

DATED *17th November* 2021

TAYLOR WIMPEY UK LIMITED

and

NATIONAL HOUSE-BUILDING COUNCIL

and

DWR CYMRU CYFYNGEDIG

AGREEMENT

under Section 104 of the
Water Industry Act 1991
relating to sewers at
**HERITAGE WAY
BRYMBO
WREXHAM
LL11 5SQ**

**Dwr Cymru Welsh Water
Linea
Fortran Road
St. Mellons
Cardiff
CF3 0LT
PSA2144269**

**AGREEMENT UNDER SECTION 104
OF THE WATER INDUSTRY ACT 1991**

THIS AGREEMENT made the 17th day of November 2021

BETWEEN:-

- (1) **TAYLOR WIMPEY UK LIMITED (Company No 01392762)** whose registered office is at Gate House, Turnpike Road, High Wycombe, Buckinghamshire, United Kingdom, HP12 3NR ("the Developer")
- (2) **OWNER** whose registered office is at **OWNER ADDRESS** ("the Owner")
- (3) **ADJOINING OWNER (Company No)** whose registered office is at **OWNER'S ADDRESS** ("the Adjoining Owner")
- (4) **NATIONAL HOUSE BUILDING COUNCIL (Company No 00320784)** whose registered office is at NHBC House, Davy Avenue, Knowlhill, Milton Keynes MK5 8FP ("the Surety")
- (5) **DWR CYMRU CYFYNGEDIG (Company No 2366777)** whose registered office is at Linea, Fortran Road, St. Mellons, Cardiff CF3 0LT ("the Undertaker")

WITNESSES as follows:-

1. Definitions and Interpretation

- 1.1 This Agreement is entered into pursuant to section 104 of the Act so as to meet the requirements of section 106B of the Act.
- 1.2 In this Agreement the following terms shall have the following meanings:

Act	Water Industry Act 1991;
Authority	Water Services Regulation Authority;
CDM	Construction (Design and Management) Regulations 2015;
Competent Authority	any person, body, tribunal or court with statutory powers exercisable over the Developer or Undertaker in relation to the construction, repair, maintenance or operation of the Works;
Controlled Waters	has the meaning contained in section 104 of the Water Resources Act 1991;
Construction	the period within which each Stage of the Works must be carried out and completed as specified in the Programme set out in

Period	Schedule 1;
Defects	includes defects in design, materials, workmanship, preparation of the Site or construction of the Works and includes any defect in or damage to the Works arising before the issue of the Final Certificate and "Defective" shall be construed accordingly;
Defects Period	the period commencing with the issue of the Vesting Certificate and ending on the later of the issue of the Final Certificate and the date which is 12 months after the date of issue of the Vesting Certificate;
Documents	the documents, drawings and plans (including the Layout Plan) listed in Schedule 2, subject to any variations made under clause 2.3;
Engineer	means the engineer appointed on behalf of the Undertaker and notified to the Developer from time to time in writing;
Estate Roads	means roads or proposed roads which are or are intended to be maintained at the public expense;
Final Certificate	a certificate issued under clause 3.4.1;
Green Land	the land edged green on the Layout Plan in the ownership of the Developer and/or the Owner comprised in title number[s] CYM832304 ;
Lateral Drains and/or Public Lateral Drains	has the meaning contained in Section 219 and Section 106(1A)(b)(i) of the Act;
Layout Plan	the plan or plans attached to this Agreement;
Occupation	in respect of any premises means any use of those premises after installation of a meter on the water supply service pipe serving those premises which results in a charge being made for the provision of sewerage services or any other circumstances which show evidence of occupation (as determined by the Undertaker) in relation to those premises, and "Occupy" and "Occupied" shall be construed accordingly;
Programme	the periods within which each Stage of the Works must be carried out and completed as specified in Schedule 1, subject to any variations made under clause 2.3;

Protected Strip	the strip of land shown coloured yellow (if any) on the Layout Plan and forming part of the Green Land and/or the Red Land (as the case may be) having a width of not less than six metres and (unless the contrary shall be stipulated on any drawings forming part of the Documents or on the Layout Plan) the Protected Strip shall lie one half to each side of the centreline of those parts of:
	(i) the Works which are not being constructed within Estate Roads and/or public highways; and
	(ii) any existing sewers and any diverted sewers or Public Lateral Drains as are shown on any drawings forming part of the Documents or on the Layout Plan;
	and includes any part or parts of the Protected Strip;
Public Sewerage Network	the existing public sewers shown on the Layout Plan, with the foul sewers the surface water sewers and the combined sewers shown coloured black and denoted with the appropriate symbols as set out in Sewers for Adoption;
Red Land	the land edged red (if any) on the Layout Plan in the ownership or occupation of one or more of the Adjoining Owner or Adjoining Owners comprised in title number[s] TITLE NUMBER ;
Risk Management Authority	has the meaning contained in section 6(13) of the Flood & Water Management Act 2010;
Security Amount	the sum of ONE HUNDRED AND SEVENTY-NINE THOUSAND, NINE HUNDRED AND TWENTY-THREE POUNDS, FORTY-SIX PENCE (£179,923.46) specified both as a total for the whole of the Works and as a separate amount for each Stage of the Works in the columns of the tables in Schedule 1 headed "Security Amount for each Stage in the sum of";
Sewers for Adoption	the publication entitled "Sewers for Adoption (7 th Edition)" as supplemented or varied from time to time plus any addenda thereto in respect of pumping stations and sewage treatment works as set out in Schedule 5 of this Agreement;
Site	the whole of the Green Land and/or the Red Land (as the case may be);
Specification	the Specification in Sewers for Adoption;

Stage	is a reference to the stages in which the Works are to be carried out as specified in Schedule 1, provided always that: (i) any pumping station; (ii) any sewage treatment works; (iii) any Works which discharge other than to a public sewer; (iv) any other substantial works; shall each be treated as a separate Stage of the Works;
Standards	the standards for sewerage works prescribed under section 106B of the Act;
Statutory Requirements	the requirements of all statutes and regulations, and the requirements of any Competent Authority relating to the construction, repair, maintenance and operation of the Works;
Street Works Legislation	the New Roads and Street Works Act 1991, Traffic Management Act 2004 and any other Act governing the carrying out of Street Works in a Street and "Street Works" and "Street" shall be construed as defined therein);
Title	a freehold interest free from restrictions and encumbrances;
Undertaker	includes any agent or contractor appointed by the Undertaker to assist with the administration and enforcement of this Agreement;
Vesting Certificate	a certificate (in such form as is determined from time to time by the Undertaker) issued by the Undertaker vesting a Stage of the Works in itself in accordance with clause 3.3;
Watercourse	has the meaning contained in section 219(1) of the Act
Works	the sewers, lateral drains, accessories and other works to be constructed by or for the Developer as described and shown in the Documents, subject to any variations made under clause 2.3

1.3 In this Agreement:-

- (a) words and phrases not defined in this Agreement shall, where the context so permits, have the meanings attributed to them by the Act;
- (b) references to statutory provisions shall be construed as references to those provisions as amended or re-enacted or as their application is modified by other provisions (whether before or after the date of this Agreement) from

time to time and shall include references to any provisions of which they are re-enactments (whether with or without modification);

- (c) any reference to a statute includes a reference to any regulations or orders made under or pursuant to it;
- (d) if any statutory provision is repealed in whole or in part without re-enactment, extension or modification, that provision shall be deemed to continue in force insofar as that is necessary for the purposes of fulfilling a party's obligations under this Agreement and provided always that this shall not require any party to carry out any activity which might otherwise be deemed unlawful;
- (e) words expressed in any gender shall, where the context so requires or permits, include any other gender;
- (f) references to anything include a part thereof;
- (g) words importing persons shall include bodies corporate, partnerships and other incorporated bodies;
- (h) words expressed in the singular shall, where the context so requires or permits, include the plural, and vice versa;
- (i) where any party is more than one person:
 - (i) that party's obligations shall take effect as joint and several obligations; and
 - (ii) anything in this Agreement which applies to that party shall apply to all of those persons collectively and to each of them separately; and
 - (iii) the benefits contained in this Agreement in favour of that party shall take effect as conferred in favour of all of those persons collectively and each of them separately;
- (j) if there are separate parties defined as "the Developer" and "the Owner" then, in the event of default by the Developer, the obligations of the Developer shall also become the obligations of the Owner and, at the Undertaker's discretion, may be enforced against either the Developer or the Owner in respect of land in which they have a legal interest;
- (k) Where in the commencement of this Agreement the details of "the Owner" are left blank all and any references in this Agreement to "the Owner" shall be construed as a reference to "the Developer";

- (l) save as set out in clause 1.3(k), if there are no details shown against any one party, then this Agreement shall be interpreted as if there was no such party;
- (m) where the context permits, every reference to any party to this Agreement shall include his successors in title and personal representatives by and against whom this Agreement shall be enforceable as if they had originally been named as parties;
- (n) references in this Agreement to anything which any party is required to do or not to do shall include his acts, defaults and omissions whether:
 - (i) direct or indirect;
 - (ii) on his account;
 - (iii) for or through any other person; or
 - (iv) those which he permits or suffers to be done or not done by any other person;
- (o) the effect of all obligations affecting the parties under this Agreement is cumulative and no obligation shall be limited or modified by any other of those obligations unless there is (in this Agreement) an express limitation or modification;
- (p) in the event of a conflict between the Standards, this Agreement (including the Documents) and/or Sewers for Adoption (including the Specification)
 - (i) the Standards shall prevail over the Agreement and Sewers for Adoption; and
 - (ii) this Agreement shall prevail over Sewers for Adoption;
- (q) "indemnify" means to indemnify the Undertaker against all actions, claims, charges, demands, proceedings, costs, claims, losses, expenses and liabilities incurred by or made against the Undertaker and "indemnified" and "indemnity" shall be construed accordingly.
- (r) in any case where the Undertaker is not to unreasonably withhold or delay its consent under the terms of this Agreement, the Undertaker shall not be deemed to be unreasonably withholding or delaying such consent where in the opinion of the Undertaker (whose decision shall be final and conclusive) the integrity of the Works or any other part of the Public Sewerage Network may be at risk or undermined;

- (s) reference to clauses, sub-clauses, schedules and paragraphs unless otherwise specified mean the clauses and sub-clauses of or the schedules and paragraphs to this Agreement and headings to them are to be disregarded in interpreting this Agreement;
- (t) this Agreement shall be governed by the law of England and Wales and the parties consent to the exclusive jurisdiction of the courts of England and Wales in all matters regarding it;

2. Developer's Obligations

Construction of Works

2.1 Subject always to the provisions of this Agreement, the Developer shall at its own expense:

- (a) construct each Stage of the Works in accordance with the Programme; and
- (b) connect the Works to the Public Sewerage Network and to the premises on the Site;

Subject always to such Works being carried out:

- (i) in accordance with the Documents, Standards and Specification; and
- (ii) in compliance with all Statutory Requirements; and
- (iii) in a proper and workmanlike manner; and
- (iv) to the Undertaker's reasonable satisfaction;

and provided always that:

- (c) the foul sewers and foul lateral drains shall be connected to those parts of the Public Sewerage Network designated for foul drainage;
- (d) the surface water sewers and surface water lateral drains shall be connected to those parts of the Public Sewerage Network designated for surface water drainage; and
- (e) where any of the Works have been completed to a provisional level (e.g. pending final surfacing of a street) then, notwithstanding the earlier completion of that Stage of the Works and, if appropriate, its adoption by the Undertaker, the further completion of the Works to their final level.

Notice of Commencement

2.2 Subject to first complying with clauses 2.11.6 and 2.12, the Developer shall not start any Stage of the Works until:

- (a) it has given to the Undertaker at least five Working Days prior written notice of the date on which it will start that Stage of the Works; and
- (b) it has supplied to the Undertaker evidence of the registration of the Site under the CDM, if required for the Site; and
- (c) it has provided the Undertaker with relevant information concerning contamination and other details relating to the Site which would be required by the Undertaker before accessing the Site and exercising the Undertaker's Rights and Obligations under clause 3; and
- (d) where there is no Surety as a party to this Agreement (to be determined by the Undertaker in its absolute discretion), it has paid to the Undertaker a cash deposit equal to the Security Amount; and

without prejudice to clause 2.2(c), the Developer hereby warrants that the Site is free from contamination and if and to the extent any contamination is identified on the Site, the Developer hereby indemnifies and shall keep the Undertaker fully and effectually indemnified from and in respect thereof.

The Programme

2.3 The Developer shall not make any variation to any Stage of the Works, the Documents or the Programme without:

- 2.3.1 the prior written agreement of the Undertaker (such agreement not to be unreasonably withheld or delayed); and
- 2.3.2 prior to the Undertaker giving such written agreement paying to the Undertaker any additional fees which may arise out of such variation to any Stage of the Works, the Documents or the Programme; and
- 2.3.3 paying the Undertaker's legal fees in connection with documenting any such variation to any Stage of the Works, the Documents or the Programme and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect of such legal fees.

2.4 If the Developer fails to complete any Stage of the Works within the period for the completion of that Stage specified in the Programme, the Undertaker may by written notice require the Developer to complete that Stage to such standard or

revised standard as may have been specified in any revised Standards, Specification and/or later edition of Sewers for Adoption, and within such further period as the Undertaker may specify in writing.

Effecting Communications

2.5 Before making any connection of any Stage of the Works to the Public Sewerage Network:

- (a) the Developer shall give written notice to the Undertaker in accordance with section 106(3) and 108(1)(a) of the Act, and shall comply with section 108(1)(b) of the Act, so that the Undertaker may inspect the making of the connection; and
- (b) the Developer shall send to the Undertaker 6 full sets of accurate preliminary drawings and sections of that Stage or Stages of the Works, coloured and marked with the symbols specified in the Specification and/or Sewers for Adoption, showing cover levels as provisional, together with 2 sets of operating instructions and maintenance manuals for any pumping stations and sewage treatment works, if applicable.

Occupation of Premises

2.6 The Developer agrees:

2.6.1 to give to the Undertaker's Engineer at least five Working Days prior written notice of:

- (i) the date when any premises which are to be drained by any Stage of the Works will be Occupied (in the case of a Stage draining multiple premises, written notice of the first premises and last premises in that Stage only); and
- (ii) the names of the prospective occupants and the postal addresses of the premises which they are to occupy (in the case of a Stage draining multiple premises, names of the prospective occupants and the postal addresses or plot numbers of the first premises and last premises in that Stage only);

2.6.2 together with written notice in 2.6.1, to provide to the Undertaker as built information for the Stage (where such as built information has not already been provided).

Building Over

2.7 The Developer and/or the Owner (in respect of the Green Land) and the Adjoining Owner (in respect of the Red Land) so as to bind the Green Land and the Red Land

respectively into whosoever hands the same may come and for the benefit of the Undertaker's statutory undertaking (being the undertaking of the Undertaker within its area as particularised in the Undertaker's "Instrument of Appointment" as a sewerage undertaker and taking effect under the Water Act 1989 and the properties and rights forming part thereof) shall not build, plant or place nor allow to be built, planted or placed anything on or within the Protected Strip, unless shown within the Protected Strip on the Layout Plan or other drawings forming part of the Documents and specifically approved in writing by the Undertaker.

Backfilling

- 2.8 The following provisions shall apply to the backfilling of the Works:
- 2.8.1 The Developer shall give to the Undertaker five Working Days prior written notice before covering up any part of the Works and shall provide to the Undertaker access and facilities for inspecting those Works during that 5 Working Day period as well as photographs of the pipework and the bed and surround prior to the Works being covered up.
- 2.8.2 If the Developer fails to give notice or allow the Undertaker to inspect the Works, the Developer shall be liable for the full cost of reopening the Works even if they are found to comply with this Agreement and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof.
- 2.8.3 The Developer shall, if at any time requested in writing by the Undertaker to do so, open up the Works for inspection. If the Developer fails to comply with such request, the Undertaker may open up the Works. If any of the Works are then found not to comply with this Agreement, the Developer shall repay to the Undertaker on demand all costs incurred by the Undertaker in opening up and re-covering the Works and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof. However, if all of the Works are found to comply with this Agreement (save where the provisions of clause 2.8.2 apply), the costs of opening up the Works shall be borne by the Undertaker.
- 2.8.4 Insofar as any part of the Works involve work in a Street, then notwithstanding any other term of this Agreement, the Developer shall continue to be liable to execute any work which forms part of the temporary or permanent reinstatement for the duration of the Permanent Guarantee Period provided always that after any part of the Works in respect of which any such reinstatement relates has become vested in the Undertaker the Developer shall not be entitled to access the Works without the Undertaker's prior written consent and if and to the extent the Undertaker gives such consent, the Undertaker may by giving the Developer not less than five Working Days notice require the Developer to carry out any such work within such

time as may be specified and if the Developer fails to carry out any such work within the time specified or if the circumstances constitute an emergency, the Undertaker shall be entitled to carry out such works at the cost of the Developer after giving reasonable notice (taking into account the urgency of the work) to the Developer and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof. For the purposes of this clause 2.8.4 "Permanent Guarantee Period" shall have the meaning given in the "Specification for the Reinstatement of Openings in Highways approved in June 1992" under the Street Works Legislation.

Access to Works

- 2.9.1 Subject to clause 2.9.2, the Developer shall arrange for the Undertaker to have access to the Works and the Site at all reasonable times, and shall at its own cost provide all plant, equipment (including safety equipment), signing, guarding, lighting and personnel while the Undertaker is on the Site necessary for carrying out inspections under this Agreement.
- 2.9.2 Any representative, contractor or agent of the Undertaker accessing either the Works or the Site shall provide their own personal protective equipment, including (but not limited to) suitable safety footwear and headwear and ear and eye protection, and shall (unless otherwise agreed with the Developer) report first to the site manager (or other appropriate person) at the site office (if open) for a health and safety site induction briefing.

Defects

- 2.10 From the date on which the Developer commences the Works to and including the expiry of the Defects Period:
- (a) the Developer shall at its own expense repair or replace any part of the Works which are found to be or become Defective as notified in a written notice given by the Undertaker to the Developer in accordance with the provisions of this Agreement so that the Works comply with the Documents, Standards and Specification, and all other provisions of this Agreement;
 - (b) in an emergency, the Undertaker may by written notice require the Developer to carry out immediately any such repairs or replacements at the cost of the Developer and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof;

provided always that if such Stage of the Works or any part or parts thereof have been vested in the Undertaker following the issue of a Vesting Certificate or otherwise vested in the Undertaker pursuant to clause 3.3, the Developer shall not be entitled to access the Works without the Undertaker's prior written consent

- (c) in the event that the proviso to clause 2.10(a) and/or 2.10(b) applies after the issue of the Vesting Certificate but prior to the issue of the Final Certificate and the Undertaker (in its absolute discretion) does not provide its written consent for the Developer to access the Works, the Undertaker may carry out such repairs or replacements at the cost of the Developer and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof.

Title and Rights to Land

2.11 The following provisions apply to title and rights in land necessary for construction and/or maintenance of the Works and their vesting in the Undertaker:

2.11.1 Subject to clauses 2.11.2 and 2.11.3, the Developer warrants that it has:

- (a) obtained (or will have obtained prior to service of a notice of commencement under clause 2.2) all planning permissions and related authorisations required for the construction of the Works;
- (b) sufficient legal entitlement in the Site (without the need for consent from any third party):
 - (i) to construct, repair and/or replace the Works in accordance with this Agreement; and
 - (ii) for the Works to be vested in the Undertaker as public sewers and Public Lateral Drains; and
 - (iii) for the Undertaker to exercise its rights and powers in relation to the Works under this Agreement and under the Act; and
 - (iv) for the Undertaker to have free and uninterrupted access to the Works at all times and for all purposes;
- (c) Title to those parts of the Site in respect of which transfers and/or grants of easements and/or other rights have to be made to the Undertaker under clauses 2.11.5, 2.11.6 and 2.12.

2.11.2 Where the Developer does not have sufficient legal entitlement in or Title to the Site for the purposes of clause 2.11.1 (b) and (c), the Owner in respect of the Green Land and/or the Adjoining Owner in respect of the Red Land:

- (a) irrevocably and unconditionally consent to:

- (i) the Developer constructing, repairing and/or replacing the Works in accordance with this Agreement; and
 - (ii) the Works being vested in the Undertaker as public sewers and public lateral drains; and
 - (iii) the Undertaker exercising its rights and powers in relation to the Works under this Agreement and under the Act; and
- (b) agree to join in any transfers of land and/or grants easements and/or other rights to be made by the Developer and/or the Owner and/or the Adjoining Owner to the Undertaker under clauses 2.11.5, 2.11.6 and 2.12.

2.11.3 Insofar as any other person has a legal entitlement or other interest in the Site to allow the Developer to fulfil its obligations under clauses 2.11.5, 2.11.6 and 2.12.5, the Developer warrants that such person is a party to this Agreement as the Owner and/or the Adjoining Owner, that his title has been examined, and that such person has such legal entitlement in the Site to the extent that the Developer does not and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect of any breach of the terms of this clause 2.11.3.

2.11.4 For the avoidance of doubt, it is confirmed that each Stage of the Works will belong to the Developer until a Vesting Certificate for that Stage has been issued by the Undertaker.

2.11.5 Where the Works include a pumping station and/or a sewage treatment works and/or other substantial works:

- (a) the Developer and/or the Owner shall (before the issue of the Vesting Certificate under clause 3.3 and at such time as the Undertaker in its absolute discretion directs) legally complete a transfer to the Undertaker free from restriction and encumbrance (at no cost to the Undertaker, whether by way of consideration costs or disbursements whether such costs or disbursements be incurred by the Undertaker or by any other party and in respect of which the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof) of the site of those Works, together with all easements and other rights as the Undertaker considers necessary for the operation and maintenance of those Works;
- (b) such transfer shall contain the following declaration, covenant and indemnity:

"It is hereby agreed and declared that this Transfer of the Property shall not vest the Sewers and/or Lateral Drains (if any) in the Undertaker until the same are subsequently vested in the Undertaker and, notwithstanding such a

Transfer, the Developer shall continue to be entitled to construct, repair, replace and maintain the Sewers and/or Lateral Drains (if any) as may be required in agreement with the Undertaker."

"The Transferor [and the Developer] covenant[s] with the Undertaker that until such time as the Final Certificate has been issued by the Undertaker in respect of the Sewers and/or Lateral Drains (if any)] it [or they] will indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and against all actions, costs, losses, claims, demands, proceedings, charges, expenses and liabilities whatsoever in respect of the use and occupation of the Property or the presence of the Sewers and/or Lateral Drains (if any)."

- 2.11.6 the Developer shall (before giving any notice of commencement of Works under clause 2.2) execute, secure the execution or procure the assignment or the transfer of the benefit (at no cost to the Undertaker, whether by way of consideration costs or disbursements whether such costs or disbursements be incurred by the Undertaker or by any other party and in respect of which the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof) of an easement or easements in fee simple in favour of the Undertaker in respect of the Protected Strip, such easement or easements to be in the form of a deed of grant or incorporated within a transfer (or such other document approved by the Undertaker), in each and every case, incorporating the provisions set out in Schedule 3.

Discharges to the Environment

- 2.12 Where the Works will discharge other than to a public sewer, the following provisions shall also apply:
- 2.12.1 Subject to clause 2.12.2, before giving any notice of commencement of Works under clause 2.2, the Developer shall at its own expense:
- (a) if the discharge is to (and/or any related Works may affect) Controlled Waters, obtain any and all necessary consents from the Environment Agency and/or any and all relevant affected Risk Management Authorities; and/or
 - (b) if the discharge is to (and/or any related Works may affect) a Watercourse owned by or part of the undertaking of a navigation authority, obtain any and all necessary consents, easements and/or grants from the authority; and/or
 - (c) if the discharge is to be made anywhere else, obtain any and all necessary consents, easements and/or grants.

and in each such case shall provide the originals or certified copies of all such necessary consents, easements and/or grants as are referred to in the foregoing sub-

clauses to the Undertaker and/or such other evidence of the same as the Undertaker may reasonably require.

2.12.2 However, the Developer:

- (a) shall not accept the attachment of any terms or conditions to any such consents, easements or grants without the prior written agreement of the Undertaker; and
- (b) if so required by the Undertaker, shall (at the Developer's own expense) exercise any right of appeal against any conditions attached to any such consents within the period for lodging such appeals.

2.12.3 Subject to clause 2.12.4, before giving any notice of commencement of Works under clause 2.2, the Developer shall (at no cost to the Undertaker, whether by way of consideration costs or disbursements whether such costs or disbursements be incurred by the Undertaker or by any other party and in respect of which the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof) procure the assignment or transfer of the benefit of all such consents, easements or grants to the Undertaker.

2.12.4 The Developer shall nevertheless comply with all the terms and conditions of such consents, easements or grants throughout the Construction Period and the Defects Period and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof.

2.12.5 Without prejudice to the preceding requirements of this clause 2.12, where in the opinion of the Undertaker the effecting of any such discharge and any associated works requires the transfer or grant of any land, easements and/or other rights to the Undertaker, the Developer shall (before giving any notice of commencement of Works under clause 2.2 and (at no cost to the Undertaker, whether by way of consideration costs or disbursements whether such costs or disbursements be incurred by the Undertaker or by any other party and in respect of which the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof)) legally complete such transfers and/or grants of easements and/or other rights to the Undertaker without restriction or encumbrance and/or execute or secure the execution and unconditionally release the same to the Undertaker for legal completion.

Transfers and Grants

2.13.1 Any transfers and/or grants of easements and/or other rights by or on behalf of the Developer and/or the Owner and/or the Adjoining Owner to the Undertaker under clauses 2.11 and/or 2.12 shall be executed as a deed and incorporate the provisions set out in Schedule 3.

- 2.13.2 Any obligation on the part of the Developer, the Owner and/or the Adjoining Owner to the Undertaker under clauses 2.11 and/or 2.12, includes an obligation on the part of the Developer, the Owner and the Adjoining Owner to procure that any and every chargee or mortgagee with an interest in such land joins into such documents or otherwise consents to such transfers and/or grants of easements and/or other rights in such form as the Undertaker from time to time reasonably determines.

Sewerage Charges

- 2.14 Notwithstanding the Undertaker's right to collect sewerage charges from any person under the Act in respect of any premises connected (directly or indirectly) with the Public Sewerage Network, the Developer shall pay such charges in respect of any premises which have been connected (directly or indirectly) into the Works (whether or not in breach of this Agreement prior to the date of issue of the Vesting Certificate) and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof.

Indemnity

- 2.15 The Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and against:
- 2.15.1 all actions, costs, claims, losses, charges, demands, expenses, proceedings and liabilities suffered or incurred by the Undertaker in connection with the construction, non-construction, delay, completion use and maintenance of the Works and/or any delay or failure to notify the Undertaker in accordance with the provisions of this Agreement; and
- 2.15.2 liability of every kind for breach of any act (including the Act), regulation, code of practice, byelaw, the Standards and/or the Developer's obligations under this Agreement; and
- 2.15.3 any acts performed by the Undertaker pursuant to clause 2.10(c) and/or clause 3.2.

Fees

- 2.16 The Developer shall:
- 2.16.1 pay to the Undertaker the fees for the items at the times set out in Schedule 4; and
- 2.16.2 without prejudice to the provisions of clause 2.16.1 on demand pay to the Undertaker any fees or additional fees arising from closed circuit television

surveys or resurveys, sewer cleansing and chemical treatment and site visits to check and re-check work and/or substandard work; and

2.16.3 to the extent not already paid prior to the date of this Agreement, to pay to the Undertaker or as the Undertaker directs, on the execution of this Agreement the costs of the preparation and completion of this Agreement and a duplicate thereof; and

2.16.4 on demand to pay to the Undertaker or as the Undertaker directs, any fees and disbursements pursuant to clauses 2.11.5, 2.11.6 and/or 2.12; and

2.16.5 pay to the Undertaker or as the Undertaker directs, Value Added Tax upon the payments referred to in this clause 2.16, if the same is properly payable thereon.

Interest

2.17 If any money payable under this Agreement is not paid within fifteen Working Days of the due date, the party in default shall pay interest on it (after as well as before any demand for payment or judgment) at the higher of:

(a) the rate from time to time set under the Late Payment of Commercial Debts (Interest) Act 1998; and

(b) the interest rate from time to time set by the Law Society.

Copy Agreement

2.18 The Developer shall (if requested) supply to every purchaser of land to be drained by means of the Works, a copy or summary of this Agreement.

3. Undertaker's Rights and Obligations

Maintenance

3.1 Subject always to the provisions of clause 2.10, from the date of issue of each Vesting Certificate for each Stage of the Works, the Undertaker shall be responsible for operating and maintaining that Stage of the Works.

Step-in Rights

3.2 The following provisions set out the Undertaker's rights in the event of default by the Developer:

3.2.1 At any time before a Final Certificate is issued for a Stage of the Works, if the Developer fails to construct, repair, complete and/or make good those Works, or any Stage of the Works, in accordance with this Agreement:

- (a) subject to first giving at least ten Working Days prior written notice to the Developer and the Surety of such intention, the Undertaker may construct, repair, complete and/or make good such of those Works as it considers necessary to secure compliance with this Agreement;
- (b) except that where the Undertaker considers and notifies the Developer and Surety that any required construction, repair and/or making good is urgent, then the Undertaker may carry out such works immediately.

3.2.2 The Developer shall on demand pay to the Undertaker the Undertaker's costs and expenses incurred pursuant to this clause 3.2, including its costs of preparing and serving notices, professional fees, and other expenses reasonably and properly incurred and the Developer shall indemnify the Undertaker and keep the Undertaker fully and effectually indemnified from and in respect thereof.

Vesting Certificates

3.3 The following provisions relate to the issuing of the Vesting Certificates by the Undertaker:

3.3.1 When:

- (a) the Developer completes each Stage of the Works (including all related connections and outfalls) in accordance with this Agreement, the Documents, the Standards and the Specification; and
- (b) the Developer has complied with clauses 2.11.5, 2.11.6 and 2.12 of this Agreement; and
- (c) each Stage of the Works communicates with the Public Sewerage Network and/or (in the case of surface water only) lawfully discharges other than to a public sewer; and
- (d) all of the premises which are to be drained by:
 - the Stage, and
 - any other stage on which the use of that Stage depends (hereafter "the Related Stages") whether or not such Related Stage or Related Stages is or are constructed pursuant to the provisions of this Agreement or pursuant to any other agreement under section 104 of the Act;

in the reasonable opinion of the Undertaker, have been Occupied, and the drains from those premises have been properly connected to the Stage or the Related Stages; and

- (e) no dispute between the Developer and any third parties affecting the Stage or the Related Stages remains unresolved; and
- (f) in relation to any Stage of the Works comprising:
 - (i) a pumping station
 - (ii) sewage treatment works
 - (iii) Works which discharge other than to a public sewer
 - (iv) other substantial worksall premises which are to be drained on the Site, in the reasonable opinion of the Undertaker, have been Occupied; and
- (g) any defects arising or remedial works required in connection with the Stage have been made good by the Developer; and
- (h) nothing has been built, planted or placed on the Protected Strip (save as permitted under clause 2.7); and
- (i) the Developer has carried out (at the Developer's cost) and provided to the Undertaker a closed circuit television survey or re-survey to the recognised industry standard from time to time applicable;

then the Undertaker shall:

- (a) in accordance with section 106B(3)(b) and (5) of the Act adopt that Stage of the Works by issuing a Vesting Certificate vesting those Works in itself; and
- (b) issue to the Developer a Vesting Certificate to that effect within ten Working Days.

3.3.2 Without prejudice to any other provision or provisions contained or referred to in this Agreement (save for the provisions contained in this clause 3.3.2), if and to the extent that this Agreement fails to procure that any Stage of the Works is vested in the Undertaker in accordance with the procedure and provisions set out in clause 3.3.1, then to the extent that the Stage of the Works:

- (i) has been constructed in full; and

- (ii) communicates with:
 - (a) the Public Sewerage Network; and/or
 - (b) (in the case of surface water only) lawfully discharges, in accordance with clause 2.12, other than to a public sewer;

then the Stage of the Works and any Related Stages will be vested in the Undertaker (irrespective of the other terms of this Agreement (save for the provisions contained in this clause 3.3.2)) on the date 84 months after the date on which any premises served by the Stage of the Works is sold or leased for a period in excess of 7 years, such vesting being by way of the issue by the Undertaker of a Vesting Certificate in the same manner as set out in clause 3.3.1, provided always that any such vesting in accordance with the provisions of this clause 3.3.2 shall be entirely without prejudice to the Undertaker's rights and remedies against the Developer for any breach by the Developer of any of its obligations herein contained, howsoever arising.

Final Certificates

- 3.4 The following provisions relate to the issuing of the Final Certificates by the Undertaker:
 - 3.4.1 At the end of each Defects Period in relation to each Stage of the Works, the Undertaker shall issue in respect of that Stage a Final Certificate within ten Working Days, provided always that:
 - (a) any defects arising or remedial works required in connection with the Stage during the Defects Period have been made good at the cost of the Developer; and
 - (b) nothing has been built, planted or placed on the Protected Strip (save as permitted under clause 2.7); and
 - (c) the Developer has fully complied with all its other obligations under this Agreement; and
 - (d) the Developer has carried out (at the Developer's cost) and provided to the Undertaker a closed circuit television survey or re-survey to the recognised industry standard from time to time applicable, at least 30 days prior to the expiry of the Defects Period, but not more than 60 days prior to the expiry of the Defects Period;
 - 3.4.2 Prior to and in order to facilitate the issue of Final Certificates, the Undertaker shall prior to the expiry of the Defects Period inspect the Stage and (as soon as

reasonably practicable thereafter) notify the Developer in writing of any remedial measures, openings-up, surveys or re-surveys which are necessary before the Final Certificate for the Stage can be issued.

Value Added Tax

- 3.5 In the event that the Developer or the Undertaker shall be properly liable to account to Her Majesty's Revenue and Customs for Value Added Tax by virtue of any part of the Works being vested in the Undertaker which shall constitute a taxable supply to the Developer or the Undertaker (if and insofar as such vesting is a "supply" for VAT purposes), then the Developer or the Undertaker (as the case may be) shall be entitled to charge and forthwith be paid the amount of such tax upon production of a valid Value Added Tax only invoice addressed to the Developer or the Undertaker (as the case may be).

4. Surety

- 4.1 In consideration of the Undertaker entering into this Agreement with the Developer, the Surety as principal indemnifies the Undertaker in respect of any expenditure which the Undertaker may incur under this Agreement by reason of the failure of the Developer and/or the Owner and/or the Adjoining Owner to observe or perform in full its or their obligations under this Agreement whether or not this Agreement has been determined or disclaimed, but the obligations of the Surety shall in no circumstances exceed the Security Amount to which the Surety and its successors and assigns under this Agreement now bind themselves to the Undertaker.
- 4.2 The amount of any such expenditure shall be that certified by the Undertaker, whose decision shall be final and binding.
- 4.3 The Surety shall be released from its obligations under this clause 4 in respect of each Stage of the Works upon the issue of a Final Certificate in respect of such Stage of the Works by the amount specified in respect of that Stage in the columns of the tables in Schedule 1 headed "Security Amount for each Stage in the sum of", except there shall be no such release unless and until clauses 2.11 and 2.12 have been fully complied with.
- 4.4 The Surety shall not be discharged or released from its obligations by:
- (a) any determination or disclaimer of this Agreement; or
 - (b) any arrangement entered into between the Developer and the Undertaker; or
 - (c) any alterations to the obligations of the Developer; or
 - (d) any forbearance whether as to payment, performance, time or otherwise,

made with or without the assent of the Surety.

5. Cash Deposit

5.1 If there is no Surety (to be determined by the Undertaker in its absolute discretion), on entering into this Agreement, the Developer shall pay to the Undertaker a cash deposit equal to the Security Amount as security for any expenditure which the Undertaker may incur under this Agreement by reason of the failure of the Developer and/or the Owner and/or the Adjoining Owner to observe or perform in full its obligations under this Agreement, whether or not this Agreement has been determined or disclaimed.

5.2 The amount of any such expenditure shall be that certified by the Undertaker, whose decision shall be final and binding.

5.3 The cash deposit shall be repaid by the Undertaker to the Developer under this clause 5, in respect of each Stage of the Works upon the issue of a Final Certificate in respect of each Stage of the Works by the amount specified in respect of that Stage in the columns of the tables in Schedule 1 headed "Security Amount for each Stage in the sum of",

provided always that:

- (i) there shall be deducted from each such amount any amount which may have been called upon by the Undertaker pursuant to the terms of this Agreement; and
- (ii) there shall not be any such return of money unless and until clauses 2.11 and 2.12 have been fully complied with.

6. Security – Proviso

6. Notwithstanding any payment of any part of the Security Amount to the Undertaker under clause 4.1, or the use of the cash deposit or any part thereof by the Undertaker under clause 5.1, the Developer shall nevertheless remain liable to the Undertaker for all outstanding costs, expenses, losses, fees, claims, demands, proceedings, charges or liabilities on an indemnity basis insofar as they have not been recovered from the Surety or the cash deposit and shall be recoverable on the basis of the covenants, obligations and indemnities contained in this Agreement.

7. General

Qualifications

7.1 Without prejudice to section 104(5) of the Act, nothing in this Agreement is intended to confer on any third party any benefit or right to enforce any provision contained in this Agreement.

7.2 This Agreement shall be without prejudice to the statutory powers of the Undertaker.

Assignment

7.3 No party may assign, mortgage or otherwise transfer any or all of its rights or obligations under this Agreement without the prior written agreement of all the parties to this Agreement, except that this shall not prevent the Undertaker from assigning this Agreement to another person appointed as the sewerage undertaker for the area in question under the Act, which the Undertaker may do without the prior written agreement of any of the other parties to this Agreement.

Waiver

7.4 The failure by a party to enforce any of the provisions of this Agreement at any time or for any period will not release, exonerate or in any way affect the liability of the other parties, or be a waiver of:

(a) those provisions; or

(b) the right of that party at any time afterwards to enforce those provisions.

Entire Agreement

7.5 This Agreement embodies the entire understanding of the parties in respect of the matters contained or referred to in it and there are no promises, terms, conditions or obligations, oral or written, express or implied, other than those contained in this Agreement.

Variations

7.6 Without prejudice to clause 2.3, no variation or amendment of this Agreement, or oral promise or commitment related to it, shall be valid unless committed to writing and signed by or on behalf of all parties.

Warranties

7.7 Nothing in this Agreement shall imply any obligation on the part of the Undertaker to the Developer or to any other person to ensure that the Works or any part or parts of the same are properly constructed.

Void Provisions

- 7.8 If any provision of this Agreement is held by any court or other competent authority to be void or unenforceable in whole or in part, this Agreement shall continue to be valid as to the other provisions hereof and the remainder of the affected provision. The parties agree to attempt to substitute for any invalid or unenforceable provision a valid and enforceable provision, which achieves to the greatest extent possible the economic, legal and commercial objectives of the invalid or unenforceable provision.

Noting of this Agreement

- 7.9.1 The Developer and/or the Owner and/or the Adjoining Owner consent to the registration of this Agreement at the Land Registry or as a local land charge, whether by way of unilateral notice, agreed notice or any such other appropriate notice and will give all reasonable and proper assistance (at their own cost) to the Undertaker to assist with the registration of any such notice; and
- 7.9.2 Neither the Developer, the Owner nor the Adjoining Owner shall make any application (whether to the Land Registry or otherwise) to remove or vary any unilateral notice, agreed notice or other notice registered in respect of this Agreement.

8. Disputes

- 8.1 All disputes, differences and questions which at any time arise between the parties touching or arising out of or in connection with this Agreement or its subject matter shall be referred in the first instance to a senior manager from each of the parties in dispute who shall attempt in good faith to resolve such dispute.
- 8.2 However, if any such dispute cannot be resolved within twenty Working Days of it arising, any party to the dispute may refer the dispute to the Authority in accordance with section 105(2) of the Act.

9. Notices

- 9.1 Any notice, document or other communication sent under this Agreement must be in writing and served by first class recorded delivery post;
- 9.2 A notice, document or other communication shall be taken to have been served if it was sent by post, two Working Days after it was posted;

EXECUTED by the parties hereto as a Deed but not delivered until the day and year first before written

EXECUTED AS A DEED by
TAYLOR WIMPEY UK LIMITED
acting by its Attorneys
in the presence of:


Zoe Horsfield


SADIE LEREAH

Signature of Witness

Name (In Block Capitals)

Address

Occupation Legal Support

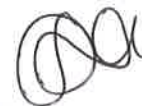

Sophie Briksnis
1 Lumsdale Road
Stretford
M32 0UT

Signature of Witness

Name (In Block Capitals)

Address

Occupation Legal Support


Sophie Briksnis
1 Lumsdale Road
Stretford
M32 0UT

SIGNED AS A DEED by DUNCAN WARD

and

ALYCE HALE

as attorneys for

NATIONAL HOUSE-BUILDING COUNCIL under a

Power of Attorney dated 30th June 2020 13th October 2021


Road and Sewer Bond Manager

As attorney for National House-Building Council



Underwriting Team Leader – Road and Sewer bonds

As attorney for National House-Building Council

EXECUTED AS A DEED by
affixing the COMMON SEAL of
DWR CYMRU CYFYNGEDIG
in the presence of:


Authorised Signatory:



SCHEDULE 1

(Stages of the Works - Programmed Completion Dates and Security Amounts)

Sewers:

Stage Number and Drawing Number and Revision	Developers ref: Upstream node	Developers ref: Downstream node	Purpose F/S/P	Size mm	Programmed completion date (DD/MM/YYYY)	Security Amount for each Stage and in Sum of:
1, 5972-01_ REV L	F1	Outfall	F	150/Rising Main	01/01/2022	£146,973.46

Lateral Drains:

Stage Number and Drawing Number and Revision	Developers ref: Upstream node	Developers ref: Downstream node	Purpose F/S/P	Size mm	Programmed completion date (DD/MM/YYYY)	Security Amount for each Stage and in Sum of:
1, 5972-01_ REV L	ALL LATERAL DRAINS		F	100/150	01/01/2022	Included In Above

Ancillaries:

Stage Number and Drawing Number and Revision	Name and type of ancillary	Programmed completion date (DD/MM/YYYY)	Security Amount for each Stage and in Sum of:
1, 5972-01_ REV L	Pumping Station & Rising Main	30/11/2021	£32,950

***Notes**

Purpose: F = Foul gravity pipeline (coloured brown on the Layout Plan)
S = Surface Water gravity pipeline (coloured blue on the Layout Plan)
P = Pumped or vacuum system (coloured orange on the Layout Plan)

SCHEDULE 2

(Documents)

DRAWING NUMBER - 1, 5972-01_ REVISION L

SCHEDULE 3

(Provisions to be Included in Transfers, Easements & Grants)

The following shall be incorporated into a Deed of Grant or Transfer by the Developer, the Owner or the Adjoining Owner and any chargee or mortgagee of the Developer, the Owner or the Adjoining Owner (and executed as a Deed) in favour of the Undertaker (formatting to be amended to reflect the nature of the document in which the provisions appear):

DEFINITIONS AND INTERPRETATION:

"the Grantor" means [the Developer], [the Owner] or [the Adjoining Owner] *as appropriate*

["the Chargee" means *[insert details as appropriate]*]

["the Chargee's Interest" means a charge dated [] made between the Grantor and the Chargee and referred to as entry numbers [] of the Charges Register of Title Number []

"the Undertaker" means Dwr Cymru Cyfyngedig and its successors in title

"the Apparatus" means the foul and/or surface water Sewers, Lateral Drains and any accessories thereto as defined by Section 219 of the Water Industry Act 1991.

"the Protected Strip" means that strip of land shown on the plan annexed and thereon coloured yellow and being not less than six metres wide and, unless the contrary shall be stipulated or be clear from the plan the Protected Strip shall lie one half to each side of the centreline of the Apparatus.

"the Dominant Tenement" means the undertaking of the Undertaker within its area as particularised in the Undertaker's "Instrument of Appointment" as a Sewerage Undertaker and taking effect under the Water Act 1989 and the properties and rights forming part thereof.

"Section 104 Agreement" means an agreement made pursuant to Section 104 of the Water Industry Act 1991

WHEREAS:

- (1) The Grantor is registered as Proprietor with absolute title under Title Number [] of the Protected Strip

- (2) The Undertaker by virtue of an Appointment made pursuant to the Water Act 1989 is the sewerage undertaker and has entered into or proposes to enter into the Section 104 Agreement to adopt the Apparatus lying within the Protected Strip subject to the terms and conditions set out in the Section 104 Agreement
- (3) The Chargee has consented to the grant of easement herein for the purposes of the Chargee's Interest
- (4) The Grantor is entering into this Deed pursuant to obligations contained in the Section 104 Agreement
- (5) The Grantor has agreed to grant to the Undertaker such perpetual easements rights powers and privileges in respect of the Protected Strip as are necessary for the Dominant Tenement and the Apparatus

NOW THIS DEED WITNESSES:

1. Rights

Subject to the Undertaker making good so far as is reasonably practicable and to the Undertaker indemnifying the Transferee from and against all rates taxes impositions and outgoings of an annual or recurring nature arising out of the exercise of the Rights the Grantor hereby grants with full title guarantee the following perpetual rights ("the Rights") to the Undertaker for the benefit of the Dominant Tenement and the Apparatus and each and every part thereof:

- (a) The right of having retaining using inspecting the condition of reconstructing replacing relaying altering enlarging maintaining cleansing repairing conducting and managing the Apparatus in through under over or upon the Protected Strip (being the servient tenement)
- (b) The right of having and enjoying the free flow and passage of water with or without other matter of any kind whatsoever in through under over or upon the Protected Strip and to discharge from the Apparatus into:
 - (i) any other Apparatus; and/or
 - (ii) (if and to the extent applicable) any canal pond lake or Watercourse (as defined in section 219(1) of the Water Industry Act 1991) within or adjacent to the Protected Strip and to increase or decrease such discharge and for such discharge to flow along and within the said canal pond lake or Watercourse and the right at any time to take samples of such discharge.

- (c) The right at any time and at all times of the day or night with or without vehicles plant machinery servants contractors and others and all necessary materials to enter upon and pass and re-pass along the Protected Strip by a route within the same or by such (if any) other convenient route from a public highway as the Undertaker shall from time to time reasonably determine for all purposes connected with the exercise of the Rights
- (d) The right of erecting on or near the Protected Strip and maintaining any necessary markers indicating the Protected Strip or the position of the Apparatus provided the same are not erected in such a position as to unreasonably affect the beneficial use of the Protected Strip
- (e) The right in exercising the Rights to make all necessary excavations and to tip soil on land immediately adjoining such excavations as shall be necessary or desirable in relation to the exercise of the Rights
- (f) The right of fencing or severing off such part of the Protected Strip from the adjoining and adjacent land of the Grantor as shall be necessary and for so long as may be necessary during the exercise of the Rights
- (g) The right of support for the Apparatus from the subjacent and adjacent land and soil including minerals of the Grantor
- (h) The right (without any liability to pay compensation) to remove all or any trees and shrubs growing in the Protected Strip and all walls hedges, fences and other structures on the Protected Strip

2. Covenants

The Grantor to the intent that the burden of this covenant may run with the Protected Strip and so as to bind (so far as practicable) the same into whose hands the same may come and every part thereof and to benefit and protect the Apparatus and the Dominant Tenement and each and every part thereof capable of being so benefited or protected but not so as to render the Grantor personally liable for any breach of covenant committed after the Grantor has parted with all interest in the land in respect of which such breach shall occur hereby covenants with the Undertaker to observe and perform the following covenants:

- 2.1 Not to use or permit or knowingly suffer to be used the Protected Strip or any adjoining or adjacent land of the Grantor for any purpose that may:
 - 2.1.1 endanger injure or damage the Apparatus or render access thereto more difficult or expensive

- 2.1.2 adversely affect the quality of water or other matter therein or the free flow and passage thereof or means of communication along or through the same
- 2.2 Without prejudice to the generality of the foregoing:
 - 2.2.1 not to erect construct or place any building wall or other structure or erection or any work of any kind whether permanent or temporary PROVIDED ALWAYS that this covenant shall not be deemed to prevent the erection of boundary or other fences which are of an easily removable character
 - 2.2.2 not to withdraw support from the Apparatus or from the Protected Strip
 - 2.2.3 not to undertake or cause or permit to be undertaken any piling or percussive works within the Protected Strip
 - 2.2.4 not to alter the ground levels within the Protected Strip
 - 2.2.5 not to plant or cause or permit to be planted any trees, hedges or shrubs in the Protected Strip
 - 2.2.6 not to cover any manhole cover or chamber or other accessory which relates to the Apparatus
 - 2.2.7 not to construct or lay or cause or permit construction or laying of any street road pipe duct or cable across the Apparatus at an angle of less than forty-five degrees formed by the Apparatus and the street road pipe duct or cable PROVIDED that this prohibition shall not apply to an existing street road pipe duct or cable
 - 2.2.8 Subject to the foregoing provisions of this clause 2, not to use the Protected Strip except for agricultural, residential garden purposes or as open space or for roads and services
 - 2.2.9 To advise any tenant for the time being of the Protected Strip of the existence of the Apparatus and of this Deed and its contents insofar as the same relate to the tenant's occupancy and enjoyment of the Protected Strip

IT IS HEREBY AGREED AND DECLARED:

- [3. The Chargee as proprietor of the Chargee's Interest confirms the grant by the Grantor of the Rights contained in clause 1 and the covenants imposed in clause 2]
- [4. The Undertaker shall have the benefit of the right to enforce these Rights and Covenants pursuant to The Contracts (Rights of Third Parties) Act 1999]

5. The Grantor [the Chargee] and the Undertaker do now apply to the Registrar to enter registered notice of the Rights hereby granted and covenants hereby imposed in the Charges Register in respect of the Protected Strip

IN WITNESS of which the parties hereby have executed this Deed the day and year first above written

SCHEDULE 4

(Fees)

SUPERVISION FEES – FOUR THOUSAND AND THIRTY-SIX POUNDS (£4,036.00)

SCHEDULE 5

(Addenda to Sewers for Adoption in relation to pumping stations and sewage treatment works, if applicable)



**Dŵr Cymru
Welsh Water**

Procedural Document

Sewers for Adoption 7th Edition Addendum

March 2021

Document ID: AM_L_PR1_015

Document Control

Version Control

Version	Status	Date	Author(s)	Description of Change
1	Draft	02/2013	Andrew Herbert	First Draft for comment
1	General Issue	15/03/2019	Andrew Herbert, Morgan Combstock	Following Review
2	General Issue	04/03/2021	Andrew Herbert, Morgan Combstock	Minor modifications

Authorisation

Name	Role	Company	Date
A. Bayton	Engineering Support & Performance Manager	DCWW	03/03/2021

Review

This document is to be reviewed by 30/03/2023

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1 Purpose

Sewers for Adoption 7th Edition does not extend to specific Company requirements where a developer wishes to build a pumping station. This Addendum sets out those requirements that are specific to Dŵr Cymru Welsh Water (DCWW) where a developer wishes to design and construct a pumping station for inclusion within an adoption agreement. The clauses within the document are referenced to the Sewers for Adoption 7th edition and follow on from the clauses detailed within the main document.

It is intended that this Addendum in conjunction with Sewers for Adoption 7th Edition will provide specific guidance for the design and general specification, of sewerage elements involved when making an application to DCWW.

This Addendum does not remove the need for early engagement and constructive discussions between DCWW and developers at appropriate stages or where site specific factors need to be addressed in advance of making an application.

For discussions where a pumping station is to form part of an adoption agreement Developers should contact the Developer Services Team at the following address:

Dŵr Cymru Welsh Water

Developer Services
Fortran Road,
St Mellons,
Cardiff
CF3 0LT

Telephone: 0800 917 2652

For configuration of the Remote Telemetry Unit contact:-

Dŵr Cymru Welsh Water SmartHub

Fortran Road,
St Mellons,
Cardiff
CF3 0LT

Tel: 01443 452300

Fax: 01443 452323

Information on DCWW's current framework suppliers can be obtained from:-

Dŵr Cymru Welsh Water

Procurement Department
Fortran Road,
St Mellons,
Cardiff
CF3 0LT

The clause numbers below refer to those in Sewers for Adoption; these clauses are supplementary and follow on from the clauses listed in the main document except where the sub clause number is prefixed by an '(R)', in which case it is a replacement clause.

2 Procurement

The equipment should be selected from preferred suppliers identified within this Addendum and associated Standard Drawings in accordance with the relevant Dwr Cymru - Welsh Water (DCWW) Framework Agreements. Where the design solution requires the procurement of equipment that can only be obtained from a non-framework supplier, the Developer shall specify the requirements as part of the Particular Design Specification for the scheme or contract.

The applicable product areas detailed within this Addendum and associated Standard Drawings are:

- Pumps
- Low voltage switchgear and control gear assembly (Electrical Control Panels)
- Instrumentation
- Telemetry

Where a product is available from more than one framework supplier, or there are no relevant framework agreements, the final selection for technically compliant submissions shall be made with reference to DCWW Procurement Guidelines (available on request to the DCWW Procurement Department), whole life costs and sustainability analysis.

3 Hazardous Areas Rating

All equipment installed in wet, or dry wells, shall be rated according to the zone classification of the area in which they are to be installed.

Guidance on how to comply with the DSEAR Regulations for zone classification can be found in the current versions of the following DCWW documents which are available on request:

- AM_L_PR1_005 – DCWW procedures for Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR);
- DCWW PEXA Handbook
- DCWW Explosion Protection Document

4 Designer's Responsibilities

The designer aspects of the mechanical and electrical design of the station take into account the requirements, stipulations and recommendations contained in UK safety legislation, including (but not limited to) the following:

- Health & Safety at Work Act (HASAWA);
- Approved Codes of Practice (ACOPS);
- Working at Height (WAH);
- Provision & Use of Work Equipment Regulations (PUWER);
- Lifting Operations & Lifting Equipment Regulations (LOLER);
- Construction Design & Management Regulations (CDM).
- BS7671 (As amended)

5 Part D – Pumping Stations

D2 Definitions

2(R). The classifications of pumping station shall be determined by the pumped flow rate or number of properties served as listed below:

Type 1: Having a pump flow rate of between 1.5 l/s and 3.8 l/s. (typically 5 dwellings or less);

Type 2: Having a pump flow rate of between 3.8 l/s and 6 l/s. (typically six to twenty dwellings);

Type 3: Having a pump flow rate of between 6 l/s and 14 l/s. (typically twenty to 300 dwellings) but with pumps rated no more than 30kW;

Type 4: Having at least one pump rated more than 30 kW and having a pumped flows rate greater than 14 l/s. These are outside the parameters of Sewers for Adoption 7th Edition and guidance should be sought from the Developers Services Team if a higher kW rated pump-set is proposed.

D4.1 Location

2(R). The pumping station should not be located where it might be susceptible to flooding at a frequency of more than 1 in 30 years. All electrical control equipment should be sited above the 1 in 200 year flood level where practicable.

D4.2 Site Access

2. A safe and reasonable vehicular access should be provided to the pumping stations at all hours for the purposes of repair and maintenance. Access should be directly from the public highway or by the provision of a dedicated access road. Vehicles should not be permitted to park in front of the vehicle access point to the pumping station. Long reversing routes are not acceptable. Shared access with domestic driveways are not suitable. A vehicle track analysis is required to confirm the suitability of any access road.

D4.3 Site Layout

5. Gates and fencing are required around the compound. For details please contact Developer Services Team for security classification of assets.

The level of security classification will determine the type of Security Fence required and/or which type of secure enclosure/kiosk may be necessary. NB: Palisade Fencing is not acceptable

The developer must carry out a site based and desktop risk assessment to determine any fencing requirements from a Health and Safety perspective.

The higher grade of fencing requirement as a result of the above procedures will be the minimum required for the site.

11. For pumping stations in a fenced compound, the whole area should be covered with a hardstanding. (NB: Gravel/Stone infill is not acceptable)

15. Flush davit sockets must be equipped with a captive/tethered cover designed to limit the ingress of debris. A lifting davit is required, this should be stored at a suitable location on site.

16. Typical Layouts for Type1 & 2 and Type 3 pumping station are shown on DCWW standard drawing no: SDM4101/004 & SDM4101/005.

D4.4 Kiosk positioning

1. b(R) there is at least 750mm wide permeable hard standing in front of the kiosk. Due diligence shall be paid to the inconvenience that the kiosk might have on neighbouring properties and the obstruction of view caused by the kiosk position.

D4.5 Storage

2. c) DCWW will only consider adopting storage which utilises sewers and manholes in exceptional circumstances.

5. Peak design flow is 6 x Dry Weather Flow (dwf).

6. An emergency overflow is normally required on all pumping stations, however if this is not attainable 50% additional storage over and above the design flow for the development is required.

D4.6 Hydraulic design of pumping stations

3(R). Type 1 pumping stations may use level control by float switch due to the dimensional and congested design of the wet well. Type 2 and above stations shall be provided with an ultrasonic level control system. A standard 4-20mA output shall be available on the unit to provide remote control/indication. No non-standard protocols requiring specialised software/hardware to be used (Hart etc). Local indication (via a panel or surface mounted control unit) required in a local kiosk/MCC. Four level set points should be set in the wet well. These should be a 'snore' level (NB: specific DSEAR control requirements and signage should be followed if the wet well is classified as a zoned area), a pump unit stop level, a duty pump unit start level and a High High (HH) level. Alternatively, the remote telemetry unit using "Control Pack" may be used to control the pumping station providing these features by wiring the ultrasonic directly to the outstation. These levels should be selected to ensure that:

- a) The pump units operate safely and effectively in accordance with the pump unit manufacturer's instructions (i.e., the pump units do not exhibit damaging cavitation, vibration or air-locking or create damaging surface vortices);
- b) If the wet well is in a hazardous area, the pump units do not contravene any DSEAR requirements, the pump unit manufacturer should be consulted to this end;
- c) The number of pump unit starts per hour is not more than fifteen;
- d) The pump unit run time is not less than 60 seconds;
- e) The combined sewage retention time in the wet well and the rising main is not more than 6 hours (to prevent septicity occurring);
- f) The stop level is as low as possible, without compromising the effective operation of the pump unit. This should be the level used for automatic control and should be set at a point where the pump unit has adequate submergence (to prevent air ingestion due to vortices) and adequate NPSH(a) to suppress damaging cavitation;
- g) The high level backup float switch in the wet well is not routinely activated (i.e., the standby pump unit start level should be a minimum of 100 mm below the high level backup float switch in the wet well); and
- h) The standby pump unit start level is a minimum of 150 mm above the duty pump unit start level.

D5.2 Reliability

2. In this case it may be possible to use 50 mm nominal bore rising mains although consideration should be given to the maximum length of main and the delivery pressure.

D5.3 Hydraulic Design

3. a) or to use a water replenishing system to provide additional flow during low flow conditions. For potable water supplies this will require approval from the local water networks distribution team.

4. In certain circumstances where it is not practicable to place a separate manhole upstream of an existing manhole the Undertaker may agree that the end of the rising main can discharge directly into an existing manhole on the public sewer.

D6.1 General

1(R). The pumping station should be designed to operate in the following modes:

- a) Automatic mode – in this mode of operation the control system operates the pumping station automatically, without need for manual intervention;
- b) manual mode – in this mode of operation, the control system is overridden and the operator can operate the pump units manually via the pushbutton switches or Operator Interface Panels (Intelligent Starters) mounted on the door of the electrical assembly (Form 2) or motor starter compartments (Form 4).

3(R). The relays within the level control unit should be configured to achieve the following pump unit control philosophy based on four level set points (L1 to L4):

- a) Level rising through 'snore' level (L1) – no action;
- b) Level rising through duty/standby pump unit stop level (L2) – no action;
- c) Level rising through duty pump unit start level (L3) – start duty pump unit;
- d) Level falling through duty pump unit start level (L3) – no action;
- e) level falling through duty/standby pump unit stop level (L2) – stop duty pump unit if duty pump unit running or stop standby pump unit if standby pump unit running;
- f) Level falling through 'snore' level – inhibit both pump units (L1).

5. Consideration should also be given to the use of smaller pump units on the same guide rails as an interim measure. However consideration should be given to the design of the thermal overload protection.

D6.2 Hazardous areas

1(R). Parts of a sewage pumping station can be hazardous zones in accordance with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR). A risk assessment, taking into account any guidance from DCWW, should be carried out in accordance with DSEAR. This should be discussed with DCWW at an early stage in proceedings.

Undertaker Guidance: The Risk assessment must be carried out referencing the guidelines included in the DCWW PEXA handbook, DCWW Explosion Protection Document (CAF 440), and DCWW Procedural Document for Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR). NB: If any area is deemed to have a Zoned classification, the Explosion Protection Document (CAF 440) must be completed

D6.3 Wet well – general

3. Benching should be provided to eliminate 'dead zones' in the wet well where siltation would otherwise occur. Benching should start no more than 100 mm from the pump unit volute.

The slope of the benching should not be flatter than 60 to the horizontal. Where the wet well is very large, varying the slope of the benching can be considered if needed to satisfy other constraints. In such cases the wet well design could incorporate a two part well, the benching of the lower (working area) part being no flatter than 60 to the horizontal, the upper part being no flatter than 30 to the horizontal.

8. Typical general arrangements for Type 1, Type 2 and Type 3 wet well two pump pumping stations are shown on DCWW standard drawings, SDM4101/001, SDM4101/002 and SDM4101/003.

D6.4 Wet well – structural design

1. If the use of Polyethylene and Glass Reinforced Polymer GRP mouldings for package pumping stations applications is proposed prior approval from the Developer Services Team will be required.

6. If plastic moulding is considered, the moulding shall incorporate all necessary inlet and outlet nozzle connections, and preformed benching of the bottom section to prevent debris accumulating in dead zones. In addition, for increased depths and/or non-standard site conditions, increased wall thicknesses shall be used in conjunction with the inclusion of external reinforcing ribs around the circumference of the PPS.

7. The base of the tank shall either be flat, or incorporate either stabilising feet or a circular base ring to enable the tank to be positioned on a RC slab at the bottom of the excavation. The pumping station shell moulding should incorporate an anti-flotation skirt to enable wet concrete, when poured around the station, to flow into the skirt as a mechanical key to offset the effects of buoyancy.

8. The requirements for the foundation slab and backfilling shall be as directed in the manufacturer's technical guidance literature. In locations subject to high water tables, the designer shall ensure that all necessary measures have been implemented to prevent flotation of the tank under all operating conditions. The uplift force can be considerable particularly if the water table reaches up to ground level. Anti-flotation requirements and minimum GRP thickness should be calculated to ensure the pumping station can resist these forces.

9. The Contractor shall make provision for the wet well to be naturally vented directly to atmosphere and well away from any source of ignition.

D6.5 Valve chamber

1. The use of Polyethylene and Glass Reinforced Polymer GRP mouldings for valve chambers is acceptable if deemed more cost effective to concrete structures.

4. A penstock with an extension spindle to the underside of the cover for tee key operation can be used as an alternative.

6. Where it is impractical to have fully opening covers then consideration shall be given to smaller access covers suitable for man access. However, consideration should be given to any headroom restrictions during, installation and maintenance of pipework and valves.

7. A typical valve chamber arrangement is shown on DCWW standard drawings, SDM4101/001, SDM4101/002 and SDM4101/003.

D6.6 Flow metering

1(R). For Type 3 and Type 4 pumping stations where the design flow of any pump unit is greater than 30 litres/second, a flow meter shall be provided in the valve chamber or in a separate chamber to monitor discharge performance.

For Type 3 and Type 4 pumping stations where the design flow is less than 30 litres/second but located in a sensitive location such as bathing water area then a flow meter shall be required.

2c. where it is not practicable for a drain back to the wet well then the flow meter chamber shall have a water tight cover.

D6.7 Access into wet well, valve chambers and flow meter chambers

1. Where man access is required openings should not be smaller than 900 mm x 900 mm. For specific installations larger opening may be required. The use of step irons is unacceptable and step rungs are preferred as a secondary means of egress. Step rungs shall not be used in wet wells in order to deter unauthorised access.

2. i) (R) Covers and hinged safety grids should be positioned to give fall protection in the upright position where practical.

D6.10 Kiosk

1(R). The kiosk should, as a minimum, enclose the following equipment:

- a) The electrical assembly;
- b) The telemetry outstation;
- c) A kiosk heating and lighting system;
- d) A RCD switched 240 V socket.
- e) Cable containment trunking.

2. The kiosk layout shall be set out as detailed in DCWW Standard Drawing series SDE7101, drawings SDE7101-01 through SDE7101-08, Control Kiosk GAs.

D6.11 Kiosk construction

12(R). Statement removed.

13(R). In Type 3 pumping stations a small door or 'cat-flap' shall be fitted in the wall of the kiosk opposite the electrical assembly to provide access for standby generator facilities. The 'cat-flap' should be large enough to pass the standby generator cable and connector, and be horizontally hinged at the top. The 'cat-flap' should open outwards and be lockable in the closed position from inside the kiosk with internal shoot bolts.

14(R). The kiosk doors should be fitted with an Abloy manufactured key barrelled lock.

15. Where specified by the DCWW, the kiosk should meet the required security rating in accordance with the Loss Prevention Certification Board Standard 1175.

16(R). The following notices/information plates should, as a minimum, to be fitted to the kiosk:

- a) A notice giving instructions for resuscitation after electric shock to be fixed to the inside of a kiosk door;

- b) in Type 3 pumping stations where the facility has been included, a notice giving instructions for connection and use of a standby generator, including instructions for changing back to the mains supply following restoration of supply, to be fixed to the inside of a kiosk door;
- c) An information plate giving information relating to the pump units (serial/curve numbers, FLC, duty head and flow, etc.), the setting levels of the ultrasonic level Controller and the diameter and length of the rising main to be fixed, to the inside of a kiosk door;
- d) A complete set of wiring diagrams for the Electrical Assembly to be fixed to the inside of a kiosk door in a weatherproof envelope;
- e) A standard, black engraved on yellow 'DANGER – electrical apparatus (with flash symbol on a triangle) notice to be fixed to the exterior of a kiosk door. The highest voltage within the kiosk should be indicated in this label or adjacent. In Type 3 pumping stations, the notice should be manufactured from a durable plastic material and have dimensions of not less than 200 mm x 150 mm; and
- f) An information plate giving the name of the site, the Developer's contact name and emergency contact telephone number to be fixed to the exterior of a kiosk door. The notice should be manufactured from a durable plastic material and have dimensions of not less than 200 mm x 150 mm.

6 Part F – Mechanical & Electrical Specification for Small Pumping Stations

F1.1 Hazardous area appliances

1(R). All electrical and mechanical equipment selected for use in a hazardous area shall have undergone an appropriate conformity assessment procedure (CAP) to demonstrate compliance with the essential health and safety requirements of European Directive 94/9/EC (ATEX 95), as enacted in the UK by the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 1996 and the Equipment and Protective Systems (Amendment) Regulations 2001.

DCWW Guidance:- The Risk assessment must be carried out referencing the guidelines included in the DCWW Pexa handbook, DCWW Explosion Protection Document (CAF 440), and DCWW Procedural Document for Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).

F1.2 Operation and maintenance documentation

1. Three hard copies and one electronic copy are required.

F2.1 Introduction

1. To enable standardisation, it is preferred that the Developer use the relevant DCWW framework suppliers for pumps.

F2.3.6 Impellers

7. The pump will have impellers with suitable methods of attachment to shafts.

F2.3.14.1 General

- 4 (R). A proprietary lifting chain location system is not acceptable.
- 5 (R). Lifting chains shall be provided, permanently fixed within the wet well.

F2.3.14.2 Lifting Chain Location System

1 (R). A proprietary lifting chain location system is not acceptable.

F2.3.14.3 Lifting Chains

9. Submersible chains are examined in batches after removal from service. To enable this 5 year rotation, 20 % additional service chains shall be provided, i.e. where one to five similar chains are provided for the contract then a suitable spare chain shall be provided; if six chains are supplied then two suitable spares shall be provided etc. Every chain in the batch shall be capable of fulfilling the duty of the others.

10. All lifting Appliances shall be tested and supplied with an Individual Test Certificate (Certificate of

Conformity), for each item of lifting equipment which shall include:

- The name of DCWW for the "Owner or Occupier";
- The serial number;
- The safe working load (SWL);
- DCWW Asset Number.

NB: all lifting chains shall comply with DCWW's current specification, a copy of this specification is available upon request

F2.3.16 Pump Unit Protection Sensors

3(R). Statement removed. F3 ELECTRICAL F3.1 Scope

1(R) This Addendum defines the requirements for the electrical equipment incorporated within the pumping station. This electrical equipment shall typically comprise:

- a) An incoming power supply;
- b) a low voltage switchgear and control gear assembly (hereafter termed the 'Electrical Assembly') incorporating the incomer, motor starters, control circuit supplies, common control equipment and interface for connection to the telemetry outstation, see clause F.3.3;
- c) The pumping station electrical installation, incorporating all electrical components, equipment and cabling outside the Electrical Assembly, and the pumping station Earthing and bonding system, see clause F.3.3;
- d) Instruments associated with the pumping station including the ultrasonic transducer head (fitted at a high level within the wet well, on a hinged stainless-steel bracket), float switches, and flow meter (if required), see clause F.3.5; and
- e) A Remote Telemetry Unit (RTU) with appropriate 4G Modem connection (Note: Ovarro S2000 is the required outstation.), see clause F.3.6.
- f) The Form 2 assembly general arrangement shall be followed as detailed in DCWW Standard Drawing SDE7101 series of drawings.

F3.2.1 General

9. To enable standardisation by DCWW the developer's switchgear and control-gear assemblies shall be constructed in compliance with the DCWW Standard drawing series SDE7026 – Conventional DOL & ASD.

10. To enable standardization by DCWW the developer shall select all switchgear and control-gear's low voltage components from the nominated DCWW Framework component supplier.

F3.3.1 General

2(R). The form of separation of the Electrical Assembly shall be Form 2a or 2b for type 1 and type 2 pumping stations, subject to the results of an approved risk assessment, which considers the need for a pump to continue running while work is carried out on the panel. This shall take into account factors such as, the volume of flow, the practicality of dealing with this flow by other means when the pumping station is not operational, the location of the pumping station location and the consequences of the risk of flooding or pollution occurring if the pumping station is not operational. For type 3 pumping stations and above, the electrical assembly shall be Form 4.

F3.3.4 General Cable Size

6.1.1 F.3.3.4.1 General

5. Statement removed. F3.3.5 Cabling and Wiring F.3.3.5.1 General

1(R) Power circuit wiring shall be 600 volt grade multi stranded copper tri-rated switchgear cable to BS 6231 or equivalent. Power cable size shall be 2.5mm² CSA to BS7671 (As amended). Control circuit wiring (including ICA/PLC wiring) shall be multi stranded copper tri-rated switchgear cable to BS 6231 or equivalent and multicore wiring shall comply with BS 6500 or equivalent. Minimum cable size shall be 1.0mm² for motor starter control circuit wiring, and 0.5 mm² for ICA/PLC wiring.

Inter-compartment wiring shall comply with the clause above but may also utilise multicore PVC multi- stranded copper wire to BS 6500 or equivalent. Cable cores shall be sleeved to achieve the required colour coding.

2(R) Analogue signal cabling shall comprise screened cables (individually and/or collectively screened) and/or twisted pairs. Cable to BS5308 (Parts 1 &2) Specification.

6.1.2 F.3.3.5.2 Installation

4(R) Suitable segregation between cables serving different circuit categories as referenced in BS7671 (As amended) shall be provided for at all times.

6.1.3 F.3.3.5.3 Identification of Wiring

1(R) All wiring, pre and post switching such as relay or contacts shall be identified. Brown, black, grey phases shall be identified at both ends in accordance with schematic diagrams. Each wire shall be identically marked at each end, with the first character nearest to the termination end of the wire. The wire marking system employed shall be one of a proprietary pre-printed insulated sleeve type.

2(R) Wiring shall be terminated using crimped pin extensions, bootlace ferrules, or lugs of the correct size which crimp the insulation and the conductors. The number of every wire associated with circuits entering or leaving a compartment shall be prefixed by the compartment reference.

6.1.4 F.3.3.5.4 Termination of Wiring

6.1.5 F.3.3.5.4.1 General

1(R) The crimps shall be applied by means of a ratchet style crimping tool using the correct size of die. Where equipment is fitted with flat headed screw terminals, wire ends shall be fitted with crimped spades. Compression type terminals shall not be used, but where equipment (e.g. contactors) are complete with cage type terminals are then direct conductor termination shall be permitted.

- 2(R) All internal wiring shall be terminated at both ends (including spare cores).
- 3(R) Sufficient slack shall be provided within each cable terminated to allow for at least one re- termination.
- 4(R) Terminal mounts shall be suitable for the CSA of the wiring terminated.
- 5(R) Unless otherwise agreed, all terminals shall be arranged in single layer (i.e. no "piggy-back" terminals).
- 6(R) All circuit terminal rails shall include 10 % spare space, as built and commissioned.
- 7(R) Wiring shall be terminated using crimped cable ends, lugs or any other approved method that is suitable for the conductor and type of termination.
- 8 (R) Only the crimp/lug (or equivalent) manufacturer's recommended tools and equipment shall be used to perform the termination. All of the strands forming the conductor shall be connected at the point of termination.
9. Wiring shall be terminated so that all internal wiring is connected to one side of a terminal rail and all external cabling and wiring is connected to the other side of the same terminal rail.
10. Screw type terminals shall be used. Compression type terminals are shall not be used, however where cage type terminals are present on equipment (e.g. contactors), then they shall be permitted.
11. Only one conductor shall be connected to a termination point. Where this is not reasonably practicable, then no more than two conductors shall be connected to one side of a terminal.
12. Sufficient, suitably sized and coloured earth terminals and end stops shall be provided at the ends of the terminal rail.
13. Where a means of circuit disconnection is specified by the particular specification, suitable hinged link type terminals shall be provided where circuit disconnection is required (e.g. for analogue signal circuits, the isolation of external control devices and for all alarm and telemetry circuits). Hinged-link type terminals shall not be used for the isolation of power circuits.
14. Unless otherwise specified in the particular specification, fused terminals shall be provided for circuits feeding solenoid valves.
15. Terminals shall be grouped by bands with raised separators between bands. Where the I/O from a modular device such as a PLC is wired down to terminals the terminals shall be grouped in a similar order to the I/O module.
16. Proprietary shorting bars or combs shall be utilised where it is necessary to common terminals. Where practicable, cable trunking shall be positioned a minimum of 30 mm from any terminal.
17. Terminals shall be safely and easily accessible after all wiring has been installed and terminated.
18. Terminals shall face the compartment door for ease of connection.
19. Terminals shall be positioned and identified in accordance with the schematic diagrams for the Assembly.
20. Horizontal terminals shall be numbered left to right and vertical terminals top to bottom.
21. Where practicable, for incoming mains facilities a minimum distance of 300 mm shall be provided between the gland plate and terminals.

22. Groups of terminals shall be secured with an end stop at either end, which may be an earth terminal.

23. For incomers and large feeder compartments, where the cable is glanded within the compartment, the layout of terminals shall comply with BS 5372, and unless agreed otherwise with the Purchaser, where more than one multi-core power cable enters an incomer compartment, a further 500 mm (minimum), in addition to the 300 mm above, shall be provided between the gland plate and the terminals of the associated protective device. All live terminals shall be adequately shrouded to achieve a minimum of IP2X.

24. To facilitate the termination of cable cores, a minimum distance of 100 mm shall be provided between the entry point of cables into a compartment and the associated terminals; this shall be increased, as required, for larger cables.

25. Where practicable, a minimum distance of 30 mm shall be provided between the exit point of wiring from trunking and the associated terminals.

26. Terminals used for the connection of intrinsically safe circuits shall be coloured blue and be physically separated from other terminal groups by a minimum distance of 50 mm. These terminals shall have a clear shrouded cover and be fitted with an appropriate warning label.

27. If practicable or recommended by the device manufacturer, screened signal cables shall be wired directly to and terminated at the device. If this is not practicable, the method of interface termination shall not compromise the integrity of either the conductors or screen.

28. Screened signal cables shall have the screen solidly connected to earth at the instrument end. To comply with EMC requirements, it may also be necessary to connect the screen to earth at the non-instrument end. If this is the case and such a connection will not compromise safety or performance, the screen shall be solidly connected to earth at the non-instrument end. If this is the case and such a connection will compromise safety or performance, the screen shall be capacitive coupled to earth at the non-instrument end.

29. If it is necessary to connect the screen to earth, either directly or via a capacitive coupling, a proprietary 360° connection shall be used.

30. If it is necessary to isolate the screen from earth a suitable length of the overall sheath and the screen shall be removed and a 30 mm long silicone rubber over-sleeve installed over the point of separation of conductors, screen and overall sheath.

31. Terminals of 16mm and above shall be of “bolted type”.

32. The colour code for terminations shall be in accordance with Table 2 below.

Table 1 – Colour Coding for Terminations

Function	Colour
Protective Conductor	Green and Yellow
Phase Conductors	Beige or Grey
Neutral	Beige or Grey
Power >50V	Beige or Grey
Control >50V	Beige or Grey
Control <50V	White

Instrumentation Analogue	White
Intrinsic Safety Analogue and Digital	Blue
Intruder/Interlocks ≥ 110 V	Orange
Telemetry	Beige or Grey

F3.3.6 Indicator Lamps, Push-Buttons and Selector Switches

3(R). Statement Removed.

4(R).

Table 2 - Table for Colour Coding for Pushbuttons

Colour	Function
Black	Stop/Off, Close
White	Start/Run, Reset, Open
Red on Yellow Background	Emergency Stop

F3.3.7 Connection for a Mobile Generator

1(R). For type 3 pumping stations that have been risk assessed as requiring a connection for a mobile generator then a facility shall be provided.

3. Mobile generator appliance inlet (incomers up to and including 125 Amps) this shall be a 5 pole (L1, L2, L3 +N+E) male appliance socket to BS EN60309-2;

4. Mobile generator connection box (incomers up to and including 125 Amps).

5. Where a mains/generator changeover incoming section is specified, an in-line isolation device shall be provided for the generator supply. This may be accomplished by the use of an appliance inlet socket and plug fitted at the control panel/MCC.

6. Mains/generator manual changeover switches that have the termination of the mains supply in the same vertical plane as the generator supply are not to be used.

7. A second phase failure relay shall be supplied on the DNO live side as well as the load side to indicate via telemetry when DNO mains is restored where the load side relay will indicate generator mains failed supply.

F3.3.8 Abnormal Operation

6.1.6 F.3.3.8.2 Pump unit Failure (Initiated by Hard-Wired Pump unit Protection Systems)

1(R). The control system shall incorporate the following hard-wired pump unit protection systems:

- a) Motor overload protection;

- b) Pump stator over-temperature protection (Klixon switch);
- c) Pump unit mechanical seal failure protection (if the pump unit is rated at or above 7.5 kW);
- d) Motor under load protection (to detect ragging up/soft blockages, operation at levels below L1 (i.e. drawing in air) ;
- e) Low flow protection (if the pump unit is installed in a type 3 pumping station that has been risk assessed for requiring a flow meter);

Statement removed two stage protection is not required on pumps rated less than 70kW.

6(R).Statement removed two stage protection is not required on pumps rated less than 70kW.

7(R).Statement removed two stage protection is not required on pumps rated less than 70kW.

8(R). When a remote reset signal and relay is installed and triggered from the telemetry unit, if the hard-wired protection systems detailed in clause 3.3.8.1a, above is activated, the telemetry system shall allow the operator a maximum of three remote resets after which the drive shall be locked out.

Note: The Undertaker has the ability to include the limit on remote resets in their telemetry base station.

6.1.7 F.3.3.8.4 Back-Up Control Mode

1(R). The back-up control mode shall be configured as a control system operating independently of the ULC.

2(R). Upon receipt of a 'High Wet Well Level' signal from the back-up level control, the control system shall transmit a 'Back-up Control System Activated' alarm to telemetry.

F3.3.9 Telemetry Signals

1(R). When in accordance with 3.6, a telemetry outstation is to be provided by the undertaker, terminal blocks shall be provided in the Electrical Assembly for interfacing the pumping station and each pump unit with the telemetry outstation. The function of each terminal shall be as specified in Tables F.3 to F.6.

Table 3 – Telemetry Requirements for Pumping Station Monitoring

Function	Description	Signal Type	Terminal Numbers	Type 1	Type 2	Type 3
Site mains DNO power health	Normal/Failed	Digital Input	Refer to DCWW drawings	✓	✓	✓
High wet well alarm (F.3.3.8.4)	Normal/High	Digital Input	Refer to DCWW drawings	✓	✓	✓
High wet well alarm (F.3.3.8.4)	Normal/High	Digital Input	Refer to DCWW drawings	✓	✓	✓
Back-up control system activated (F.3.3.8.4)	Normal/Activated	Digital Input	Refer to DCWW drawings	✓	✓	✓
Maintenance in progress	Off/On	Digital Input	Refer to DCWW drawings	✓	✓	✓
Level Controller Health (F.3.3.8.3)	Normal/Failed	Digital Input	Refer to DCWW drawings	x	x	x
Flow Meter Health	Normal/Failed	Digital Input	Refer to DCWW drawings	x	x	✓
Emergency Overflow Operating (Note 1)	Normal/Overflow	Digital Input	Refer to DCWW drawings	✓	✓	✓
Wet Well Effluent Level		Analogue Input	Refer to DCWW drawings	x	x	✓
Pumping Station Overload (Pump unit running & high level reached)		Digital Input	Refer to DCWW drawings	x	x	x
Rising Main Delivery Flow (Totalised)		Pulsed Input	Refer to DCWW drawings	x	x	Note 2
Rising Main Delivery Pressure		Analogue Input	Refer to DCWW drawings	x	x	x
Power Consumption		Pulsed Input	Refer to DCWW drawings	x	x	Note 3
Note 1: Only required when there is an emergency overflow where this is provided on a replacement pumping station Note 2: Only required if the design flow rate of each pump unit is above 30l/s. Note 3: Only required on Type 3 pumping stations if each pump unit is rated above 3.5kW utilising the intelligent starters VT module or where a power monitor unit is installed at the incomer.						

Table 4 – Telemetry Requirements for the Monitoring of Each Pump Unit

Function	Description	Signal Type	Terminal Numbers	Type 1	Type 2	Type 3
Pump unit running	Running/Stopped	Digital Input	Refer to DCWW drawings	✓	✓	✓
Pump unit tripped	Normal/Tripped	Digital Input	Refer to DCWW drawings	✓	✓	✓
Pump unit available/not available	available/unavailable	Digital Input	Refer to DCWW drawings	✓	✓	✓
Motor stator temperature	Normal/High	Digital Input	Refer to DCWW drawings	x	x	✓
Pump unit vibration caution (Note 1)	Normal/Caution	Digital Input	Refer to DCWW drawings	x	x	x
Pump unit vibration high (Note 1)	Normal/High	Digital Input	Refer to DCWW drawings	x	x	x
Pump unit seal failure (moisture in pump)	Normal/Failed	Digital Input	Refer to DCWW drawings	x	x	Note 3
Pump unit lower bearing temperature	Normal/High	Digital Input	Refer to DCWW drawings	x	x	x
Pump unit load (for partial pump blockage)	Normal/Under load	Digital Input	Refer to DCWW drawings	x	x	Notes 2 & 4
Note 1: Statement removed. Note 2: Only required if each pump unit rated at or above 22kW. Note 3: Only required if each pump unit rated at or above 7.5kW. Note 4: Will Normally be required in all cases where the pump unit is in a hazardous zone in accordance with Dangerous Substances and Explosive Atmospheres Regulations. Note 5: On type 1 & 2 pumping stations where there are insufficient digital inputs available it is acceptable to complex auto available and pump tripped signals.						

8. It is recommended to contact the DCWW ATC department for advice on the selection of the correct remote telemetry station supplier for the application.

6.1.8 F.3.3.11.1 General

4. DCWW has a preferred option when Form 4 Assemblies are required, to use intelligent field-bus (profibus) components. The field-bus communicates with the intelligent incomer compartment, intelligent starter compartments and intelligent common control compartment which houses a PLC & HMI. If the developer wishes to consider this option the DCWW Electrical Specifications ES301 and ES302 are available on request to the DCWW Developer Services Department.

6.1.9 F.3.3.11.2 Incomer Compartment

3e) It is accepted by DCWW that when the power monitoring is performed by a power monitor unit there would be no requirement for a panel mounted voltmeter and ammeter. In line with BS7671 a type 1 & 2 Power Surge Protection Device shall be provided at the incomer to prevent an inherited lightning surge causing damage to the pumping station. A means of external isolation shall be provided via a pad-lockable grip handle to a fuse switch isolator is a minimum requirement.

6.1.10 F.3.3.11.3 Control Circuit Supplies

9. It is acceptable to DCWW for the CCTs not to have secondary earth screens on their secondary supplies and it is DCWW preference for the secondary supply to be 110 v AC and not 24 V AC.

6.1.11 F.3.3.11.4 Motor Starter Compartments

5(l) It is preferred if the common reset Push button can be incorporated in the Off position of the auto/off/hand selector switch on form four panels. For further information refer to DCWW standard drawing series SDE7026 – Conventional DOL & ASD.

F.3.3.11.5 Common Control Compartment (CCC)

4(R). The design and construction of the CCC shall enable safe inspection, testing, calibration and diagnostic activities to be carried out with the CCC energised and accessible. Safe testing shall be afforded by the use of circuit supplied from the Control transformer at 110v AC & 24v DC voltage systems where segregation of circuits employing different voltages. Additional localised shrouding of circuits above extra-low voltage shall be provided to IP2X minimum. 400 volt circuits are not permitted within the common control compartment.

6.1.12 F.3.3.12.2 Assembly Equipment

1. The Electrical Assembly shall, as a minimum, incorporate the following functional units:

- a) Control circuit supplies;
- b) a 'Pump unit No. 1' motor starter;
- c) a 'Pump unit No. 2' motor starter ; and d) a common control circuit; (R)

6.1.13 F.3.3.12.3 Incomer

6. It is DCWW preference to have the kiosk services distribution board mounted externally to the main incomer enclosure in a suitable location within the kiosk and the incomer to be fitted out with a fuse- fed, single phase and neutral, feeder to supply the Kiosk distribution board. The DCWW preference is to not fit voltmeters and ammeters to Type 1 & 2 stations but supplement with a 'mains healthy' lamp

6.1.14 F.3.3.12.4 Control Circuit Supplies

8. It is DCWW preference to not install screens to secondary voltages. Control circuit supplies shall be derived from a control circuit transformer at 110v AC in preference to 24v DC control from a power supply.

6.1.15 F.3.3.12.5 Motor Starters

8. With respect to clause F.3.3.12.4.1e) above, DCWW motor starters on type 1 & 2 stations may incorporate only the following motor protection:

- a) Motor over-temperature protection;
- b) Pump unit mechanical seal failure protection (if the pump unit is rated at or above 7.5 kW);

Brown out timers shall be provided to auto recover the motor starter to available status after a power dip. For further information refer to DCWW standard drawing series SDE7026 – Conventional DOL & ASD.

F.3.3.12.6 Common Control Section

1.g) In many of the Type1 & 2 pumping stations it is not practicable to install ultrasonic controllers due to the dimensional size of the well. In such stations the level control shall be carried out by float switches. The float switches shall be installed at four levels

- HH
- Pump Start
- Pump Stop
- LL (snore)

Where an ultrasonic controller is supplied.

Emergency Pump back up control, shall be included when a HH float switch is installed

8. It is acceptable to DCWW to use 110v AC for control circuits as well as extra low voltages and but it is preferred to use individual termination block by voltage type or to fit raised separators between voltage bands or type when sharing the same terminal block.

6.1.16 F.3.4.1.5 Junction Boxes

7. Junction boxes shall not be installed internal to wet wells irrespective to DSEAR zone classification of the pumping station. If junction boxes are to be installed for cabling between the wet well and kiosk it shall be installed on suitable up stands or in a below ground junction box chamber external to the wet well in a rated suitably rated IP enclosure. Where the kiosk and wet well are located at a convenient distance apart the cabling shall be wired directly from the kiosk to the wet well in a continuous underground duct or ducts.

F3.4.3 Cables

Table 5 – Cables

Type of Cable	Relevant Standard	Voltage Rating
XLPE/PVC	BS 7889	600/1000
XLPE/AWA/PVC and XLPE/SWA/PVC1	BS 5467	600/1000
PVC/PVC	BS 6346	600/1000
PVC/AWA/PVC and PVC/SWA/PVC1	BS 6346	600/1000
Single core PVC2, 3	BS 6004 (Table 1)	450/750
Flat twin earth PVC	BS6004 (Table 5)	300/500
Flexible PVC/PVC4	BS 6500 (Table 26 or 28)	300/500
Flexible PVC/PVC5	BS 7919 (Table 40 or 41)	600/1000
Armoured, heat and oil resisting and flame retardant (formally designated HOFR) 1, 6	BS 7919 (Table 16 or 17)	450/750
Flexible, heat and oil resisting and flame retardant (formally designated HOFR) XLPE/LSF7	BS 7211	450/750
XLPE/AWA/LSF and XLP/SWA/LSF1, 7	BS 6724	450/750
XLPE/LSF7, 8, 9	BS 7629	600/500
XLPE/AWA/LSF and SLPE/SWA/LSF1, 7, 8	BS 7846	600/1000
NOTES: 1 Aluminium wire armoured shall be used to reduce the magnitude of induced voltages and currents. 2 The insulation shall be phase coloured and, if used in single-phase systems. Line cables shall be brown and neutral cables blue. 3 Only to be used within conduit or trunking. 4 Only to be used in offices and similar buildings. 5 For industrial environment use. 6 This type of cable shall comply with BS 6883, Section 3 (insulation type GP4 (BS 7655-1, Section 1.2); sheathing type A/RS3 (BS 7655-2, Section 2.3). 7 Only to be used in public areas and in areas where there is significant risk of harm to persons or equipment in the event of a fire involving cabling. 8 These cables shall be used if there is a specific requirement to maintain circuit integrity under fire conditions in accordance with BS 6387 and BS 7346-6 (e.g. gas detection systems, fire detection/alarm/fighting systems, protected lighting circuits, emergency lighting systems). 9 This cable is not to be buried directly in the ground or in the fabric of the building.		

Unless specified in the particular specification, signal and instrument cables shall have stranded copper conductors and comply with BS 5308 Part 2 and of Types 1 and 2. All multi-pair signal and instrument cables shall have as a minimum number of spare pairs as follows:

- Cables above and including 5 pair shall have 20 % spare cores.
- A minimum of 2 pair cable shall be installed (note: 1 pair cable is not acceptable).

Table 6 – Cable Colours and Applications - Signal & Instrument Cables

Cable Application	Colour
Protective Conductors	Green/Yellow
Intrinsically safe cables	Light blue
Profibus DP Cables	Purple
Profibus PA Cables	Blue
Ethernet Cables	Green
Fire detection/alarm/fighting system cables	Red
Emergency lighting and gas detection cables	Black
Security system cables	Grey

Table 7 – Colour Coding for Wiring

Function	Colour
Protective Conductors	Green/Yellow
AC Power Circuits	
Phase L1 of three phase circuit	Brown 1
Phase L2 of three phase circuit	Black 1
Phase L3 of three phase circuit	Grey 1
110 volt ac	Red
Neutral	Blue
Control Circuits	
110 volt ac	Red
ELV (e.g. 24V dc or ac, 30V dc etc)	Yellow
Intercompartment Wiring	
Unsheathed	Red or Yellow, depending on voltage
Neutral or mid-wire conductor	Blue
Signal Circuits	
Voltage known	Red or Yellow, depending on voltage

Voltage unknown	Red
Analogue (4-20mA)	White & Blue (twisted pair)
Telemetry	White
Single core	Yellow
Intrinsically safe (analogue & digital)	Light blue (sheath)
Miscellaneous	
Profibus DP network cables	Red & Green (Purple Sheath)
Profibus PA network cables	Red & Green (Blue Sheath)
Brown may be used for all three phases, identified L1, L2 and L3 at each end of the conductor, and at intervals along its length	

F3.4.4 Installation of Cables

5.g) Separate ducts shall be provided for each of the following cables:

- DNO incomer including supplied earth
- Pumps power cabling between Kiosk and wet well
- Pump protection, float switches or/and ultrasonic controller between kiosk and wet well.

15. Polyurethane foam may only be use to seal the kiosk duct after the wet well has been risk assessed and declared as un-zoned as agreed by DCWW Fire and Explosion group.

F.3.4.5.1 Glanding

5. It is DCWW preference when a cable is glanded through a painted or otherwise coated metallic surface, earth continuity is electrically tested and recorded between the gland and the enclosure. The contact surface shall be cleaned or a "banjo lug" used to provide continuity between the gland and the enclosure by drilling and bolting.

F3.5.1 Flowmeter Specification

1. For Type 3 and Type 4 pumping stations where the design flow of any pump unit is greater than 30 litres/second, a flow meter shall always be provided. A flowmeter shall be provided for Type 1 & 2 pumping stations where regulatory conditions or site conditions deem it necessary. Similarly, if Type 1 & 2 pumping stations are located in sensitive locations such as bathing water areas or near a sensitive water course then a risk assessment shall be carried out to decide if a flow meter should be included.

F3.6 Telemetry outstation

1.c) The required telemetry outstation is a Ovarro S2000 (NB: the Micro version of this unit is not acceptable, the full version (with the inclusion of a HMI interface) should be installed) however this must be confirmed by DCWW Developer Services Department.