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Wey Valley, Dorchester Road, Weymouth

Utility Infrastructure Appraisal Report

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C.G. Fry & Son Limited

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APPENDICES

1.0 INTRODUCTION

1.1 General

This report has been prepared by SLR Consulting Ltd on behalf of C.G Fry & Son Limited. It brings together findings of our utilities infrastructure search and appraisal undertaken for the proposed redevelopment of land to the south of Nottington Lane, Weymouth, Dorset, known as Wey Valley.

1.2 Site location

The proposed development site is located to the north of Weymouth, between the town and the suburban village of Broadwey. The site is located off Nottington Lane, just to the west of Dorchester Road (B3159). The site is currently agricultural land, however it is bounded along its eastern boundary by houses which front onto Dorchester Road and by the village of Nottington located to the north-west. The site therefore benefits from existing electricity, gas, water and telecommunication services within close proximity to the site. A site location plan is included within Appendix A.

1.3 Development proposals

Development proposals are for between 300 and 500 new dwellings with associated public open spaces. At present there is no outline design for the development of the site and this assessment will inform the evolution of a masterplan for the site. The proposed development area consists of four agricultural fields located to the south of Nottington Lane.

Loadings & Assumptions

Based upon Sewers for Adoption (SfA) and 'best practice', peak foul design flows for the proposed site are estimated to be c.13.9l/s to 23.1l/s (300 - 500 dwellings @ 4000l/day/dwelling). However, based upon Section 2.39 of Building Regulations 200 Part H (H1), a more realistic average foul flow generated by the development would be 1.3l/s - 2.2 l/s (300 - 500 dwellings @ 150l/person/day assuming 2.5 persons per dwelling).

Based on the Department of Trade and Industry (DTi)-Energy Trends data the total electrical loadings for proposed development would be between 1.27GWh and 2.12 Wh (Annual Load).

Based on average domestic gas consumption figures from Ofgem the estimated gas loadings for the proposed development at Wey Valley would be between 4.95GWh and 8.25GWh (Annual Load).

2.0 FOUL WATER DISPOSAL

2.1 Existing

Wessex Water (WW) is the incumbent water supply and sewerage utility company for the Weymouth area. Record plans indicate that as the application site is currently agricultural land it does not currently benefit from a direct connection to the public foul sewers in the area.

WW record plans confirm that foul and surface water sewers are located along Dorchester Road to the east of the site and in the vicinity of Nottington Court to the north-west. A private rising main is located to the north-east of the site which appears to serve a small number of private dwellings off Dorchester Road / Nottington Lane. Refer to Appendix B.

The existing foul sewers to the east of the site are located beneath Dorchester Road and receive foul flows from the houses which front onto the roads as well as from the housing estate to the south-east of the site.

Foul sewers to the north-west of the site serve properties located at Nottington Court and run beneath the access road for a short distance before turning north-west and running beneath Nottington Lane, away from the site.

The nearby public sewers typically consist of 150mmØ foul sewers.

A response from WW[1] (included within Appendix B) indicates that potential foul connections will be available to either the east, along Dorchester Road or to the west towards Nottington Court. WW have however indicated that both systems are small diameter pipes with limited capacity to accommodate additional flows. Engineering appraisal will be required (to be undertaken by WW) to assess the capacity of the downstream system and capacity improvements made if required. Wessex Water can undertake this work at a cost of £2,000 and will take between 6 weeks and 18 weeks to complete the appraisal, dependent upon the complexity of the modelling works.

2.2 Proposed

Review of WW sewer record plans indicates that there is no requirement to divert any existing foul or water sewers to facilitate the development.

WW has indicated that given the topography of the site it may be necessary to split the discharge to the east and west and a pumping station may be required to facilitate discharge to the areas with the highest available capacity. WW have indicated that a connection can easily be made to the east of the site, along Dorchester Road, this discharge route would therefore be preferential.

A discharge to the west may require a third party land access agreement or possible requisition, making it a less favourable option, however WW have indicated that both existing systems have limited capacity and would therefore likely struggle to facilitate a development of this size.

[1] Wessex Water (9th December 2012) *Outline Application for Development of Around 154 Dwellings with Associated Vehicular Access to Residential Development – land at Silver Street & White Horse Way,* Ref:NW/ST97SE/143

Additional network modelling will be required to determine the current capacity of both potential discharge routes. This would be undertaken by Wessex Water at additional cost and be dependent on provision of an outline design for the site including indicative layout and property numbers.

As noted above a pumping station may be required on site to provide an appropriate discharge route. If this is the case then a new pumping station and rising main outfall will need to be requisitioned under a Section 98 of the Water Industry Act 1991. Requisition of an on-site pumping station and associated rising main has the advantage of affording the development an adopted outfall upon being implementation and commissioned.

As a statutory utility company the Act provides a legal means to undertake works within third party land in order to route sewers/water mains across third party land to an existing sewage pump station. In the event that there are capacity issues associated with the existing sewage pump station then there is an option to provide an on-site foul effluent balancing tank, with chemical dosing if required, in order to restrict flows to allowable rate to be confirmed by WW. Alternatively, provision of supplementary storage or pump upgrades may be feasible at the off-site pumping station itself.

If a pumping station is required, then provision within the masterplan for a 10x8m compound should be provided in accordance with recommendations with the latest edition of SfA. Typically a 15m 'no open window' zone measured from the compound perimeter should be allowed for within the development layout.

Any developer contribution associated with potential sewer requisition and any upgrading of the STW's will be determined at a later stage in the planning process and will be dictated by upfront infrastructure costs discounted against future revenue streams from connection charges and sewerage rates paid by future occupants of the development. When determining developer contributions for sewer requisition works, the build rates and phasing are a key consideration.

3.0 FLOOD RISK AND SURFACE WATER DISPOSAL

3.1 Existing

The site lies within the catchment of the River Wey, which runs in a southerly direction, approximately 150m to the north and west of the site. Ordnance Survey mapping indicates that several un-named drains are located within the site boundary including within the woodland in the north-west corner of the site and around the edge of the woodland located approximately across the central and western parts of the site. From the mapping it is unclear where these water features lead, however it is likely that they ultimately discharge to the River Wey.

Review of the Environment Agency (EA) Flood Zone Maps indicates that the site lies within Flood Zone 1 and has less than 0.1% annual probability of flooding each year. In relation to National Planning Policy Framework (NPPF), the proposed development is considered in flood risk terms to be 'low probability of flooding' and therefore mitigation measures will need to focus on the control of surface water run-off from the site in order to ensure that downstream flood risk to third parties is not exacerbated.

in line with NPPF guidance SuDS and / or attenuation should be provided within the proposed development to control surface water runoff to pre-development Greenfield runoff rates or less for all storm events up to and including a 1 in 100 year plus a 30% allowance for climate change event.

Currently surface water at the site typically drains to the River Wey either through the drains located on site or to groundwater, although it is noted that the underlying geology consist of low permeability Mudstone with soils classified as slowly permeable loamy and clayey soils[2], therefore infiltration to groundwater is likely to be limited and would result in relatively high rates of surface water run-off, particularly during wet periods of the year.

Surface Water sewers are shown to be located beneath Dorchester Road to the east of the site. The sewers run in a northerly direction before running north-west beneath Nottington Lane prior to outfalling to a drain off Nottington Lane.

A surface water drain is located within the site boundary within the north-west corner of the site. Consisting of a 225mmØ sewer receiving surface water from Nottington Court the sewer runs in a north-easterly direction before outfalling to a natural drain which runs from the north-west corner of the site and discharges to the River Wey.

3.2 Proposed

Geological mapping of the area indicates that the site is located on Kellaways Formation consisting of interbeded Mudstones and Sandstones overlying Cornbrush formation, described as medium to fine grained limestone. Given the presence of sandstone horizons within the Kellays Formation and the underlying limestone the area is designated as a Secondary A aquifer, indicating that they are "*permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers".*

The Kellaways Formation are typically dominated by mudstones, with beds of calcareous siltstones and sandstones, while the limestone is typically recorded as thin (2m – 4m) and may be absent in areas, subsequently assessing the potential for discharge to groundwater will require a degree of site investigation as the permeability of the underlying strata could potentially vary substantially across the site.

Given the geological conditions it is possible that some degree of discharge to groundwater could be accommodated within the site if required, however this in all likelihood would only form a small part of a wider surface water management plan with discharge of runoff predominantly being to surface waterbodies or sewers.

Wessex Water has indicated that they would assume discharge would be via SUDS or to local watercourses and are unlikely to support discharge to their existing surface water sewers which are of small diameter and of limited capacity to accommodate additional flows.

A potential connection could be made to the existing surface water outfall located at the north-western corner of the site. The existing size and capacity of this outfall is unclear and further assessment will be required to determine if enhanacement works are required. Alternatively a new outfall could be masde either to the north or west of the site, either of these discharges may require a discharge route across third party land.

A new outfall to the River Wey would be dependent on obtaining a discharge consent from the Environment Agency and would require a detailed surface water management plan to be produced which limits the discharge to pre-development greenfield run-off rates. Surface water attenuation storage requirements would be set out within the Flood Risk Assessment (FRA) for the site being prepared by others on behalf of CG Fry.

[2] Cranfield University: National Soil Resource Institute, *https://www.landis.org.uk/soilscapes/*

4.0 WATER SUPPLY

4.1 Existing

Wessex Water is the incumbent supplier of potable water to the local area. At present there is no water supply to the site, however a 150mmØ and 180mmØ public water mains are located along Nottington Lane to the north and Dorchester Road to the east. This watermain connects into nottington court in the north-western corner of the site runs beneath Nottington Lane prior to connecting to the north-south trending watermain located beneath Dorchester Road to the north-east of the site.

Plans received from WW showing the location of existing plant are presented in Appendix B.

4.2 Proposed

Review of WW water main record plans would indicate that there is no requirement to divert any existing foul or water sewers to facilitate the development.

Connections to the existing water main could potentially be made either from the main which runs along to the northern boundary with Nottington Lane or potentially to the water main along Dorchester Road via the access track located in the south-eastern corner of the site.

WW have however indicated that both water mains have limited available capacity and therefore off-site reinforcement works may well be required. A formal assessment of capacity issues and any associated network reinforcement works, together with any network modelling, will be required (to be undertaken by WW) to ascertain the extent of works that may be required in order to facilitate development at the site.

Correspondence with Wessex Water is contained in Appendix B.

5.0 ELECTRICITY SUPPLY

5.1 Existing

Scottish and Southern Energy (SSE) are the electricity company that control the existing local network in the vicinity of the site. Record drawings of their existing high voltage and low voltage cables have been obtained, they are shown in Appendix C.

SSE plans indicate that a 33kV underground cable is located within the site boundary, running around the eastern and northern edge of the southern half of the site. This cable runs beneath the access track in the south-eastern corner of the site prior to running in a northerly direction along the eastern boundary of the site, up to the boundary between the northern and southern fields, at which point it runs in a westerly direction along this boundary, approximately across the centre of the site before the underground cable connects to overhead pylons outside of the site boundary, within the field directly to the west.

An 11kV underground cable is also located beneath Nottington Lane, the plans indicate that this cable may be located within the field to the north of Nottington Lane. If this field is included within the development site then surveying should be undertaken to confirm the exact location of these cables.

Other 11kV underground cables are also located along Dorchester Road to the east of the site and along the access road to Nottington Court to the north-west. All of these cables are located outside of the site boundary.

It was confirmed by SSE that the site is not served by, nor has in its vicinity, Extra High Voltage (EHV) cables. No other overhead cables were identified during the site walkover.

5.2 Proposed

An allowance for the 33kV underground cable will have to be made within the proposed development. SSE have indicated that typically any development should be designed to allow these cables to remain undisturbed and accessible to their present location. Discussions with SSE has indicated that these cables could feasibly be re-routed around the site, at the cost of the developer, an assessment of the works would need to be undertaken by SSE in order to provide a quote for these works.

The most economical approach will probably be to integrate a wayleave into the proposed development around the cable through the cente of the site and around the south-eastern boundary.

It is likely that a new connection will be possible via the 33kV cable currently within the site. It is likely that the high voltage supply will feed an 'intake' sub station that will form the link between the on-site and off-site supply. From the sub-station, the low voltage 240V supply will feed the development. From previous similar works it is anticipated that the cost associated with a new substation will be approximately £50,000 to £60,000. A sub station can typically support 250 to 300 propoerties so either one or two substations would be required, dependent upon the number of dwellings to be constructed.

Scottish and Southern Energy have indicated that they will need to undertake further feasibility work of the current capacity and the requirements of the client before they are able to give an indication of the cost of extending the network to the site boundary and any upgrade works which may be required. The cost of this assessment will be £630 (inclusive of VAT).

6.0 GAS SUPPLY

6.1 Existing

Southern Gas Networks (SGN) are the gas pipeline monitoring company in the vicinity of the site, records of their existing gas plant is contained in Appendix D.

The plans show that there are is no gas plant located within the site boundary. The nearest plant consists of low pressure pipes running along Dorchester Road to the east of the site.

WWU indicate that no mechanical excavations are to be undertaken within 0.5m of low or medium pressure lines or within 3m of intermediate pressure systems.

6.2 Proposed

No gas plant is present on-site and it is therefore unlikely that any diversionary works will be required.

SGN have indicated that the nearest relevant main is the low pressure 150mmØ main located along Dorchester Road to the east of the site. This main is located 3m from the site boundary at its nearest location; SGN have indicated that they must be consulted prior to any works within 10m of any low or medium gas main, however it is considered unlikely that this will prove overly problematic. A connection to the site would be made along the access track in the south-eastern corner of the site.

SGN were unable to indicate whether reinforcement works would be required, additional modelling of the network will be required to confirm the available capacity of the existing gas network.

Correspondence from Southern Gas Networks is presented in Appendix D.

7.0 TELECOMMUNICATIONS SUPPLY

7.1 Existing

BT is the telecom supplier in the area. BT have underground services running beneath the roads along Nottington Lane, to the north, and Dorchester Road to the east.

The underground cable along Nottington Lane connects into Nottington Court to the north-west of the site before running along the northern edge of the site along the side of the road. The underground plant subsequently crosses the road and runs along the southern boundary of the field to the north.

There are no overhead cables recorded within the vicinity of the site.

A plan showing the locations of BT plant is shown in Appendix E.

7.2 Proposed

It is unlikely that any diversion works will be required, the nearest underground plant runs along the southern edge of Nottington Lane, although it is not thought to be located within the site boundary itself.

Connection to the existing BT network would either be via Nottington Lane or along the access track in the south-east corner of the site. It is noted that a join box is already located approximately halfway along Nottington Lane, just east of the woodland, making this the ideal location for a connection into the site.

On-site BT distribution will be laid underground via a network of ducts and draw pits.

BT have a policy with new developments that they will pay for the first £3400 of any installation and the client pays for the laying of the ducting (also free issue from BT) and any necessary inspection chambers at a value of around £650 each. Lead times for BT connections from order to ADSL conversion are typically around fifteen working days.

8.0 OTHER UTILITIES

A landmark utilities search has confirmed that no other services or utilities providers maintain plant within the vicinity of the site. A full list of all providers contacted is included in Appendix F.

It should also be noted that unrecorded or abandoned plant may be present within the site boundary which are not recorded within these plans and a full ground survey should be undertaken prior to commencing with any groundwaorks.

9.0 CONCLUSION

The overall conclusion drawn from the work undertaken is that there are no insurmountable issues associated with the provision of utilities infrastructure to serve the proposed development. The primary constraint is likely to be associated with the limited existing capacity of both the waste and water supply networks. Given the size of the potential

development (300 - 500 dwellings) it is considered likely that additional reinforcement works and / or network expansion works will be required. WW are not able to provide any details as to the likely extent and cost of any works required without undertaking detailed network modelling for which a more detailed masterplan would be required.

Potable mains water is supplied by Wessex Water who have confirmed that 150mmØ and 180mmØ water mains are present within the vicinity of the site, along Nottington Lane to the north and Dorchester Road to the east. A connection could potentially be made to either of these mains, either along the northern site boundary or via the existing access track in the south-east corner. WW have indicated that there is limited available capacity within these networks and therefore off-site reinforcement works are likely to be required, Network modelling will need to be undertaken to confirm the nature and extent of any works required.

In terms of foul sewage disposal gravity systems are available to the east and west of the site, however both of these are small diameter systems with limited available capacity. Network modelling will need to be undertaken to confirm the existing capacity and to identify potential discharge routes. It is however likely that facilities may need to be provided onsite to provide capacity.

It is possible that a new pumping station/rising main will be required and the requirement to cross third party land will trigger the need to requisition an outfall under Section 98 if the Water Industry Act 1991 (recently updated by Water Act 2003). Requisition of an on-site pump station and associated rising main has the advantage of affording the development an adopted outfall upon being implemented and commissioned.

Surface water disposal would ideally be to a local watercourse, with discharges limited to pre-development greenfield run-off rates. The optimum discharge route would be to the existing outfall located in the north-west corner of the site, this would be assessed in further detail as part of an FRA to be produced as part of any future planning application.

Scottish and Southern Energy have indicated that an 33kV underground cable runs through the application site. This cable runs approximately through the centre of the site, following the existing field boundary in an east-west direction, prior to running in a southerly direction along the eastern boundary. SSE have indicated that any development should be designed to allow these cables to remain undisturbed. A wayleave of at least 3m either side of the cable will therefore need to be provided along the route of this cable.

The gas supply company in the vicinity of the site is Southern Gas Networks, who have confirmed that a connection is possible to the low pressure main which runs along Dorchester Road to the east of the site. Connection would be made via the access track located in the south-east corner of the site. Network modelling would be required to confirm available capacity and indicate any reinforcement works which may be required.

BT are the network service providers for the area. It is not anticipated that there will be any difficulties in supplying the proposed development.

There are no BT lines, gas lines, foul sewers,surface water sewers or water mains located within the site boundary and therefore there will be no diversionary works required with relation to these utilities. SSE have indicated that a 33kV underground cable is present within the site boundary and a wayleave is likely to need to be retained around these cables within the development layout.

10.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

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