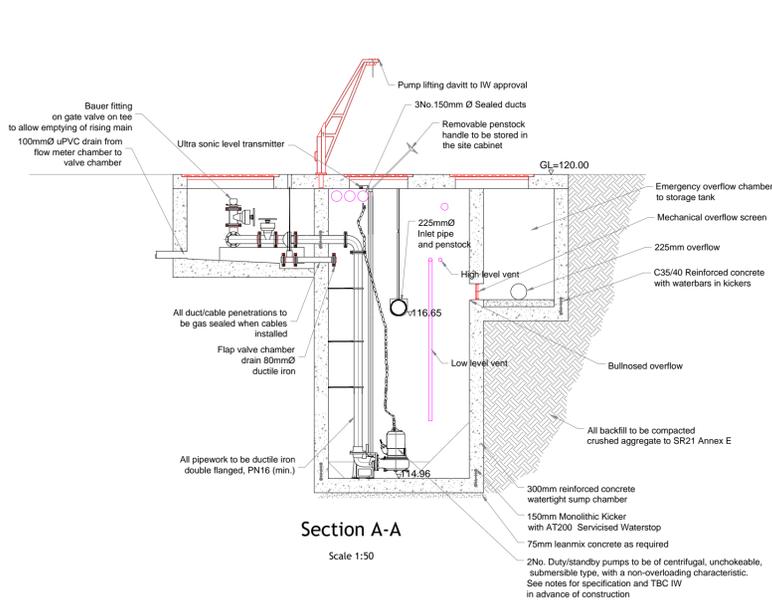
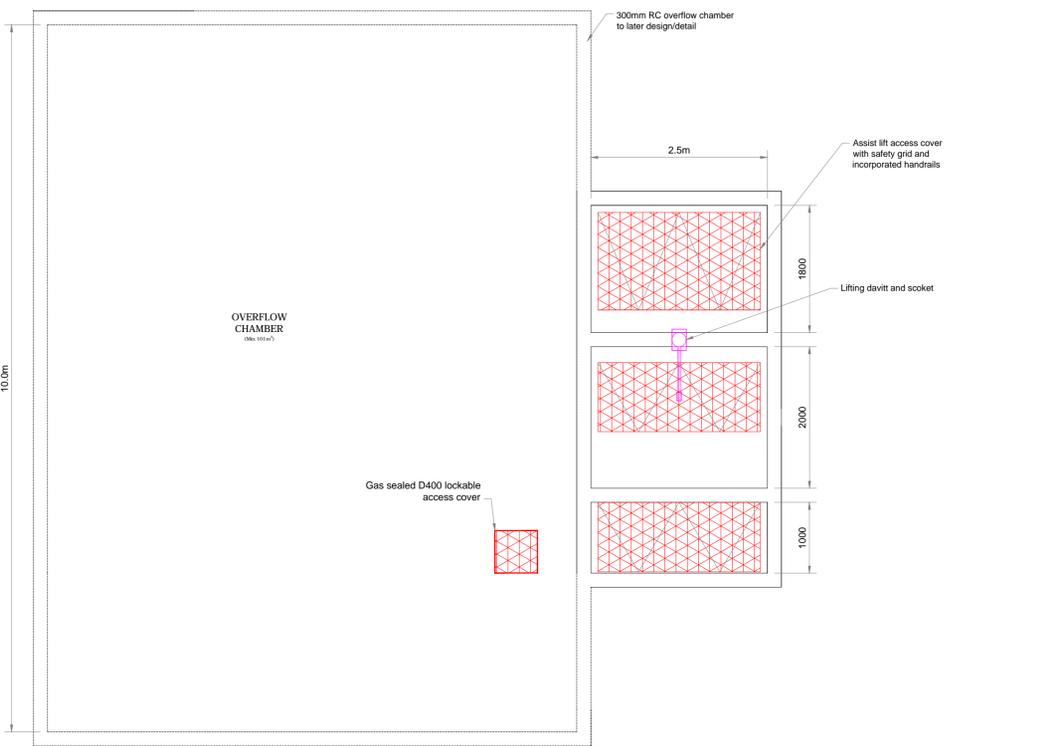


Below Ground Pump Station Plan  
Scale 1:50

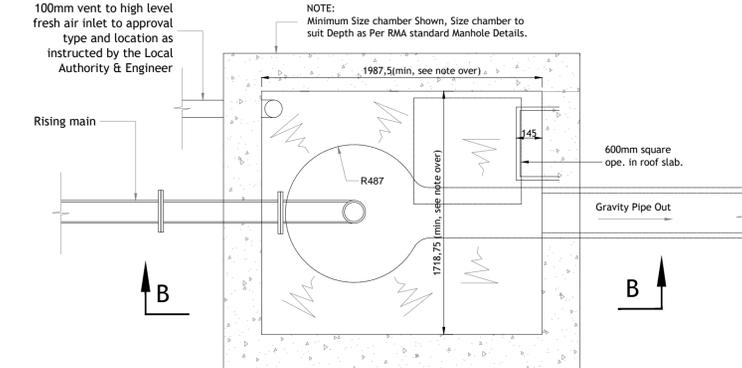


Section A-A  
Scale 1:50

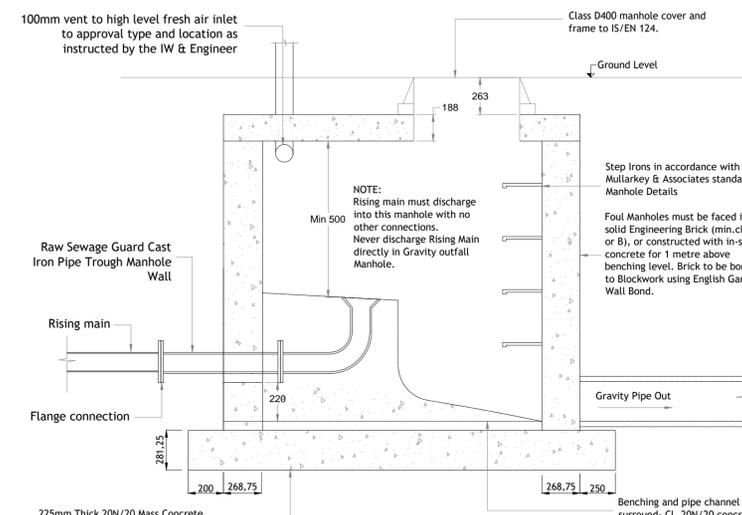
- Inexhaustive list of Control Panel elements to include the following and TBC by SDCC & IW in advance of construction:
- Main interlocked isolator.
  - DOL or ASD contractors & Overloads Drives greater than 5kW to have ASD Starter.
  - Ameters
  - Hour run Meter.
  - Run and trip light.
  - Hand-off-auto switch.
  - Duty select by ultrasonic unit (flip/flop).
  - Reset buttons.
  - Moisture/Overheat indicators.
  - Ultrasonic control unit with power surge controller.
  - Voltmeter c/w select switch.
  - Main H.C.R. & control fuses.
  - Low voltage transformers 240/240v.
  - Airt condensation heater.
  - Phase failure relay.
  - Generator connection/changeover facility.
- GENERAL
- A. Step irons shall be provided in manholes greater than 1m and all electrical equipment to Ex-rated.
- DESIGN
- The equipment and installation must comply with all Statutory Regulations and the latest editions of all relevant Irish, British and harmonized European Standards and to Irish Water approval.
  - The electrical installation must comply with the current requirements of the Electro Technical Council of Ireland ET 101: National Rule for Electrical Installations, 3rd Edition & including Amendments 1, 2 and 3. ESRB National Code of Practice for Customer Interfaces.
  - The layout and positioning of equipment should facilitate its safe and efficient maintenance.
  - Access to the pumping stations to be provided for maintenance vehicles (mobile pump and 3/4 axle vacuum tanker). Access to the power and telecommunications network should also be provided.
  - The pumping station shall be located as shown on plan and shall not give rise to noise or odour nuisance.
  - The control building and sump shall be vented via a Bord Na Mona Biofilter odour purification system and to atmosphere at high level.
- SUMP, STORAGE & VALVE CHAMBER
- The sump and valve chamber which are classified as Hazardous Zone 1.
  - The sump design shall allow a free flow to the pumps without the formation of vortices and have an effective volume so as to limit the number of pump starts to less than 10 per hour.
  - The pump operating levels will be chosen to ensure that the pump motor housing shall be submerged at all times.
  - The inflow to the sump shall incorporate a macerating unit and/or screen located in a separate chamber.
  - The inflow pipe(s) shall be fitted with a penstock and baffle. The penstock spindle shall extend to the sump roof slab where it shall be accessed through a hinged cover.
  - The overflow tank flow and return to the sump shall be fitted with penstock isolation.
  - The overflow tank shall be fitted with submersible jet aerators equipped with quick release couplings complete with galvanised guide rails, galvanised lifting chains, cable suspenders and chain hooks.
  - Tank(s) shall be fitted with approved access covers and ventilation.
- RIISING MAIN
- The rising main diameter shall be chosen to ensure a velocity in the range of 0.8 to 2m/sec and empty at least six times per day to avoid septicity. In circumstances where longer retention times may arise, a separate chemical dosing system may be required.
  - The rising main diameter shall be 100mm diameter (min). All pipework (Cast Iron, Ductile Iron, MDPE or HDPE) shall be at least 1.5 times the hydraulic surge pressure and be BLACK in color. Blue pipes are not acceptable.
  - The rising main shall be adequately braced at any change in direction to detail with provision for air valves at high points.
- PUMP
- The pumps, duty/standby, shall be of the centrifugal, unchokeable, submersible type, with a non-overloading characteristic.
  - The pumps shall operate at a maximum speed of 1500 rpm.
  - The impellers to be keyed to the motor shaft and provide a solids passage of 90mm minimum.
  - The integrally coupled squirrel cage induction motors to be suitable for a 400V, 50Hz, 50kVA, designed for use in a Hazardous Zone 1 area, with protection as defined in BS EN 60076.
  - The pumps shall operate near maximum efficiency at the duty point.
  - The pumps to be equipped with quick release couplings complete with galvanised guide rails, galvanised lifting chains, cable suspenders and chain hooks.
  - Lifting chains shall be to BS EN 818 and BS EN 818 providing a larger 50mm link at 1m intervals to assist with pump lifting.
- PIPEWORK
- The pumping station, storage tank and valve chambers pipework shall be cast iron double flanged PN 16 (mm).
  - All pipework shall be adequately braced and assembled with zinc plated bolts, nuts, washers and gaskets.
- VALVES
- The pump discharges shall be fitted with gate valves (clockwise closing) BS 5150 and non-return valves BS 5153 located in a valve chamber adjacent to the pump sump.
  - Dismantling joints may be used where appropriate to facilitate valve removal.
  - The valve chamber shall also house a bypass connection to the rising main fitted with a gate valve and Bauer coupling.
- CHAMBER COVERS
- The sump and valve chamber access covers shall hinged, lockable, gas or spring assisted and provide a clear opening of at least 900mm to enable the removal of each pump vertically.
  - A hinged safety grid shall be provided below the covers.
  - The covers shall be capable of taking D400 loading.
- MAGNETIC FLOW METER
- A Magnetic flow meter (MF88) shall be installed in a separate chamber.
  - The instrument display shall mounted in the same enclosure as the ultrasonic unit.
  - The meter shall record both forward and reverse flow and transmit outputs to telemetry system.
- CONTROL BUILDING
- The power supply and pump control panel will be located in a control building adjacent to the pump sump.
  - Provision shall be made for a meter cabinet(s), main switch fuse, distribution board and earthing as required.
  - A lightning protection system should be provided to control building and equipment/control panel to IS EN 62305 2008 standard.
  - All cables shall be run on cable tray or in trunking within the control building.
  - A 16mm 15amp socket outlet, twin polycarbonate fluorescent fitting, 2kw convector heater (with timer) and under-sink water heater (for wash-hand basin) shall be provided.
  - All supplies to this equipment shall be run in 20mm galvanised conduit BS 4568.
  - Ducting shall be provided for the ESB supply and telephone line (telemetry) to the control building. The ducts between the sump and the control building (minimum cover 600mm) shall be adequately sealed at the sump so as to preserve the control building as a non-hazardous area.
  - A 20m fire hose reel shall be located in the control building to facilitate the washing down of the pumps.
  - Provision shall be made for the installation of a key safe in the external wall of the control building as required by the ESB.
- PUMP CONTROL
- The pump operation (duty/standby) or (duty/assist) shall be controlled by means of an ultrasonic level controller with the transducer head mounted in a convenient location in the pump sump.
  - Pump cabling shall be PVC (SVA/PVC) to BS 6346.
  - Pump and control cables shall be terminated in enclosures to comply with BS 5345 located in a minipillar adjacent to the sump.
  - Pump lock-stops shall also be located in this minipillar.
  - The control panel shall be a dust and damp-proof enclosure IP 54 as defined in BS 5420 wall mounted. The pump control equipment shall be to BS 4941 Parts 1, 2, 3 or 4 as appropriate.
  - Control circuit drawings must be approved by SDCC before the manufacture of the control panel. The control panel shall incorporate the equipment as listed on the detail.
  - Power Factor equipment (correction to 0.95) to be located in separate enclosure fixed to the main control panel.
  - The power supply to the ultra-sonic controller shall be fitted with a surge suppressor.
  - The telemetry equipment, ultrasonic controller and magnetic flowmeter display units shall be located in a separate enclosure fixed to the main control panel.
  - The panel(s) shall be complete with labeling, cable numbering and a circuit diagram.
  - A Completion Certificate shall be provided for the electrical installation to confirm compliance with this drawings and current regulatory standards.
- TELEMETRY
- The telemetry enclosure shall be fitted with relays to give volt free contacts for the following conditions:
    - Pump no.1 run
    - Pump no.2 run
    - Pump no.1 trip
    - Pump no.2 trip
    - Phase Failure
    - Pump no.1 overheat
    - Pump no.2 overheat
    - Pump no.1 moisture
    - Pump no.2 moisture
    - Sump high level
  - All telemetry is to be fully integrated with the SDCC/IW monitoring/management system and the specific details of which are to be agreed with the Local Authority in advance of construction commencing.
  - Signals from the magnetic flowmeter shall be available at terminals in the telemetry enclosure.
  - When the pumping station is being taken in charge, a replacement pump of equivalent specification to the duty pumps shall be supplied to the Local Authority prior to hand over stage. This is to be included in the pricing.



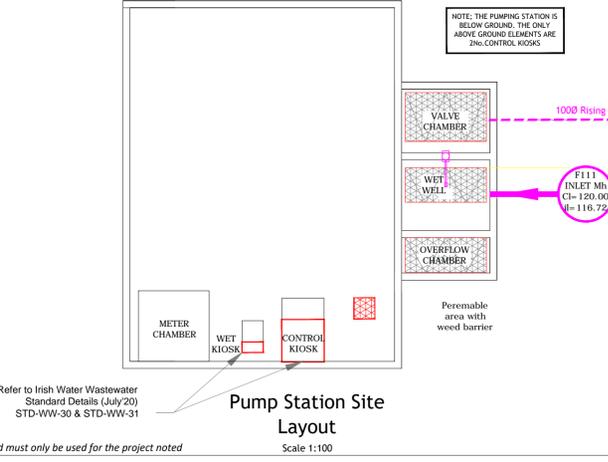
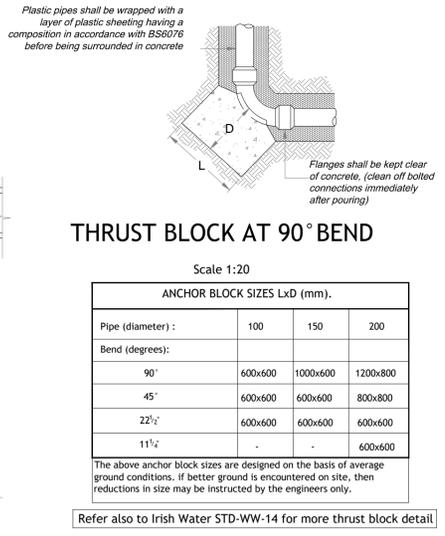
Roof Plan Below Ground  
Scale 1:50



Stand-off Mh Plan  
Scale 1:25



Section B-B  
Stand-off Manhole (Rising Main)  
Scale 1:25



Pump Station Site Layout  
Scale 1:100

REV	DATE	DESCRIPTION

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Project  
**BOHERBOY**

Drawing Title	Architect
FOUL PUMPING STATION GA	MCORM/ DAVEY-SMITH

Date	Drawn By	Scales	Dwg.No.	Stage	Rev
July '21	RM	As Shown	1324B/321	PLANNING	