Area and therefore we can provide you with free flood alerts. We issue flood alerts when flooding is possible. In many areas we issue flood alerts for flooding from rivers, the sea and groundwater. If you receive a flood alert you should be prepared for flooding and to take action.

You can register online with our Floodline Warnings Direct service at https://fwd.environment-agency.gov.uk/app/olr/register. If you would prefer to register by telephone, or if you need help during the registration process, please call Floodline on 0345 988 1188.

The associated Dataset is available here: https://data.gov.uk/dataset/flood-alert-areas2

Flood Map for Planning, Light Hall Farm, Dog Kennel Lane, Shirley, Solihull B90 4BH. 17 November 2017 Ref 66757



Environment Agency

Legend

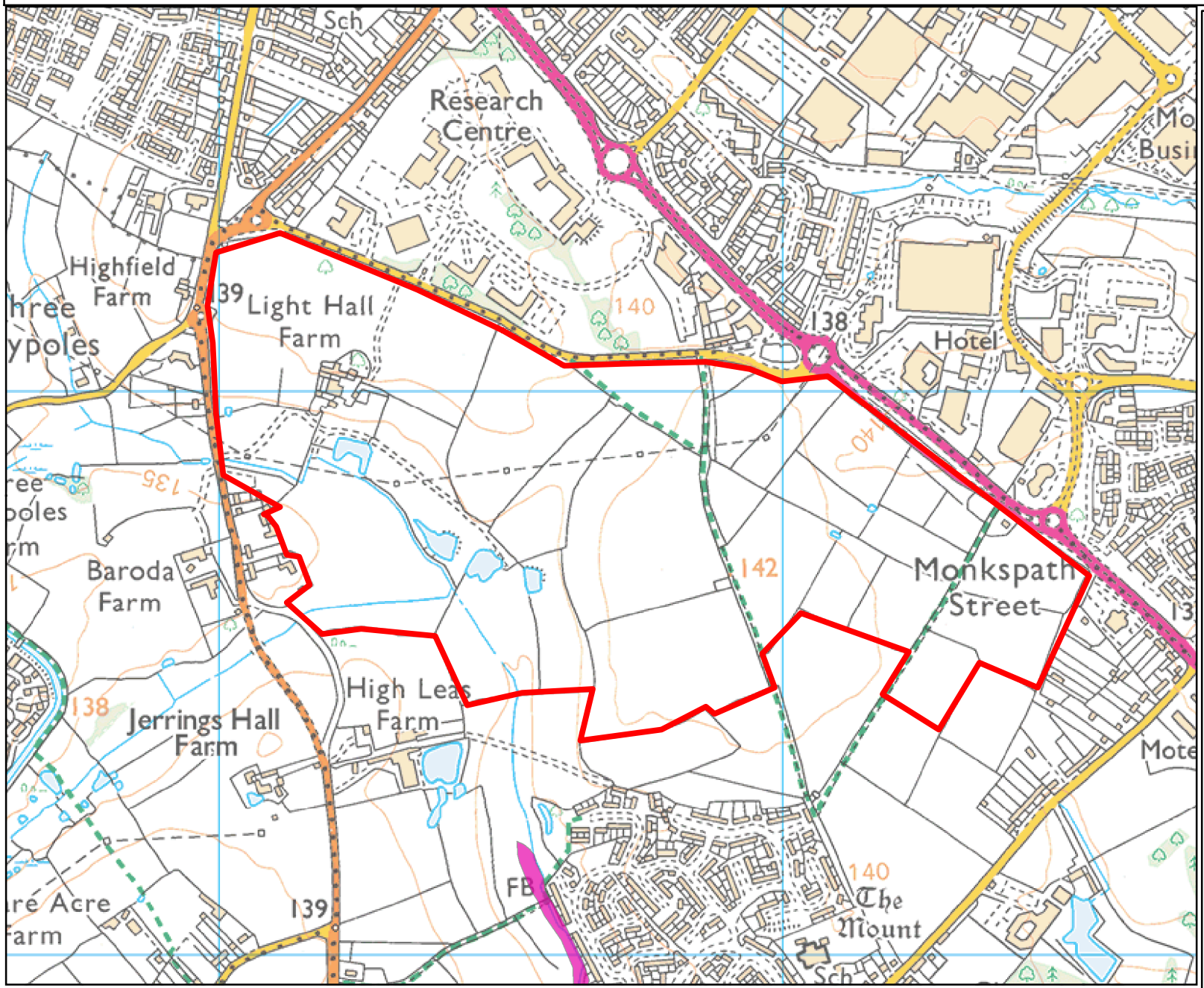
- Bank Top ePlanning Tool
- Main Rivers
- Flood Zone 3
- Flood Zone 2
- Approximate location of site

Flood Map Areas (assuming no defences)
Flood Zone 3 shows the area that could be affected by flooding from a river with a 1 in 100 (1%) or greater chance of happening each year.
Flood Zone 2 shows the extent of an extreme flood from rivers with up to a 1 in 1000 (0.1% - 1%) chance of occurring each year

Scale : 10,000

N W E S

Historic Flood Map, Light Hall Farm, Dog Kennel Lane, Shirley, Solihull B90 4BH. 17 November 2017 Ref 66757



Environment Agency

Legend

20/07/2007

Approximate location of site

Scale : 10,000

N W E S

Mr Javier Paez
B W B Consulting Ltd
Livery Place 35 Livery Street
BIRMINGHAM
B3 2PB

Our ref: UT/2017/116676/02-L01
Your ref: Light Hall Farm

Date: 13 November 2017

Dear Mr Paez

PROPOSAL - MIXED USE (EMAIL)

LIGHT HALL FARM, SOLIHULL, B90 4BH

Thank you for your email query which was received on 31 October 2017.

Further to your email query, there is some modelling for the River Blythe and Mount Brook within The Cheswick Green Hazard Mapping Study 2012. However, this modelling was completed under Infoworks software, which is within our ownership but we have limited costly licences and therefore are unable to open the software. If you wish to obtain a copy of this modelling, you would need to contact David Kearney at JBA on David.Kearney@jbaconsulting.com or 01675 437750. If you do ask for a copy of this model data you would need to let us know on SWWMFloodConsent@environment-agency.gov.uk with the details of the site etc., as you would need to be sent a licence to use the data.

Further to the requirement for modelling to be undertaken, within the Flood Risk Assessment completed as part of a planning application, the report would have to show, that the site will not be affected by flooding or that the surface water runoff will not increase flood risk to third parties outside of the red line boundary. There is no modelling for the ordinary watercourse that joins with Mount Brook before it leaves the sites red line boundary, this would need to be discussed with the Lead Local Flood Authority (LLFA) as it falls under their responsibility.

In response to clarify point III, all new development is being asked to only build within FZ1, which the site is and to have surface water runoff rates as low as possible but at least to greenfield runoff rates, so as to not increase flood risk downstream. If developments upstream of Cheswick Green have the opportunity and space to put in betterment, it would be looked upon favourably; as any increase in attenuation of flood waters upstream would potentially benefit areas that are affected downstream.

Hope this clarifies your questions raised.

The Environment Agency offer a detailed planning advice service where we review plans and reports. This is charged at £84 per hour per officer time. Should you wish to take up this service for any further advice related to this proposal please contact me on the details below to request a quote.

Yours sincerely

Ms Noreen Nargas
Senior Planning Advisor

Direct dial 020 8474 5004
Direct fax
Direct e-mail swwmplanning@environment-agency.gov.uk

End

Mr Javier Paez
B W B Consulting Ltd
Livery Place 35 Livery Street
BIRMINGHAM
B3 2PB

Our ref: UT/2017/116676/01-L01
Your ref: Light Hall Farm

Date: 31 October 2017

Dear Mr Paez

PROPOSAL - MIXED USE

LIGHT HALL FARM, SOLIHULL, B90 4BH

Thank you for your enquiry which was received on 13 October 2017.

We have reviewed the information submitted and wish to make the following comments.

Flood Risk:
The site near to Light Hall Farm, falls mostly within Flood Zone 1; however, the bottom south west corner within the red line boundary falls within Flood Zone 2 and 3 as shown on the Flood Map for Planning (Rivers and Sea) and Paragraph 103, footnote 20 of the National Planning Policy Framework (NPPF) requires applicants for planning permission to submit a Flood Risk Assessment (FRA) when development is proposed in such locations.

We have detailed hydraulic modelling along the Mount Brook which includes a range of flood levels and extents to the site. This does not include the ordinary watercourse within the sites red line boundary. Information on Mount Brook would need to be obtained from our Customers and Engagement team on Enquiries_Westmids@environment-agency.gov.uk and an assessment of the risk to the site will need to be undertaken within an FRA.

The mitigation measures provided must ensure that the development is safe, and any future occupants would not suffer from flooding and flood risk is not increased elsewhere. We recommend that any new build development should have finished floor levels set at least 600mm above the 1 in 100 year plus climate change flood level. In addition, we would advise that flood risk mitigation measures are incorporated into the design of the dwelling.

The exact mitigation measures required will depend on the detailed risk identified within a FRA for this site and should be in combination with a detailed topographic survey in order to determine the exact flood depths across the site.

In addition, if any ground levels are to be raised as part of the development within Flood Zone 3 will result in a reduction of the floodplain storage capacity. Therefore, it will need to be shown that any ground raising within the 1 in 100 year flood extent can be directly compensated for, on a volume-for-volume and level-for-level basis to prevent a loss of floodplain storage. This needs to be fully addressed within the FRA.

Please be aware that if the site falls within the functional floodplain (1 in 20 year flood extent) or an FRA cannot prove the development to be safe we will raise an objection to the planning application on flood risk grounds.

If this proposal was to go through full planning application, it is unlikely that we would raise an objection to the proposed development on flood risk grounds.

Please note that this advice is given in good faith on the basis of the information supplied at the time of writing. This advice is given without prejudice to matters that may arise from further information, consultation or examination and is therefore not binding on any formal consultation reply or decision that may be made by the Environment Agency. We are reliant on the accuracy and completeness of the reports in undertaking our review, and can take no responsibility for incorrect data or interpretation made by the authors.

Further information on flood alleviation proposals should be discussed with Solihull MBC, who are currently investigating potential flood alleviation schemes along Mount Brook.

Further Information for applicant

Flood Data

Further detailed flooding information, including modelled flood levels and extents can be obtained from our Customers and Engagement Team by emailing SWWMcustomers@environment-agency.gov.uk. Please be aware that there may be a charge for this information.

Surface Water

As of the 15th April 2015, the Environment Agency is no longer a statutory consultee on surface water drainage for sites over 1 hectare. Therefore, as this site is over 1 hectare we would advise you contact the Lead Local Flood Authority, which for this site is Solihull MBC, for further advice relating to surface water management and drainage designs.

Climate Change Allowances

The Environment Agency has updated their guidance on how climate change could affect flood risk to new developments which was published on 19th February 2016 and came into immediate effect. More information can be found at the following link - https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Environmental permitting regulations (EPR)

This development may require an Environmental Permit from the Environment Agency under the terms of the Environmental Permitting (England and Wales) (Amendment) (No. 2) Regulations 2016 for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of, or within the floodplain of designated ‘main rivers’.

Cont/d..

This was formerly called a Flood Defence Consent. Some activities are also now excluded or exempt. An environmental permit is in addition to and a separate process from obtaining planning permission.

Please note that we have a 2 month statutory period in which to determine Environmental Permits once all information has been received and it should not be assumed that such consent will automatically be forthcoming. We would advise you to consult with us at the earliest opportunity in order to determine and secure formal consent for the proposed works as appropriate.
Further details and guidance are available on the GOV.UK website - www.gov.uk/guidance/flood-risk-activities-environmental-permits

Biodiversity
We have no major concerns regarding this proposal as set out in the Concept Masterplan Framework because it does leave the brook in the proposed greenspace. We are not sure what is proposed for the existing ponds as they are not obvious on the Concept Masterplan Framework. Are the new ponds replacing the old?

The Mount Brook has been subject to typical agricultural modification i.e. straightening and incisement and it is a Salmonid River so if we could get some relatively small scale enhancements to improve the form of the river as part of the greenspace enhancement that would be a relatively straightforward biodiversity gain for the site which could have potential offset value for the development overall.

These measures are required by the Water Framework Directive to promote recovery to good ecological status, as well as meeting requirements of the river basin management plan, this would also be a clear, tangible and significant environmental gain in terms of the character of the area and nature conservation.

We hope the above advice has answered your questions outlined in the email. However we do offer a detailed planning advice service where we review plans and reports. This is charged at £84 per hour per officer time. Should you wish to take up this service for any further advice related to this proposal please contact me on the details below to request a quote.

Yours sincerely

Ms Noreen Nargas
Senior Planning Advisor

Direct dial 020 8474 5004
Direct fax
Direct e-mail swwmplanning@environment-agency.gov.uk

End

APPENDIX 5: Historic LLFA Correspondence

Dear Esther,

SMBC do not hold any records of historic flooding on this site although given t hat the site is predominantly fields I would assume that minor flooding would not be reported to the council.

We use the Environment Agency's Updated Flood Map for Surface Water to predict surface water flooding. This map is available from the EA.

We do have a model of the River Blythe for this area that we could share with you if that is of interest.

Kind regards,

Oliver Monk
Highway Services
Managed Growth and Communities Directorate, Solihull Metropolitan Borough Council, The Council House, Manor Square, Solihull B91 3QB
Telephone: 0121 704 6504
E-mail: oliver.monk@solihull.gov.uk
Web Site:
https://linkprotect.cudasvc.com/url?a=https://www.solihull.gov.uk&c=E,1,Q67rjt9Sk4lRRTGdfv-5EElEwq5tCxbu8fthtjM75pYInfDIb3VvPWg0M4Ts4_hL042uRIGdMcSu6gTUZrBsrCxXOZ_IfoXwhLhLb6kwzXAxrQ,,&typo=1

-----Original Message-----
From: Highway Services (Places Directorate - Solihull MBC)
Sent: 16 November 2017 11:14
To: Monk, Oliver (Managed Growth and Communities Directorate, SMBC)
Subject: FW: BMW2753 Light Hall Farm -RFIs [REF:72318623872]

Hi Oliver

Could you please respond to this enquiry.

Many Thanks

Regards

Clare Lee
Performance Officer
Managed Growth & Communities
0121 704 6366
https://linkprotect.cudasvc.com/url?a=https://www.solihull.gov.uk&c=E,1,vXyNfV9pmYZcfsZ_gxgRsJqJnya5WMItOnm3Q1difiR-ZUCMdqlqBJfekYRoCF1jFfiaqfLR0pOPNxTNkWlnHZ--h4avRCFrMcZxVWziaPff-1D-_Af-Lq85&typo=1

-----Original Message-----
From: SMBC Connect Contact Centre [mailto:connectcc@solihull.gov.uk]
Sent: 16 November 2017 10:31
To: EnvAdmin@bwbconsulting.com
Subject: BMW2753 Light Hall Farm -RFIs [REF:72318623872]

Thank you for contacting us.

Your email has been forwarded to Highways Service, who will respond to you directly.

If you require any further assistance please do not hesitate to contact us.

Regards,

Cathy

On behalf of Solihull Connect
Solihull MBC

Your email details will be stored on our systems and maybe used as a means of contacting you. If you do not want this to happen please let us know.

---- Original Message ----
From: EnvAdmin@bwbconsulting.com
Sent: 14-Nov-2017 11:26:57
To: EnvAdmin@bwbconsulting.com; connectcc@solihull.gov.uk
Subject: RE: BMW2753 Light Hall Farm -RFIs

Apologies,

We are actually undertaking a Flood Risk Scoping Study, please provide data available.

Thank you.

Kind regards

Esther Bradshaw

From: ENVAdmin
Sent: 14 November 2017 11:00
To: connectcc@solihull.gov.uk
Subject: BMW2753 Light Hall Farm -RFIs

Good Morning,

We are currently conducting a Flood Risk Assessment on the attached site and would appreciate the Councils input. I would like to enquire as to whether you have any records/ maps/modelling data of flooding in or around the immediate site or surrounding area. In particular do you have any information relating to historic flooding, sewer flooding, surface water or groundwater information. Attached is a site location plan. In particular we are interested in all available flood data and any historic data.

I look forward to hearing from you.

Kind regards

Esther Bradshaw

Group Administrator ? Environment Group | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ

tel0115 9241100 dir0115 8517410 mob07469 857
827 https://linkprotect.cudasvc.com/url?a=https://webwww.bwbconsulting.com&c=E,1,Jrlkz-paB6XefhlgGF2pbswA7po-bef70ulnCmhEySQfJblrHTvhIdz1uHbu1vwD-lDdQBMvi0avy25IJJhW0kxCUIp4Dvn92n_XsoFI4y7u1TZ7GxOKOCg,&typo=1

Registered in England and Wales

Registered Office: 5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ

Company No. 5265863

VAT Reg No. 648 1142 45

APPENDIX 6: Flood Storage Area Concept Plan

Area 1: Possible Flood Storage space between Retained Agricultural Edge and Mount Brook

Area 2: Possible Flood Storage space between Site Boundary and Mount Brook

Area 3: Possible Flood Storage space between existing ponds and Mount Brook

SuDS

NORTH

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.
5. Do not construct from this drawing.

Legend

- Possible Storage Areas
- Existing Ponds
- Watercourse
- Easement

Rev	Date	Details of issue / revision	Drw.	Rev.
P2	07.03.19	Outlined illustrated Flood Storage Areas	RM	CT
P1	28.02.19	Preliminary Issue	RM	CT

Issues & Revisions

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- Birmingham | 0121 233 3322
- Leeds | 0113 233 8000
- London | 020 7407 3879
- Manchester | 0161 233 4260
- Nottingham | 0115 924 1100

www.bwbconsulting.com

Client
TAYLOR WIMPEY STRATEGIC LAND

Project Title
LAND AT LIGHT HALL

Drawing Title
FLOOD STORAGE AREA - CONTOUR PLAN

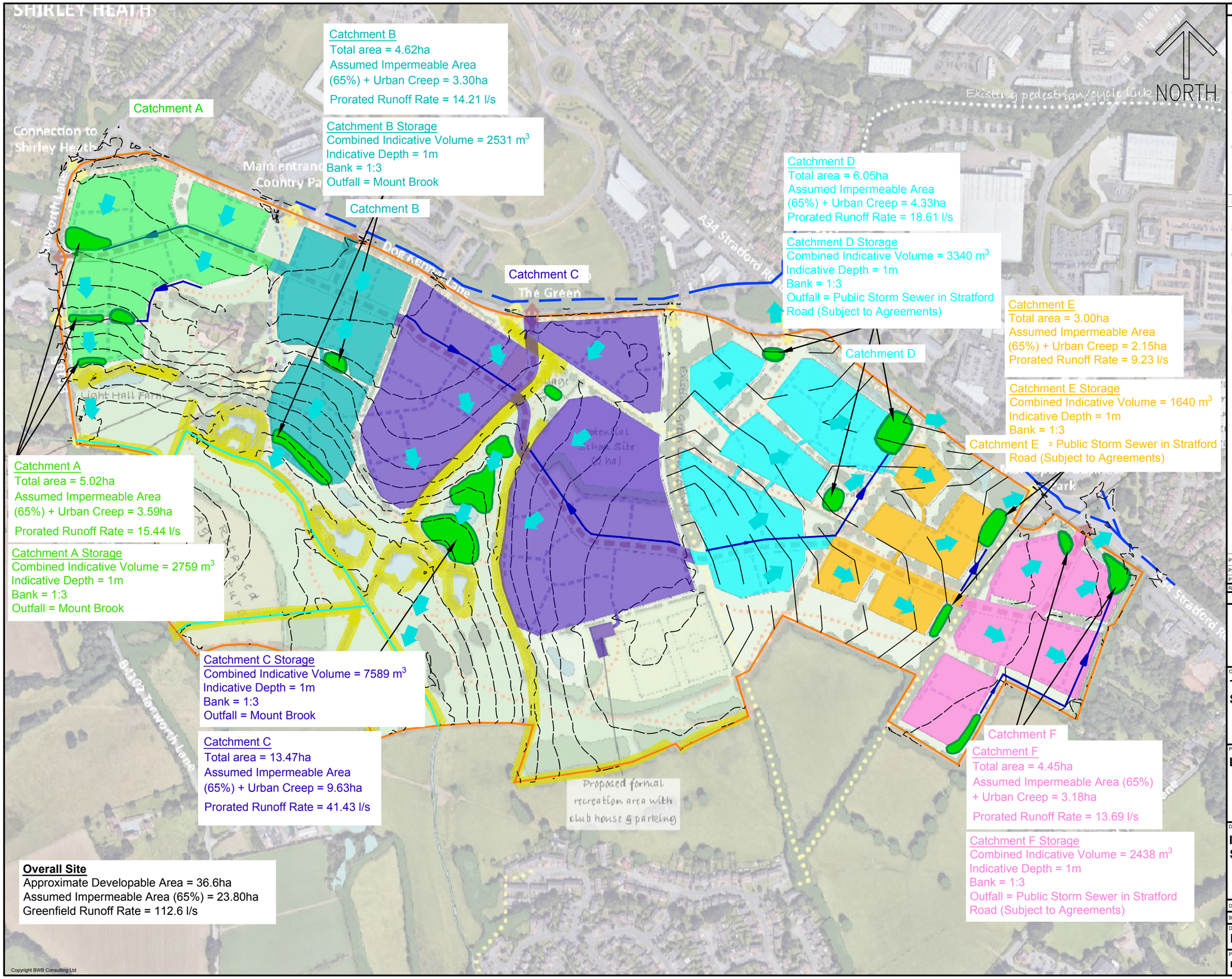
Drawn:	R Meredith		Reviewed:	C Thorpe	
BWB Ref:	BMW 2753	Date:	13.03.19	Scale@A0:	1:500

Drawing Status
PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
LHF-BWB-ZZ-XX-CD-DR-0003	**S2**	**P2**

X:\BMW\BMW2753_Light Hall Farm\02. Project Delivery\01. WIP\Drawings\LHF-BWB-ZZ-XX-CD-DR-0003-0005_Flood Storage Area (Public).dwg

APPENDIX 7: Illustrative Drainage Strategy



Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.
5. This drawing is intended as a draft conceptual drainage strategy in order to inform masterplan design. Do not construct from this drawing. Subject to detailed design and masterplan changes.
6. Storage estimate based upon 1 in 100 year storm including a 40% allowance for climate change.
7. Sewer routing is taken from Severn Trent Water sewer records and indicative only.

Legend

- Storage Feature
- Outfall Route
- Existing Watercourse
- Existing Sewer
- Easement
- Site Boundary

Rev	Date	Details of issue / revision	Drw	Rev
P3	14.03.19	Update Based on Revised Site Boundary	RM	CT
P2	13.03.19	Update Based on Revised Masterplan (675A-28F)	RM	CT
P1	28.02.19	PRELIMINARY ISSUE	RM	CT

Issues & Revisions

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www.bwbconsulting.com

Client
TAYLOR WIMPEY STRATEGIC LAND

Project Title
LAND AT LIGHT HALL

Drawing Title
ILLUSTRATIVE DRAINAGE STRATEGY

Drawn:	R. Meredith	Reviewed:	C. Thorpe
BWB Ref:	BMW 2753	Date: 13.03.19	Scale@A3: 1:5000

Drawing Status
PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
LHF-BWB-ZZ-XX-CD-DR-0001	S2	P3

APPENDIX 8: Severn Trent Water Pre-Development Enquiry

Severn Trent Water
Severn Trent Water Ltd
Regis Road
Wolverhampton
WV6 8RU

Tel: 01902 793871
www.stwater.co.uk
net.dev.west@severntrent.co.uk

Contact: Samantha Clarke

Your ref:
Our ref: 8283202

BWB Consulting Ltd
Livery Place
35 Livery Street
Birmingham
B3 2PB

For the attention of Javier Paez

12th October 2017

Dear Mr. Paez,

Proposed residential development (1500 dwellings) at land South of Dog Kennel Lane, B90 4BH

I refer to your Development Enquiry Request submitted in respect of the above site for 1500 dwellings. Please find enclosed a sewer records extract of the site area, included as part of the Developer Enquiry fee together with the Supplementary Guidance Notes (SGN) referred to below.

Public Sewers in Site – Required Protection

According to the sewer records, there are public sewers crossing the site. A 450mm foul sewer crosses the western part of the proposed development. Severn Trent water require a protective strip of 10m placed centrally over the centre of the pipe, in which no building shall be allowed. Connecting to this sewer is a 300mm Section 104 foul sewer which also requires a protective strip of 10m.

Due to a change in legislation on 1st October 2011, there could be former private sewers which have transferred to the responsibility of Severn Trent Water Limited which are not shown on the statutory sewer records but are located in your client's land. These sewers would have protective strips that we will not allow to be built over unless it is proven that they are redundant. The sewers could be identified whilst the land is being surveyed. Should you subsequently locate such sewers, please contact us for further guidance.

Foul Water Drainage

As previously mentioned a 450mm foul water sewer crosses through the site. There is also a 225mm foul sewer available in Stratford Road. Due to the magnitude of the development we are concerned about the impact it will have on the existing sewerage system. Therefore, we would suggest that your proposed foul flows are hydraulically assessed.

Severn Trent Water

Severn Trent Water Limited are able to offer a hydraulic modelling service to advise whether additional development flows are likely to have a detrimental impact on the existing public sewerage system(s). On completion of this modelling work Severn Trent will be able to advise the developer whether (a) the development is expected to have no detrimental impact or (b) that in order to accommodate the additional flows it is envisaged that capacity improvements will be required. Should the latter be applicable then occupation of any new development may need to be delayed to give reasonable time for capacity improvements to be completed, in which case Severn Trent would look to work with the developer and the Local Planning Authority to ensure sewerage capacity improvements are appropriately incorporated into any subsequent planning approval.

To request developer funded hydraulic modelling, please contact my colleague, Bob Garrington at the email address sewer.capacity@severntrent.co.uk enclosing all relevant information.

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 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). If soakaways are proven to be unsuitable then the area should be investigated for other viable SUDS methods.

There are various ditches / issues within the site (including the northern and southern tip). If soakaways are proved to be unsuitable, connections to these systems would be appropriate with the flow rate controlled to a Greenfield value to be agreed with Solihull Metropolitan Borough Council as the Lead Local Flood Authority and statutory consultee in the planning process. Please see the guidance notes attached.

New Connections

For any new connections (including the re-use of existing connections) to the public sewerage system, the developer will need to submit Section 106 application forms. Our New Connections department are responsible for handling all such enquiries and applications. To contact them for an application form and associated guidance notes please call 0800 7076600 or download from www.stwater.co.uk.

Severn Trent Water

Please quote our reference 8283202 in any future correspondence (including e-mails) with STW Limited. Please note that 'Development Enquiry' responses are only valid for 6 months from the date of this letter.

Yours sincerely

S. Clarke
Asset Protection (Waste Water) West
Wholesale Asset Management

BWB

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