Initial Site Utilities Appraisal

Reference: **RE.CN.TDSS.HUM.U.04**
Client: **Hume Planning Consultancy Ltd.**
Site: **Darland Farm, Gillingham, ME7 3PP**

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1. Background

1.1 The Brief

Hume Planning Consultancy Ltd. (Hume) has engaged Technical and Development Services (Southern) Ltd. (TDSS) to determine the availability and sufficiency of existing utilities, to serve a proposed residential development of 60 homes on the above site, and to identify any utility apparatus on, or adjacent to the site, that may be affected by the development. Budget Costs for provision of the mains and connections required to service the development were also sought.

1.2 The Site

The site, of approximately 1.9 hectares, is situated in the Darland district of Gillingham, Kent, a rural area of approximately 3km south-east of Gillingham Town Centre and 1.5km south of the main A2 London Road. It lies between Darland Banks Nature Reserve to the north-east and Capstone Farm Country Park to the south-west. It is immediately bounded to the north-east by Darland Banks; to the north-west by a recent development of 4 x terraced, 2 x semi-detached and 1 x detached cottages, to the south-east by existing farm buildings, and to the south-west by Pear Tree Lane and agricultural land.

The site is largely under cultivation with redundant farm buildings and grain silos located in the north-east corner. The site is currently accessed via Darland Farm.

1.3 Proposed Development

The proposed development comprises 60 No. 4-bedroom detached 'executive' houses accessed by a single spine road off Pear Tree Lane, at the mid-point of the southern boundary, with a series of culs-de-sac off that spine road.

1.4 Planning History

A search of Planning Authority, Medway District Council's Planning Portal has not revealed any extant Planning Application or Planning Approval on the site. Planning Approval (Ref; MC/15/1035) has been granted for the change-of-use of agricultural buildings of Darland Farm to 3 residential dwellings.

The current Local Plan is the Medway Local Plan 2003, which does not identify any development for this site. However, Medway Council is currently consulting on a replacement plan for which the Consultation Report is due to be published in "Spring 2016", with the Preferred Options document to be published in "Winter 2016/17".

1.5 Accommodation Schedule

No detailed Accommodation Schedule has been provided. However, our instruction is to assume that all 60 units will be of 4-bedrooms.

1.6 Information Provided

The information provided to TDSS, for the purpose of the initial enquiries to the utility network providers, comprised the following;

- Residential Sketch Layout – Drg. No. 712/SK1 dated 30th Jan 2016, by CDP Architecture.
- Location Plan

1.7 Caution

In preparing this report TDSS has taken all reasonable steps to present the client with an accurate evaluation of the data available. However TDSS cannot accept responsibility for the accuracy of information provided by third parties (the utility network providers and/or their agents) and accepts no liability for any direct or consequential loss that may be incurred if information provided by those parties proves to be incorrect or inaccurate.

Copies of the Sketch Layout and Location Plan are reproduced at Appendix 1.

Statutory Undertaker Initial Enquiries

Initial enquiries of the statutory undertakers, as to the location and sufficiency of the utility supplies to serve the proposed development, were made by TDSS in Feb/March 2016. Budget costs for providing the site mains and house connections were also requested.

Plans of the location of utility apparatus that might constrain the development, or be affected by it, were also sought.

The responses and their implications in the development of this site, to provide 60 homes, are set out below;

2. Drainage Infrastructure

2.1 Sewerage Provider

The Sewerage Undertaker for the area is Southern Water Services Ltd. (SWS).

2.2 Existing Apparatus

SWS's Sewer Maps indicate;

- a 150mm bore ductile iron (DI) public foul sewer located in Capstone Road, at its junction with Pear Tree Lane; Depth to invert at manhole Ref; 9702 = 1.83m. The sewer flows to the north a short distance to a Southern Water pumping station (Ref; 101729 – Capstone Road Chatham WPS).

- there are no public surface water sewers in the area.

2.3 Available Capacity and Point of Connection

(i) Foul Drainage

A Level 1 (Initial) Sewer Capacity Check has been procured from Southern Water. Its conclusion is that, following initial investigations, there is currently adequate capacity in the local sewerage network to accommodate the estimated flow from the development of 2.8 litres/sec, at manhole reference TQ77659702, downstream of the Capstone Road/Pear Tree Lane junction (outside of the Waggon at Hale Public House). This manhole is located approximately 160 metres from the proposed site entrance, following the old Pear Tree Lane.

(ii) Surface Water Drainage

There are no public surface water sewers available to serve the site. Southern Water has affirmed that no surface water flows can be accommodated within the existing foul sewerage system. Accordingly, surface water run-off will need to be managed on site by sustainable drainage mechanisms.

The description of the site as a former 'brickfield' suggests that the sub-soil may be clay, in which case deep-bored soakaways may be required to manage surface water disposal, subject to Environment Agency approval.

Southern Water's Sewer Maps and Capacity Confirmation Letter are reproduced at Appendix 2.

3. Water Infrastructure

3.1 Water Supply Company

The potable water supplier for the area is Southern Water Services Ltd. (SWS).

3.2 Existing Apparatus

SWS's network records indicate;

- a 12 inch cast iron (CI) distribution main in Capstone Road.
- 90mm HPE distribution main also running in Capstone Road parallel to the above.
- A 6 inch spun iron branch from the above 90mm main extending approximately 100m along the old alignment of Pear Tree Lane towards the site.
- The above main extends a further 20m towards the site in 3 inch cast iron.

3.3 Available Capacity and Point of Connection

A Level 1 (Initial) Water Capacity Check has been procured from Southern Water. Its response is that, having carried out the capacity check, "there is currently adequate capacity at the 3 inch CI main in Capstone Road to serve the development's water demand of 0.91 litres per second". We believe this should read Pear Tree Lane not "Capstone Road". However, it confirms that there is adequate capacity in the local network without the need for off-site reinforcement.

The 3 inch main in Pear Tree Lane is located outside 'The Gleanings' approximately 70m from the proposed site entrance. The main in Capstone Road is approximately 150m from the proposed site entrance.

3.4 Budget Costs

As a detailed site layout is not yet available, Southern Water has provided the following indicative costs of the provision of on-site mains and connections, for budget purposes;

On-site Mains	£170-£180 per metre run
Service Connections (Short side)	£550.00 per connection
Service Connections (Long side)	£750.00 per connection

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Water Infrastructure Charge (per property)	£328.28 per connection
Sewer Infrastructure Charge (per property)	£328.28 per connection

However, upon receipt of a firm detailed application and site layout, Southern Water will provide a range of payment options (Relevant Deficit Payments) which will be discounted to take account of its future revenue income from the occupied homes, which can be expected to significantly reduce the above water infrastructure costs.

Southern Water's Network Plans and Water Capacity and Budget Costs Letter are reproduced at Appendix 3.

4. Gas Infrastructure

4.1 Gas Network Operator

The gas distribution network operator for the area is Scotia Gas Networks (SGN).

4.2 Existing Apparatus

SGN's Network Records indicate;

- a 125mm PE (sleeved in 6 inch cast iron) distribution main in Capstone Road at its junction with Pear Tree Lane.
- a 3 inch PE branch distribution main from the above along the original alignment of Pear Tree Lane to Darland Farm, crossing the proposed site entrance.

4.3 Available Capacity and Point of Connection

SGN Connections has provided a 'Budget Indication', (See 4.4 below) for provision of the gas infrastructure required to supply the proposed development, based upon connection to its existing network and has not at this stage, identified any capacity issues.

However, it has stated that, following receipt of a firm order, it will need to carry out a 'Security of Supply' check to determine if any network reinforcement will be required to support the development. It further confirms that, should reinforcement be required, the costs thereof will be met by SGN but there could be time delays in its provision.

4.4 Budget Indication

SGN Connections has provided a 'Budget Indication', to install the required gas infrastructure to serve 60 No. domestic properties, based upon connection to its existing network, as follows;

Budget Indication - **£40,500.00 (inc. vat)**

SGN's Network Records and Budget Indication Letter are reproduced at Appendix 4.

5. Electricity Infrastructure

5.1 Electricity Network Operator

The Distribution Network Operator (DNO) for the area is UK Power Networks (UKPN).

5.2 Existing Apparatus

UKPN's Network Records indicate;

- an High Voltage (HV) 11kV underground cable running south-west to north-east along the footpath located to the south-east of the Darland Farm complex, crossing Pear Tree Lane outside No. 1 Pear Tree Lane.

- an HV 11kV underground cable in Capstone Road supplying a Pole Mounted Transformer (pmt) at the Capstone Road/Pear Tree Lane junction outside of the Waggon at Hale PH.

- an overhead pole-mounted low voltage (LV) network running along the south side of the old Pear Tree Lane alignment.

- an LV overhead pole-mounted line running south-west to north-east along the south-east boundary of the site **which encroaches into the site in the north-east corner.**

5.3 Available Capacity and Point of Connection

UKPN has provided a Budget Estimate (see 5.4 below) for the required electricity infrastructure, based upon connection to its existing HV network adjacent to No. 1 Pear Tree Lane, to the south-east of the site, and has not, at this stage, identified any capacity issues or any need for off-site reinforcement.

The proposed connection point is located approximately 125m from the proposed site entrance routed along Pear Tree Lane.

5.4 Budget Estimate

UKPN's Budget Estimate to; make connection to its existing HV network adjacent to No. 1 Pear Tree Lane, lay an HV cable to a new sub-station located centrally within the development, provide the sub-station equipment (civils works by the developer), and to provide the on-site low voltage mains distribution and connections to 60 No. homes is;

Budget Estimate - £100,000.00 (exc. Vat)

It will, accordingly, be necessary to provide a suitable site within the development, which requires an area of land of 4m x 4m where a prefabricated GRP enclosure is acceptable, and at least 5m x 5m where a brick enclosure is preferred. Planning Consent will be required for a brick enclosure. The site must have a hard-standing accessible to a lorry-mounted hydraulic lift ('Hiab') for construction and maintenance purposes.

5.5 Diversions Required

The construction of the 'mini-roundabout' access on Pear Tree Lane will require the re-location of electricity pole No. 827589 and its associated cable spans the budget estimate for which UKPN has quoted;

Re-Location of Pole 827589 & cables; £8,000.00 exc. Vat

UKPN has not, at this stage, estimated the cost of re-locating the overhead pole-mounted line following the south-east boundary of the site and crossing the north-east corner, as the need for this can better be assessed on the basis of a detailed layout. Based upon the current 'Sketch Layout', Pole No.'s 827579, 827578, 827577 & 827576, and their associated cable spans may require re-siting. Based upon the estimated cost of re-locating the pole to accommodate the entrance roundabout, the cost could be in the order of £30,000. However, it may be possible to re-design the layout to reduce the extent of the diversion required.

UKPN's Network Records and Budget Estimate Letter are reproduced at Appendix 5.

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6. Dual Fuel Infrastructure

6.1 GTC Ltd.

A competitive Dual Fuel budget costing has been invited from Independent Network Operator, GTC Ltd., for comparison with the costings from the Incumbent operators.

The budget costing provided by GTC Ltd. is as follows;

On-Site Works – Developer pays GTC;		**£18,362.51**
Off-Site Works – Gas	£2,657.69	
Off-Site Works – Electricity	£5,512.54	
Network Operator Costs – Gas	NIL	
Network Operator Costs – Electricity	£3,000.00	
Total Off-Site Costs;	£11,170.23	**£11,170.23**
Total Payment to GTC;		**£29,532.74**

However, this Budget Costing **"assumes a Low Voltage electricity connection due to the size of the site"** and an indicative Point of Connection (PoC) and off-site costs, prepared without reference to the upstream Network Operator (UKPN). As UKPN proposes an HV connection to a new on-site sub-station, **this costing will need to be revised.**

However, it is still expected that dual fuel quotations, from Independent Electricity Network Operators and Gas Transporters, will be more competitive than the aggregate costs from the individual incumbent gas and electricity operators.

GTC's Provisional Budget Costing is reproduced at Appendix 6

7. Telecommunications Infrastructure

7.1 Network Operator

The local telecommunications Network Operator is Openreach BT.

7.2 Existing Apparatus

BT's Network Records indicate;

- an underground ducted network in Capstone Road.
- an overhead pole-mounted network located along the southern side of the old Pear Tree Lane alignment.

7.3 Proposed Connections

BT's policy is that any requirement for reinforcement works up to a value of £3400 per connected property will be funded by BT. Given the location of the existing ducted network in Capstone Road, it is not anticipated that there will be any difficulty supplying connections to the site, or that there will be any costs to the developer.

BT will also make payment to the developer of £140 for each house connected and £50 for each flat, in return for the developer undertaking the trenching and laying of the required ducts and chambers (supplied by BT) within the development.

BT will only prepare a site layout and proposal for a fully consented and detailed site layout, following submission by the developer of a Newsites Application Form, at detailed design stage.

7.4 Diversions Required

A BT pole located close-to the proposed mini-roundabout access may require re-siting subject to accurate location and detailed design.

Openreach BT's Network Records are reproduced at Appendix 7.

8. Communications Media/Cable Networks

A search of all known Communications Media/Cable Network Operators have produced 'NEGATIVE' responses from all, i.e. none have any apparatus in the area of the site or its proposed access.

The Communications Media & Pipelines Search – Status Report are reproduced at Appendix 8.

9. 'Linesearch before U dig'

A 'Linesearch' of the national database of utility asset owners, registered with 'Linesearch before U dig', has not revealed any apparatus operated by them, within or adjacent to the development, that is likely to be affected by it. All responses are 'NEGATIVE', i.e. the site is 'Not in the Zone of Interest' of the relevant operators.

The Linesearch response is reproduced at Appendix 9.

10. Summary

Utility searches and enquiries have been made on the basis of the Indicative Residential Sketch Layout Drawing No. 712/SK1, dated 30th Jan 2016, by CDP Architecture, and the advice that all homes will be 4-bedroom. The following summarises the results of those searches and enquiries and their implications in the development of this site to provide 60 detached homes, as proposed;

(a) Existing Utility Apparatus on the Site

(i) Electricity;

The only mains utility apparatus within the site, revealed by the respective utilities' network plans, is the overhead pole-mounted low voltage electricity line along the south-east boundary of the site and crossing its north-east corner. (See Electricity Network Plan – Appendix 5).

Subject to a definitive site layout and accurate location on-site, Pole No's 827576, 77, 78 and 79 (4 No.) and their associated cable spans will require re-location/diversion either overhead or underground at a cost estimated to be in the order of £30,000.

Alternatively, the Site Layout could be re-designed to accommodate the poles and cable spans in their current location.

(ii) Service Connections

Any utility service connections to the remaining farm buildings and grain bins/silos, within the site boundary, should be traced and isolated/capped at the site boundary.

(b) Existing Utility Apparatus affected by the Proposed Site Access

The following utility apparatus is located in Pear Tree Lane in the area of the proposed access and mini-roundabout construction, and may require diverting or lowering to accommodate the construction works;

- a 3 inch cast iron water main, formerly a private main serving properties around Darland Farm, but now adopted as a public supply main by Southern Water.
- a 3 inch PE gas distribution main also serving only properties in Pear Tree Lane.
- an overhead pole-mounted low voltage electricity line. One pole may need re-location for which UKPN has estimated a cost of £8,000.
- an overhead pole-mounted telecoms line serving the properties in Pear Tree Lane and Darland Farm only. Should the pole closest to the access require re-siting, a sum somewhat less than that for moving the electricity pole should be allowed for.

(c) Availability/Capacity of Existing Utilities to serve the Development

(i) Foul Drainage;

Sewerage Undertaker, Southern Water Services has confirmed that there is adequate capacity in the local network, in Capstone Road, to accommodate the anticipated discharge from the development. The identified point of connection is approximately 160m from the proposed site entrance following Pear Tree Lane.

(ii) Surface Water Drainage;

There are no public surface water sewers available to serve the site and there is no capacity in the public foul sewer for any surface water discharge. Surface water management must, accordingly, be by sustainable means possibly including deep-bored soakaways given the possible sub-soil conditions.

(iii) Water;

Supplier, Southern Water Services, has confirmed that there is currently adequate capacity in its local network to serve the anticipated demand of the development. The nearest main to the site is a 3 inch main in Pear Tree Lane approximately 70m from the proposed site entrance.

(iv) Gas;

SGN Connections has provided a Budget Indication for the required gas infrastructure on the basis of connection to its existing network in Pear Tree Lane or Capstone Road and has not, at this stage, identified any capacity issues.

(v) Electricity;

UK Power Networks has provided a Budget Estimate, for the required electricity mains and connections, based upon a High Voltage (HV) connection to its HV supply located to the south-east of the site in Pear Tree Lane, approximately 125m from the proposed site entrance. This requires a new on-site sub-station for which a centrally located site will be required. UKPN has not, at this stage, identified any capacity issues.

(vi) Telecommunications;

Openreach has an underground ducted network in Capstone Road and a local overhead network in Pear Tree Lane, and has not, at this stage, identified any capacity issues.

(vii) Cable/Media

There are no networks available within the immediate vicinity of the site.

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11. Summary of Utility Budget Costs

Water – Southern Water Services

On-site Mains	£170-£180 per metre run
Service Connections (Short side)	£550.00 per connection
Service Connections (Long side)	£750.00 per connection
Water Infrastructure Charge (per property)	£328.28 per connection
Sewerage Infrastructure Charge (per property)	£328.28 per connection

Gas – SGN Connections

Install required mains and connections to 60 homes (meters excluded);

Budget Indication - **£40,500.00 (inc. vat)**

Electricity – UK Power Networks

Make HV connection to main, adjacent to No. 1 Pear Tree Lane (125m from site entrance), lay HV cable to new on-site sub-station and lay on-site LV mains and connections to 60 detached houses;

Budget Estimate - **£100,000.00 (exc. vat)**

Relocate one electricity pole and associated cable spans to accommodate site access.

Budget Estimate - **£8,000.00 (exc. vat)**

Dual Fuel – GTC. Ltd.

On-Site Works;	£18,362.51
Off-Site Costs;	£11,170.23
Total Payment to GTC;	**£29,532.74**

Subject to change as electricity based on indicative Point of Connection and Low Voltage connection i.e., no on-site sub-station.

Telecommunications – Openreach BT

Contribution to Developer for on-site trenching and duct-laying; Service on Demand (SOD) Payments;

60 No. Houses @ £140 = **£8,400.00**

12. Site Photographs

A selection of record photographs, taken on site, to illustrate the current site conditions and constraints are, reproduced at Appendix 10 – To Follow.

13. Conclusion/Key Issues

The enquiries of the utility network providers, and their responses, have not revealed any utilities impediment to, or unreasonable utility costs of, the development of this site to provide 60 detached houses. No capacity issues, or need for off-site reinforcement, have been identified, at this stage, for foul drainage, water, gas or electricity.

The following key issues should be noted;

(i) Foul Drainage

The identified point of connection is in Capstone Road some 160 metres from the proposed site entrance. Accordingly the connection may need to be the subject of a sewer requisition. In the absence of any topographical data it is not known if the site can drain by gravity but it is anticipated that it may need a pumped connection, in which case a suitable site for a pumping station will need to be identified.

(ii) Surface Water Drainage

Surface water will need to be managed on site by sustainable means. Sub-soil conditions will need to be investigated and soakage tests carried out.

(iii) Water

The budget costs of provision of the required infrastructure are the standard sums quoted by Southern Water but the actual costs will be based on payment options discounted to take account of Southern Water's future revenue income from the occupied homes, which should be significantly less.

(iv) Gas & Electricity

The budget energy infrastructure costs at £675 per unit (Gas) and £1,667 per unit (Electricity) are not unusual quotations from the incumbent operators, particularly where an on-site sub-station is required. However, at detailed application stage, significant savings on the incumbent operator quotations can be made by inviting competitive quotations from Independent Network Operators such as GTC Ltd. which already has a presence in the neighbouring development off Capstone Road. A site will need to be identified for the sub-station.

(v) On-Site Diversions

There is currently an overhead pole-mounted electricity line that encroaches into the site along its south-east boundary and its north-east corner. This will either need to be accommodated by revising the layout or be diverted, either overhead or underground.

(vi) Diversions to Accommodate the Proposed Entrance

There is water, gas , electricity and telecoms apparatus, in the location of the proposed access, which may require lowering or diversion. However, each are only local supplies to Pear Tree Lane and its vicinity. Should diversion of any of this apparatus be required therefore, the costs are expected to be modest.

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APPENDICES

1. **Site Plans**
   Sketch Layout and Location Plan

2. **Drainage Infrastructure**
   Southern Water Sewer Map and Capacity Confirmation Letter

3. **Water Infrastructure**
   Southern Water Network Plans and Water Capacity & Budget Costs Letter

4. **Gas Infrastructure**
   SGN's Network Records and Budget Indication Letter.

5. **Electricity Infrastructure**
   UKPN's Network Plans and Budget Estimate Letter

6. **Dual Fuel Infrastructure**
   GTC's Budget Costing Proposal

7. **Telecommunications**
   BT Asset Plans

8. **Communications Media/Cable Networks**
   Communication Media & Pipelines Search – Status Report

9. **Linesearch before U Dig**
   Linesearch Response

10. **Site Photographs & Photo Location Plan – To Follow**