

2015

Clean Water Booster Stations



Record of Changes and Amendments

Amendment Number	Amendment Date	Document Section/Clause Reference Number	Document Section/Clause Header	Brief Summary of Change	Document Version Number
001	July 15	N/A	N/A	Procurement Issue	1.0
002	August 15	N/A	N/A	Removal of setting out frame references and other minor amendments	1.1
003	August 15	N/A	N/A	Various minor amendments throughout whole document (typo's, page references etc)	1.2
004	Sept 15	N/A	N/A	Approved for Implementation	2.0

The terminology used though out this document is defined below:-

- "Modular Assembly Fabricator" – The supplier of the standard product as detailed within this documentation.
- "Designer" –The party who is selecting the standard product for use and completing the appropriate site specific design documentation. This may be a Consultant, SW Asset Planner, Developer, Contractor or other.
- "Contractor" – This is the party who are responsible for the overall project / site, for example one of Scottish Waters Framework Alliance Partners or Tier 1 Contractors.
- "Standard Product" – a complete item of plant consisting of a number of framework and non-framework components.
- "Sub-Assembly" – individual parts of the Standard Product which can be provided in isolation and / or excluded from the installation in certain circumstances.
- "Component" – a single item of plant such as a pump, a valve, the kiosk, etc.



Booster Station Product Catalogue | Foreword

Background

This Scottish Water Product Catalogue outlines the Booster Set/Pumping Station Standard Products for use within the SW Project Portfolio.

The intention of this product catalogue is to act as a design and procurement reference for resources working on Scottish Water projects as a basis for compliant submissions.

The products are designed to meet the present and future business direction and further facilitate strategic development. Each product is pre-approved and requires no further acceptance unless requirements dictate alterations to the products which will instigate the standard Acceptance procedure(s).

The underlying philosophy of the catalogue concept is a homogeneous group of compliant, selectable, products with pre-defined capabilities. A user friendly hierarchal product selection matrix and datasheet accompanies the product range for use within the Scottish Water Supply Chain.

The concept of selectable 'Products' is the prime focus with the constituent hardware extensible to incorporate developments and supplier efficiencies.

Product Intention

The Booster Set products are designed for factory assembly, testing and transportation to site as an assembly. They are intended to be utilised for network booster sets, pumping stations and interstage/inter-site booster sets located within secure water treatment sites (WTW).

The standard products are suitable for the majority of booster set or pumping station applications.

Assembly

The booster set products consist of a single assembly and components ranging from single duty only applications to complete duty/standby installations;



Duty Only Booster Set

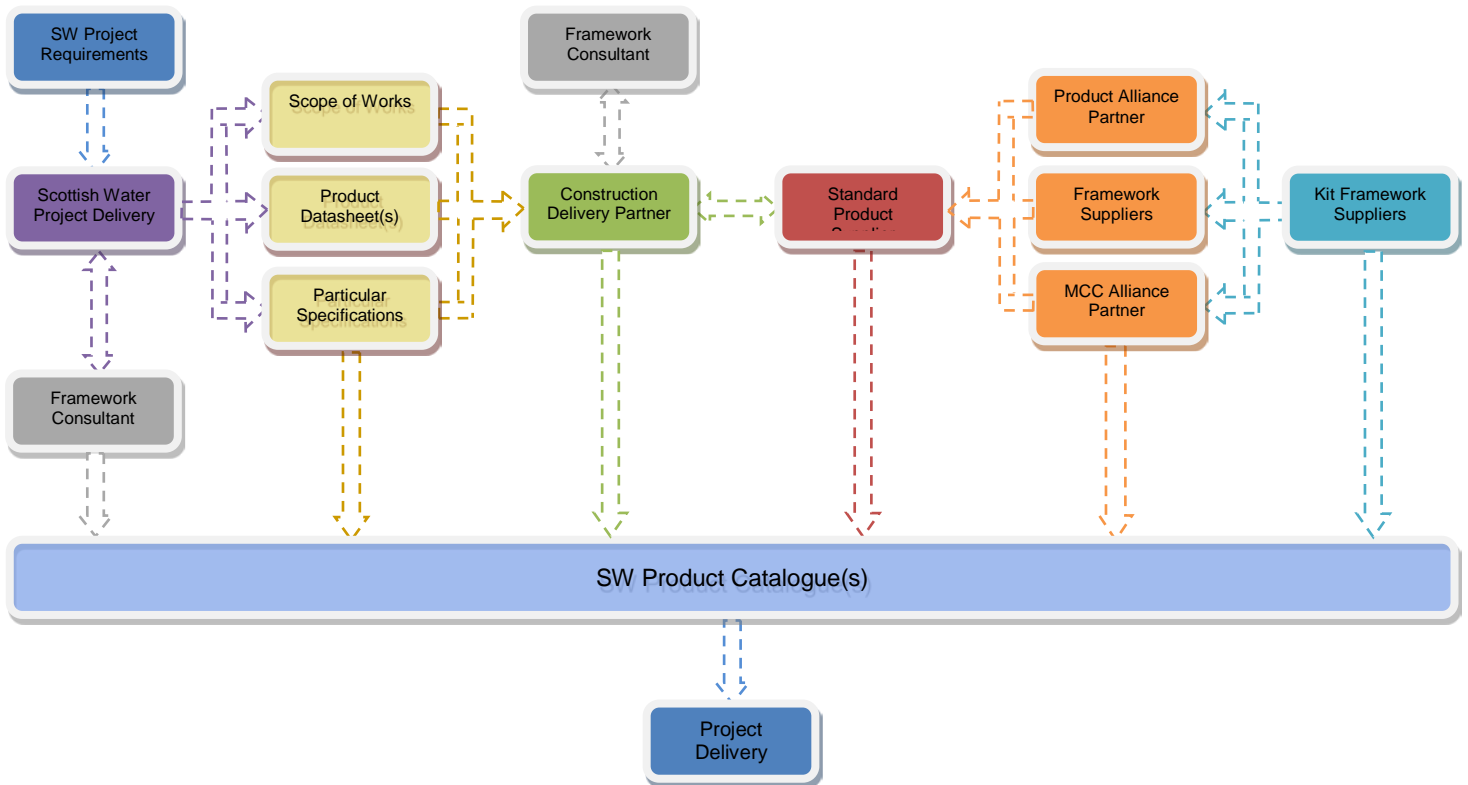


Duty/Standby Pumping Station

The basis of the selection will be size of the station pipework based on the required flow rate and the selection of the physical pump(s).

The MCC and Kiosk are sourced from the SW MCC Catalogue; these components can be tailored to suit specific applications, if required. The baseline MCC and Kiosk products chosen for the Booster Sets/Pumping Stations are detailed in the associated sections herein.

SW Product Catalogue(s) - Singular Delivery Reference



Singular Reference

The above graphic highlights the intended usage through the supply chain for SW Product Catalogue(s).

The product catalogues function as singular points of reference for pre-designed and approved products.

This approach alleviates a significant proportion of the cost associated with design delivery and further targets appropriate assets for the end user.

The designs detailed therein are also a key medium in conveying the purchaser requirements as an extension of the SW Standards and Specifications.

Delivery Model

The product catalogues are tailored to suit the prescribed delivery model whereby the contents complement the transfer of requirements from purchaser, through supply chain, to project delivery for use by the end user.

Visibility

Visibility of the end product from project concept to delivery fosters a right first time approach and facilitates the ownership prospect.

Involvement

Manufacturer and supplier developments can further be incorporated through feedback and continuous improvement.

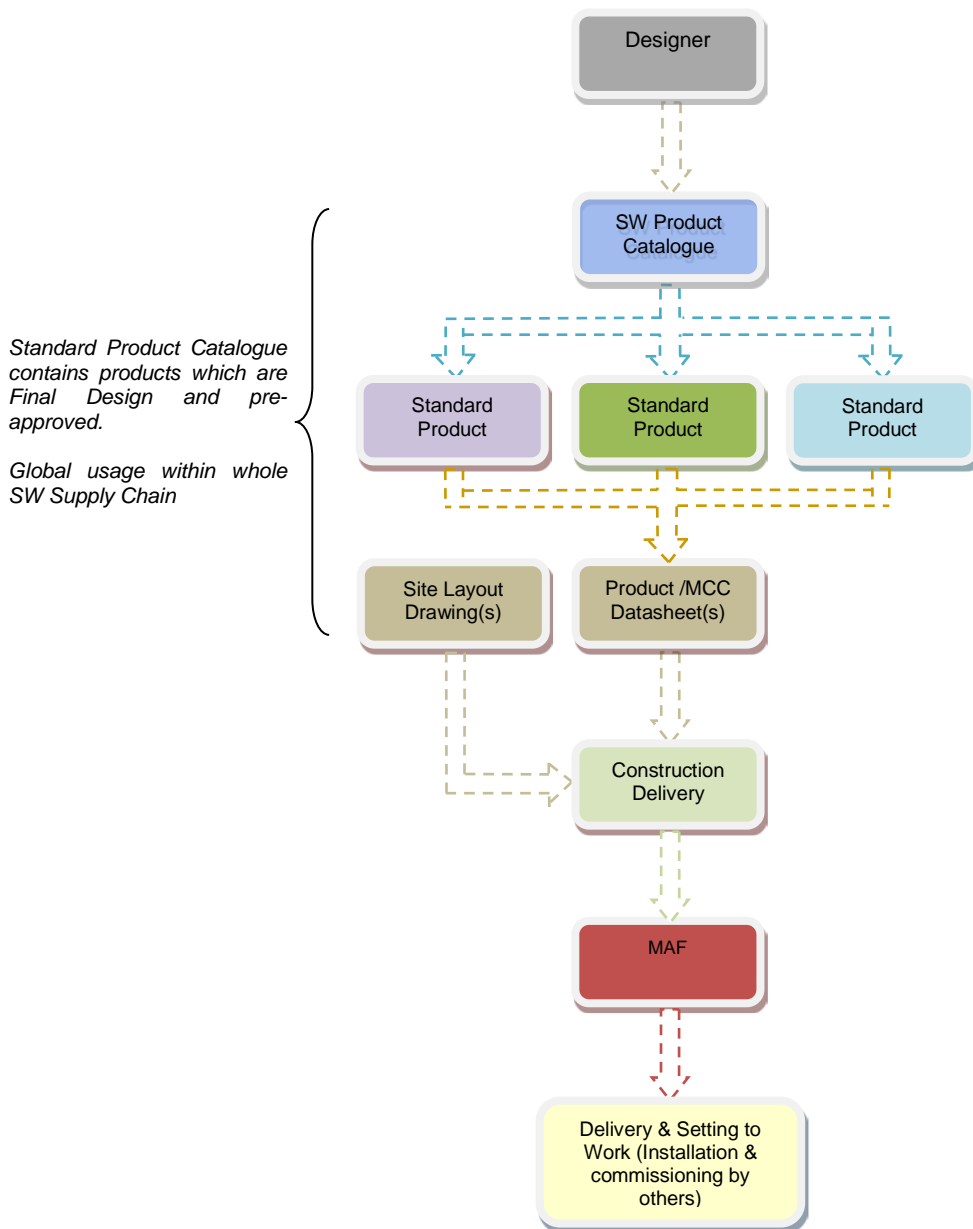
Standard Product Supplier

This development utilises, tiered, alliance partners and standard product suppliers for equipment, products and assembly.

Operational Risk/Acceptability

An underlying intention of this approach is to ensure the correct and appropriate asset is delivered, installed, commissioned and set to work without the introduction of circular re-design, preferential engineering or non-compliances.

Standard Product Catalogue Usage



Standard Products

The above graphic demonstrates the usage of the standard product within the design delivery process and the natural flow of information through the involved parties.

Owing to the prescribed process there is no requirement for circular issuing of documentation, for acceptance, through the supply chain unless deviating from the product detail; this later approach will introduce additional cost by others.

Specifying product usage is a fundamental deviation in approach to designing from basis; the onus lies with the Designer to ensure they have completed this exercise appropriately and not rely on any detailed design being completed By Others.

Usage

The standard product catalogue already contains the final design information for the assemblies; site layout drawing(s), hazardous area(s) and product selection datasheets are all that is required to complete the procurement process.

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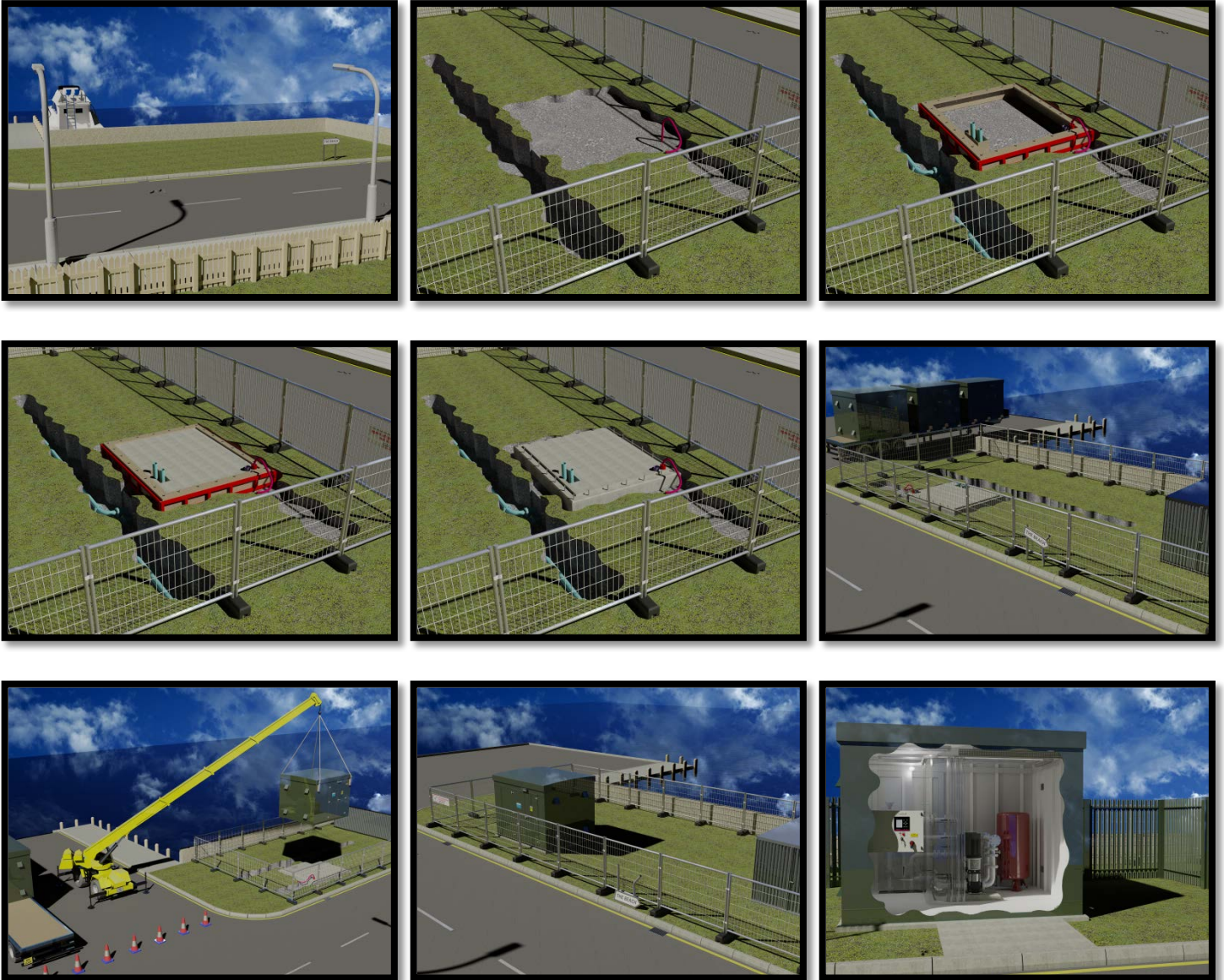
Booster Station Product Catalogue | Contents

	Conceptual Overview	1
	Standard Product Listing	14
	Booster Set BS01	20
	Booster Set BS02	22
	Booster Set BS03	24
	Booster Set BS04	28
	Booster Set BS05	32

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Standard Product Conceptual Overview

The graphics in this section are conceptual and do not purport to contain all requirements for construction, installation, health, safety or delivery. The actual Standard Products and details thereof are contained within the relevant section(s); the purpose of this section is to convey the principal only.



Key activities highlighting the Standard Product installation process

The above conceptual graphics highlight the standard product principal from a site installation perspective; this timeline is from procurement to completion with the intention being a seamless process. The principal details required for the Designer and Contractor are contained within the Standard Product Section(s).

The products are specified through the associated datasheet(s) and do not require further acceptance from the purchaser other than ongoing Quality Assurance (QA) inclusive of the required site installation activities.

The proceeding pages explore the process in greater depth prior to focusing on the actual products.

Standard Product Completion



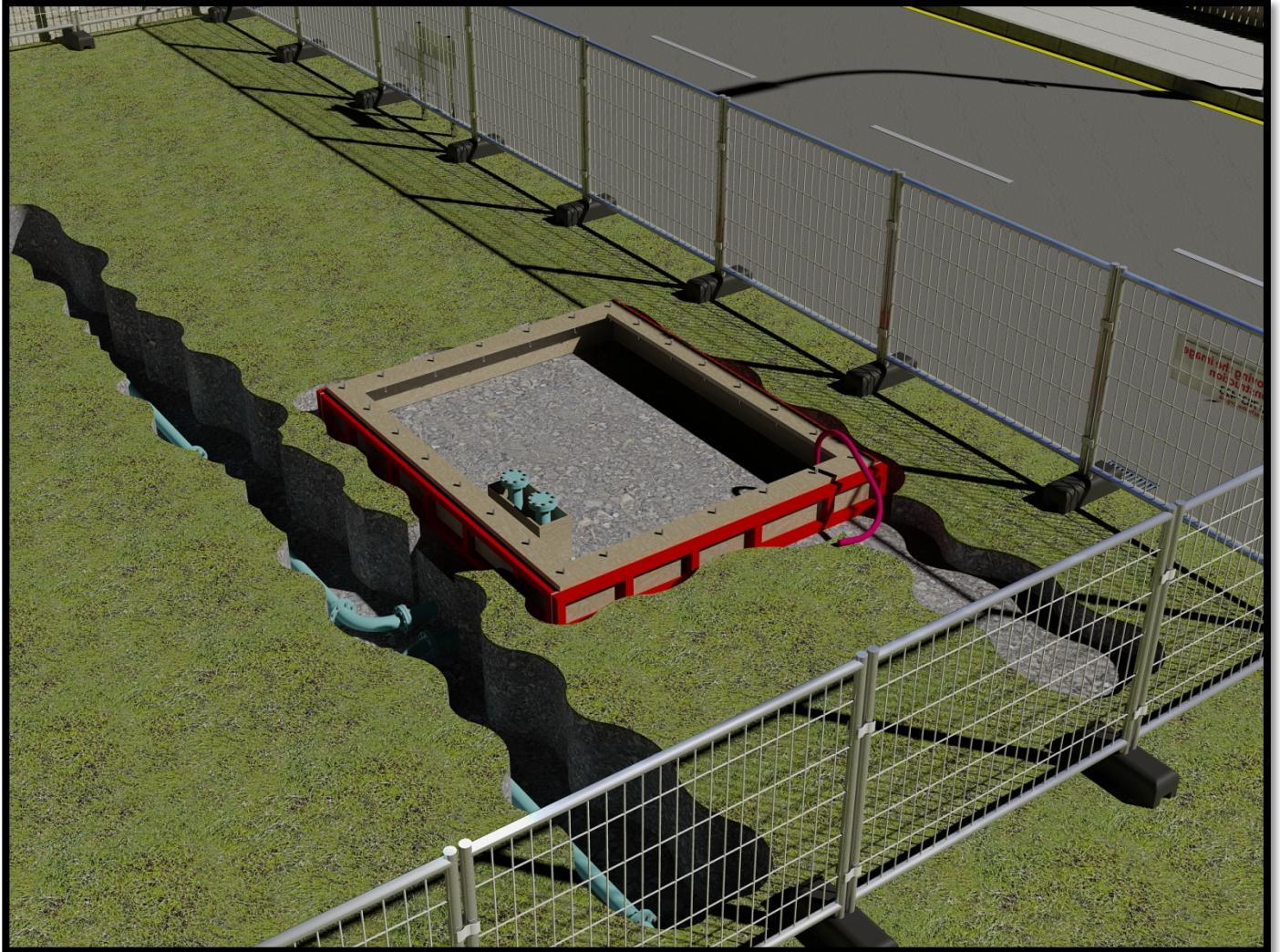
Site layout showing Completed Works

Standard Product design details are contained within the SW Product Catalogue allowing Works to commence on known delivery and timescales; the graphics in this section highlight the concept visually as an assist to understanding the principal. The above graphic shows the completed result of a Pumping Station Standard Product installation; this is the full standalone product delivery

- GRP Kiosk (Structural);
- Duty/Standby Pumps & Pipework;
- Accumulator;
- Local Control Panel;
- Instrumentation;
- SW Telemetry;

Setting Out

The setting out for the chosen product is the responsibility of the Principal Contractor but should be verified by the Standard Product Supplier prior to the pouring of the concrete to allow the base slab, penetrations, etc to be completed accurately in anticipation of final delivery of the product.



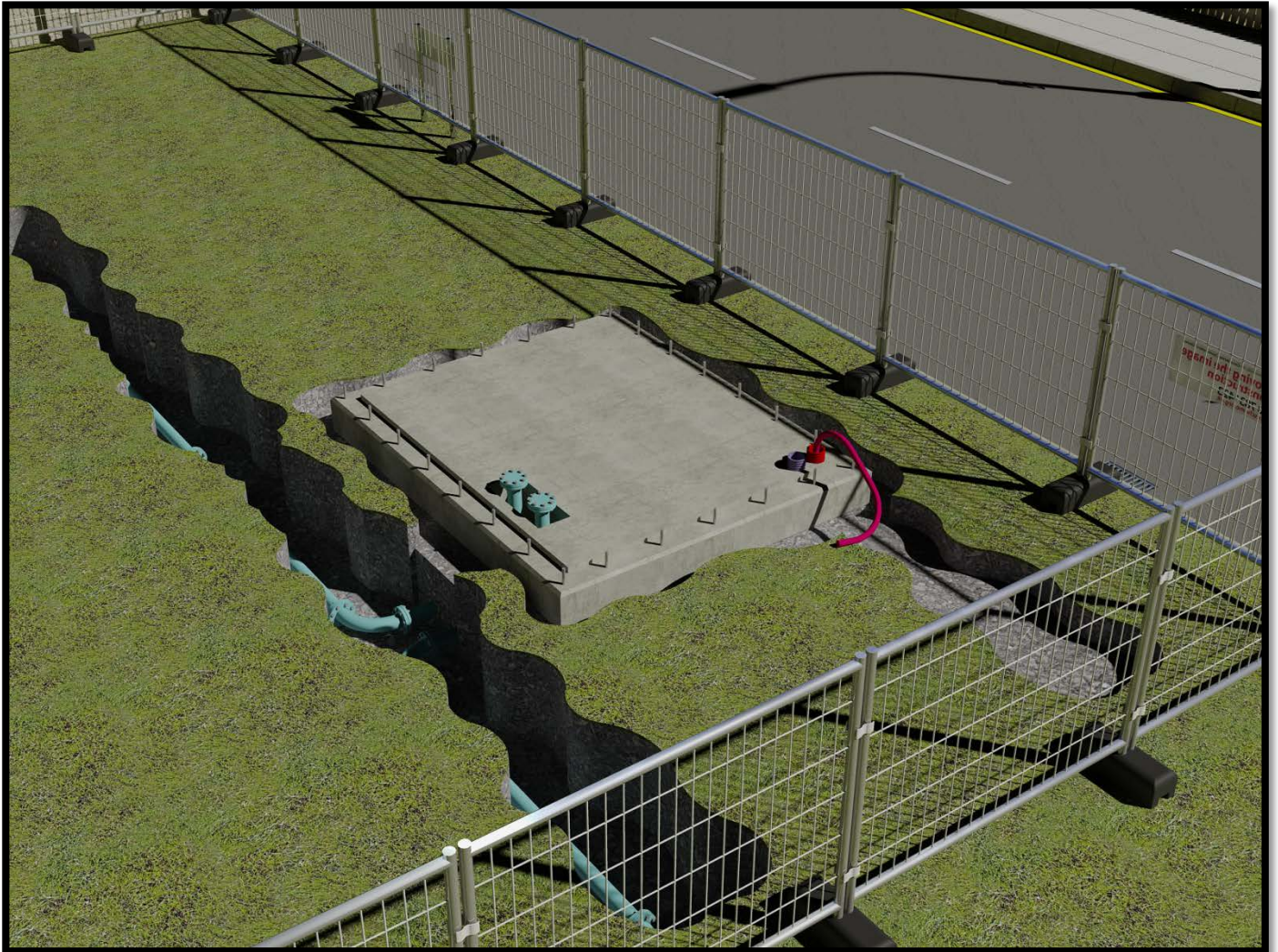
Site layout showing setting out frame installed

The setting out shall accurately position/locate the service penetrations through the concrete base slab and shall position/locate threaded rods in the base slab to be utilised to locate the kiosk thus ensuring correct alignment of the cast in pipework and the kiosk pipework.

Scottish Water DOMS procedures require to be followed throughout; notably capped ends on pipework intended for potable water. Incoming pipework shall be terminated out-with the base slab to provide flexibility of connection during setting to work, however DOMS procedures must be followed in this regard.

Ready For Delivery

The base slab, pipework, power and monitoring connections are now ready for product delivery.



Site layout showing base slab ready for Standard Product

Completion of this phase can be timed to coincide with product delivery singularly or with multiple products for projects which form part of a programme of Works.

Booster Set & Pumping Station Standard Products



Standard Products at the MAF manufacturing facility

The booster sets and pumping stations are designed for factory assembly, testing and transportation to site as a complete assembly and are applicable for Raw, Treated, Final and Potable water pumping applications either in the network or located within secure Water Treatment Work (WTW) sites. The standard products are suitable for application on the majority of pumping stations and booster sets within the defined flow rates; they may not be suitable for site specific specialised applications.

The above graphic highlights the five available standard product kiosks for visual comparison;

- (1) BS01 - Boosters Set No.1 (0-1 l/sec)
- (2) BS02 - Boosters Set No.2 (0-5.9 l/sec)
- (3) BS03 - Boosters Set/Pumping Station No.3 (3.5-15 l/sec)
- (4) BS04 - Boosters Set/Pumping Station No.4 (5.5-23.6 l/sec)
- (5) BS05 - Boosters Set/Pumping Station No.5 (12.3-53 l/sec)

Standard Product Key Items

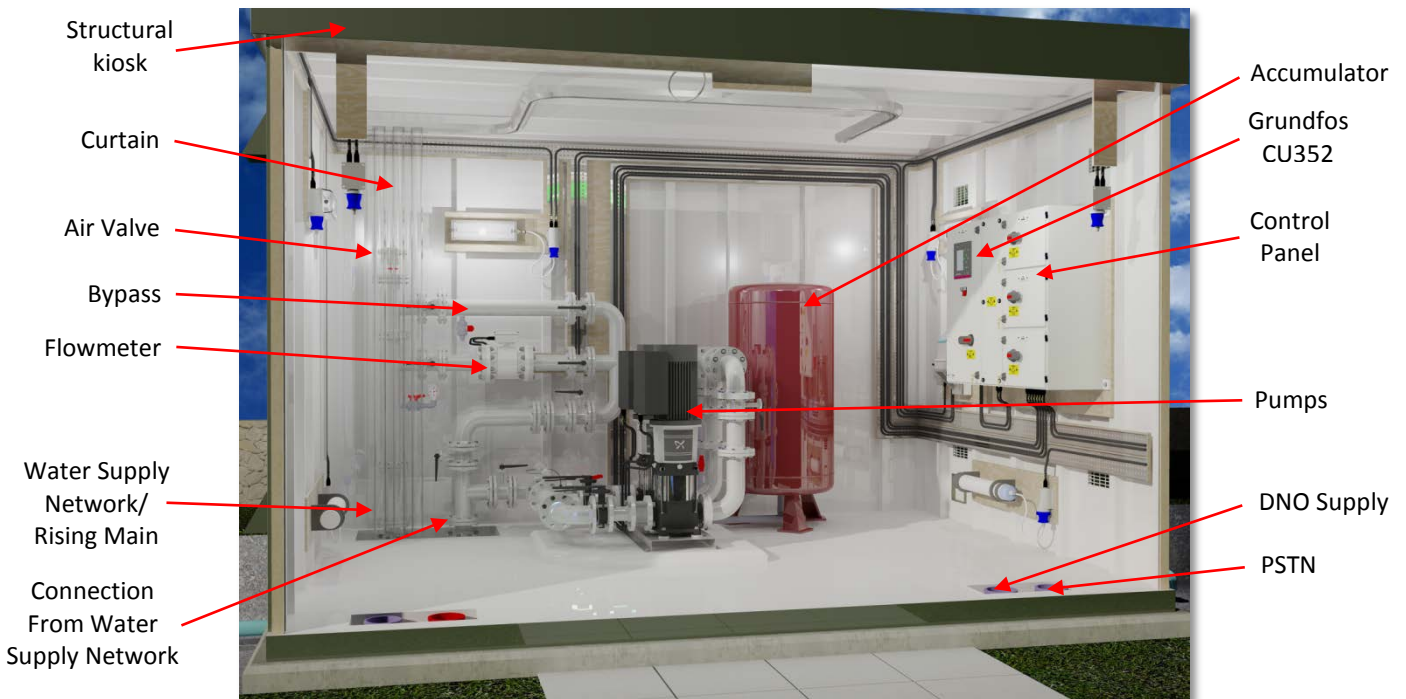
The standard product booster sets and pumping stations incorporate the following, selectable, key items:

- GRP/Steel Kiosk complete with integral structural base and service installation;
- MCC; taken from the SW MCC Product Catalogue or pre-approved manufacturers proprietary controllers;
- Duty/Standby multistage centrifugal pumps for the larger sized units and duty only pumps for the smaller units;
- Pipework, valves and fittings from the interface points within the kiosk;
- All cabling and instrumentation (including pressure switches, transducers and gauges);
- Electromagnetic flowmeter with bypass facility;
- Pump bypass (gravity flow via a non-return valve);
- Accumulator vessel (where required);
- SW Telemetry Installation;
- Lightning Protection;

The standard product booster sets and pumping stations comprise of a number of SW Framework supplier components; the scope of supply for these products requires the standard product supplier to order, manufacture, assemble and factory test the standard product as a complete assembly. The completed units will be transported to the designated site ready for offload and installation.

The booster set and pumping station standard product(s) are outlined below:

SW Standard Product*



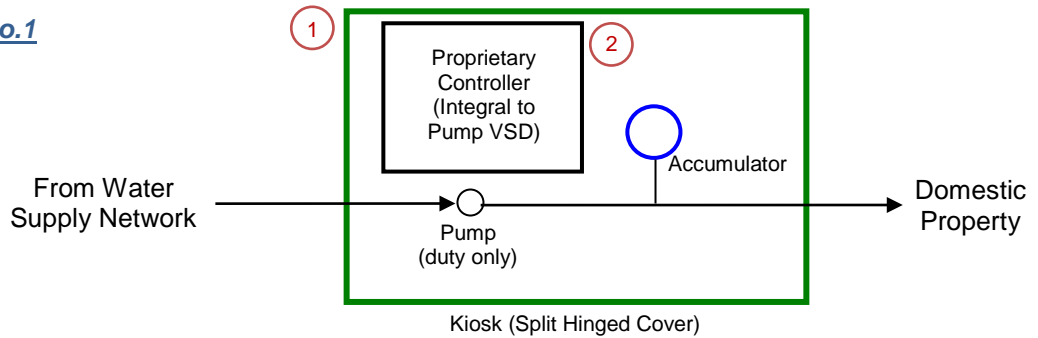
Typical Product Overview

* SW Telemetry, DNO Metering, Distribution Board, MET and Doorways are on the front kiosk cut-out; earthing and equipotential bonding not shown for clarity.

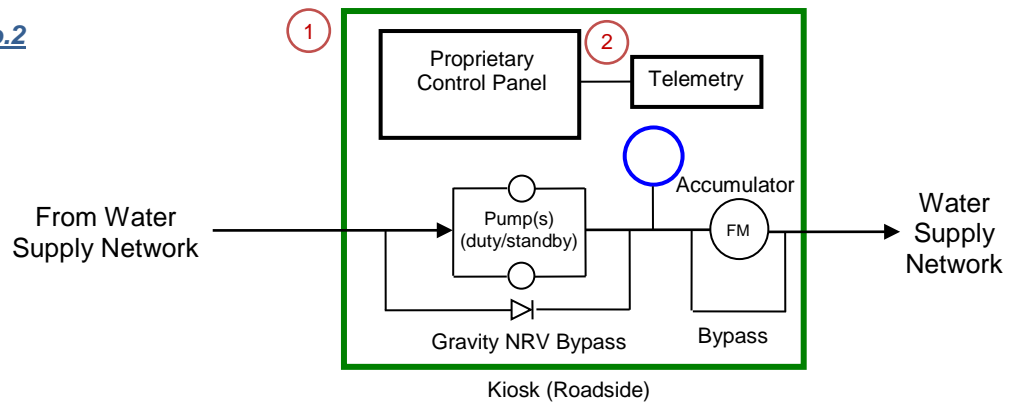
The sub assemblies which form the booster sets and pumping station standard products are:-

- (1) GRP/Steel Kiosk with pumps and associated valves, pipework etc;
- (2) Manufacturers proprietary controller;
- (3) Control Panel (SW MCC Catalogue);

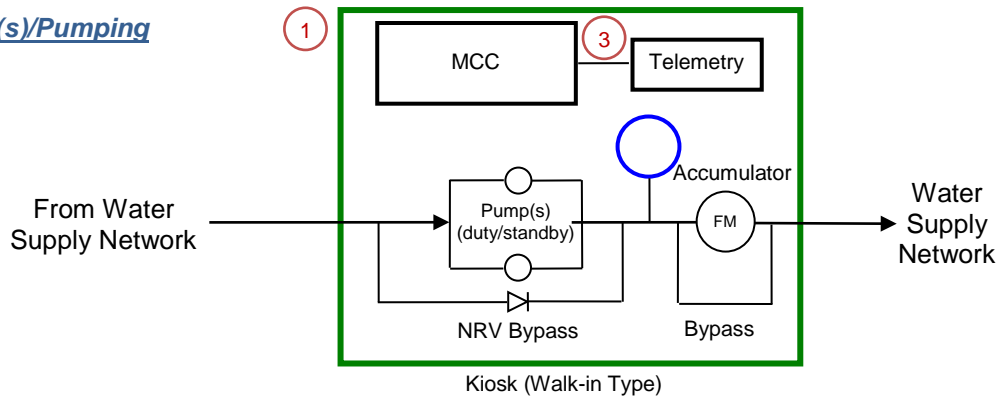
BS01⁽¹⁾ - Booster Set No.1



BS02⁽¹⁾ - Booster Set No.2



BS03-05⁽¹⁾ - Booster Set(s)/Pumping Station(s) No.3 to No.5



Typical General Arrangements

The actual site requirements for these sub assemblies will be specified within;

- Clean Water Booster Set/Pumping Station Standard Product Datasheet;
- MCC and Kiosk - SW MCC Product Catalogue Datasheet;

and will be completed by the Designer.

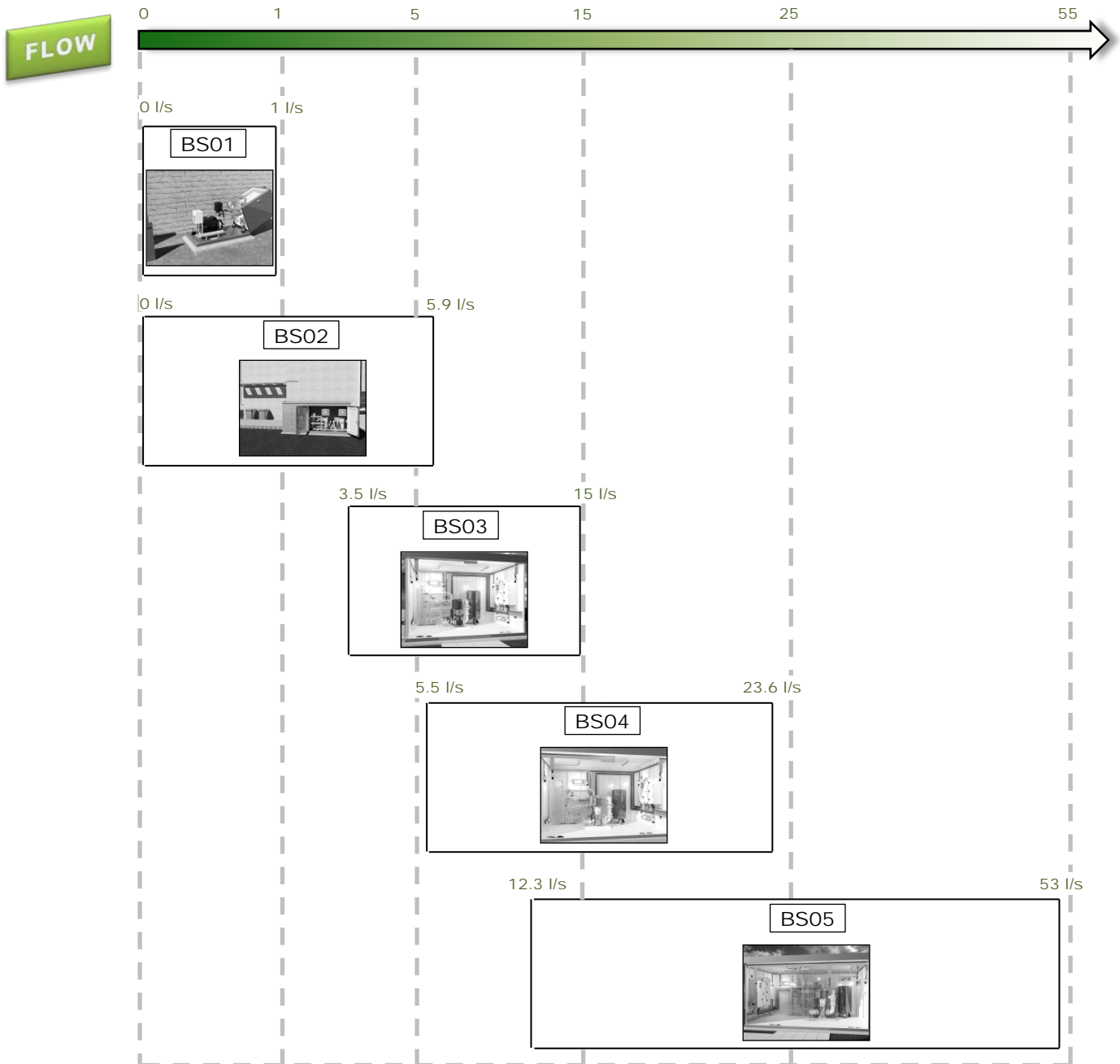
⁽¹⁾ BS01, BS02, etc are codes utilised for identification of Products within the SW Product Catalogue(s); BS stands for Booster Set, (PS is not used as it is already referenced in the Wastewater Pumping Station Products).

The Standard Product Catalogue incorporates 5 no. standard sizes of clean water booster sets and pumping stations which will cover flow of 0 litres/second (effectively) to 53 litres/second.

Selection Methodology

The clean water booster set and pumping station standard product size selections are based on a series of flow ranges which have been calculated to maintain the velocity in the station pipework to within the ranges detailed in Scottish Water Specification 402 (Function Specification for Water Pumping Stations). The target range for flow velocity is 0.7 -1.2 m/s for pumped systems with localised velocities of up to 3m/s being tolerable over short lengths i.e. within a pumping station.

The following chart provides guidance on the target flowrates, for each booster set size, which complies with the velocity criteria;



The required pump selections are presently from the Grundfos CRE range (CMBE for BS01) to suit a range of head and flow requirements; the basis of the designer's selection will be the pump required flow rate (or flow range) and head (or head range).

The chart below details the pumps which are suitable for each of the sizes of booster set or pumping station;

Pump	Flow Range (l/s)		Head Range (m) MAX	Connection Size (mm ø)	BS01	BS02 - (Maximum Pump Motor Size - 11kw)	BS03 - 80# (Maximum Pump Motor Size - 11kw)	BS04 - 100# (Maximum Pump Motor Size - 22kw)	BS05 - 150# (Maximum Pump Motor Size - 22kw)
	MIN	MAX							
CMBE 5-3	0	1	42	25	Acceptable	Not Acceptable	Not Acceptable	Not Acceptable	Not Acceptable
CR1s	0.085	0.305	160	25/32	Not Acceptable	Up to 2-27	Not Acceptable	Not Acceptable	Not Acceptable
CR1	0.18	0.66	160	25/32	Not Acceptable	Up to 1-25	Not Acceptable	Not Acceptable	Not Acceptable
CR3	0.35	1.25	160	25/32	Not Acceptable	Up to 3-25	Not Acceptable	Not Acceptable	Not Acceptable
CR5	0.7	2.35	160	25/32	Not Acceptable	Up to 5-24	Not Acceptable	Not Acceptable	Not Acceptable
CR10	1.4	3.6	145	40	Not Acceptable	Up to 10-14	Not Acceptable	Not Acceptable	Not Acceptable
CR15	2.4	6.6	160	50	Not Acceptable	Up to 15-10	Up to 15-14	Not Acceptable	Not Acceptable
CR20	2.8	8	160	50	Not Acceptable	Up to 20-10	Up to 20-10	Full Range	Not Acceptable
CR32	4	11	160	65	Not Acceptable	Up to 32-8	Up to 32-6	Up to 32-10	Not Acceptable
CR45	6	16	130	80	Not Acceptable	Not Acceptable	Up to 45-3	Up to 45-5	Up to 45-5
CR64	8.5	23.5	98	100	Not Acceptable	Not Acceptable	Not Acceptable	Up to 64-4-2	Up to 64-4-2
CR90	12.5	33	75	100	Not Acceptable	Not Acceptable	Not Acceptable	Up to 90-3-2	Up to 90-3-2
CR120	17	44.5	45	125	Not Acceptable	Not Acceptable	Not Acceptable	Not Acceptable	Up to 120-2-1
CR150	21	50	28	125	Not Acceptable	Not Acceptable	Not Acceptable	Not Acceptable	Up to 150-1

Key	
Acceptable	Acceptable
Not Acceptable (Pump Dimensions Exceed Space Available and/or Pump Motor Size Exceeds Panel Capacity)	Not Acceptable (Pump Dimensions Exceed Space Available and/or Pump Motor Size Exceeds Panel Capacity)
Not Preferred Option - Use Smaller PS Size, waiver may be required for flow velocity.	Not Preferred Option - Use Smaller PS Size, waiver may be required for flow velocity.

The base line Control Panel / MCC selections are detailed within the table below and the product sections. However the whole of the SW MCC catalogue is available to allow alternative selections for project specific requirements. (Note – if an alternative MCC is proposed that is larger than the base line unit a full assessment is required to confirm there is sufficient space and that the kiosk structure has sufficient strength to support a heavier panel.)

Flow vs. Pumping Station Size - Selection Table

Pump Station Sizing	Required Flowrate (l/s)	Pump Configuration	Maximum Motor Size (per pump)	Pumping Station Controller	General Arrangement	Kiosk Type	Telemetry	Flowmeter
PS01 - Micro PS (2 (DN2) Pipework 25mm OD UPVC PN16)	0 - 1.0	Duty	N/A	Grundfos Proprietary Controller Integral to VSD	N/A	Split Type Lift Off	No	No
PS02 - Bunker (500ID) Pipework 63mm OD UPVC PN16	1.4 - 5.0	Duty/Standby	11kW	Grundfos CU 352 Controller	N/A	Bunker Type	Yes	Yes
PS03 - (80#) Pipework 80mm NB stainless steel (304) PN16	1.4 - 15	Duty/Standby	11kW	CW01 With Grundfos CU 352 Controller	GA02-MIGI	Walk In	Yes	Yes
		Duty/Standby	11kW	CW04 With PLC	GA02-MIGI	Walk In	Yes	Yes
PS04 - (100#) Pipework 100mm NB stainless steel (304) PN16	1.4 - 23.6	Duty/Standby	22kW	CW01 With Grundfos CU 352 Controller	GA02-MIGI	Walk In	Yes	Yes
		Duty/Standby	22kW	CW04 With PLC	GA02-MIGI	Walk In	Yes	Yes
PS05 - (150#) Pipework 150mm NB stainless steel (304) PN16	1.4 - 53	Duty/Standby	22kW	CW01 With Grundfos CU 352 Controller	GA02-MIGI	Walk In	Yes	Yes
		Duty/Standby	22kW	CW04 With PLC	GA02-MIGI	Walk In	Yes	Yes

Notes:
 1. PS01 - Micro pumping station for domestic type installations- flow velocities below 0.7m/s are unavoidable.
 2. PS02 - Bunker pumping station. Flow velocities below 0.7m/s are probable (subject to argement from scottish water).

Not Acceptable - Flow velocity < 0.7m/s or > 3.0m/s.
Preferred - Flow velocity between 0.7 and 2.0 m/s
Not Preferred - Flow velocity between 2.0 and 3.0 m/s.

Product Selection Numbering System

Product Number – Booster set Standard Products

Component	Code	XXXX	XXXX
Booster Set	BS01 to BSxx		
Pumps	CRExx-xx		

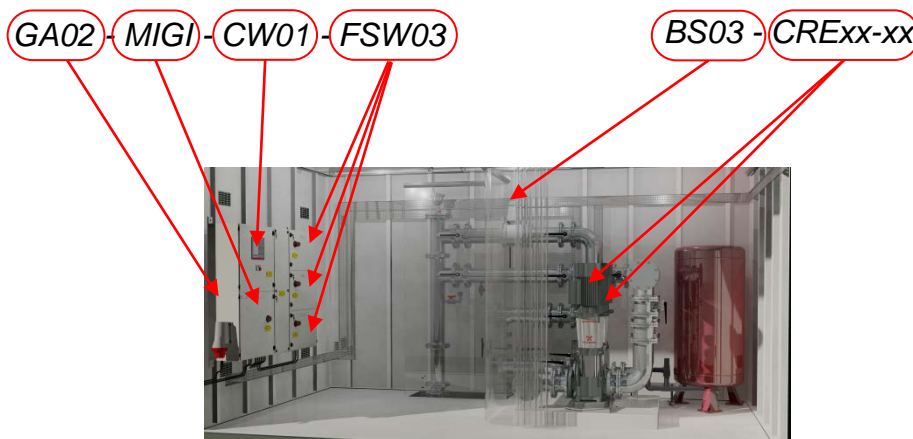
Example booster set Standard Product selection could be;

BS03-CRExx-xx

Associated MCC & Kiosk selection could be;

GA02-MIGI-CW01-FSW03

These selections would result in supply of the following components;



Standard Product - Booster Set/Pumping Station

Points of note;

*Quantities are not required as it is implicit;
 Pump manufacturer part numbers are utilised to avoid duplicate reference;
 MCC and Kiosk selection is via the SW MCC Datasheet;*

The underlying intention of the product number approach is to facilitate ease of reference; the product delivery can be understood by quoting this number, for example;

BS03-CRExx-xx

This is booster set product number three fitted with two Grundfos CRxx-xx Pumps (pump mounted VSD's); all the component design details required by the Contractor and Supplier are contained within the Product Catalogue.

GA02-MIGI-CW01-FSW03

This is general arrangement number two, a mains/generator changeover switch, using a Grundfos Pump Controller, external variable speed drives and fuse switch feeder(s).

CONTENTS

Booster Set BS01

- Booster Set General Arrangement, plan, section & 3D IllustrationPage 21

Booster Set BS02

- Booster Set General Arrangement, plan, section & 3D IllustrationPage 23

Booster Set/Pumping Station BS03

- 3D Illustration & DescriptionPage 24
- Booster Set / Pumping Station PlanPage 25
- Booster Set / Pumping Station Section A-APage 26
- Booster Set / Pumping Station Section B-BPage 27

Booster Set/Pumping Station BS04

- 3D Illustration & DescriptionPage 28
- Booster Set / Pumping Station PlanPage 29
- Booster Set / Pumping Station Section A-APage 30
- Booster Set / Pumping Station Section B-BPage 31

Booster Set/Pumping Station BS05

- 3D Illustration & DescriptionPage 32
- Booster Set / Pumping Station PlanPage 33
- Booster Set / Pumping Station Section A-APage 34
- Booster Set / Pumping Station Section B-BPage 35

Clean Water Booster Station - BS01

Features

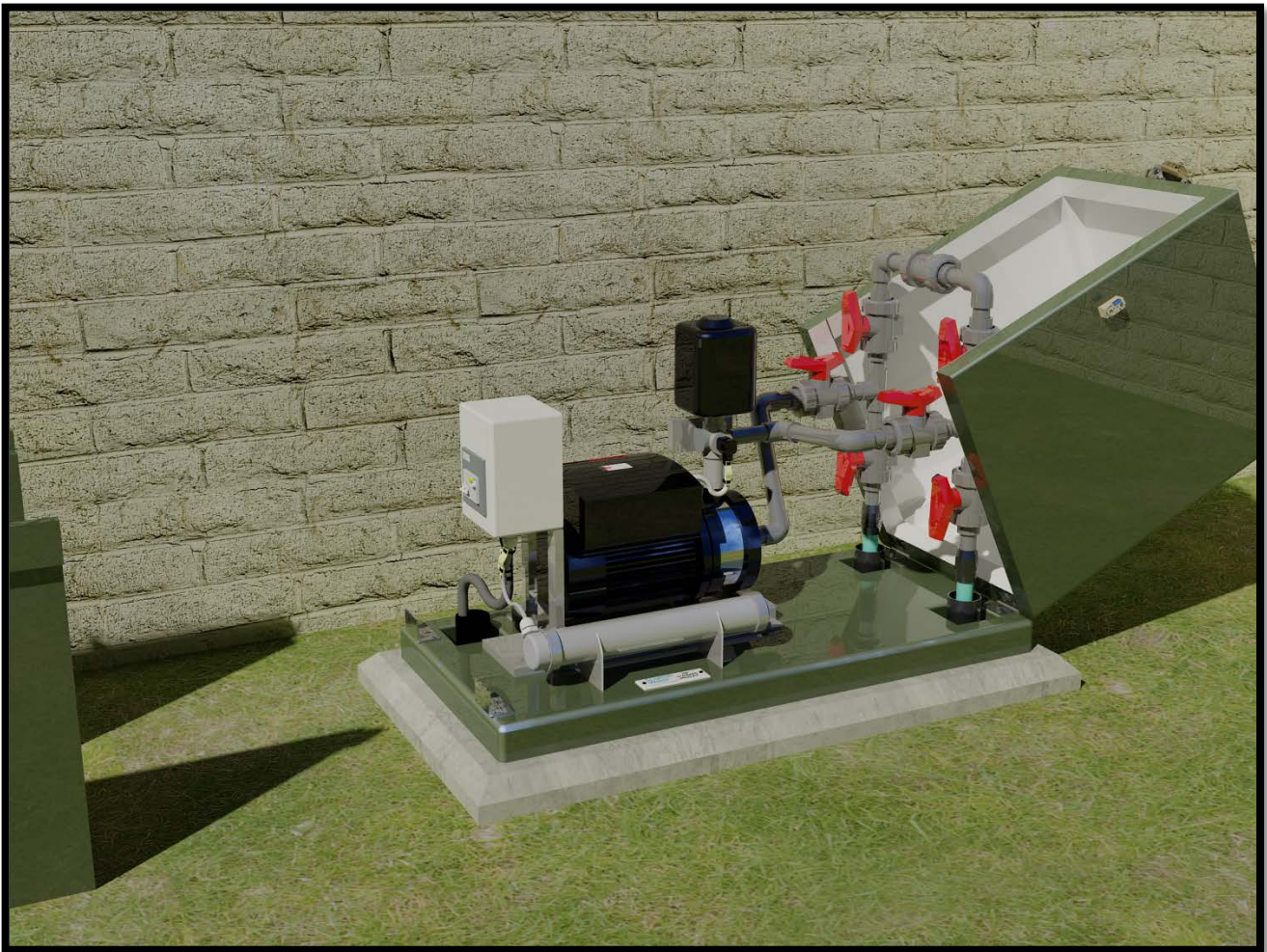
- Pump controller integral to the VSD unit mounted on the pump;
- Duty only pump configuration;
- Small lift-off type split kiosk;
- Flow range 0.0 - 1.0 litres/second;
- Discharge pressure 0 to 16 Bar;
- Station pipework UPVC PN16 25mm OD;

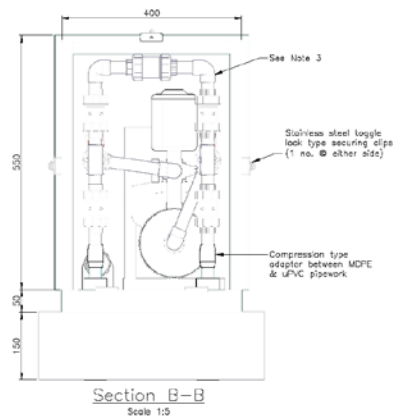
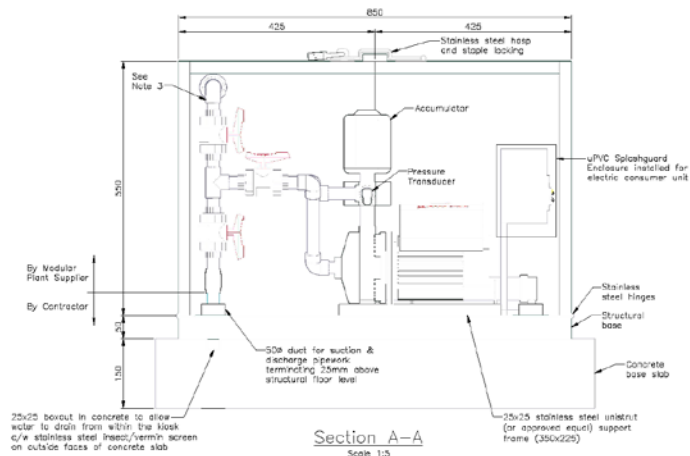
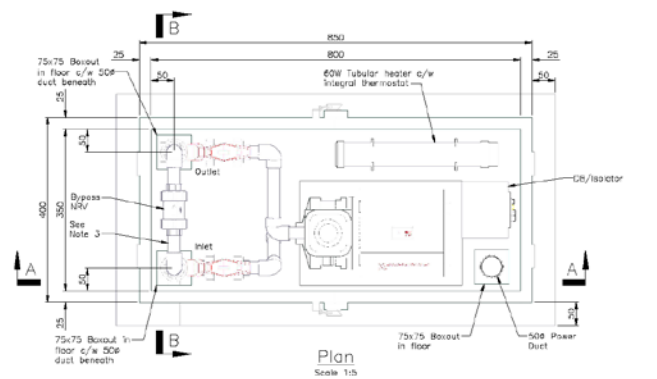
Applications

- Pressure Boosting (Single Property)

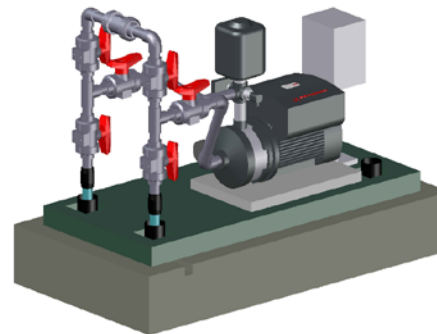
Description

- Small unit suitable for single domestic property type applications and low pressure alleviation;

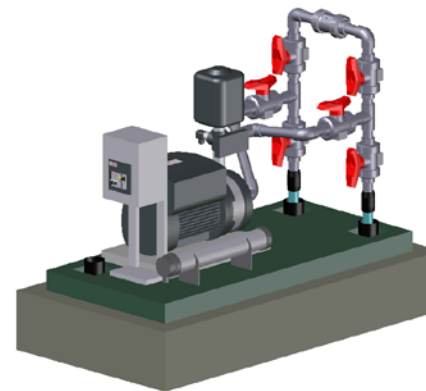




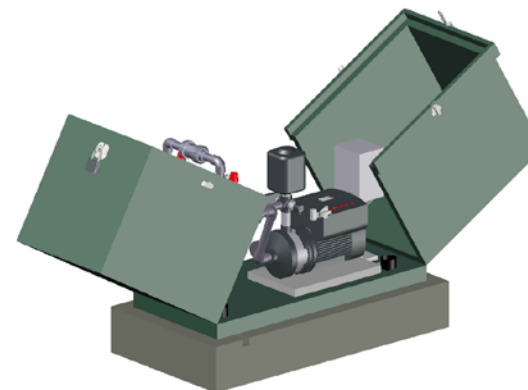
Clean Water Booster Set
BS01
Flow Range - 0.0 to 1.0 l/s
Pipe Dia. - 20mm Bore (shown as 25mm uPVC)
Pumps - Grundfos CMBE 5-3 c/w integral VSD and Controller



3D View 1



3D View 2



3D View 3

Original Date: A1

- Notes:**
- All dimensions are in millimetres unless noted otherwise.
 - Pipe work through and below the base slab to be MDPE/HPDPE.
 - All pipework within tank to be insulated.

Scottish Water
HEALTH AND SAFETY INFORMATION
IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE		RESIDUAL RISK THAT COULD NOT BE REDUCED TO A 'COMPETENT CONTRACTOR'	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW ON ACCESS	HORIZONTAL, VERTICAL, PEDESTAL, VEHICULAR/LANT		
POINTS REQUIRING ACCESS:			METHOD OF ACCESS:
SW ON HANDLING (LIFTING STRATEGY)			METHOD OF HANDLING:
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING, WHERE APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK.			

Rev.	Description	Drawn	Checked	Appr'd	Date
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SCOTTISH WATER CASTLE HOUSE 6 CASTLE HOUSE CANISBIE CLIFFS GLASGOW G3 7NF F.T.C. BY 11 2968		TEL: 01383 445200 FAX: 01383 340271	
Approved by:	Checked by:	Approved by:	Checked by:
SM	AF	DGG	DGG
Date:	Date:	Date:	Date:
05.12.13	05.12.13	05.12.13	05.12.13
Scale:	Scale:	Scale:	Scale:
1:5 @ A1			

Project Title: CLEAN WATER BOOSTER SET/ PUMPING STATION STANDARD PRODUCTS

Drawing Title: BS01 - BOOSTER SET NO 1 PLAN/SECTION/00

ELLIPSE EQUIPMENT No.	AUC0006 No.
ELLIPSE PLANT No.	
Drawing No.	
SSP-SP-DRA-0001001	

Clean Water Booster Station - BS02

Features

- Manufacturer's proprietary control panel with Grundfos CU352 controller;
- Duty/Standby pump configuration;
- Maximum pump motor size 11kW;
- Roadside kiosk with removable roof;
- Flow range 0.0 – 5.9 litres/second;
- Discharge pressure 0 to 16 Bar;
- Station pipework UPVC PN16 63mm OD;

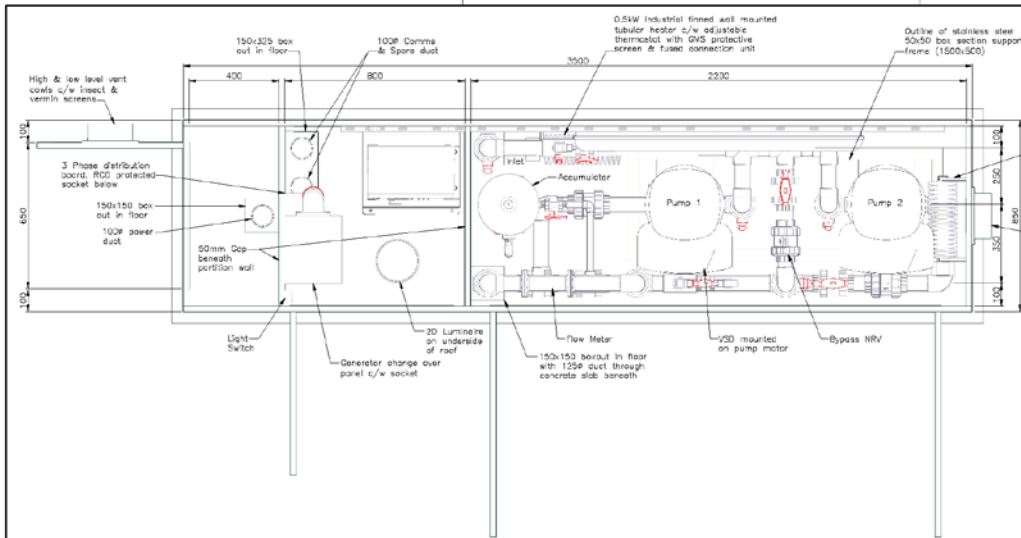
Applications

- Network PS;
- Housing development;
- WTW;
- Etc.

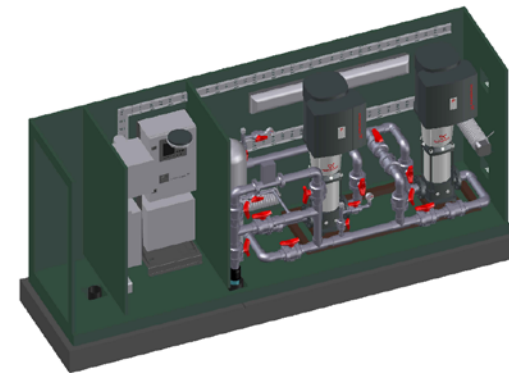
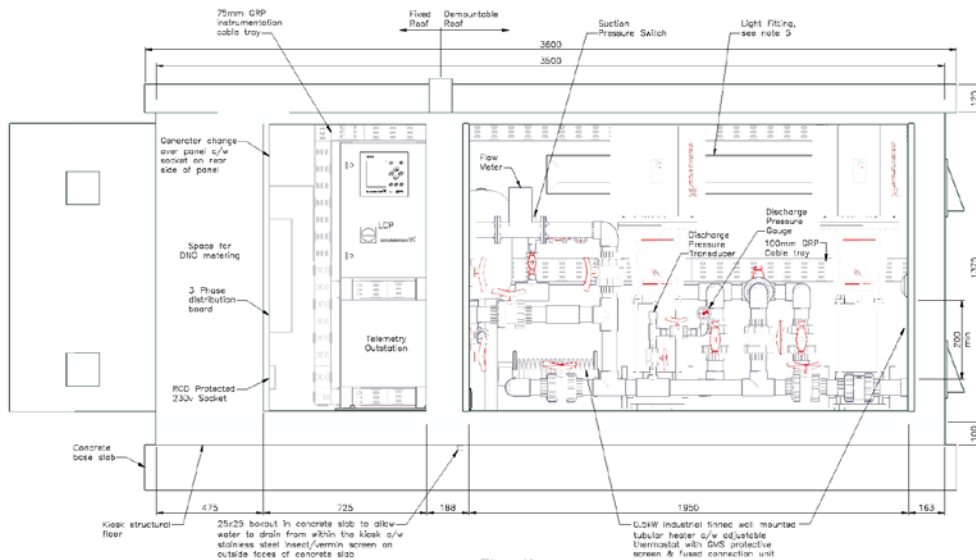
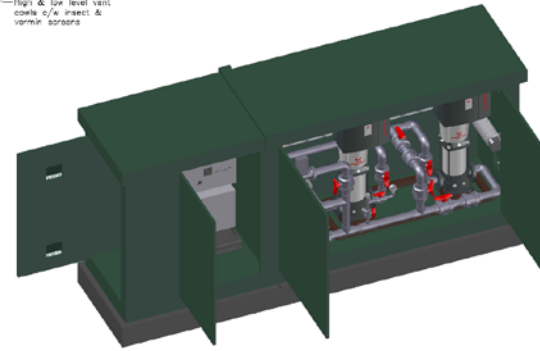
Description

- Small unit suitable for multi domestic property type applications and low pressure alleviation;
- Optional accumulator.





Clean Water Booster Set
BSC02
Flow Range = 0.0 to 5.9 l/s
Pipe Dia. = 50mm Bore
(shown as 63mm uPVC)
Pumps = Vertical Multistage c/w
Integral VSD's up to 11kW



Original Size
A1

- Notes:
- All dimensions are in millimetres unless noted otherwise.
 - Maximum Accumulator diameter 300mm. Maximum height 900mm.
 - Kiosk complete with passive ventilation only.
 - Pipe work through end below the base slab to be MPEE/MPPE.
 - Kiosk internal lighting - 1 x 4.7 watt LED 4000 light engine with circuit.

Scottish Water
HEALTH AND SAFETY INFORMATION
IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
PERSONAL RISK RATED: NOT BE DEVULG TO A 'COMPLET' CONTRACTOR'	ACTION REQUIRED TO CONTROL: FIRE RESISTANCE
SW OPA ACCESS: HORIZONTAL, VERTICAL, PERIPHERAL, THROUGH FLOOR	METHOD OF ACCESS:
SW OPA HANDED LIFTING AND TIGHT	METHOD OF HANDLING:
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON OR PERSONS, BEING APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK.	
1:0 (ISSUED FOR PROCUREMENT)	SW - 07/12/14
Rev Description	Drawn: DWK Date: April

Scottish Water
Always serving Scotland

SCOTTISH WATER
CASTLE HOUSE
4 CASTLE PLACE
DUNFERMLINE, FIFE
FF6 6YJ, SCOTLAND
TEL: 01382 642028
FAX: 01382 642021

Project Title: **CLEAN WATER BOOSTER SET: PUMPING STATION STANDARD PRODUCTS**

Drawing Title: **BRIG - BOOSTER SET NO 2 PLANS/SECTION/DETAILS**

ELLIPSE EQUIPMENT No. _____
ELLIPSE PLANT No. _____
Drawing No. _____
SSP-SP-DR-00001002

Clean Water Booster Station - BS03

Features

- Form 4 MCC from the SW MCC Catalogue with Grundfos CU352 controller or PLC based control;
- Duty/Standby pump configuration;
- Maximum pump motor size 11kw;
- Walk-in type kiosk with kiosk structural floor;
- Flow range 3.5 - 15.0 litres/second;
- Discharge pressure 0 to 16 Bar;
- Thin wall Stainless Steel station pipework Grade 304 (Type 1.4301 Bellows) ;

Applications

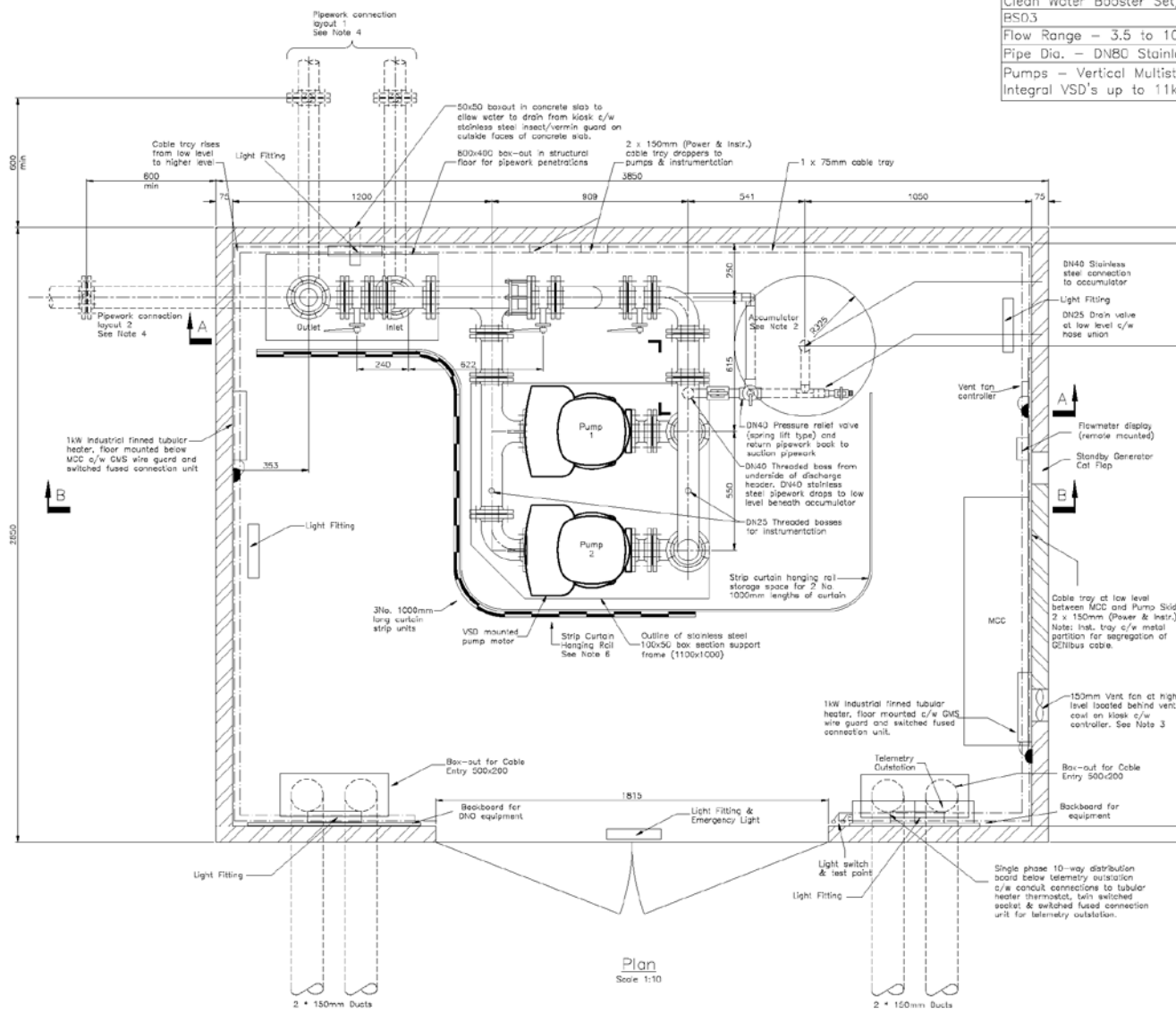
- Network PS;
- Housing development;
- WTW;
- Etc.

Description

- Suitable for network distribution and pressure boosting;
- Optional accumulator.



* SW Telemetry, DNO Metering, Distribution Board, MET and Doorways are on the front kiosk cut-out; earthing and equipotential bonding not shown for clarity.



Clean Water Booster Set/Pumping Station
 BS03
 Flow Range - 3.5 to 10 l/s
 Pipe Dia. - DN80 Stainless Steel
 Pumps - Vertical Multistage c/w
 Integral VSD's up to 11kW

Plan
 Scale 1:10

Original Size
A1

- Notes:**
- All dimensions are in millimetres unless noted otherwise.
 - Maximum Accumulator diameter = 450mm (as Drawn)
 - Vent fan controller c/w light switch and thermo switch actuation functions.
 - Pipework through & below the base slab to be ductile iron.
 - Kiosk internal lighting :
 Fitting No. 1 - 1x36 watt fluorescent luminaire, IP 65 rated, T° dancies integral emergency operation (3 hour operation).
 Fitting No. 2 - 2x36 watt fluorescent luminaire IP65 rated.
 - Roof mounted GMS curtain track c/w 3hp, 1000mm curtain track roller units. Curtain strips to be 150mm clear PVC with 15mm overlap with adjacent strips and extend full height from floor to roof level. Curtain track to be c/w storage provision for 2hp, 1300mm sections of roller units.

Reference Drawings
 Plan - A004-3
 Section A-A - A004-4
 Section B-B - A004-5

Scottish Water
HEALTH AND SAFETY INFORMATION
 IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
REFERRAL RISK THAT COULD NOT BE OBVIOUS TO A COMPETENT CONTRACTOR	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW ON ACCESS	HORIZONTAL, VERTICAL, PREDISTRAIN, VEHICLE PLANT
POINTS REQUIRING ACCESS:	METHOD OF ACCESS:
SW ON HANDLING / LIFTING STRATEGY	METHOD OF HANDLING:
ITEMS REQUIRING HANDLING:	METHOD OF HANDLING:
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING, WHERE APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK	

1.8 ISSUED FOR PROCUREMENT		SW		13 10 14	
Rev	Description	Drawn	Checked	Appr'd	Date

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SCOTTISH WATER
 CASTLE HOUSE
 4 CASTLE HOUSE
 GARDENGHAM CAMPUS
 DUNFERMLINE
 FIFE KY11 3EQ

TEL: 0131 333 3433
 FAX: 0131 333 3431

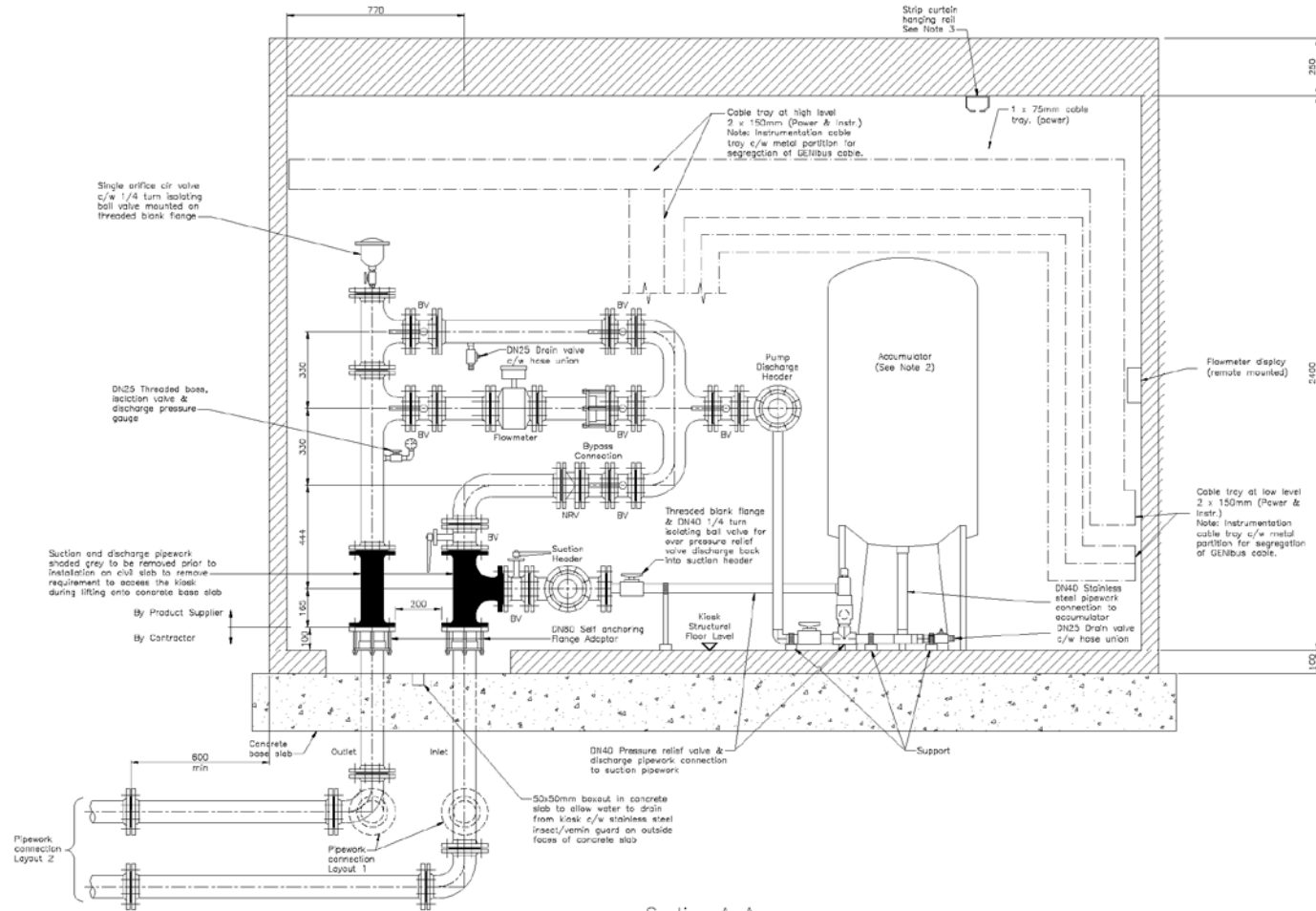
Designed by	Drawn by	Checked by	Approved by
SM	AF	DUSS	DUSS
Date	Date	Date	Date
2003/13	2003/13	2003/13	2003/13
Scale	Date	Date	Date
1:10 @ A1			
Title PARTICULAR SPECIFICATION			

Project Title
 CLEAN WATER BOOSTER SET/
 PUMPING STATION STANDARD PRODUCTS

Drawing Title
 BS03 - BOOSTER SET/
 PUMPING STATION NO.3 (800)
 WALK IN KIOSK PLAN

ELLIPSE EQUIPMENT NO.
 ELLIPSE PLANT NO. (AUTOCODE NO.)

Drawing No.
 SSP-SP-DRA-00001003



Section A-A
Scale 1:10

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Original Date
A1

- Notes:
- All dimensions are in millimetres unless noted otherwise.
 - Maximum Accumulator diameter = 850mm (as shown)
 - Roof mounted OMS curtain track c/w 3No. 1000mm curtain track roller units. Curtain strips to be 150mm clear PVC with 15mm overlap with adjacent strips and extend full height from floor to roof level. Curtain track to c/w storage provision for 2No. 1000mm sections of roller units.

Reference Drawings

Plan - A004-3
Section A-A - A004-4
Section B-B - A004-5

HEALTH AND SAFETY INFORMATION
IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
RESIDUAL RISK THAT COULD NOT BE OBVIOUS TO A COMPETENT CONTRACTOR	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW OPEN ACCESS - HORIZONTAL, VERTICAL, PEDESTAL, VEHICLE PLANT	
POINTS REQUIRING ACCESS	METHOD OF ACCESS
SW OPEN HANDLING / LIFTING STRATEGY	
ITEMS REQUIRING HANDLING	METHOD OF HANDLING
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING, WHERE APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK.	

REV	DESCRIPTION	DATE	BY	CHKD	APPR	DATE
1/0	ISSUED FOR PROCUREMENT					01/10/14

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Scottish Water
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SCOTTISH WATER
CASTLE HOUSE
6 CASTLE HOUSE
CANONBUSH CAMPUS
DUNFERMLINE
FF6 7YJ 8500

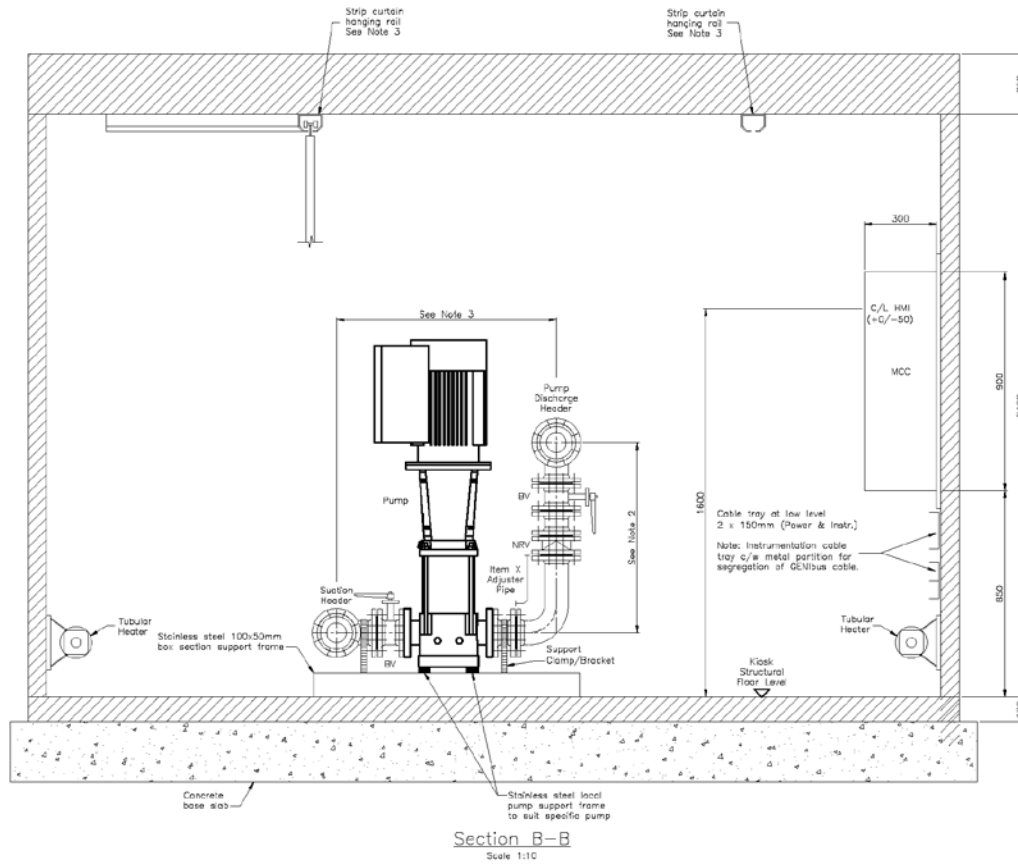
TEL 01383 848208
FAX 01383 848271

Prepared by	Checked by	Reviewed by
SM	AF	DDG
Date	Date	Date
28/03/13	28/03/13	28/03/13
Title: PARTICULAR SPECIFICATION		

Project Title:
CLEAN WATER BOOSTER SET/
PUMPING STATION STANDARD PRODUCTS

Drawing Title:
BS33 - BOOSTER SET/
PUMPING STATION (800)
WALK IN KIOSK SECTION A-A

ELLIPSE EQUIPMENT No. _____
ELLIPSE PLANT No. _____
AUTOCODE No. _____
Drawing No. _____
SSP-SP-DRA-09001004



Section B-B
Scale 1:10

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Original Size
A1

- Notes:
- All dimensions are in millimetres unless noted otherwise.
 - Vertical distance between pump suction & discharge header to be fixed at 774mm irrespective of pump selection. This dimension is based on the largest Grundfos pump (CR45) which can be utilised in this application, where a smaller pump is utilised, the item X adjuster pipe will be fabricated to suit. The branch connections to the header pipes and associated valves will be reduced/altared to suit.
 - Horizontal distance between pump suction & discharge header to be fixed at 909mm irrespective of pump selection. This dimension is based on the largest Grundfos pump (CR45) which can be utilised in this application, where a smaller pump is utilised, the item X adjuster pipe will be fabricated to suit. The branch connections to the header pipes and associated valves will be reduced/altared to suit.

Reference Drawings

Plan	- A004-3
Section A-A	- A004-4
Section B-B	- A004-5

Scottish Water
HEALTH AND SAFETY INFORMATION
IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

RESIDUAL RISK THAT COULD NOT BE OBVIOUS TO A COMPETENT CONTRACTOR	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW OP ACCESS - HORIZONTAL, VERTICAL, PEDESTAL, VEHICLE PLANT	
POINTS REQUIRING ACCESS:	METHOD OF ACCESS:
SW OP HANDLING / LIFTING STRATEGY	
ITEMS REQUIRING HANDLING:	METHOD OF HANDLING:

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSONS, BEING APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK

1.0 ISSUED FOR PROCUREMENT	SW			07.10.14
Rev	Description	Drawn	Checked	App'd

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SCOTTISH WATER CASTLE HOUSE 4 CASTLE HOUSE CARNDINE CAMPUS DUNFERMLINE FIFE KY11 8GG				TEL 01383 648200 FAX 01383 648371	
Designed by SM	Checked by JF	Drawn by DGG	Approved by DGG		
Date 28/03/13	Date 28/03/13	Date 28/03/13	Date 28/03/13		
Scale DO NOT SCALE	Scale PARTICULAR SPECIFICATION				

Project Title
CLEAN WATER BOOSTER SET/
PUMPING STATION STANDARD PRODUCTS

Drawing Title
BS03 - BOOSTER SET/
PUMPING STATION (BS03)
WALK IN KIOSK SECTION B-B

ELLIPSE EQUIPMENT NO.
ELLIPSE PLANT NO. [AUTOCODE NO.]
Drawing No.
SSP-SP-DRA-09001005

Clean Water Booster Station - BS04

Features

- Form 4 MCC from the SW MCC Catalogue with Grundfos CU352 controller or PLC based control;
- Duty/Standby pump configuration;
- Maximum pump motor size 22kW;
- Walk-in type kiosk with kiosk structural floor;
- Flow range 5.5 – 23.6 litres/second;
- Discharge pressure 0 to 16 Bar;
- Thin wall Stainless Steel station pipework Grade 304 (Type 1.4301 Bellows);

Applications

- Network PS;
- Housing development;
- WTW;
- Etc.

Description

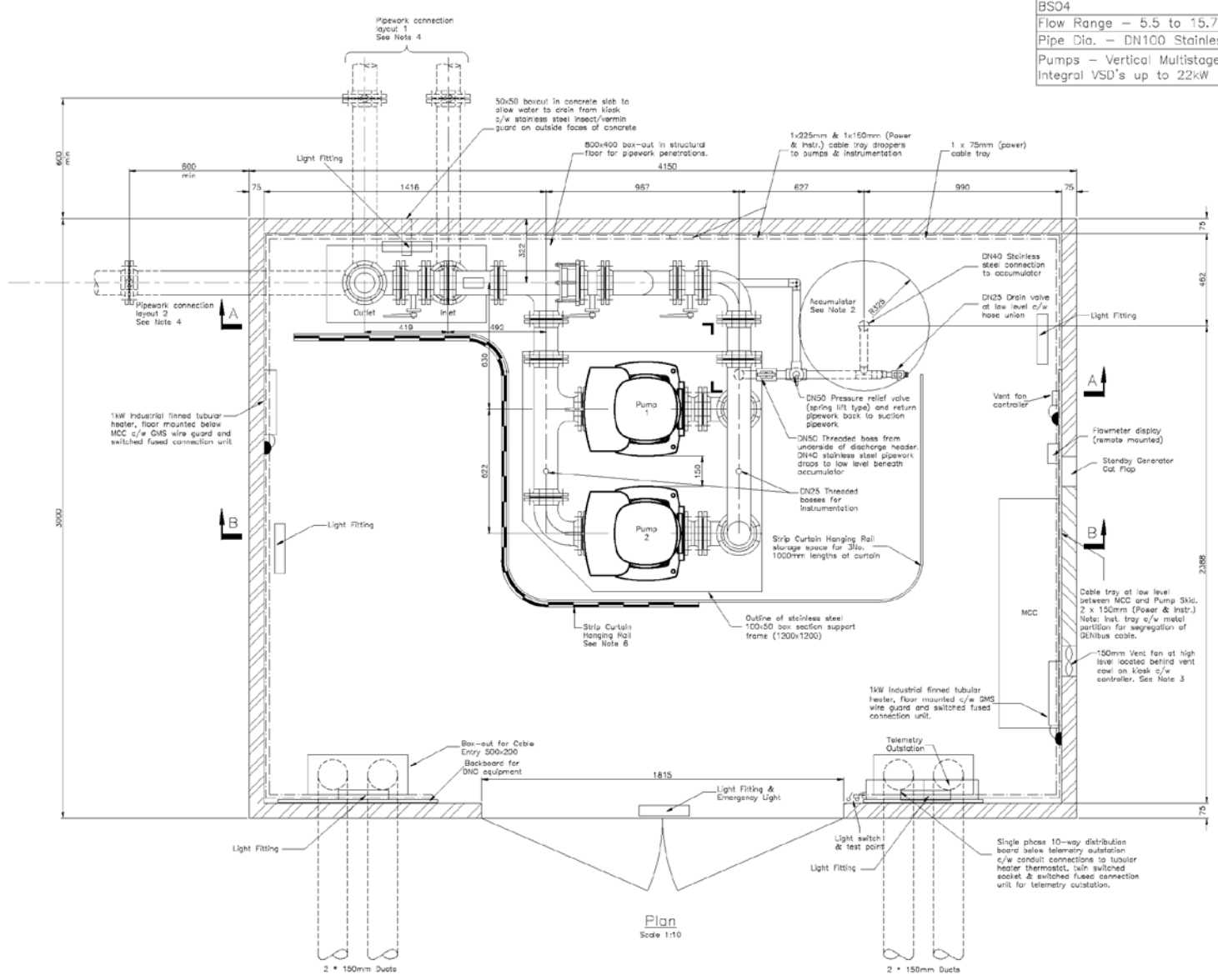
- Suitable for network distribution and pressure boosting;
- Optional accumulator.



* SW Telemetry, DNO Metering, Distribution Board, MET and Doorways are on the front kiosk cut-out; earthing and equipotential bonding not shown for clarity.

**Clean Water Booster Set/Pumping Station
BS04**

Flow Range – 5.5 to 15.7 l/s
Pipe Dia. – DN100 Stainless Steel
Pumps – Vertical Multistage c/w
Integral VSD's up to 22kW



Plan
Scale 1:10

Original Scale
A1

- Notes:**
- All dimensions are in millimetres unless noted otherwise.
 - Maximum Accumulator diameter = 650mm (as Drawn)
 - Vent fan controller c/w light switch and thermo switch activation functions.
 - Pipework through and below the base slab to be ductile iron.
 - Kiosk Internal Lighting
2 x twin 58 watt fluorescent luminaires
'E' denotes integral emergency operation (3 hour duration).
 - Roof mounted GMS curtain track c/w 4No. 1000mm curtain track roller units. Curtain strips to be 150mm deep PVC with 15mm overlap with adjacent strips and extend full height from floor to roof level. Curtain track to c/w storage provision for 3No. 1000mm sections of roller unit.

Reference Drawings

Plan – ACC4-6
Section A-A – ACC4-7
Section B-B – ACC4-8

**Scottish Water
HEALTH AND SAFETY INFORMATION**

IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
RESIDUAL RISK THAT COULD NOT BE CONTROLLED BY A COMPETENT CONTRACTOR	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW ON ACCESS - HORIZONTAL, VERTICAL, PEDESTRIAN, VEHICLE/PAT	
POINTS REQUIRING ACCESS:	METHOD OF ACCESS:
SW ON HANDLING LIFTING STRATEGY:	
ITEMS REQUIRING HANDLING:	METHOD OF HANDLING:

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING UNDER SUPERVISOR, TO AN APPROVED SAFE SYSTEM OF WORK.

NO	ISSUED FOR PROCUREMENT	REV	DATE	BY
1.0			07.10.14	

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SCOTTISH WATER
CASTLE HOUSE
DUNDEE, CAMBUS
DUNFERMLINE
DUNFEE KY11 5GG

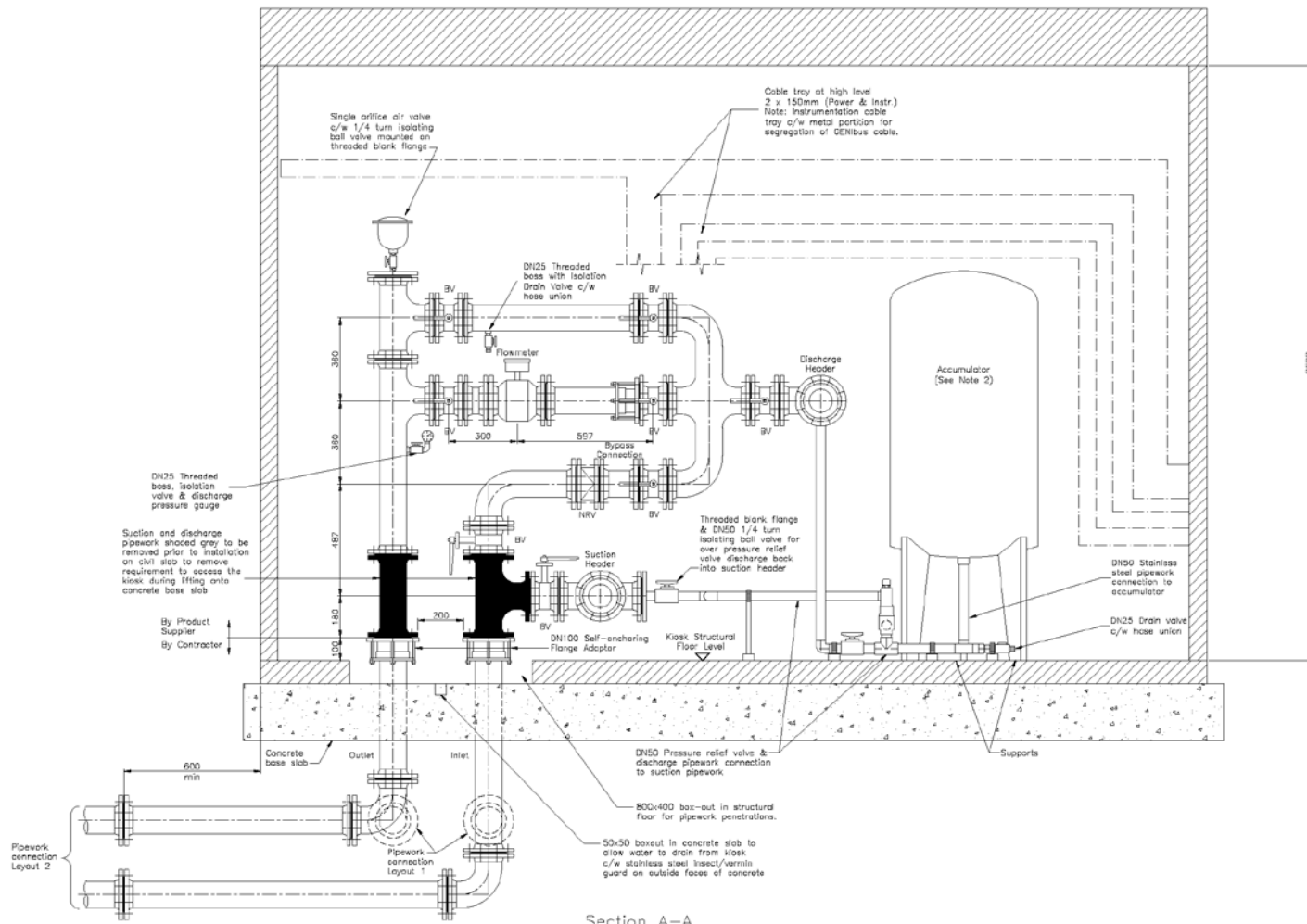
TEL: 01383 642000
FAX: 01383 642321

Component	Drawn by	Checked by	Approved by
SM	AF	SM	DG

Project Title
**CLEAN WATER BOOSTER SET/
PUMPING STATION STANDARD PRODUCTS**

Drawing Title
**BS04 - BOOSTER SET/
PUMPING STATION (R02)
WALK IN KIOSK PLAN**

ELLIPSE EQUIPMENT NO.
ELLIPSE PLANT No.
Drawing No. (AUTOCODE No.)
SSP-SP-DRA-06001005



Section A-A
Scale 1:10

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Original Size
A1

- Notes:
- All dimensions are in millimetres unless noted otherwise.
 - Maximum Accumulator diameter = 650mm (as drawn).
 - Roof mounted GMS curtain track c/w 4ftb, 1000mm curtain track roller units. Curtain strips to be 150mm clear PVC with 15mm overlap with adjacent strips and extend full height from floor to roof level. Curtain track to c/w storage provision for 3No. 1000mm sections of roller unit.

Reference Drawings

Plan - ADD4-6
Section A-A - ADD4-7
Section B-B - ADD4-8

Scottish Water
HEALTH AND SAFETY INFORMATION
IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
RESIDUAL RISK THAT COULD NOT BE OBVIOUS TO A 'COMPETENT CONTRACTOR'	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW OPX ACCESS - HORIZONTAL, VERTICAL, PNEUMATIC, VEHICLE/PANT	
POINTS REQUIRING ACCESS:	METHOD OF ACCESS:
SW OPX HANDING / LIFTING STRATEGY	
ITEMS REQUIRING HANDLING:	METHOD OF HANDLING:
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING, WHERE APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK	

1:6 ISSUED FOR PROCUREMENT	SW	---	---	07/10/14
Drawn	Checked	Approved	Drawn	Checked

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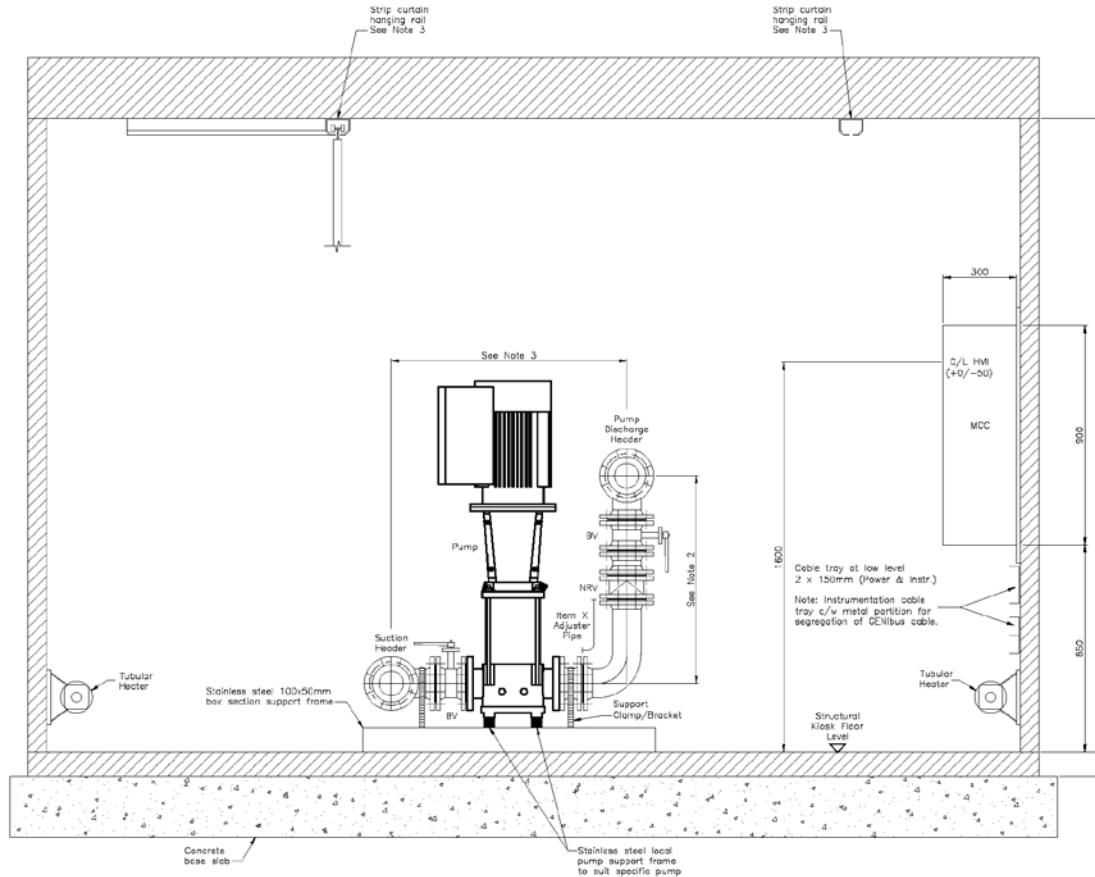
SCOTTISH WATER
CASTLE HOUSE
CASTLE HOUSE
CARNegie CAMPUS
DUNFERMILINE
FIFE KY11 8GG
TEL: 01303 842000
FAX: 01303 848371

Prepared By	Drawn By	Checked By	Reviewed By
SM	AF	DOG	DOG
Date: 28/03/13	Date: 28/03/13	Date: 28/03/13	Date: 28/03/13
Scale: 1:10 @ A1	Subject: PARTICULAR SPECIFICATION		

Project Title
CLEAN WATER BOOSTER SET/
PUMPING STATION STANDARD PRODUCTS

Drawing Title
BS04 - BOOSTER SET/
PUMPING STATION (1000)
WALK-IN KIOSK SECTION A-A

ELLIPSE EQUIPMENT No. []
ELLIPSE PLANT No. []
Drawing No.
SSP-SP-DR-09001007



Section B-B
Scale 1:10

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Original Scan

- Notes:
- All dimensions are in millimetres unless noted otherwise.
 - Vertical distance between pump suction & discharge header to be fixed at 847mm irrespective of pump section. This dimension is based on the largest Grundfos pump (GR50-3) which can be utilised in this application. Where a smaller pump is utilised, the item X adjuster pipe will be fabricated to suit. The branch connections to the header pipes and associated valves will be reduced/alter to suit.
 - Horizontal distance between pump suction & discharge header to be fixed at 847mm irrespective of pump section. This dimension is based on the largest Grundfos pump (GR50-3) which can be utilised in this application. Where a smaller pump is utilised, the item X adjuster pipe will be fabricated to suit. The branch connections to the header pipes and associated valves will be reduced/alter to suit.

Reference Drawings
 Plan - AD04-6
 Section A-A - AD04-7
 Section B-B - AD04-8

Scottish Water
 HEALTH AND SAFETY INFORMATION
 IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
RESIDUAL WORK THAT COULD NOT BE OBVIOUS TO A COMPETENT CONTRACTOR	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW ORS ACCESS - HORIZONTAL, VERTICAL, PEDESTRIAN, VEHICLE/PLANT	
POINTS REQUIRING ACCESS:	METHOD OF ACCESS:
SW ORS HANDLING/ LIFTING STRATEGY	
ITEMS REQUIRING HANDLING:	METHOD OF HANDLING:

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING, WHERE APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK.

1:1	ISSUES FOR PROCUREMENT	SW	ORs	Other	April	17/15/14

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SCOTTISH WATER
 CASTLE HOUSE
 4 CASTLE HOUSE
 CARRIDGE CAMPUS
 DUNFERMLINE
 FIFE KY11 0GG

Tel: 01383 843200
 Fax: 01383 840371

Drawn by	Checked by	Drawn by	Checked by
SM	AF	DDG	DDG
Date	Date	Date	Date
24.08.13	24.09.13	24.09.13	24.09.13
Scale	Scale	Scale	Scale
1:10 @ A1			PARTICULAR SPECIFICATION

Project Title
 CLEAN WATER BOOSTER SET/
 PUMPING STATION STANDARD PRODUCTS

Drawing Title
 BS04 - BOOSTER SET/
 PUMPING STATION (1000)
 WALK IN KISSOK SECTION B-B

ELLIPSE EQUIPMENT No.
 ELLIPSE PLANT No. AUTOCODE No.

Drawing No.
 SSP-SP-DRA-09001008

Clean Water Booster Station - BS05

Features

- Form 4 MCC from the SW MCC Catalogue with Grundfos CU352 controller or PLC based control;
- Duty/Standby pump configuration;
- Maximum pump motor size 22kW;
- Walk-in type kiosk with kiosk structural floor;
- Flow range 12.3 – 53.0 litres/second;
- Discharge pressure 0 to 16 Bar;
- Thin wall Stainless Steel station pipework Grade 304 (Type 1.4301 Bellows);
- 150 mm NB, PN16 Grade 304 (1.4301) stainless steel pipework as welded fabrication;

Applications

- Network PS;
- Housing development;
- WTW;
- Etc.

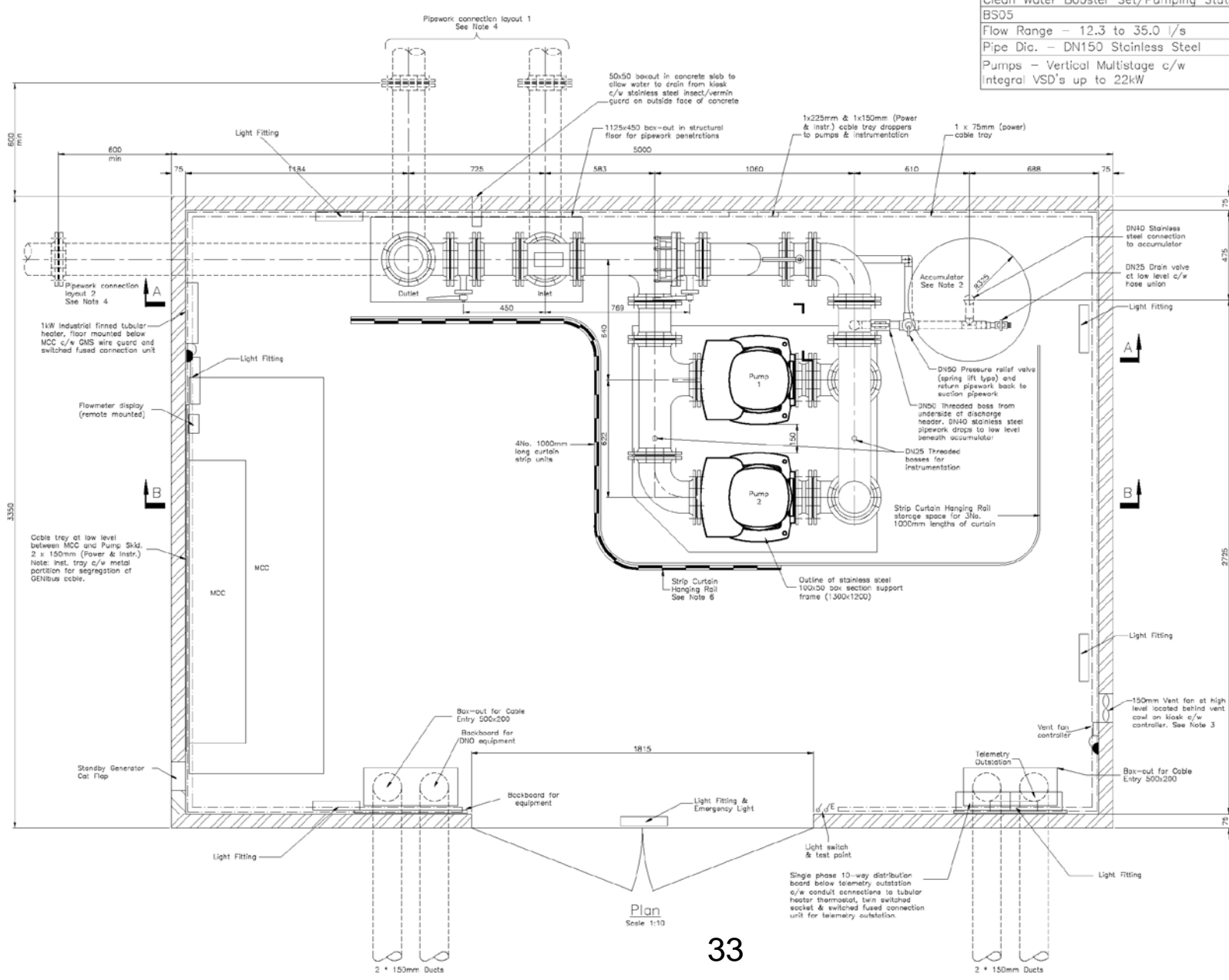
Description

- Suitable for network distribution and pressure boosting;
- Optional accumulator.



* SW Telemetry, DNO Metering, Distribution Board, MET and Doorways are on the front kiosk cut-out; earthing and equipotential bonding not shown for clarity.

Clean Water Booster Set/Pumping Station
 BS05
 Flow Range - 12.3 to 35.0 l/s
 Pipe Dic. - DN150 Stainless Steel
 Pumps - Vertical Multistage c/w
 Integral VSD's up to 22kW



Original Size
 A1

- Notes:**
- All dimensions are in millimetres unless noted otherwise.
 - Maximum Accumulator diameter = 600mm (as Drawn)
 - Vent fan controller c/w light switch and thermo switch actuation functions.
 - Pipework through and below the base slab to be ductile iron.
 - Kiosk Internal Lighting:
2 x twin 58 watt fluorescent luminaires for daytime integral emergency operation (3 hour duration).
 - Horizontal distance between pump suction & discharge header to be fixed at 967mm irrespective of pump selection. This dimension is based on the largest Grundfos pump (CP90-3) which can be utilised in this application. Where a smaller pump is utilised, the item X adjuster pipe will be fabricated to suit. The branch connections to the header pipes and associated valves will be reduced/altered to suit.
- Reference Drawings**
- Plan - A304-9
 Section A-A - A304-10
 Section B-B - A304-11

HEALTH AND SAFETY INFORMATION
 IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
RESIDUAL RISK THAT COULD BEYOND REASONABLE DOUBT BECOME A REAL RISK TO THE RESIDUAL RISK	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SAFETY ACCESS - HORIZONTAL, VERTICAL, PEDESTRIAN, VEHICLE/PLANT	
POINTS REQUIRING ACCESS:	METHOD OF ACCESS:
SAFETY HANDLING / LIFTING STRATEGY	
ITEMS REQUIRING HANDLING:	METHOD OF HANDLING:

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING WHERE APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK.

LO	ISSUED FOR PROCUREMENT	REV	DATE
1.0	ISSUED FOR PROCUREMENT	01	10/10/14

Scottish Water
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SCOTTISH WATER
 CASTLE HOUSE
 4 CASTLE HOUSE
 DUNFERMLINE
 DUNFERMLINE
 PIPE KY11 8GG

Tel: 01383 84200
 Fax: 01383 84201

Originator	Quantity	Checked By	Approved By
SHM	SHM	SHM	SHM
Date: 01.10.13	Date: 01.10.13	Date: 01.10.13	Date: 01.10.13

Scale: 1:10 @ A1

Project Title: **CLEAN WATER BOOSTER SET/ PUMPING STATION STANDARD PRODUCTS**

Drawing Title: **BS05 BOOSTER SET/ PUMPING STATION (1500) WALK IN KIOSK PLAN**

ELFIPSE EQUIPMENT No. _____
 ELFIPSE PLANT No. _____
 Drawing No. **SSP-SP-09001009**

Plan
 Scale 1:10

- Notes:**
- All dimensions are in millimetres unless noted otherwise.
 - Maximum Accumulator diameter = 650mm (as Drawn)
 - Roof mounted GWS curtain track c/w 4No. 1000mm curtain track roller units. Curtain strips to be 150mm clear PVC with 15mm overlap with adjacent strips and extend full height from floor to roof level. Curtain track to c/w storage provision for 3No. 1000mm sections of roller unit.

Reference Drawings

Plan - AD04-9
Section A-A - AD04-10
Section B-B - AD04-11

**Scottish Water
HEALTH AND SAFETY INFORMATION**

IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILLED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
RESIDUAL RISK THAT COULD NOT BE OBVIATED BY A 'COMPETENT CONTRACTOR'	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW OFS ACCESS - HORIZONTAL, VERTICAL, PEDESTAL, VEHICLE/PLANT	
POINTS REQUIRING ACCESS:	METHOD OF ACCESS:
SW OFS HANDLING / LIFTING STRATEGY	
ITEMS REQUIRING HANDLING:	METHOD OF HANDLING:

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING WHERE APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK.

1:0 ISSUED FOR PROCUREMENT		SW	---	---	01-10-14
Rev	Description	Drawn	CHKD	APPR	Date



SCOTTISH WATER
CASTLE HOUSE
6 CASTLE HOUSE
GARNGREEN CAMPUS
DUNFERMLINE
EIRE KY16 9JG

TEL: 01343 946200
FAX: 01343 946111

Prepared by	Drawn by	Checked by	Approved by
SM	AF	DGG	DGG
Date: 01-10-13	Date: 01-10-13	Date: 01-10-13	Date: 01-10-13

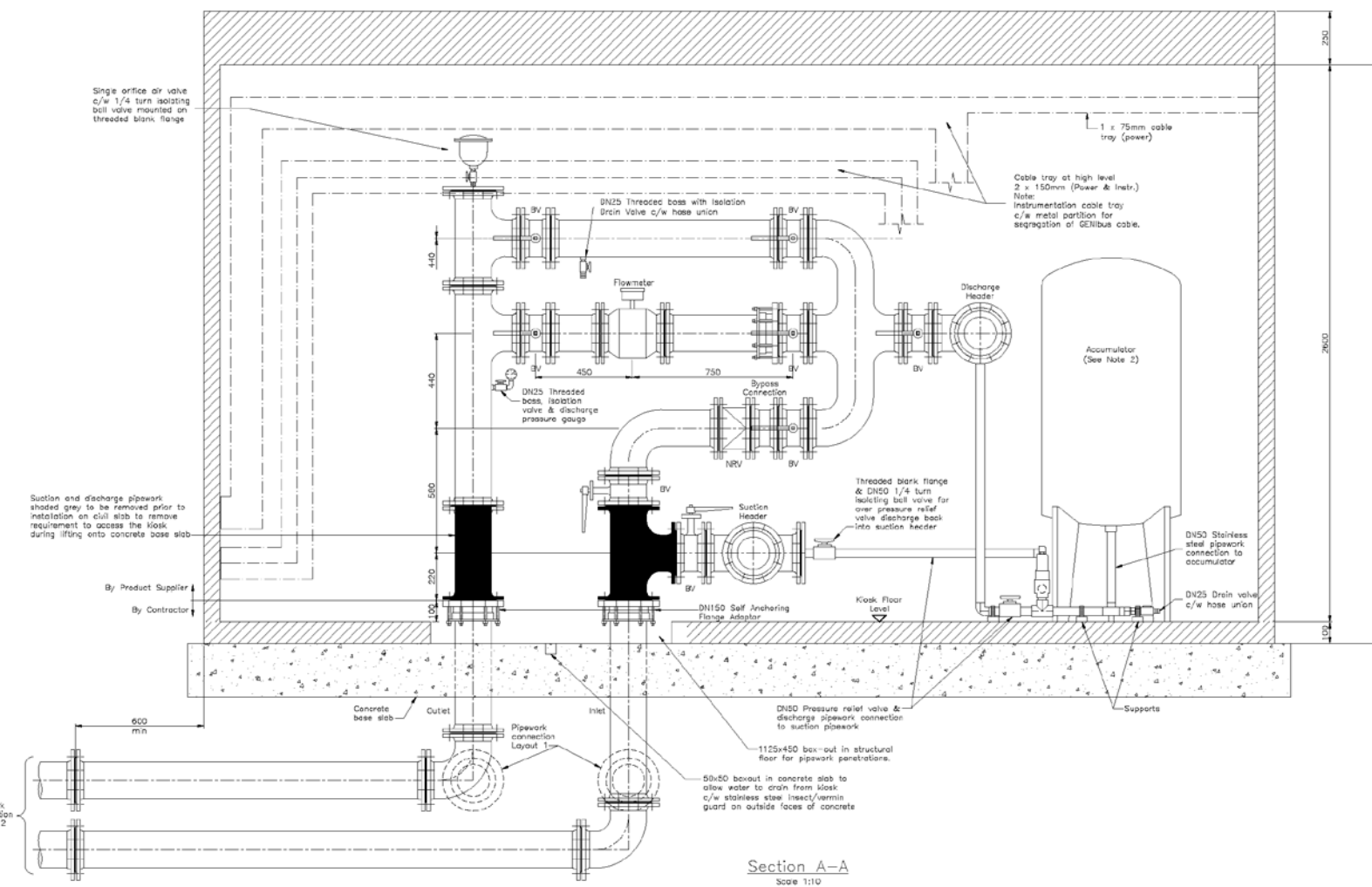
Scale: 1:10 @ A1
Title: PARTICULAR SPECIFICATION

Project Title: CLEAN WATER BOOSTER SET / PUMPING STATION STANDARD PRODUCTS

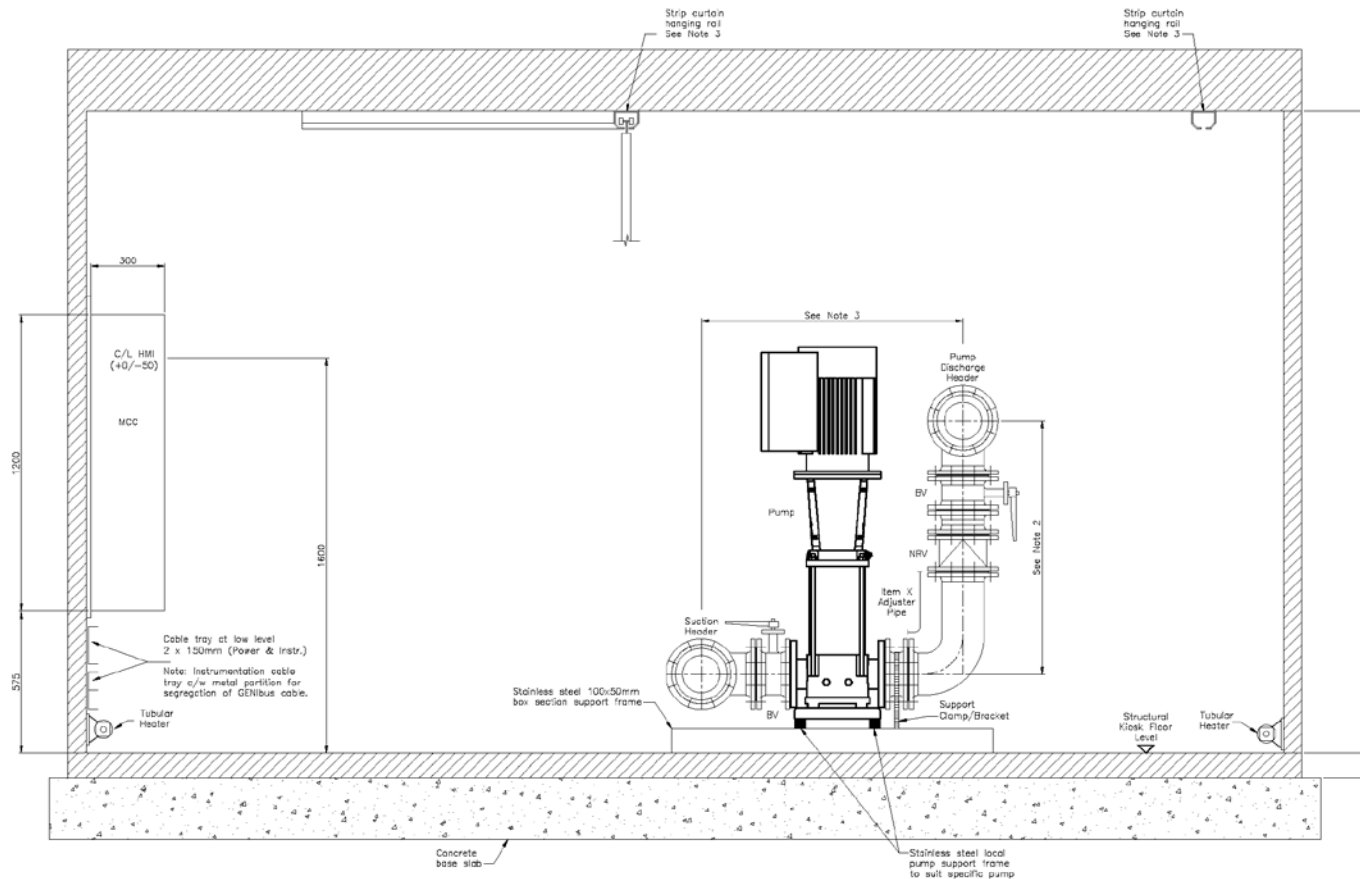
Drawing Title: BBS6 - BOOSTER SET / PUMPING STATION (1500) / WALK IN KIOSK SECTION A-A

ELLIPSE EQUIPMENT No. AUTOCODE No.

Drawing No. SSP-SP-DRA-09001010



Section A-A
Scale 1:10



Section B-B
Scale 1:10

The data contained herein is the property of Scottish Water and shall not be used for any purpose other than that for which it is supplied without the written consent of Scottish Water.
Original Size
A1

- Notes:
- All dimensions are in millimetres unless noted otherwise.
 - Vertical distance between pump suction & discharge header to be fixed at 1920mm irrespective of pump selection. This dimension is based on the largest Grundfos pumps (CR120-2-1) which can be utilised in this application. Where a smaller pump is utilised, the Item X adjuster pipe will be fabricated to suit. The branch connections to the header pipes and associated valves will be reduced/alterd to suit.
 - Horizontal distance between pump suction & discharge header to be fixed at 1000mm irrespective of pump selection. This dimension is based on the largest Grundfos pumps (CR120-2-1) which can be utilised in this application. Where a smaller pump is utilised, the Item X adjuster pipe will be fabricated to suit. The branch connections to the header pipes and associated valves will be reduced/alterd to suit.

Reference Drawings
 Plan - A004-9
 Section A-A - A004-10
 Section B-B - A004-11

HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

CONSTRUCTION PHASE	
RESIDUAL RISK THAT COULD NOT BE CONSIDERED A 'COMPETENT CONTRACTOR'	ACTION REQUIRED TO CONTROL THE RESIDUAL RISK
SW CPs ACCESS- HORIZONTAL, VERTICAL, PEDESTAL, VEHICLE/PLANT	
POINTS REQUIRING ACCESS:	METHOD OF ACCESS:
SW CPs HANDLING / LIFTING STRATEGY	
ITEMS REQUIRING HANDLING:	METHOD OF HANDLING:

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING, WHERE APPROPRIATE, TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Description	Drawn	Checked	Appr'd	Date
1.0	ISSUED FOR PROCUREMENT	SW	---	---	27.10.14

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 11 CASTLE HOUSE
 CARRIDGE CAMPUS
 DUNFERMLINE
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Designed by	Checked by	Approved by
SM	AF	EGG
Date: 01.10.13	Date: 01.10.13	Date: 01.10.13
Scale: 1:10	Scale: A1	Scale: A1

Project Title
 CLEAN WATER BOOSTER SET/
 PUMPING STATION STANDARD PRODUCTS

Drawing Title
 BS05 - BOOSTER SET/
 PUMPING STATION (1500)
 WALK IN DOOR

ELLIPSE EQUIPMENT No. AUTOCODE No.
 Drawing No.
 SSP-SP-DRA-09001011