FOUL AND SURFACE WATER DRAINAGE STRATEGY

FOR

FORMER HOPE HIGH SCHOOL SITE, SKELMERSDALE

ON BEHALF OF

TAWD VALLEY DEVELOPMENTS LTD/ WEST LANCASHIRE BOROUGH COUNCIL/ LANCASHIRE COUNTY COUNCIL

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Foul and Surface Water Drainage Strategy for Former Hope High School Site, Skelmersdale NW134/01/2r4			
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1.0 INTRODUCTION

1.1 Tawd Valley Development Ltd are proposing a residential development on the site of the Former Hope High School and adjacent additional land, off Tanhouse Road, Skelmersdale. To support the planning application and assist with the appraisal of the site, a Foul and Surface Water Drainage Strategy is required to outline the proposed means of sustainably managing foul effluent and surface water runoff from the development.

1.2 ARP Associates have been appointed to carry out a Foul and Surface Water Drainage Strategy for the development, implement appropriate consultations and prepare a report to satisfy the requirements of the Planning Authority.

1.3 The consultations and site appraisal for this assessment were carried out between January 2020 and May 2022.

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

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

2.0 SITE DESCRIPTION

General

2.1 The site, which is centred on Ordnance Survey Grid Reference 350290, 405620, is located off Tanhouse Road, Skelmersdale. The nearest postcode is WN8 6BJ. A site location plan and aerial image is presented in Appendix A.

2.2 The site is an irregular shaped piece of land extending to an area of approximately 2.8 hectares (ha), with approximate dimensions of 290m (north - south) by 170m (east - west).

2.3 This assessment is informed by desktop study, topographical and drainage surveys, and by three site walkover visits undertaken by ARP in January 2020, September 2021, and November 2021.

Current Use

2.4 The site is currently occupied by a former school building, with associated hardstanding and landscaped areas. The existing building, located in the western area of the site, is currently disused and unoccupied. A car park is present to the north of the school building, and bitmac hardstanding areas used for sports activities are present to the south and east of the building. A small electricity sub-station is also present at the southwestern corner of the school.

2.5 The southeast of the site comprises relatively flat grassland which, when compared to the surrounding areas, appears to have been levelled at some time in the past. This area of the site is bound by two watercourses (discussed below) with areas of significant vegetation around the perimeter, including around the watercourse channels.

2.6 The north of the site is an area of unused and undulating ground, which was heavily vegetated before clearance took place in late 2021.

2.7 The general wider area beyond the site falls from the northeast towards the southwest.

Boundaries and Surrounding Land Use

2.8 The site is bounded to the north, east, south and west by residential properties as part of a larger housing estate. Historical aerial images show the surrounding housing estate to have been developed post-2000. To the east and south, beyond the residential properties, are 'A' roads as part of the infrastructure network of Skelmersdale.

Topography

2.9 A topographical survey of the site was undertaken in August 2020, with updates made in January 2022, and a copy of the survey drawing is included in Appendix B for reference. It can be seen that the majority of the site generally falls from the north to the southwest, although the topography within the site is variable and undulating.

2.10 Levels to the northernmost tip of the site are of the order of 104.5mAOD, which is coincident with the adjacent road level on Mercury Way to the northeast. The levels within the northern sector of the site fall towards the southwest, to a level of approximately 99.5mAOD at the north of the bitmac surfaced sports pitch. The bitmac surfaced pitch falls slightly to a level of around 98.8mAOD in its southern corner. Directly south of this, levels fall steeply down a small embankment, falling to around 98.0mAOD just north of the existing building.

2.11 Levels around the existing building and hard paved areas vary from around 98.0mAOD in the north, to 96.2mAOD in the south. Levels continue to fall south through the dense vegetation, towards a level of around 95.0mAOD at Mercury Way.

2.12 The majority of the eastern section of the site is relatively flat, falling from north to south from around 98.0mAOD to 97.0mAOD. At the north of this area levels rise more steeply towards the northern boundary, which lies at approximately 101.5mAOD. Levels also fall steeply around the perimeter of this area, into the watercourse channels which surround it (discussed further below). The south of this area falls to a low point of approximately 91.2mAOD at the downstream end of the watercourse channel.

Existing Drainage

2.13 United Utilities public sewer records (Appendix E) indicate no public sewers within the site itself. Separate systems of surface water and foul public sewers are located in the residential areas surrounding the site. The records indicate that Within Mercury Way, to the south of the site, there is a 225mm diameter foul public sewer and a 1350mm diameter surface water public sewer.

2.14 A survey of the existing drainage systems on site was undertaken by IWJS in November 2021. A copy of the drainage survey report and plans is included in Appendix C for reference.

2.15 The survey confirmed that both surface water and foul drainage from the existing building and its surrounding hardstanding (including car park and playground) is drained by a combined system of private drainage, which discharges from the west of the site. It is likely that the discharge is made to a public sewer at the rear of the properties to the west of the site, although the sewer does not appear on the United Utilities records.

2.16 The survey identified two surface water outfalls to the watercourse on site. Both outfall pipes appeared to flow from direction of the school, however as above these do not appear to be serving the school building or playground. The southernmost outfall pipe was found to be collapsed just upstream of the outfall, whilst the northernmost outfall pipe could be traced towards the north of the site however it too was found to be collapsed at a point close to the northeast corner of the existing building. It is likely that these pipes are historic land drainage systems or systems which served the former school buildings which were located to the northwest.

2.17 The uneven northern area of the site, and the grassed eastern are not believed to be served by drainage systems, although the presence of land drainage cannot be ruled out. Runoff from these areas may infiltrate to a degree, but it is likely that the majority simply run towards the existing drainage system serving the building and hardstanding, or into the watercourses within the site.

Hydrology

2.18 Two un-named Ordinary Watercourses are present on the site, one each side of the playing field in the east of the site, both flowing towards the south and both set in relatively deep channels. In the south of the site the watercourses confluence before entering a 750mm diameter culvert which flows south towards Mercury Way. It is noted however that the culvert is approximately 3.5m below the level of Mercury Way, therefore it is likely that it passes under Mercury Way and towards the underpass beneath Grimshaw Road to the south.

2.19 There is an existing crossing of the westernmost watercourse channel, which facilitates access from the school playground on the west into the eastern area of the site. The crossing is crudely constructed with a stepped arrangement of kerbstones used to form the headwalls. It is assumed that the watercourse is culverted beneath the crossing, however no culvert is visible at present and is likely to be silted up/buried.

2.20 At the head of each channel within the northeast of the site, is an incoming pipe. A 150mm diameter pipe enters the head of the westernmost channel, and a 300mm diameter pipe enters the head of the easternmost channel. The pipes appear to enter from the direction of the adjacent housing estates, although it is noted that the surrounding plot levels are significantly higher than the level of the pipes.

2.21 Attempts were made to survey the two incoming pipes during the drainage survey in November 2021, however the 150mm pipe became a 100mm pipe after a short distance and could not be surveyed, whereas the 300mm pipe was found to be highly silted approximately 26m upstream of the site.

2.22 Review of available historic mapping confirms that both watercourses once extended upstream into what was then open fields. However, the upstream extent does not appear to be significant, with both beginning less than 250m outside of the site.

2.23 The watercourses were observed to have very little baseflow during two site visits undertaken by ARP in January 2020 and September 2021, and when the topographical survey and update

survey were undertaken in August 2020 and January 2022. A steady flow was observed in the watercourses during the site visit undertaken in November 2021, but this was on a day of very heavy and prolonged rainfall.

2.24 It is considered likely that the incoming pipes are land drains installed along the line of the upstream watercourse sections before development took place, and that they are unlikely to have a significant upstream catchment.

2.25 The 750mm diameter culvert which flows out of the site after the watercourses confluence in the southeast, was also surveyed during the drainage survey in November 2021. The survey reached approximately 34m downstream of the site before being abandoned due to silt and debris. The section of culvert which was surveyed was in good condition.

3.0 CONSULTATION

Environment Agency

3.1 Consultation was undertaken with the Environment Agency, and a copy of its response, reference CL157879BLdated 21st January 2020, is presented in Appendix D for reference. Publicly available Environment Agency data has also been reviewed for reference, from which extracts are also included in Appendix D for reference.

3.2 The Environment Agency Flood Map for Planning shows areas of land considered to be at risk of flooding from rivers or the sea. These areas do not take into account defences, as water can overtop them or the defences can fail in extreme conditions. The Flood Zone classifications are:-

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

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

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

3.3 The Flood Map for Planning and the Environment Agency response confirms that the site is located within Flood Zone 1. However, it is noted that the Flood Map for Planning does not show the risk associated with watercourses which have a small catchment.

3.4 The Environment Agency confirmed that it does not hold any flood model information relevant to the site.

3.5 The Environment Agency Risk of Flooding from Surface Water map shows areas which may be at risk of flooding from surface water flow paths or surface water ponding during a significant rainfall event. The classifications of risk for surface water flooding are as follows:-

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

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

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

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

3.6 The Environment Agency Risk of Flooding from Surface Water map suggests that the majority of the site is at a 'very low' risk of flooding from surface water. The mapping suggests a potential area of ponding within the northern section of the site in the 'low' and 'medium' risk scenarios. An area of ponding on the eastern side of the existing building in the 'low' risk scenario is also suggested.

3.7 A more significant area of potential surface water flooding in the 'high', 'medium' and 'low' risk scenarios is suggested along the existing watercourse corridors and around the confluence of the two watercourses in the south of the site, upstream of the culvert which conveys flow out of the site. In the 'low' risk scenario the mapping indicates an overland flow path from this area, into Mercury Way to the south.

3.8 Outside of the site, a number of the surrounding roads are shown to be at risk of flooding, although this is predominantly in the 'low' risk scenario.

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

Water Authority

3.10 Consultation was undertaken with United Utilities, which is the Water Authority for this area, and a copy of its response, reference 4200030297 dated 20th February 2020, is presented in Appendix E for reference.

3.11 United Utilities confirmed that foul water can discharge to the local public foul sewer network at an unrestricted rate. A specific point of connection was not mandated.

3.12 In respect of surface water, United Utilities noted that consideration should firstly be given to discharge to soakaway, and watercourse, in that priority order, before connection to sewers will be considered. In the event that a discharge to sewer is required, surface water can discharge to the local public surface water sewer network at a rate to be agreed with the Lead Local Flood Authority, but not exceeding 15l/s.

Local Authority

3.13 Consultation with West Lancashire Borough Council's Technical Service team was undertaken in January 2020. The engineer confirmed no knowledge of drainage or flood risk issues regarding this site.

3.14 Attention was also drawn to the local guidance document 'Planning Applications – Drainage, Flood Risk and Sustainability' which sets out expected principles for surface water drainage in new development. In particular it is noted that an additional allowance of 10% on proposed

impermeable area is required to account for the potential impacts of urban creep, and that a climate change allowance of an additional 40% on rainfall intensity is preferred in calculations.

Lead Local Flood Authority

3.15 Lancashire County Council, which is the Lead Local Flood Authority (LLFA) for this area, has not been consulted at this stage, however, based on recent experience it is anticipated that the LLFA will have the following general requirements for surface water management:

- The drainage strategy shall be based upon the sustainable drainage principles and requirements set out in the National Planning Policy Framework, Planning Practice Guidance and Defra Technical Standards for Sustainable Drainage Systems. Calculations shall be provided for peak flow control and volume control for the 1 in 1 year, 1 in 30 year and 1 in 100 year plus 40% climate change allowance events.
- An allowance of plus 10% on impermeable areas will be required to allow for urban creep.
- Flood water exceedance routes will need to be considered in accordance with Defra Technical Standards for Sustainable Drainage Systems.
- Finished Floor Levels should be a minimum 150mm above external levels.
- Consideration will be required of measures taken to manage the quality of the surface water runoff to prevent pollution, protect groundwater and surface waters, and delivers suitably clean water to sustainable drainage components
- A Construction Phase Surface Water Management Plan will be required to detail how surface water and pollution prevention will be managed during each construction phase
- An Operation and Maintenance Plan will be required, including arrangements for adoption by an appropriate public body or statutory undertaker, and/or management and maintenance by a Management Company and any means of access for maintenance and easements, where applicable.

4.0 CLIMATE CHANGE

4.1 NPPF requires that the projected impacts of climate change are taken into account over the lifetime of a development. The NPPF and PPG have indicated that the Global sea level will continue to rise, depending on greenhouse gas emissions, and the sensitivity of the climate system and there will be an increase in river flows and rainfall across the country. United Kingdom climate change guidance was revised in February 2016; Recommended allowances for assessment are set out in Environment Agency publication 'Flood risk assessments: climate change allowances' (February 2016; updated October 2021).

4.2 In accordance with the current climate change guidance, the published figures show that for an expected development life of greater than 50 years, the anticipated increase in rainfall intensity could range from 20% to 40%, subject to the location within the country.

4.3 As required by the LLFA, the outline surface water drainage strategy (discussed further below) has been defined with respect to a precautionary 40% allowance.

5.0 DEVELOPMENT PROPOSALS

5.1 The development proposals for the site are for the construction of 54 residential dwellings, with associated access, car parking, and open space. The proposed site access is from Tanhouse Road to the west. The development proposals are illustrated in the plan in Appendix F.

5.2 As set out in Section 2 and indicated on the plan in Appendix C, there are two Ordinary Watercourse within the east of the site, which confluence towards the south and flow out of the site by means of a culvert flowing in a southerly direction. The watercourses will remain in situ within the proposed development.

5.3 To allow for future maintenance access, the development layout includes a minimum 5m buffer between proposed buildings and the top of the bank of these watercourses. With the exception of one proposed plot near the head of the westernmost channel, land within the 5m buffer will not be located within individual property boundaries, but will be located within public open space, shared private access roads, or proposed adoptable carriageways, thus preserving maintenance access.

5.4 As part of the proposed development, the existing crossing of the westernmost channel will be removed, and the channel reinstated. A new adoptable road crossing will be constructed over the westernmost channel to facilitate access to the eastern part of the site.

5.5 Improvements will also be made to the downstream culvert entrance by installing an appropriately designed trash screen, to reduce the risk of blockage and to make clearance easier.

6.0 SURFACE WATER DRAINAGE

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

6.2 This section should be read in conjunction with ARP's preliminary civil engineering design drawings and calculations, including the following:

- NW134/01/2/03 Section 104 Layout
- NW134/01/3/04 Typical Road Details
- NW134/01/2/06.01 Long Sections Sheet 1 of 2
- NW134/01/2/06.02 Long Sections Sheet 2 of 2
- NW134/01/2/08.01 External Works Sheet 1 of 2
- NW134/01/2/08.02 External Works Sheet 2 of 2
- NW134/01/2/09 Impermeable Areas
- NW134/01/2c1 Microdrainage hydraulic calculations

<u>Existing Surface Water Run-off</u>

6.3 As set out above, survey has determined that surface water from the positively drained area around the existing building and playground is drained to a combined drainage system which discharges from the east of the site, to a public sewer within the rear garden of a neighbouring property. There is no positive drainage across the majority of the site - Some runoff may infiltrate to a degree, but it is likely that the majority simply run towards the lowest areas of the site and into the watercourses within the east of the site.

6.4 Using the HR Wallingford UKSuDS online tool, and applying the IoH124 methodology (Interim Code of Practice for SuDS method for site area less than 50ha), the 1 in 1 year greenfield run-off rate for the proposed development site has been assessed to be 6.1l/s/ha. The calculation is presented in Appendix G for reference.

Proposed Surface Water Runoff Destination

6.5 The proposed means of managing surface water runoff from the proposed development has been considered with respect to the hierarchy set out in Building Regulations Part H (2010) as follows.

6.6 Infiltration - Consideration of the proposed means of surface water drainage should firstly be given to infiltration techniques (to ground). The potential for use of infiltration has been considered by ARP based on the findings of the ARP Stage 2 Geo-Environmental Report (reference NW134/01/2r2).

6.7 The report confirms that the underlying geology of the site comprises Glacial diamicton ("Boulder Clay"), overlying Rough Rock Formation (sandstone). However, this is contradicted by Coal Authority Records and is more likely to comprise undifferentiated strata (mudstone, siltstone and minor sandstone), and two coal seam outcrops crossing the site. There are no faults on/near the site.

6.8 It is unlikely that the Glacial diamicton unit will have sufficient infiltration rates to allow for soakaway drainage. The underlying sandstone of the Rough Rock Formation may have sufficient infiltration rates, however, this may have adverse effects on surrounding land which is topographically lower than the site, and sandstone strata were not encountered in any of the investigation positions, which had penetration depths of up to 5.45m. Mudstone and siltstone typically have low porosity and very low permeability, and any permeability would be dependent upon the formation of discontinuities in the rock, such as joints and fractures.

6.9 It is known that there is a legacy of coal mining on the site; Holland Moor Colliery was present in the west of the site from 1951 to 1975. Coal Authority data indicates that a shaft and an audit are present in the central-western area of the site, and the adit tunnel is documented to extend into the north east of the site. Historical coal mine workings are known by the Coal Authority to be present underlying the site eastern half of the site and there is also the possibility of additional unrecorded shallow workings.

6.10 With the presence of a mine shaft, adit and known shallow coal mine workings beneath the site, soakaways will not be acceptable. There is also the possibility of shallow unrecorded coal mine workings. Drill and grout treatment is likely to be required in some areas of the site to facilitate development. The addition of surface water to the ground following grouting could exploit small gaps in treated areas, or dilute the grout, weakening the treatment.

6.11 Accounting for the site's underlying geology, the presence of historical mining features and the topography of the site and the surrounding area, it is concluded that the use of soakaway drainage is not a viable drainage option for this site.

6.12 Watercourse – As infiltration is unfeasible, discharge to a watercourse must be considered as the next option. As set out in Section 2, there are two watercourses within the site, which confluence in the south of the site before entering a culvert which flows towards the south. The topography of the site and surrounding areas suggests that the majority of the site is within the natural catchment of these watercourses. Discharge to the westernmost of the two watercourses is therefore considered to be the most appropriate and sustainable option for drainage of the site.

6.13 The discharge will require a new outfall headwall to be constructed on the watercourse. Preliminary design has confirmed that an outfall to the watercourse can be achieved by gravity. Details of the outfall will be subject to further design and agreement with the LLFA through the Land Drainage Consent process (discussed further below).

6.14 Public Sewer – On the above basis, discharge of surface water to the public sewer system will not be required.

Proposed Surface Water Drainage

6.15 As discussed above, it is proposed that surface water will be discharged to the westernmost watercourse within the site. Although the existing building and playground are served by a functioning positive drainage system, as this discharges to a combined sewer rather than the watercourse, it is not appropriate to consider a 'brownfield' equivalent discharge rate for the

proposed development. On this basis, so that the discharge of surface water does not cause a determinantal increase in the flow in the watercourse, the proposed maximum surface water discharge rate will be based on the equivalent 1 in 1 year greenfield runoff rate from the developable area of the site.

6.16 Discounting areas of significant Public Open Space, including the watercourse corridors, the proposed development layout (Appendix F) has been assessed as having a net developable area of approximately 1.7ha. On this basis, as the 1 in 1 year greenfield runoff rate is 6.1l/s/ha, the proposed rate of surface water discharge shall be 10.4l/s.

6.17 The proposed development layout (Appendix F) has been assessed as having a proposed impermeable area of approximately 0.873ha. As required by local standards, an allowance of an additional 10% on the proposed impermeable area has been made to account for the potential impacts of 'urban creep', therefore a total proposed impermeable area of approximately 0.959ha has been used in calculations.

6.18 The proposed surface water drainage system will be designed to accommodate a 1 in 1 year storm event without surcharging, a 1 in 30 year storm event without flooding and, to accommodate the 1 in 100 year plus 40% climate change allowance event without causing flooding of property or third-party land. A preliminary drainage design and hydraulic calculations have been prepared on this basis, as listed in paragraph 6.2.

6.19 The calculations show that restricting the discharge rate to no greater than 10.45l/s requires approximately 538m^3 of on-site storage to be provided for a 1 in 100 year plus 40% climate change event. It is proposed that this volume will be accommodated on site by means of a concrete attenuation tank, to be located beneath the Public Open Space in the centre of the site.

Exceedance Flow Routes

6.20 For rainfall events in excess of the design standard (i.e. greater than 1 in 100 year plus climate change event) the capacity of the drainage system is likely to be exceeded. There also remains a residual risk of flows leaving the surface water drainage system in the event of a blockage.

6.21 So that exceedance flows do not adversely affect properties on or off site, site levels have been designed to direct flows away from the building entrances where possible, so that any flooding remains in landscaped areas, car parks, or roads, where the consequences of surface water flooding would be less significant.

6.22 Exceedance flow routes should be reviewed as part of the detailed drainage and levels design, and should be agreed with the LLFA.

Sustainable Drainage Systems (SuDS)

6.23 NPPF requires that SuDS are implemented in 'major development', if feasible. It must be recognised that not all types of SuDS are feasible or appropriate for all development sites, with factors such as available space, ground conditions, and site gradient influencing the feasibility of their use.

6.24 As discussed above, the use of infiltration drainage systems is not considered feasible on this site. However, SuDS in the form of attenuation of surface water flows, and the use of below-ground storage are proposed as part of the drainage design.

6.25 The use of a detention basin to manage surface water runoff was considered at an early stage, however the available space in which to locate such a feature is not sufficient to provide the required volume of storage at the depth which would be required.

Surface Water Quality

6.26 A significant proportion of run-off from the proposed development will be from building roofs and footpaths, which is considered to be 'clean' surface water run-off, and would be expected to have a very low level of potential contamination. On this basis no specific treatment for this run-off is proposed, except for suitable leaf debris traps and silt traps.

6.27 Areas subject to vehicular traffic may contain suspended solids, metals and hydrocarbons. However, the use of trapped gullies in these areas, and the attenuation of the final discharge which will encourage settlement of suspended solids within catch pits and the tank, would be expected to mitigate the risk to downstream water quality.

Land Drainage Consent

6.28 Land Drainage Consents (from the Lead Local Flood Authority) will be required for the construction of any new surface water outfall to the watercourses on site.

6.29 A detailed design for this structure, along with construction method statements and other supporting evidence, will need to be submitted to the LLFA for approval in due course, following further design development.

6.30 It should be noted that the granting of planning permission does not guarantee the granting of Land Drainage Consents. However, the proposed works would not be expected to have any detrimental impact upon the watercourses, therefore it is not envisaged that there will be any barrier to securing consents.

Construction Stage Surface Water Management

6.31 During the construction stage, before the permanent drainage systems are installed, measures will need to be taken to mitigate the potential environmental risks posed by runoff from the development site. A detailed Temporary Surface Water Management Plan will be required to

address these risks. Key issues which require consideration will include the potential for silt-ladened or contaminated runoff to adversely affected flood risk and water quality, and the potential for uncontrolled runoff to cause flooding on or off site.

6.32 A more detailed assessment of the potential construction stage risks will be undertaken before formulating a site-specific Temporary Surface Water Management Plan to manage the risk. The plan will need to be approved by the LLFA prior to implementation.

7.0 FOUL DRAINAGE

7.1 This section sets out the proposed means of managing foul discharge from the proposed development. It should be read in conjunction with ARP's preliminary civil engineering design drawings as listed in paragraph 6.2.

7.2 United Utilities has advised that foul water from the proposed development can be discharged to the local foul public sewer network at an unrestricted rate. It is proposed that foul drainage will be discharged to the 225mm diameter foul sewer located in Mercury Way to the south of the site. Preliminary design suggests that this connection can be achieved by gravity.

7.3 Details of the connection to the public sewer will be subject to final agreement with United Utilities as part of a Section 106 connection application.

8.0 MAINTENANCE

8.1 There is a residual risk of flooding from drainage systems in the event of siltation or a blockage occurring. It is therefore essential that all drainage systems are subject to periodic inspection and maintenance, so that the design standard is not compromised, and to reduce the risk of blockage.

8.2 The main drainage infrastructure will be designed to adoptable standards, for adoption by United Utilities who will therefore become responsible for inspection and maintenance of those systems, subject to a formal Section 104 adoption agreement in due course.

8.3 The main access roads into the development will be designed to adoptable standards and therefore, once the adoption process is complete, the highway gullies serving these roads will become the responsibility of the local Highway Authority.

8.4 The inspection and maintenance of any drainage infrastructure serving a single property, and located within the curtilage of that property, will remain the responsibility of the relevant property owner.

8.5 The ongoing inspection and maintenance of any other drainage systems would be expected to be transferred to an appropriate Management Company, or be assigned by the developer to an appropriate individual property owner, or an appropriate group of property owners, through specific clauses in individual property deeds.

8.6 An appropriate inspection and maintenance plan will be developed in due course, for approval by the Lead Local Flood Authority, and implemented thereafter by the site/building owner or management company, using suitably qualified professionals.

9.0 SUMMARY

9.1 The principles of a sustainable surface water management strategy for the proposed development are set out within the report. It has been determined that infiltration techniques are unsuitable on this particular site, and discharge to the watercourse which runs through the site and towards the south is considered the most sustainable option.

9.2 It is proposed that the surface water discharge will be attenuated to a maximum rate of 10.4l/s, based on the 1 in 1 year greenfield equivalent rate from the developable area of the site. Surface water storage will be provided within the site by means of a tank, to manage surface water up to the 1 in 100 year plus climate change event before discharge to the watercourse. A 40% increase in rainfall intensity has been incorporated into the proposals to account for the projected impacts of climate change, and an allowance of 10% on impermeable areas has been made to account for the potential impacts of 'urban creep'.

9.3 Foul water domestic waste will discharge to the 225mm diameter public foul sewer in Mercury Way to the south of the site.

9.4 The proposed strategy is illustrated in the ARP civil engineering design drawings and hydraulic calculations as listed in paragraph 6.2 of this report.

9.5 Suitable maintenance regimes will be required for proposed drainage infrastructure. Details of maintenance plans will be confirmed and agreed at the detailed design stage.

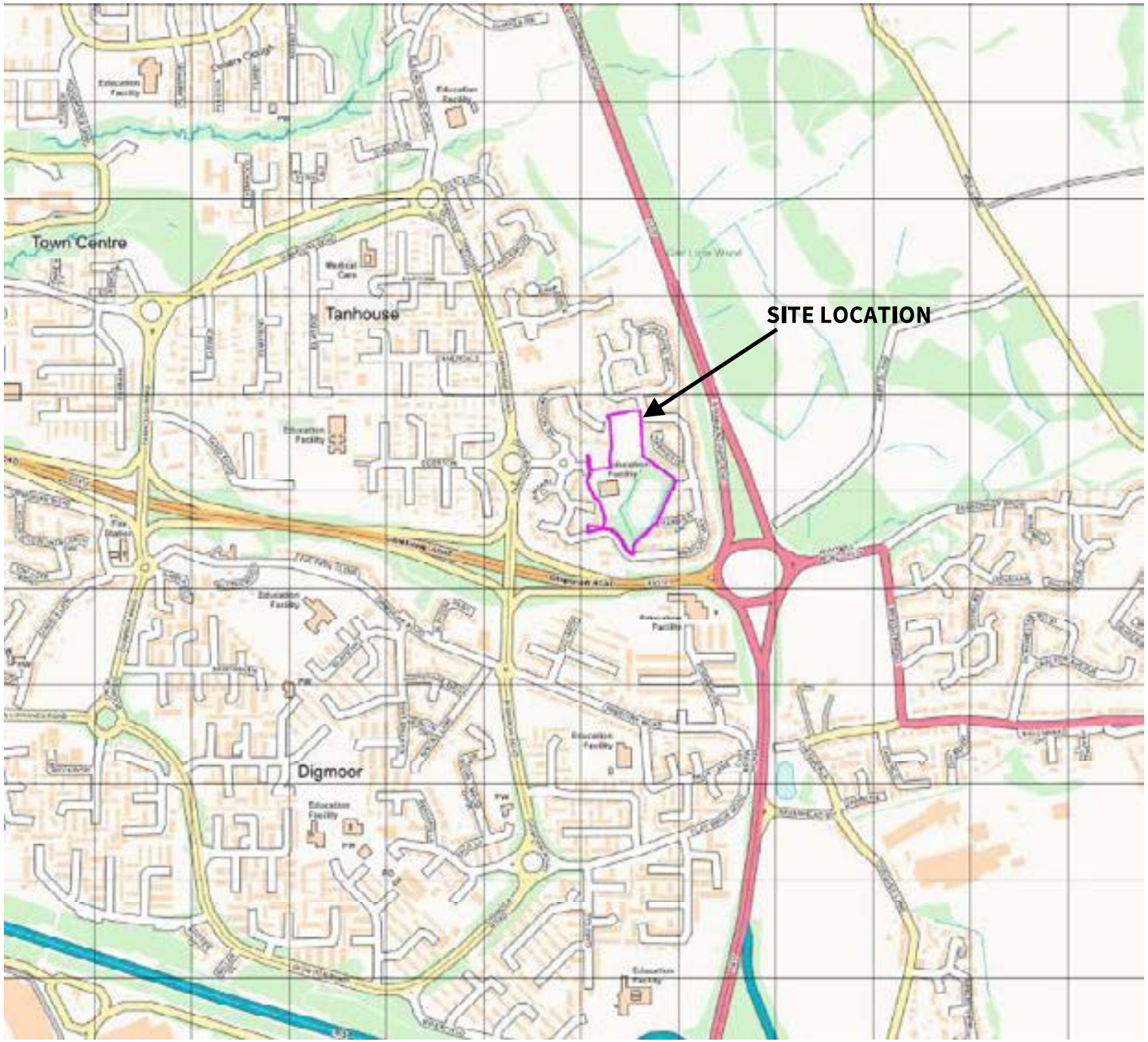
9.6 A Land Drainage Consent (under the Land Drainage Act 1991) will be required from the LLFA for the construction of any new outfall to the watercourse within the site.

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

9.8 Subject to compliance with the above, the proposed development can satisfy the requirements of the National Planning Policy Framework and the Planning Practice Guidance in relation to surface water management and foul drainage.

A P P E N D I X A

SITE LOCATION PLAN



0m 400m

Approximate Scale

ARP NORTH WEST LTD
CHARTERED CONSULTING ENGINEERS
2nd Floor · 3 Hardman Square · Manchester M3 3EB
Telephone : 0113 245 8498 · E-Mail : manchester@arpnorthwest.co.uk

Project
HOPE HIGH SCHOOL
SKELMERSDALE

Client
TAWD VALLEY
DEVELOPMENTS LIMITED

Title
SITE LOCATION PLAN

Date
JANUARY 2020

Drawn	Scale
DMB	AS SHOWN

Job No.
NW134/01/02

0m 100m

Approximate Scale

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CHARTERED CONSULTING ENGINEERS
2ND Floor · 3 Hardman Square · Manchester M3 3EB
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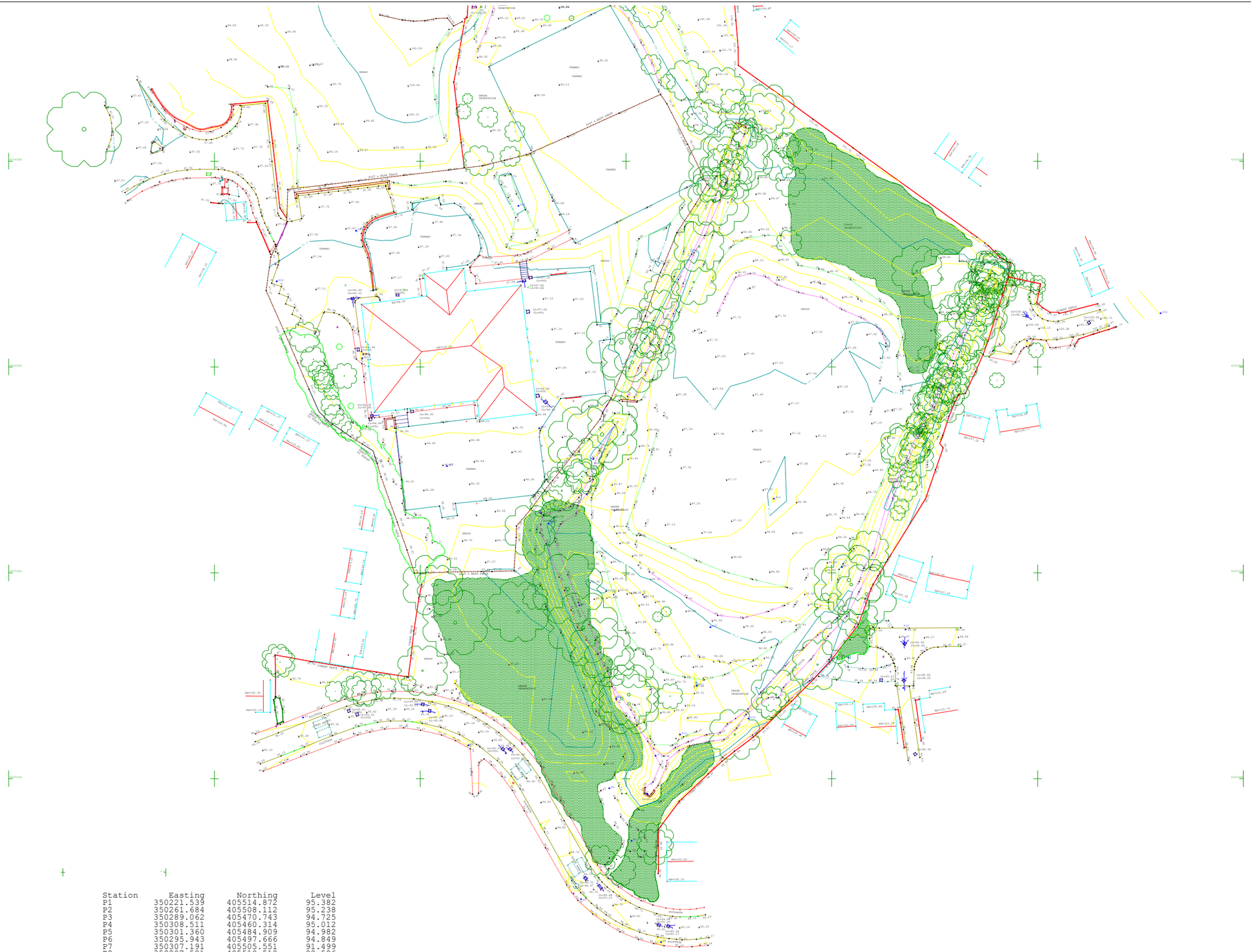
Project	HOPE HIGH SCHOOL SKELMERSDALE
Client	TAWD VALLEY DEVELOPMENTS LIMITED
Title	AERIAL PHOTOGRAPH
Date	JANUARY 2020
Drawn	DMB
Scale	AS SHOWN
Job No.	**NW134/01/02**

A P P E N D I X B

SITE TOPOGRAPHY



Station	Easting	Northing	Level
P1	350221.539	405514.872	95.382
P2	350261.684	405508.112	95.238
P3	350289.062	405470.743	94.725
P4	350308.511	405460.314	95.012
P5	350301.360	405484.909	94.982
P6	350295.943	405497.666	94.849
P7	350307.191	405505.551	91.499
P8	350297.581	405519.512	92.586
P9	350288.664	405542.104	93.061
P10	350281.189	405561.915	93.718
P11	350290.500	405569.038	93.934
P12	350313.123	405510.722	92.286
P13	350317.190	405522.600	93.987
P14	350329.769	405514.610	92.222
P15	350320.497	405536.816	94.961
P16	350335.907	405568.033	96.908
P17	350352.442	405551.411	96.104
P18	350367.384	405522.031	95.883
P19	350367.918	405536.230	95.880
P20	350429.879	405613.084	101.041
P21	350397.420	405606.388	99.918
P22	350215.154	405620.840	97.421
P23	350234.437	405633.109	97.652
P24	350273.858	405639.160	100.167
P25	350278.919	405585.149	96.509
P26	350235.894	405602.135	97.035
P27	350256.488	405575.937	96.430
P28	350224.577	405743.079	100.664
P29	350254.382	405733.324	101.627
P30	350246.864	405750.840	103.727

LINETYPE LEGEND

- Bridge
- Bottom of Bank
- Building
- Canopy Edge
- Concrete Edge
- Ditch
- Drop Kerb
- Overhead Cable
- Grid
- Tacktile Paver
- Kerb
- Path
- Pipe Line
- Foul Sewer
- Surface Water Sewer
- Chanel Line
- Road Centre Line
- Tarmac Edge
- Top of Bank
- Track
- Wall
- Verge
- Flagstone Paving
- Stone
- Hedgeline
- Grass Edge
- Vegetation Line
- Post and Rail Fence
- Post and Wire Fence
- Contour Normal
- Contour Prominent

N O T E S

ATTENTION IS DRAWN TO THE REQUIREMENTS OF THE CONSTRUCTION DESIGN AND MANAGEMENT REGULATIONS 2015 AND THE DUTIES AND RESPONSIBILITIES CONTAINED THEREIN

1. Do not scale from this drawing.
2. Topographical survey undertaken by PD Site Surveys on behalf of ARP (North West) Ltd. Date of original survey 05/08/2020. Supplementary survey undertaken 22/11/2021.
3. Survey based on OS Grid and Level as surveyed with GPS OS GB36-15. Grid set at 25m – contours set at 500mm.
4. This survey shows physical site boundaries only. Confirmation of legal ownership boundaries should be obtained by reference to the H.M. Land Registry Title Plan. Every effort is made to identify all visible above ground features. However, it should be borne in mind that there may be items obscured at the time of survey.
5. The contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. Should there be any conflict between the details indicated on this drawing and those indicated on other drawings, the engineer should be informed prior to construction on site.

SYMBOL LEGEND

- Borehole
- Benchmark
- Bollard
- Bus Stop
- Electric Box
- Electricity Pole
- Fence Post
- Gas Stop Valve
- Gate Post
- Gas Marker
- Gully Drain
- Electric Inspection Cover
- Kerb Outlet
- Litter Bin
- BT Inspection chamber
- Lamp Post
- Manhole Point
- MH Triangular
- MH Square
- MH Round
- Marker Post
- Pylon
- Rodding Eye
- BT Exchange Box
- Sign Post
- Spot Height
- Eave Level
- Ridge Level
- Stile
- Survey Station
- Traffic Camera
- Telephone Box
- Trial Pit
- Telegraph Pole
- Deciduous Tree
- Road Sign
- GATE
- Fire Hydrant
- Water Meter
- Letter Box
- CATV Inspection Chamber
- Water Stop Valve

ABBREVIATIONS

LP.	Lamp Post
TP.	Telegraph Pole
EP.	Electricity Pole
SP.	Sign Post
TS.	Tarffic Sign
BS.	Bus Stop
GM.	Gas Marker
MH.	Manhole
GU.	Gully
FH.	Fire Hydrant
CATV.	Cable Television Point
WM.	Water Meter
WSV.	Water Stop Valve
GSV.	Gas Stop Valve
RE.	Rodding Eye

Rev	By	Date	Revision	Chk	Apvd
A	JC	14.01.22	Amended to new survey with additional areas	MGW	AR
/	MGW	14.08.20	For information	MGW	AR

ARP ASSOCIATES (North West) Chartered Consulting Engineers

TITLE
TOPOGRAPHICAL SURVEY
SHEET 1 OF 2

PROJECT
FORMER HOPE HIGH SCHOOL

CLIENT
TAWD VALLEY DEVELOPMENTS

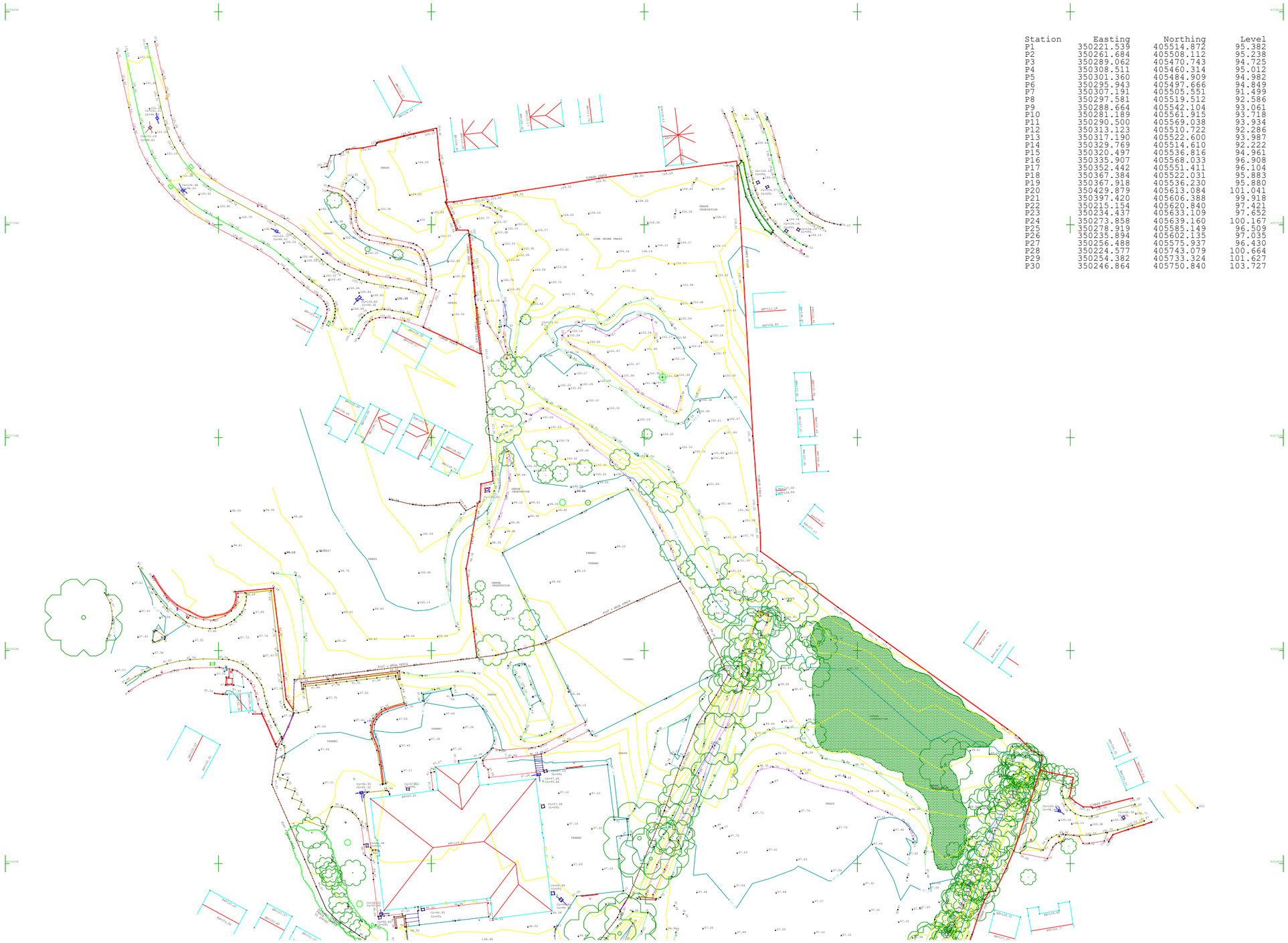
DRAWING STATUS
FOR INFORMATION

Scale	Date	Drawn	MGW
1:500 @ A1	AUG 20	Chk.	MGW

Drg. No. NW134/01/2/00.1 Rev A

LINETYPE LEGEND

Bridge	Path	Flagstone Paving
Bottom of Bank	Pipe Line	Stone
Building	Foul Sewer	Hedgeline
Canopy Edge	Surface Water Sewer	Grass Edge
Concrete Edge	Chanel Line	Vegetation Line
Ditch	Road Centre Line	Post and Rail Fence
Drop Kerb	Tarmac Edge	Post and Wire Fence
Overhead Cable	Top of Bank	Contour Normal
Grid	Track	Contour Prominent
Tacktile Paver	Wall	
Kerb	Verge	



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- MH Round
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- Spot Height
- Eave Level
- Ridge Level
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- Survey Station
- Traffic Camera
- Telephone Box
- Trial Pit
- Telegraph Pole
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Rev	By	Date	Revision	Chk	Apvd
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ARP ASSOCIATES (North West) Chartered Consulting Engineers

TITLE
TOPOGRAPHICAL SURVEY
SHEET 2 OF 2

PROJECT
FORMER HOPE HIGH SCHOOL

CLIENT
TAWD VALLEY DEVELOPMENTS

DRAWING STATUS
FOR INFORMATION

Scale	Date	Drawn	MGW
1:500 @ A1	AUG 20	Chk.	MGW

Drg. No. NW134/01/2/00.2 Rev A

A P P E N D I X C

DRAINAGE SURVEY

IWJS

INDUSTRIAL WATER JETTING SYSTEMS

CCTV SURVEY INSPECTION REPORT

Client:	ARP Geotechnical Ltd
Location:	Hope High School, Holland Park, Skelmersdale
Date:	17.11.2021

Industrial Water Jetting Systems Ltd

Dickens House, Old Stowmarket Road, Woolpit, Bury St. Edmunds IP22 9QS

Tel: 01359 242606 Fax: 01359 242 621

Web: www.iwjs.co.uk Email: surveys@iwjs.co.uk

IWJS
10 Huntsman Drive, Irlam
Tel. 0161 776 0499
Sharna.Donovan@iwjs.co.uk

WEB PROJECT
CLICK TO OPEN THIS PROJECT

Project

Project Name: 2021_11_24 ARP Hope High School M Sweeney

Project Date: 24/11/2021

Inspection Standard: MSCC5 Sewers & Drainage GB (SRM5 Scoring)

IWJS
10 Huntsman Drive, Irlam
Tel. 0161 776 0499
Sharna.Donovan@iwjs.co.uk

Table of Contents

Project Name	Project Number	Project Date
2021_11_24 ARP Hope High School M Sweeney		24/11/2021

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Scoring Summary P-2

Section Item 1: OUTLET D > UNK (OUTLET DX) 1

Section Item 2: UNKNOWN > OUTLET A (UNKNOWNX) 3

Section Item 3: UNKNOWN > OUTLET B (UNKNOWNX) 5

Section Item 4: UNKNOWN > OUTLET C (UNKNOWNX) 7

Section Item 5: SW02 > SW01 (SW02X) 8

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Project Information

Project Name	Project Number	Project Date
2021_11_24 ARP Hope High School M Sweeney		24/11/2021

Client

Company: ARP Geotechnical Ltd
Street: Northwest House, 5/6 Northwest Business Park
Town or City: Servia Hill, Leeds
County: West Yorkshire
Post Code: LS6 2QH

Site

Company: ARP Geotechnical Ltd
Street: Hope High School, Holland Park
Town or City: Skelmersdale
County: Lancashire
Post Code: WN8 6BJ

Contractor

Company: IWJS
Contact: Sharna Donovan
Street: 10 Huntsman Drive
Town or City: Irlam
County: Greater Manchester
Post Code: M44 5EG
Phone: 0161 776 0499
Mobile: 07866 072580
Email: Sharna.Donovan@iwjs.co.uk

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Scoring Summary

Project Name	Project Number	Project Date
2021_11_24 ARP Hope High School M Sweeney		24/11/2021

Structural Defects

Grade 3: Best practice suggests consideration should be given to repairs in the medium term.
Grade 4: Best practice suggests consideration should be given to repairs to avoid a potential collapse.
Grade 5: Best practice suggests that this pipe is at risk of collapse at any time. Urgent consideration should be given to repairs to avoid total failure.

Section	PLR	Grade	Description
3	UNKNOWNX	3	Cracks, multiple at joint from 7 o'clock to 5 o'clock

Service / Operational Condition

Grade 3: Best practice suggests consideration should be given to maintenance activities in the medium term.
Grade 4: Best practice suggests consideration should be given to maintenance activity to avoid potential blockages.
Grade 5: Best practice suggests that this pipe is at a high risk of backing up or causing flooding.

Section	PLR	Grade	Description
3	UNKNOWNX	4	Settled deposits, fine, 40% cross-sectional area loss
4	UNKNOWNX	4	Settled deposits, fine, 20% cross-sectional area loss

Abandoned Surveys

Section	PLR	Description
1	OUTLET DX	Survey abandoned
2	UNKNOWNX	Survey abandoned
3	UNKNOWNX	Survey abandoned
4	UNKNOWNX	Survey abandoned
5	SW02X	Survey abandoned

Information

These scoring summaries are based on the SRM grading from the WRc.

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Section Inspection - 24/11/2021 - OUTLET DX

WEB PROJECT

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	24/11/21	12:02	Not Specified	No Rain Or Snow	No	OUTLET DX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
M Sweeney	FL65 WZD	Small Crawler	Not Specified	Watercourse	Not Specified

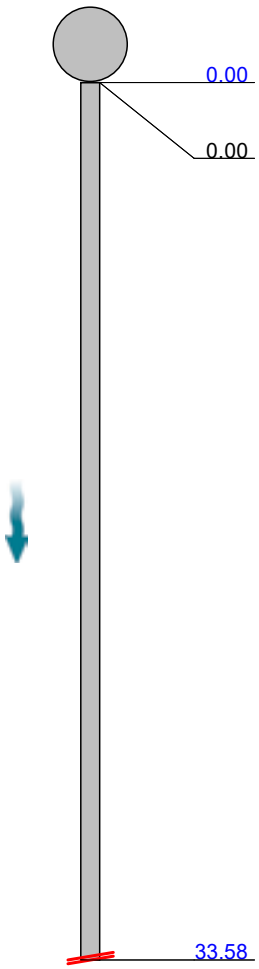
Town or Village:	Skemersdale	**Inspection Direction:**	Downstream	**Upstream Node:**	OUTLET D
Road:	Hope High School	**Inspected Length:**	33.58 m	**Upstream Pipe Depth:**	2.150 m
Location:	Fields, farmland etc	**Total Length:**	33.58 m	**Downstream Node:**	UNK
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	2.180 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	750 mm
Flow Control:	No flow control	**Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:290

Depth: 2.15 m
OUTLET D



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	WL	Water level, 5% of the vertical dimension	00:00:00	OUTLET DX_8e641eb6-820b-	
0.00	OF	Start node type, outfall, reference number: OUTLET D	00:00:00	OUTLET DX_689b5e4d-7a8f-4	
33.58	SA	Survey abandoned: Cleaning req	00:04:23		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 24/11/2021 - OUTLET DX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
1	Downstream	OUTLET DX		

OUTLET
DX_8e641eb6-820b-4843-93d4-61bf13e2ea86_20211124_121320_042.jpg, 00:00:00, 0.00 m
Water level, 5% of the vertical dimension

OUTLET
DX_689b5e4d-7a8f-4e8b-853a-ad2c0e5dc76b_20211124_121303_590.jpg, 00:00:00, 0.00 m
Start node type, outfall, reference number: OUTLET D

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Section Inspection - 25/11/2021 - UNKNOWNX

WEB PROJECT

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	2	25/11/21	9:36	Not Specified	No Rain Or Snow	No	UNKNOWNX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
M Sweeney	FL65 WZD	Push Rod	Not Specified	Watercourse	Not Specified

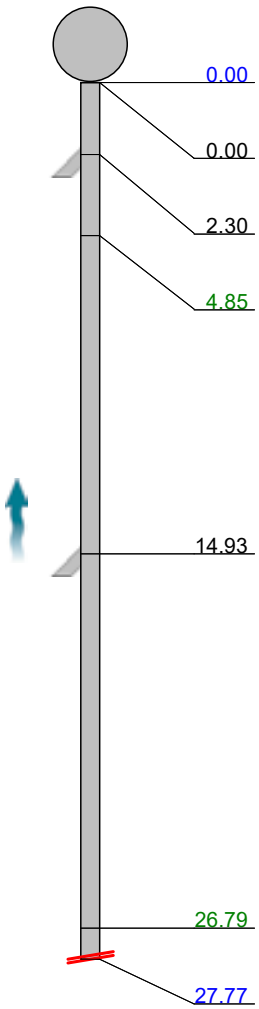
Town or Village:	Skemersdale	**Inspection Direction:**	Upstream	**Upstream Node:**	UNKNOWN
Road:	Hope High School	**Inspected Length:**	27.77 m	**Upstream Pipe Depth:**	
Location:	Fields, farmland etc	**Total Length:**	27.77 m	**Downstream Node:**	OUTLET A
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.890 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:240

Depth: 1.89 m
OUTLET A



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	WL	Water level, 5% of the vertical dimension			
0.00	OF	Start node type, outfall, reference number: OUTLET A	00:00:00		
2.30	JN	Junction at 2 o'clock, diameter: 100mm	00:00:15		
4.85	LL	Line deviates left	00:00:29		
14.93	JN	Junction at 2 o'clock, diameter: 100mm	00:01:23		
26.79	DER	Settled deposits, coarse, 15% cross-sectional area loss: Brick	00:02:45	UNKNOWNX_f373b58d-0d7d-	3
27.77	SA	Survey abandoned: Due to brick in line. Clean required	00:00:00		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	1	2.0	0.1	2.0	3.0

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Section Pictures - 25/11/2021 - UNKNOWNX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
2	Upstream	UNKNOWNX		

UNKNOWNX_f373b58d-0d7d-4065-9837-d61e995b3a87_20220110_081840_276.jpg, 00:02:45, 26.79 m
Settled deposits, coarse, 15% cross-sectional area loss, Brick

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Section Inspection - 25/11/2021 - UNKNOWNX

WEB PROJECT

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	3	25/11/21	9:52	Not Specified	No Rain Or Snow	No	UNKNOWNX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
M Sweeney	FL65 WZD	Push Rod	Not Specified	Watercourse	Not Specified

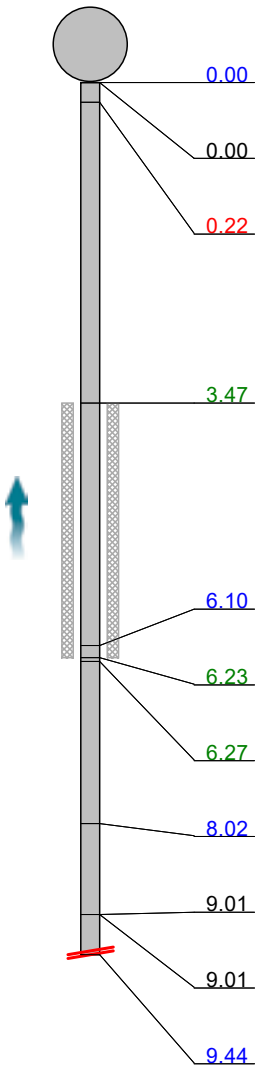
Town or Village:	Skemersdale	**Inspection Direction:**	Upstream	**Upstream Node:**	UNKNOWN
Road:	Hope High School	**Inspected Length:**	9.44 m	**Upstream Pipe Depth:**	
Location:	Fields, farmland etc	**Total Length:**	9.44 m	**Downstream Node:**	OUTLET B
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	2.100 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:82

Depth: 2.10 m
OUTLET B



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		WL	Water level, 5% of the vertical dimension			
0.00		OF	Start node type, outfall, reference number: OUTLET B	00:00:00		
0.22		CMJ	Cracks, multiple at joint from 7 o'clock to 5 o'clock	00:00:03	UNKNOWNX_e0e87def-a566-4	3 / 2
3.47	S01	DES	Settled deposits, fine, 10% cross-sectional area loss, start	00:00:18		
6.10		WL	Water level, 20% of the vertical dimension	00:00:33		
6.23	F01	DES	Settled deposits, fine, 10% cross-sectional area loss, finish	00:00:31		3
6.27		DES	Settled deposits, fine, 40% cross-sectional area loss	00:00:31		4
8.02		GP	General photograph taken at this point	00:00:42	UNKNOWNX_2fc346b4-a0b5-	
9.01		SC	Pipe size changes, new size(s), 100mm high	00:00:48		
9.01		MCPVC	Pipe material changes to polyvinyl chloride at this point	00:00:48		
9.44		SA	Survey abandoned: Due to size change	00:00:00		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	40.0	4.2	40.0	3.0	3	7.0	1.3	12.0	4.0

IWJS
10 Huntsman Drive, Irlam
Tel. 0161 776 0499
Sharna.Donovan@iwjs.co.uk

Section Pictures - 25/11/2021 - UNKNOWNX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Upstream	UNKNOWNX		

UNKNOWNX_e0e87def-a566-4820-bfd2-1157fa7d0d86_20211125_095407_250.jpg, 00:00:03, 0.22 m
Cracks, multiple at joint from 7 o'clock to 5 o'clock

UNKNOWNX_2fc346b4-a0b5-4b5d-b981-410b74c8f632_20220110_081929_087.jpg, 00:00:42, 8.02 m
General photograph taken at this point

IWJS
10 Huntsman Drive, Irlam
Tel. 0161 776 0499
Sharna.Donovan@iwjs.co.uk

Section Inspection - 25/11/2021 - UNKNOWNX

WEB PROJECT

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	4	25/11/21	10:04	Not Specified	No Rain Or Snow	No	UNKNOWNX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
M Sweeney	FL65 WZD	Push Rod	Not Specified	Watercourse	Not Specified

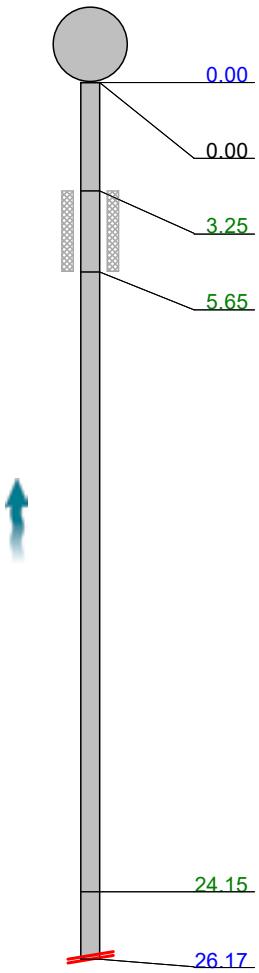
Town or Village:	Skemersdale	**Inspection Direction:**	Upstream	**Upstream Node:**	UNKNOWN
Road:	Hope High School	**Inspected Length:**	26.17 m	**Upstream Pipe Depth:**	
Location:	Fields, farmland etc	**Total Length:**	26.17 m	**Downstream Node:**	OUTLET C
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:	No flow control	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:226

Depth: m
OUTLET C



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		WL	Water level, 5% of the vertical dimension			
0.00		OF	Start node type, outfall, reference number: OUTLET C	00:00:00		
3.25	S01	LL	Line deviates left, start			
5.65	F01	LL	Line deviates left, finish			
24.15		DES	Settled deposits, fine, 20% cross-sectional area loss			4
26.17		SA	Survey abandoned: Due to silt Clean required to trace further			

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	5.0	0.2	5.0	4.0

IWJS
10 Huntsman Drive, Irlam
Tel. 0161 776 0499
Sharna.Donovan@iwjs.co.uk

Section Inspection - 11/08/2004 - SW02X

WEB PROJECT

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	1	11/08/04	2:44	Not Specified	No Rain Or Snow	No	SW02X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
M Sweeney	FL65 WZD	Small Crawler	Not Specified	Watercourse	Not Specified

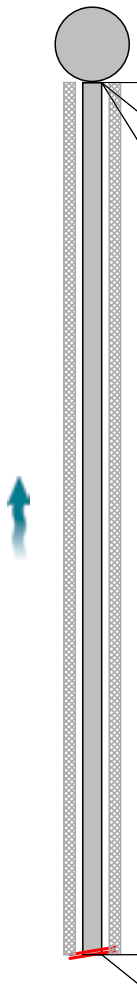
Town or Village:	Skemersdale	**Inspection Direction:**	Upstream	**Upstream Node:**	SW02
Road:	Hope High School	**Inspected Length:**	5.99 m	**Upstream Pipe Depth:**	
Location:	Fields, farmland etc	**Total Length:**	5.99 m	**Downstream Node:**	SW01
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:52

Depth: m
SW01



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: SW01	00:00:00		
0.00		WL	Water level, 90% of the vertical dimension	00:00:00		
0.00	S01	CUW	Loss of vision, camera under water, start	00:00:00		
5.99	F01	CUW	Loss of vision, camera under water, finish	00:01:02		
5.99		SA	Survey abandoned: Camera under water	00:01:02		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Grade Defect Report								
Section	Road	m+	Upstream Node	Inspection Direction	Downstream Node	Observation	Structural	Service
1	Hope High School	0	OUTLET D	Downstream	UNK	Water level, 5% of the vertical dimension		
1	Hope High School	0	OUTLET D	Downstream	UNK	Start node type, outfall, reference number: OUTLET D		
1	Hope High School	33.58	OUTLET D	Downstream	UNK	Survey abandoned		
2	Hope High School	0	UNKNOWN	Upstream	OUTLET A	Water level, 5% of the vertical dimension		
2	Hope High School	0	UNKNOWN	Upstream	OUTLET A	Start node type, outfall, reference number: OUTLET A		
2	Hope High School	2.3	UNKNOWN	Upstream	OUTLET A	Junction at 2 o'clock, diameter: 100mm		
2	Hope High School	4.85	UNKNOWN	Upstream	OUTLET A	Line deviates left		
2	Hope High School	14.93	UNKNOWN	Upstream	OUTLET A	Junction at 2 o'clock, diameter: 100mm		
2	Hope High School	26.79	UNKNOWN	Upstream	OUTLET A	Settled deposits, coarse, 15% cross-sectional area loss		3
2	Hope High School	27.77	UNKNOWN	Upstream	OUTLET A	Survey abandoned		
3	Hope High School	0	UNKNOWN	Upstream	OUTLET B	Water level, 5% of the vertical dimension		
3	Hope High School	0	UNKNOWN	Upstream	OUTLET B	Start node type, outfall, reference number: OUTLET B		
3	Hope High School	0.22	UNKNOWN	Upstream	OUTLET B	Cracks, multiple at joint from 7 o'clock to 5 o'clock	3	2
3	Hope High School	3.47	UNKNOWN	Upstream	OUTLET B	Settled deposits, fine, 10% cross-sectional area loss, start		
3	Hope High School	6.1	UNKNOWN	Upstream	OUTLET B	Water level, 20% of the vertical dimension		
3	Hope High School	6.23	UNKNOWN	Upstream	OUTLET B	Settled deposits, fine, 10% cross-sectional area loss, finish		3
3	Hope High School	6.27	UNKNOWN	Upstream	OUTLET B	Settled deposits, fine, 40% cross-sectional area loss		4
3	Hope High School	8.02	UNKNOWN	Upstream	OUTLET B	General photograph taken at this point		
3	Hope High School	9.01	UNKNOWN	Upstream	OUTLET B	Pipe size changes, new size(s), 100mm high		
3	Hope High School	9.01	UNKNOWN	Upstream	OUTLET B	Pipe material changes to polyvinyl chloride at this point		
3	Hope High School	9.44	UNKNOWN	Upstream	OUTLET B	Survey abandoned		
4	Hope High School	0	UNKNOWN	Upstream	OUTLET C	Water level, 5% of the vertical dimension		
4	Hope High School	0	UNKNOWN	Upstream	OUTLET C	Start node type, outfall, reference number: OUTLET C		
4	Hope High School	3.25	UNKNOWN	Upstream	OUTLET C	Line deviates left, start		
4	Hope High School	5.65	UNKNOWN	Upstream	OUTLET C	Line deviates left, finish		
4	Hope High School	24.15	UNKNOWN	Upstream	OUTLET C	Settled deposits, fine, 20% cross-sectional area loss		4
4	Hope High School	26.17	UNKNOWN	Upstream	OUTLET C	Survey abandoned		
5	Hope High School	0	SW02	Upstream	SW01	Start node, manhole, reference: SW01		
5	Hope High School	0	SW02	Upstream	SW01	Water level, 90% of the vertical dimension		
5	Hope High School	0	SW02	Upstream	SW01	Loss of vision, camera under water, start		
5	Hope High School	5.99	SW02	Upstream	SW01	Loss of vision, camera under water, finish		
5	Hope High School	5.99	SW02	Upstream	SW01	Survey abandoned		

Project No.	134368
Survey Date.	01/11/2021
Surveyor.	M Sweeney

Asset Survey Card

Asset ID: FW MH Asset Type : MH (eg: MH, CP, GY) Function: FW Cover Level:

Location: O/s 40 Becon Drive Skemesdale

Town: Liverpool

COVER DETAILS

[x] Square [ ] Rectangle [ ] Triangle [ ] Dbl Triangle [ ] Circular [ ] Other [ ] Other

[ ] Hinged [ ] Lockable [ ] Grating H Cover Duty 600 x 600 Size (mm)

PIPE DETAILS

Incoming Pipes

Pipe	Depth from Cover (m)	Upstream / Downstream Ref	Shape	Size (mm) Height		Width	Pipe Mat	Lining Mat	Back Drop Dia (mm)	Invert Level (m)
A	3.14		C	150	x		VC			
B	3.2		C	150	x		VC			
C					x					
D					x					
E					x					
F					x					

Outgoing Pipes

X	3.21		C	150	x		VC			
Z					x					

MANHOLE CONSTRUCTION DETAILS

Shaft

600 x 600 Size (mm) 28 Depth (m) 3 No. of Reg Courses Soffit

Chamber

1200 x Size (mm) N Side Entry N OX / H2S / METH Toxic atmosphere N Evidence of Surcharge

[x] Pre Cast Concrete [ ] Insitu Concrete [ ] Bolted Segments [ ] GRP [ ] Reducing Slab

10 Step Irons [x] Ladder [ ] No. of Landings 20 Depth of Flow (mm) 20 Depth of Silt (mm)

ADDITIONAL CONSTRUCTION DETAILS

[ ] Flap Valve [ ] Orifice [ ] Sluice Gate [ ] Weir [ ] Screens [ ] Penstock [ ] Flume [ ] H/Wall

CONDITION INFORMATION (Specify in Remark)

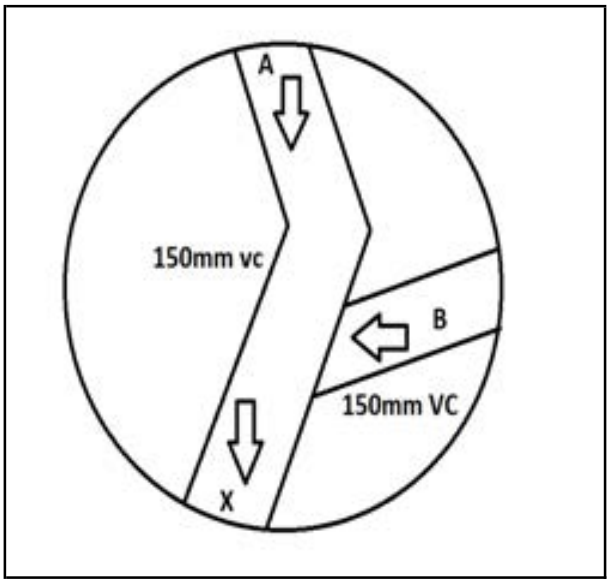
	Cover	Shaft	Irons/Ladder	Chamber	Benching	Channel
OK	[x]	[x]	[x]	[x]	[x]	[x]
Needs Attention	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Urgent Attention	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Remark

See Overleaf for Key

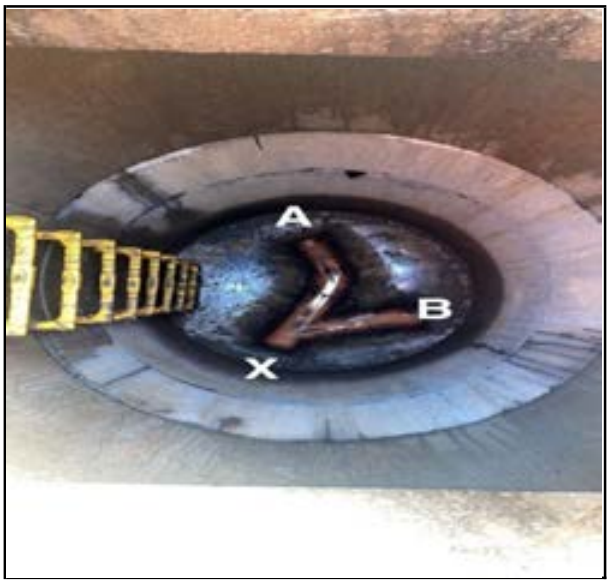
LOCATION SKETCH

PLAN OF MANHOLE



LOCATION PHOTO

INTERNAL PHOTO



STATUS	PU	: Public	PR	: Private	WC	: Culverted Watercourse } Applies to main outlet
	24	: Section 24	HD	: Highway Drain		
FUNCTION	F	: Foul	C	: Combined	S	: Surface Water } Applies to main outlet
MANHOLE TYPE	IF	: Infall	MH	: Manhole	CP	: Catchpit
	LH	: Lamphole	RE	: Rodding Eye	SO	: Storm Overflow
	GU	: Gully	OF	: Outfall	SA	: Soakaway
COVER DUTY	L	: Light Duty	M	: Medium Duty	H	: Heavy Duty
SHAPE	C	: Circular	E	: Egg	R	: Rectangular
	S	: Square	T	: Trapezoidal	A	: Arched
	B	: Barrel	H	: Horseshoe (Inverted U)	U	: U-shaped with flat top
	X	: Other (state in words)				
PIPE (OR LINING) MATERIAL	AK	: Alkathene	AC	: Asbestos Cement	BR	: Brick
	CI	: Cast Iron	SI	: Spun (Grey) Iron	CO	: Concrete
	CSB	: Concrete Segments (Bolted)	CSU	: Concrete Segments (Unbolted)	CC	: Concrete Box Culvert
	DI	: Ductile Iron	GRC	: Glass Reinforced Concrete	GRP	: Glass Reinforced Plastic
	PSC	: Plastic/Steel Composite	PVC	: Polyvinyl Chloride	PE	: Polyethylene
	RPM	: Reinforced Plastic Matrix	ST	: Steel	VC	: Vitrified Clay
	PP	: Polypropylene	PF	: Pitch Fibre	MAC	: Masonry, Coursed
	MAR	: Masonry, Randon Courses	XXX	: Other (State in remarks)		
LINING	BL	: Bitumen	RL	: Resin	IS	: Insituform
	CL	: Cement	PI	: Plastic		

Project No.	134368
Survey Date.	01/11/2021
Surveyor.	M Sweeney

Asset Survey Card

Asset ID: SW MH | Asset Type : MH (eg: MH, CP, GY) | Function: SW | Cover Level:

Location: O/s 72 Becon Drive Skemesdale

Town: Liverpool

COVER DETAILS

☐ Square ☒ Rectangle ☐ Triangle ☐ Dbl Triangle ☐ Circular ☐ Other [Double Lid] Other

☐ Hinged ☐ Lockable ☐ Grating H Cover Duty 600 x 1200 Size (mm)

PIPE DETAILS

Incoming Pipes

Pipe	Depth from Cover (m)	Upstream / Downstream Ref	Shape	Size (mm) Height		Width	Pipe Mat	Lining Mat	Back Drop Dia (mm)	Invert Level (m)
A	1.68		C	150	x		VC			
B	1.69		C	150	x		VC			
C					x					
D					x					
E					x					
F					x					

Outgoing Pipes

X	1.71		C	150	x		VC			
Z					x					

MANHOLE CONSTRUCTION DETAILS

Shaft

600 x 1200 Size (mm) | 58 Depth (m) | 3 No. of Reg Courses | Soffit

Chamber

1200 x Size (mm) | Y Side Entry | N OX / H2S / METH Toxic atmosphere | N Evidence of Surcharge

☒ Pre Cast Concrete ☐ Insitu Concrete ☐ Bolted Segments ☐ GRP ☐ Reducing Slab

3 Step Irons ☒ Ladder ☐ No. of Landings | 10 Depth of Flow (mm) | 10 Depth of Silt (mm)

ADDITIONAL CONSTRUCTION DETAILS

☐ Flap Valve ☐ Orifice ☐ Sluice Gate ☐ Weir ☐ Screens ☐ Penstock ☐ Flume ☐ H/Wall

CONDITION INFORMATION (Specify in Remark)

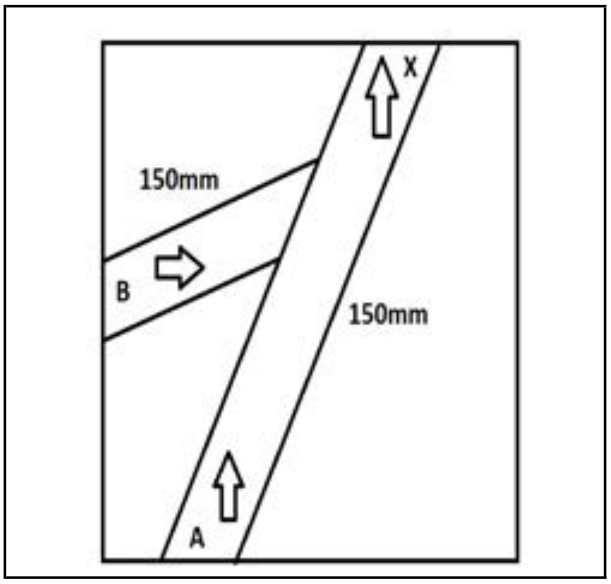
	Cover	Shaft	Irons/Ladder	Chamber	Benching	Channel
OK	☒	☒	☒	☒	☒	☒
Needs Attention	☐	☐	☐	☐	☐	☐
Urgent Attention	☐	☐	☐	☐	☐	☐

Remark

See Overleaf for Key

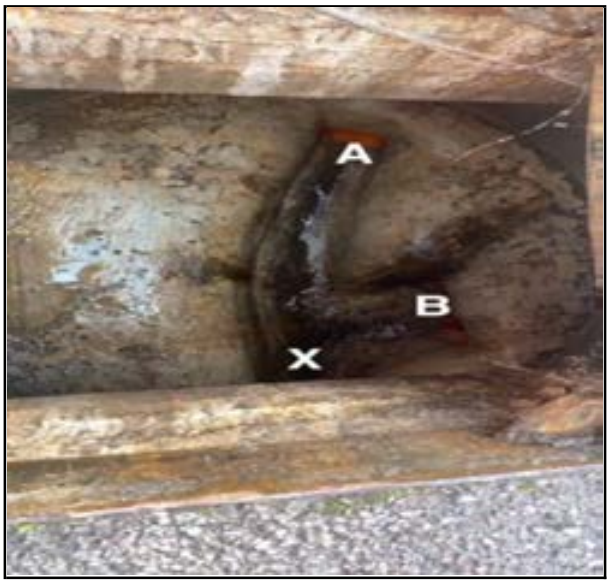
LOCATION SKETCH

PLAN OF MANHOLE

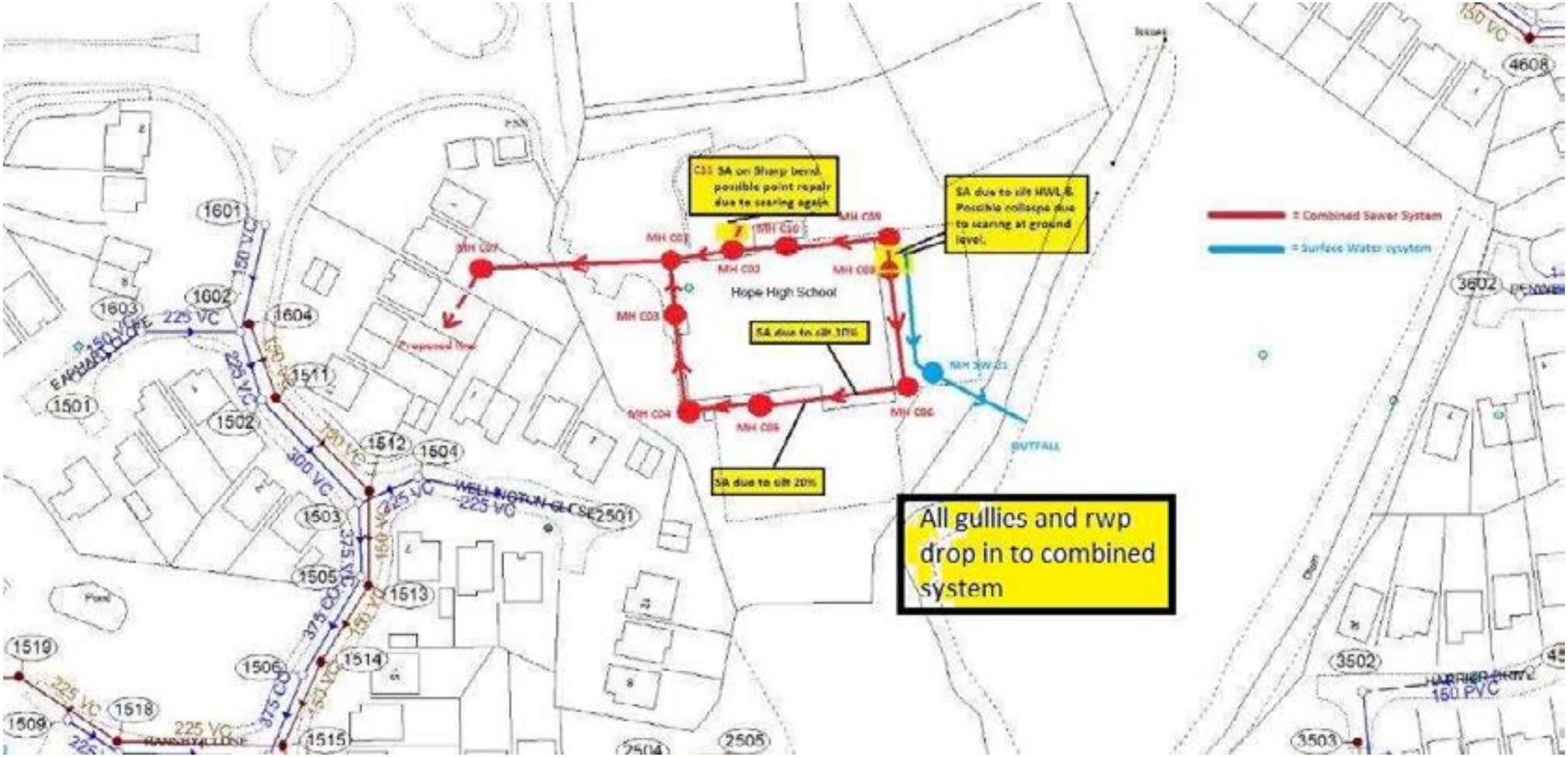


LOCATION PHOTO

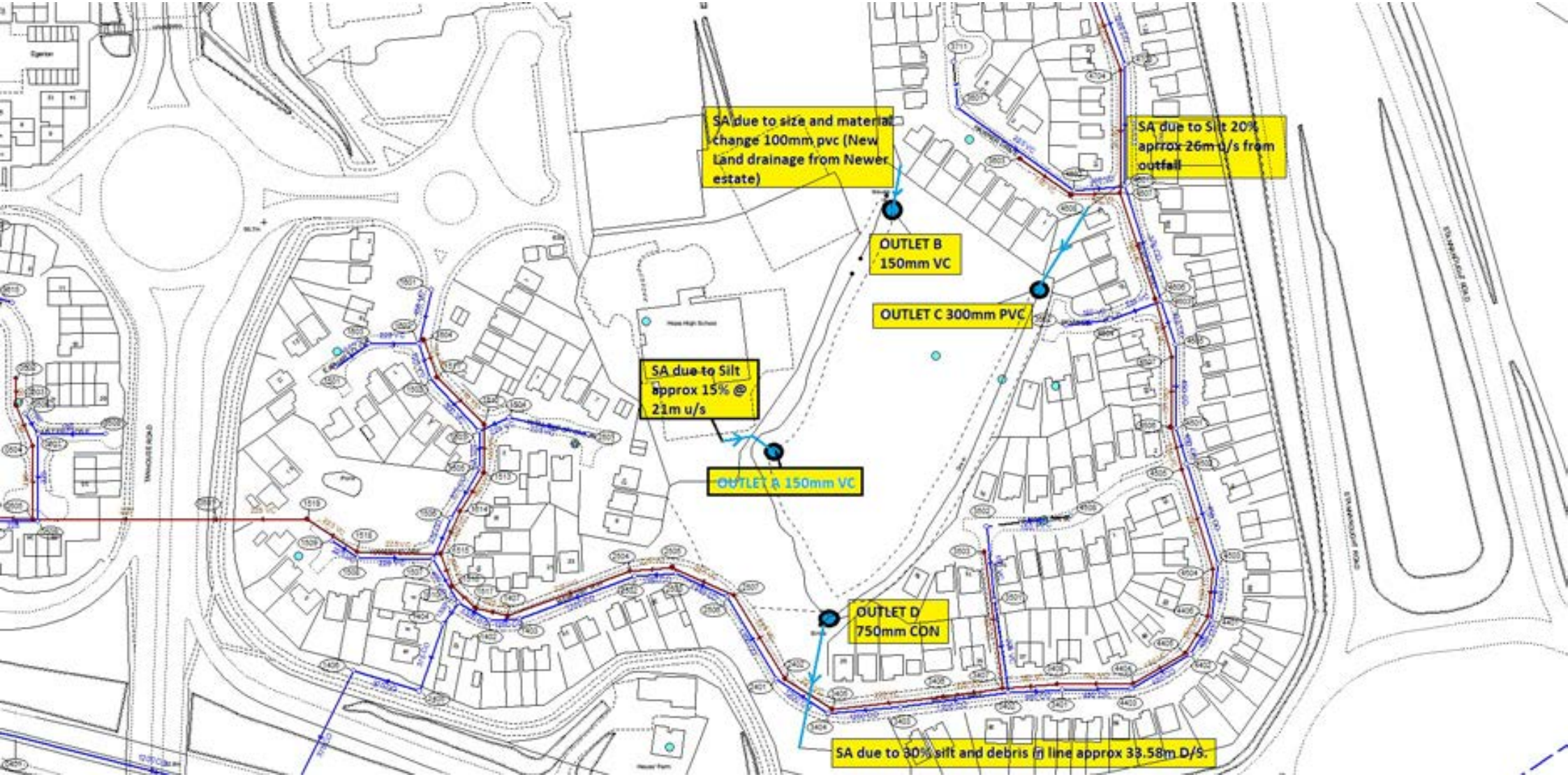
INTERNAL PHOTO



STATUS	PU : Public	PR : Private	WC : Culverted Watercourse	} Applies to main outlet
	24 : Section 24	HD : Highway Drain		
FUNCTION	F : Foul	C : Combined	S : Surface Water	} Applies to main outlet
MANHOLE TYPE	IF : Infall	MH : Manhole	CP : Catchpit	
	LH : Lamphole	RE : Rodding Eye	SO : Storm Overflow	
	GU : Gully	OF : Outfall	SA : Soakaway	
COVER DUTY	L : Light Duty	M : Medium Duty	H : Heavy Duty	
SHAPE	C : Circular	E : Egg	R : Rectangular	
	S : Square	T : Trapezoidal	A : Arched	
	B : Barrel	H : Horseshoe (Inverted U)	U : U-shaped with flat top	
	X : Other (state in words)			
PIPE (OR LINING) MATERIAL	AK : Alkathene	AC : Asbestos Cement	BR : Brick	
	CI : Cast Iron	SI : Spun (Grey) Iron	CO : Concrete	
	CSB : Concrete Segments (Bolted)	CSU : Concrete Segments (Unbolted)	CC : Concrete Box Culvert	
	DI : Ductile Iron	GRC : Glass Reinforced Concrete	GRP : Glass Reinforced Plastic	
	PSC : Plastic/Steel Composite	PVC : Polyvinyl Chloride	PE : Polyethylene	
	RPM : Reinforced Plastic Matrix	ST : Steel	VC : Vitrified Clay	
	PP : Polypropylene	PF : Pitch Fibre	MAC : Masonry, Coursed	
	MAR : Masonry, Randon Courses	XXX : Other (State in remarks)		
LINING	BL : Bitumen	RL : Resin	IS : Insituform	
	CL : Cement	PI : Plastic		



Feedback documents available to view and download via the document section on WinCan Web


SA due to size and material change 100mm pvc (New Land drainage from Newer estate)
SA due to Silt 20% aprrox 26m u/s from outfall
OUTLET B 150mm VC
OUTLET C 300mm PVC
SA due to Silt approx 15% @ 21m u/s
OUTLET A 150mm VC
OUTLET D 750mm CON
SA due to 30% silt and debris in line approx 33.58m D/S.

A P P E N D I X D

ENVIRONMENT AGENCY CONSULTATION

Matthew Wilson

From: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Sent: Tuesday 21 January, 2020 2:27 pm
To: Matthew Wilson
Subject: CL157879BL

Follow Up Flag: Follow up
Flag Status: Completed

Dear Matthew

This site is located in Flood Zone 1, meaning the estimated risk of flooding from rivers/sea is less than 0.1% (1 in 1000) in any given year. We therefore do not have any relevant modelling information to provide for a product 4. For further information on flood zones, please visit the Flood Map for Planning on the gov.uk website: https://flood-map-for-planning.service.gov.uk/.
The Environment Agency has no record of previous flooding in this area.

For further guidance on producing a flood risk assessment in Flood Zone 1, please see the link below.
https://www.gov.uk/guidance/flood-risk-assessment-in-flood-zone-1-and-critical-drainage-areas

Surface Water Maps can be viewed online at https://flood-warning-information.service.gov.uk/long-term-flood-risk/map or can be downloaded using the data.gov.uk Web Map Service. For further information relating to the risk of flooding from surface water, please contact the Lead Local Flood Authority Lancashire County Council.

Thanks

Becca

Rebecca Lettice
Customers and Engagement Officer, Cumbria and Lancashire
Environment Agency | Ghyll Mount, Gillan Way, Penrith 40 Business Park, Penrith, Cumbria, CA11 9BP

inforequests.cmblnc@environment-agency.gov.uk

Creating a better place for people and wildlife

From: Enquiries, Unit
Sent: 21 January 2020 13:07
To: MatthewWilson@arpnorthwest.co.uk
Subject: REF: 200121/DJ09. NW113-03-02 Former Hope High School, Skelmersdale - Flood risk enquiry

Dear Matthew

I have passed your e-mail to the local customer team who will deal with your request.

The Freedom of Information Act and Environmental Information Regulations state that a public authority must respond to requests for information within 20 working days, although we aim to respond to all enquiries as quickly as we can.

You can find more information about our service commitment by clicking on the link below:

https://www.gov.uk/government/publications/environment-agency-customer-service-commitment

You can contact our customer team directly on the contact details below, or call the National Customer Contact Centre on 03708 506506 who will transfer you to the area team.

Please quote your enquiry reference 200121/DJ09 in any correspondence with us regarding this matter.

Customers and Engagement
Environment Agency
Cumbria and Lancashire Area
Lutra House
Dodd Way
Walton Summit
Bamber Bridge
PRESTON
PR5 8BX

Kind regards

David Jackson
Customer Service Advisor
National Customer Contact Centre
Environment Agency

☎ Tel: 03708 506 506
www.gov.uk/environment-agency

Click an icon to keep in touch with us:-

From: Matthew Wilson [mailto:MatthewWilson@arpnorthwest.co.uk]
Sent: 20 January 2020 15:59
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: NW113-03-02 Former Hope High School, Skelmersdale - Flood risk enquiry

Good afternoon,

We have been instructed to prepare a Flood Risk Assessment and Drainage Strategy to support a planning application for a proposed residential development at the former Hope High School, Carfield, Clay Brow, Skelmersdale WN8 9DP.

The proposed development site is centred on approximate Ordnance Survey grid reference 350301, 405612, and the site is approximately 2.97ha in area. I have attached a location plan for reference.

The site is a former school, with an existing building and areas of existing hardstanding in the west, plus undeveloped greenfield land in the north and east. The proposed development is for circa 50 - 70 residential properties.

Having reviewed the EA Flood Map for Planning we anticipate that the site falls within Flood Zone 1. We would appreciate your confirmation of this, and provision of any relevant 'Product 4' data for the site.

Ordnance Survey mapping indicates two small watercourses/drains located in the east. There is an unnamed watercourse approximately 850m north-west of the site, which is a tributary of the River Tawd (which is located further west). We would appreciate if you could provide any information on the connectivity of the drains within the site, or any information on any other known watercourses in the vicinity which may be suitable for surface water discharge?

To inform the Flood Risk Assessment, we would also appreciate your advice on any known flooding within or near to the site, or any other issues which may be pertinent to our work.

For reference, we are also in consultation with United Utilities and the Lead Local Flood Authority regarding surface water management requirements/options.

We trust that this is satisfactory and look forward to hearing from you, however, should you require any additional information at this time please do not hesitate to contact us.

Kind regards,

Matthew Wilson
Principal Engineer

07307 849 396
matthewwilson@arpnorthwest.co.uk

www.arpassociates.co.uk

2nd Floor, 3 Hardman Square, Spinningfields, Manchester, M3 3EB
5 & 6 Northwest Business Park, Servia Hill, Leeds LS6 2QH

Pre-planning Geotechnical Civil Engineering Structural Engineering Building Services Engineering

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Flood map for planning

Your reference	Location (easting/northing)	Created
Hope High	**350306/405600**	**6 May 2022 0:24**

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger that 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

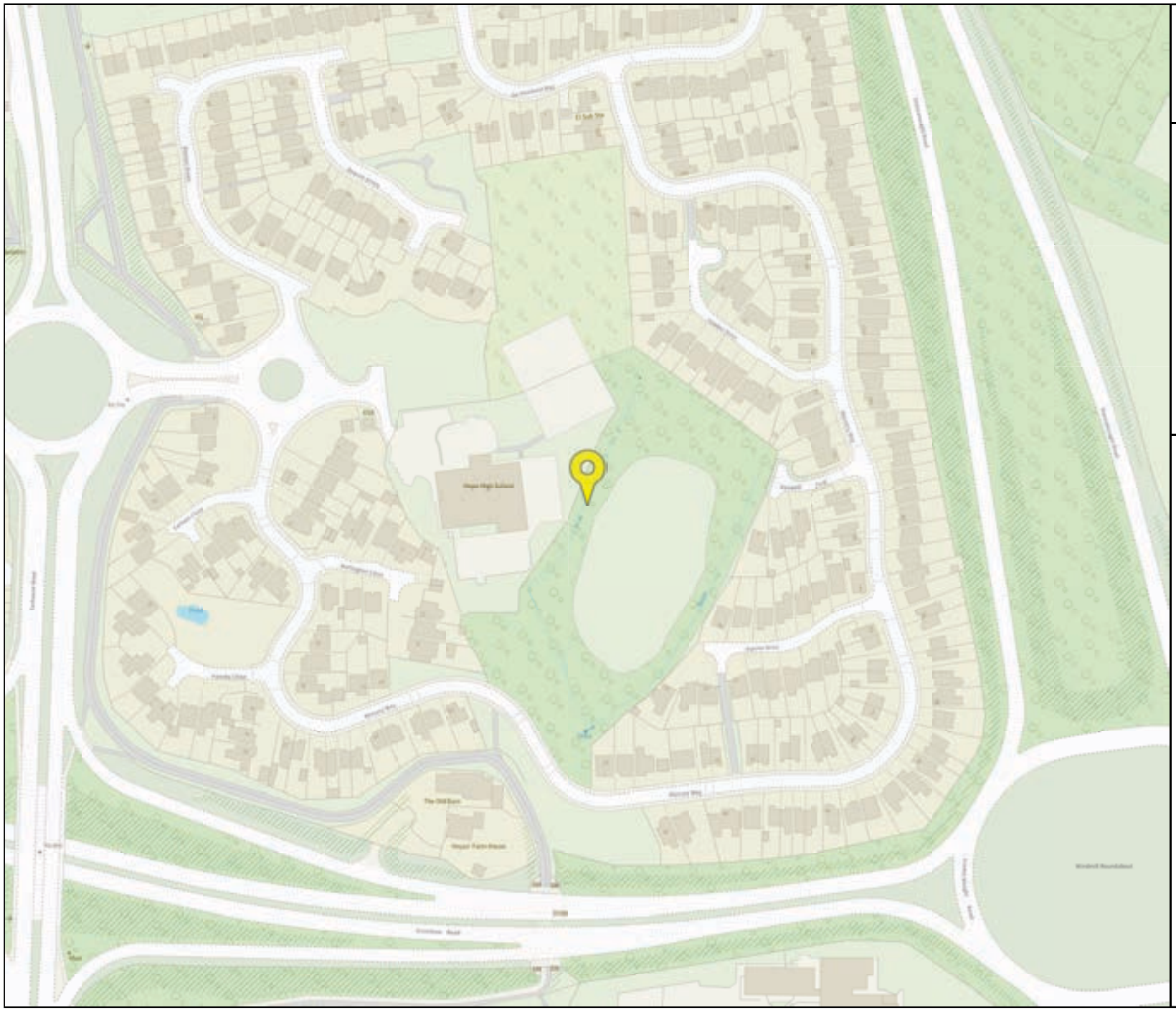
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. https://flood-map-for-planning.service.gov.uk/os-terms



Environment Agency

Flood map for planning

Your reference
Hope High

Location (easting/northing)
350306/405600

Scale
1:2500

Created
6 May 2022 0:24

- Selected point
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m

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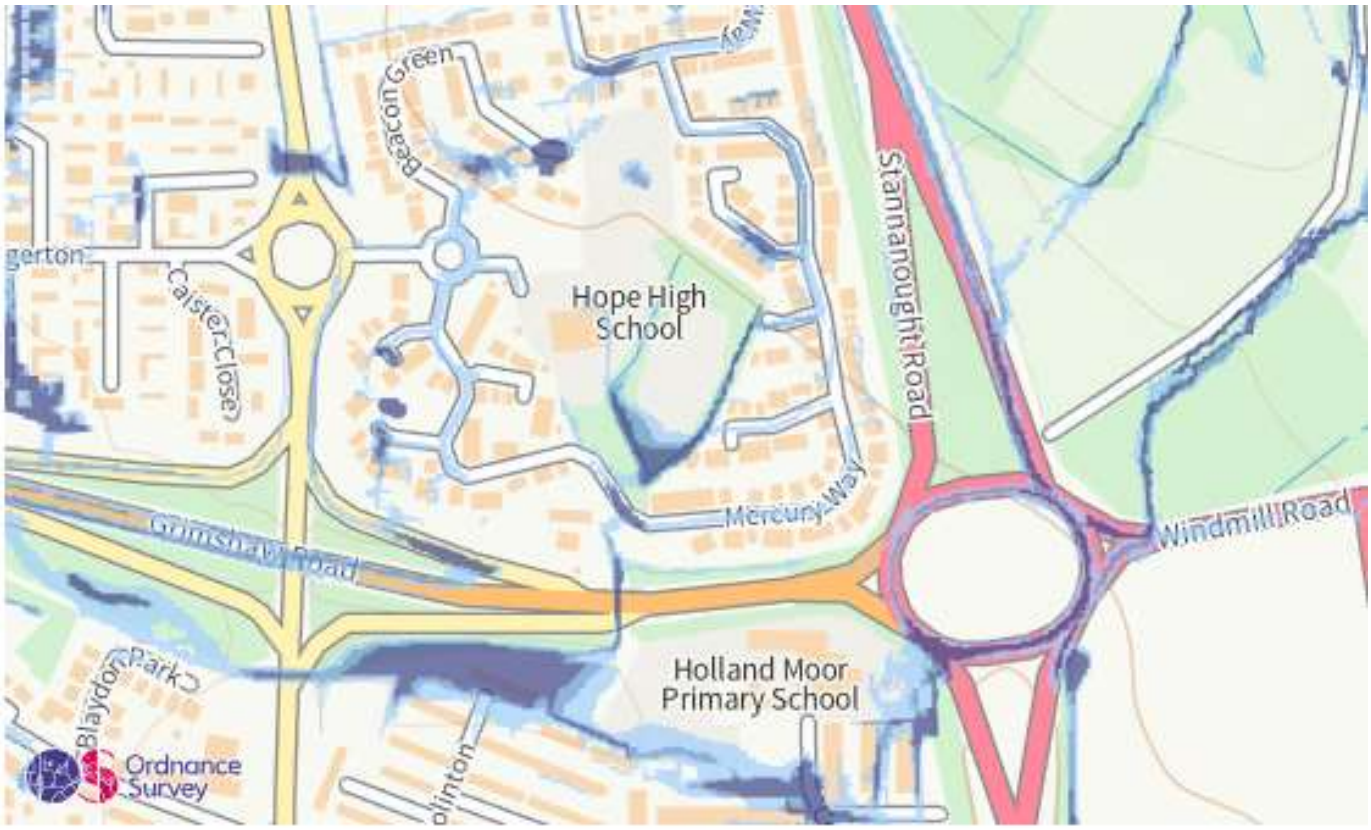
Extract from Environment Agency Risk of Flooding from Surface Water Map



Extent of flooding from surface water

High Medium Low Very low

Extract from Environment Agency Risk of Flooding from Reservoirs Map

Maximum extent of flooding from reservoirs:

when river levels are normal

when there is also flooding from rivers

A P P E N D I X E

WATER AUTHORITY CONSULTATION

Matthew Wilson

From: Dodd, Matthew <Matthew.Dodd@uuplc.co.uk>
Sent: Thursday 20 February, 2020 2:46 pm
To: Roy Fowler; Wastewater Developer Services
Cc: Matthew Wilson
Subject: RE: NW134/01/2 Former Hope High School, Skelmersdale WN8 6BW - PDE 4200030297

Good Afternoon Roy

We have carried out an assessment of your application which is based on the information provided; this pre development advice will be valid for 12 months

Foul

Foul will be allowed to drain to the public foul sewer network at an unrestricted rate.

Surface Water

Surface water from this site must discharge to ground (via infiltration) using a soak away or some other form of infiltration system. If ground investigation/ ground conditions confirm that infiltration is not a viable solution, and there is not an available waterbody, all surface water can drain to the surface water sewer network at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 15 l/s.

Should your proposals to discharge to the public sewer include highway drainage runoff as well as surface water runoff from the buildings and yards, United Utilities request the inclusion of SuDS components that will control the volume and rate of discharge to the receiving sewer to be demonstrated within the sites drainage strategy.

Connection Application

Although we may discuss and agree discharge points & rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below

http://www.unitedutilities.com/connecting-public-sewer.aspx

Sewer Adoption Agreement

You may wish to offer the proposed new sewers for adoption. United Utilities assess adoption application based on Sewers adoption 6th Edition and for any pumping stations our company addenda document. Please refer to link below to obtain further guidance and application pack:

http://www.unitedutilities.com/sewer-adoption.aspx

Please be aware that on site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

Please note, if you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements of Sewers for adoption and United Utilities Asset Standards. The proposed design should give

consideration to long term operability and give United Utilities a cost effective proposal for the life of the assets. Therefore, further to this enquiry should you wish to progress a Section 104 agreement, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 agreement, has been assessed and accepted in writing by United Utilities. Any works carried out prior to the technical assessment being approved is done entirely at the developers own risk and could be subject to change.

Regards

Matthew Dodd
Developer Engineer
Developer Services & Metering
Customer Services
T: 01925 679369
unitedutilities.com

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From: Roy Fowler [mailto:RoyFowler@arpnorthwest.co.uk]
Sent: 11 February 2020 13:02
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Cc: Matthew Wilson <MatthewWilson@arpnorthwest.co.uk>
Subject: NW134/01/2 Former Hope High School, Skelmersdale WN8 6BW - PDE 4200030297

Sirs,

Please find attached a Wastewater pre-development for the above site, with a Site Location plan and a proposed Development Plan.

We would appreciate your comments, especially any allowable surface water discharge rate and surface water and foul water connection points into existing UU sewers.

Soakaways are not thought to be practical on this site due to the cohesive nature of the ground.

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

Regards

Roy Fowler BEng (Hons)
Senior Engineer

DD 0161 914 9671

royfowler@arpnorthwest.co.uk

Chartered Consulting Engineers

www.arpconsultingengineers.co.uk

2nd Floor, 3 Hardman Square, Spinningfields, Manchester, M3 3EB
Pre-planning Geotechnical Civil Engineering Structural Engineering Building Services Engineering

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ARP (North West) Ltd

5/6 Northwest Business Park
Servia Hill,
Leeds,
LS6 2QH

FAO:

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Your Ref: NW113-03-02
Our Ref: UUPS-ORD-144250
Date: 07/01/2020

Dear Sirs

Location: 2 WELLINGTON CLOSE, SKELMERSDALE, WN8 6BJ

I acknowledge with thanks your request dated 07/01/2020 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
Registered In England & Wales No. 2366678
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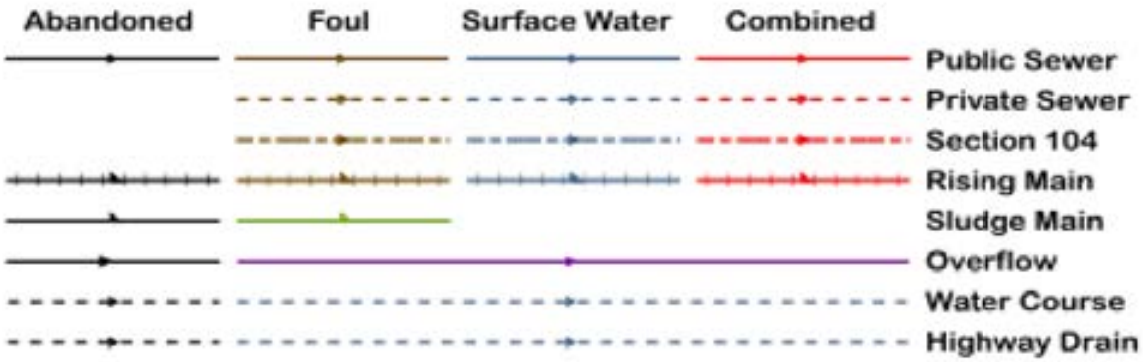
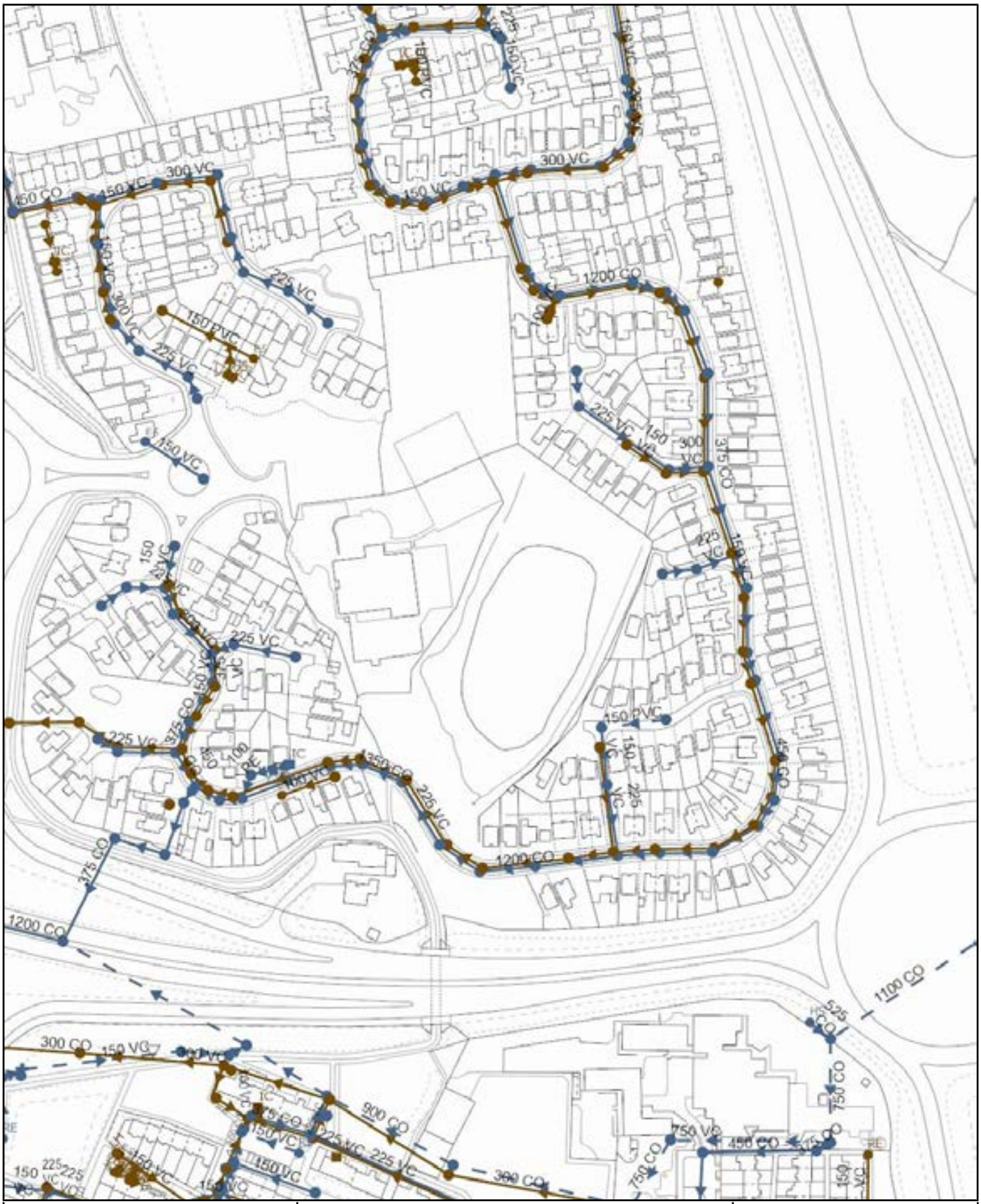
United Utilities
helping life flow smoothly

Wastewater Symbology



All point assets follow the standard colour convention: red – combined, blue – surface water, brown - foul, purple - overflow

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic



Scale: 1:2604 **Date:** 07/01/2020	**SEWER RECORDS**	United Utilities helping life flow smoothly
Address or Site Reference:	2 WELLINGTON CLOSE, SKELMERSDALE, WN8 6BJ	
Printed by:	Property Searches	

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Clean Water Symbology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water

- Air Valve
- AC Valve, open
- AC Valve, closed
- CC Valve, open
- CC Valve, closed
- Non Return Valve
- Pressure Management Valve
- OMS Valve
- Stop Tap
- Flow Meter
- Domestic Meter
- Commercial Meter
- Pump
- Hydrant
- Fire Hydrant
- Anode
- Chlorination Point
- De-chlorination Point
- Strainer Point
- Access Point
- Hatch Box
- IP Point
- Sampling Station
- Logger Box

- Bore Hole
- Inlet Point
- Bulk Supply Point
- End Cap
- Site Termination
- Change of Characteristic
- Condition Report

Property Types

- Water Tower
- Valve House
- Booster Pumping Station
- Intake Pumping Station
- Water Treatment Works
- Supply Reservoir
- Service Reservoir
- Impounding Reservoir
- Pipe Bridge

Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black

Scale: 1:2604 **Date:** 07/01/2020	**WATER MAINS RECORDS**	United Utilities helping life flow smoothly
Address or Site Reference:	2 WELLINGTON CLOSE, SKELMERSDALE, WN8 6BJ	
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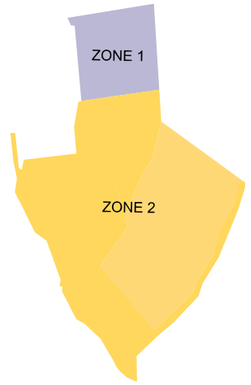
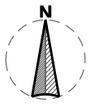
A P P E N D I X F

DEVELOPMENT PROPOSALS

All layouts are subject to change.





Schedule of accommodation

2B4P House - 79m2	10No.
3B5P House standard - 93m2	28No.
3B5P House gable fronted - 93m2	4No.
4B6P House detached - 106m2	10No.
4B6P House semi - 106m2	2No.
Total	54No.

Note:
All house types are designed to 100% NDSS
Car parking allocation to suit WLBC Planning policy and LCC guidance:
200% to 2 and 3 beds, 300% to 4 beds

Public open space requirements:
(Number of bedrooms 115No.)

Zone 1 - Designated as public open space ~4,580m2

Public open space required for new build units 2,025m2

Total Public Open Space required 8,120m2

HOPE HIGH SCHOOL Proposed Site Plan 1:1000@A3

JOHN McCALL ARCHITECTS

A P P E N D I X G

GREENFIELD RUNOFF CALCULATION

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Matthew Wilson
Site name:	Hope
Site location:	Skelmersdale

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be
the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	53.54534° N
Longitude:	2.75193° W
Reference:	2372446158
Date:	Apr 03 2020 17:13

Runoff estimation approach IH124

Site characteristics

Total site area (ha): 1

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	964	964
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

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

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

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

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	7.02	7.02
1 in 1 year (l/s):	6.11	6.11
1 in 30 years (l/s):	11.93	11.93
1 in 100 year (l/s):	14.6	14.6
1 in 200 years (l/s):	16.64	16.64

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.