Hallen Yard

Wash Plant Specification

Project Outline

Objectives

CDE have been invited to design and quote a complete C&D and soil washing plant solution under the following design criteria proposed by Heidelberg:

Table 1 – CDE Responses

Objectives	CDE Response
We need a Construction & Demolition waste washing plant that can handle up to 200tph of material (in feed)	Included, please see Items 1-13. Also see pages 9-13.
The plants need to be able to run 24hr a day should we wish them to (initially we are proposing up to 8-9 hours a day at 200tph or up to 12hrs at 180tph)	Included, please see Items 1-13. Also see pages 9-13.
The plant needs to be able to handle silt levels of between 5% and 30% automatically due to feed material variability. (the feed material will vary based on the location)	Included, please see Items 1-12. Also note CDE OptiMax Page 34 and CDE AutoFloc page 48.
This plant needs to be supplied with silt presses and not centrifuge systems for silt management due to its urban like location and lack of space to allow material to dry out naturally.	Included, please see Items 8-12
It also needs to have a water treatment facility that can deal with contaminants such as hydro carbons, soluble metals like zinc etc	Included, please see Items 6-8, appendix "PTN Waste Acceptance". Please note additional Tertiary water treatment systems can be added to the system.
We need to be able to screen out organics, lignite, trash etc	Included, please see items 3-8
Power and water can be provided at all sites, we however need to know the plant requirements	Included, please see Page 14 and appendix "BO8447 Power & Running Cost Estimate".
All plants will be located at ground level, not in the bottom of a quarry	Included, please see Page 35 - 39
We require detailed specification of the plants on offer, including case studies and if possible a site visit to see a similar plant in operation	Included, please see tender response portal

Input Material Characterisation

With over 20 years of experience working specifically with UK C&D material, CDE has an appreciation for the inherent feedstock variability and the presence of both physical and chemical contaminants within the waste sector. Appropriate plant design can suitably mitigate the management challenges and quality risks associated with these feedstocks. This is a sector and market that CDE has pioneered and are the current global leaders with more reference sites and experience than anyone.

Whilst the request has been raised specifically for a construction and demolition feed, this has been interpreted to include all typical recycled source materials such as 'muck away', spent rail ballast, inert excavation, utilities spoil and crushed concrete; each with its own specific process challenges. Plant feed versatility ensures a steady source of recycled inputs and a consistent, steady output product returned to market. A 'high level' categorisation of the averaged C&D grading has been summarised in Table 2.

Table 2 - Typical averaged raw feed spread

Type	Percentage %
Aggregate (>4mm)	40
Sand (0.063-4mm)	40
Silt (<0.063mm)	20

Working to 'real world' parameters, the raw feed is assumed to be sticky/claybound with typical mechanical contaminants such as ferrous-metals/organics/lightweights and chemical contaminants such as hydrocarbons and heavy metals. The anticipated input material mechanical and chemical profile has been characterised from extensive research across UK CDE sites and has been used to define process type, sequence, and sizing.

With a variable source it should also be expected that incoming materials may be abrasive or hard wearing. The obvious examples in this category may be high silica sources or rail ballast in particular.

Other known feedstock characteristics could include the tendency for aeration or 'foaming' under the presence of elevated crushed concrete or with feeds containing elevated organic content. The CDE process acknowledges these likelihoods and has been designed to effectively mitigate and manage the effects.

The aforementioned points only cover a small subset of process considerations, however, having processed circa 120MT of C&D material to-date, CDE have demonstrated that our solutions are equipped to handle all the challenges recycled material poses.

Typical UK C&D feedstocks have been captured in the images below.

Output Characterisation

The tender does not specifically reference the required output splits. CDE advise producing 2 sands which facilitates a targeted in-spec primary 0-4mm sand with the ability to produce a secondary soft building sand. Having the option to produce 4 sized aggregates allows flexibility within the market and opens up the potential for maximising production to suit seasonal demands or bespoke orders. The proposed solution has opted for 4 aggregates as a best-practice approach but can be reduced to 3 aggregates according to customer preference.

The averaged UK C&D product split can be defined according to Table 3 based on the most common output size ranges. Note 0/2 and 0/4 split varies according to operator-defined blend ratio.

Table 3 - Typical CDE output product spilt from C&D source materials.

Size (mm)	Percentage (%)
+80	4
40-80	5
20-40	10
10-20	10
4-10	10
0-4	30
0-2	10
Silt (<0.063)	20
Organics	1
Ferrous Metals	<1

Whilst silt has historically been viewed as a waste material, the filter cake from CDE C&D plants has been used successfully in a growing number of applications due to its low moisture content, consistency and inherent low permeability. To-date, CDE filter cake has been used for landfill capping, canal flood defences, remediation and brick-making to name a few.

Operating Duty

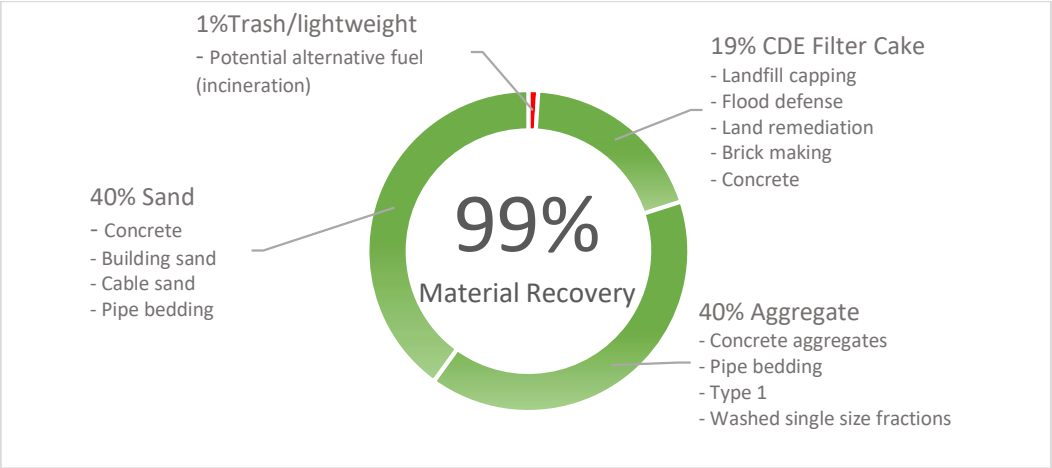
In conjunction with the criteria outlined by Hanson UK, the proposed solution meets or exceeds the requirement as detailed in Table 4.

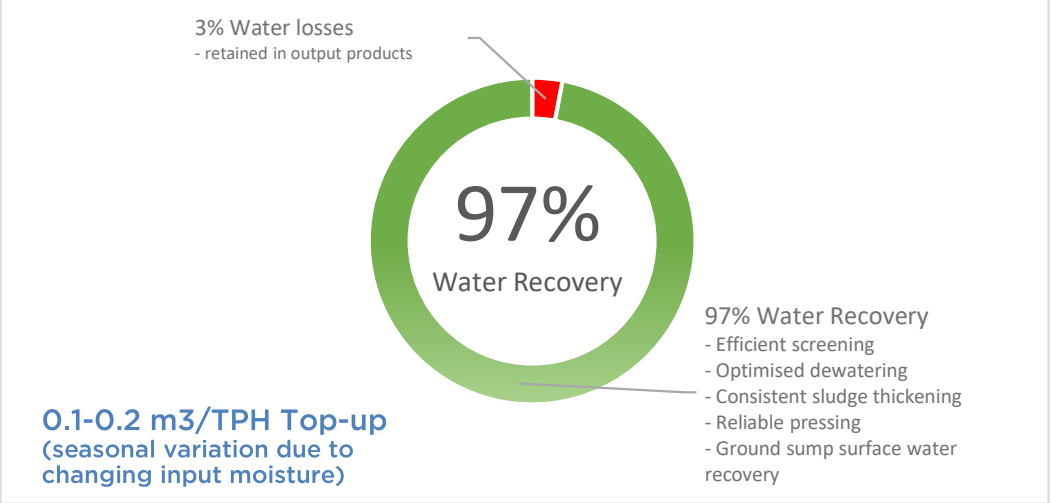
Table 4 - Proposed operating duty based on 60min cycle time and 20% silt.

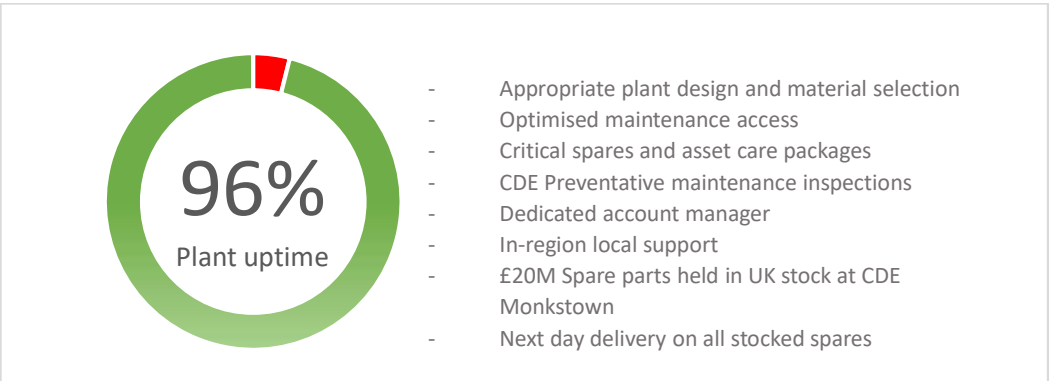
Typical C&D Parameters	Measure
Feed rate	180 TPH
Daily feeding hours	Up to 12 Hrs
Processed per day	2160T

Solution Overview

Indicative metrics based on typical UK C&D.







90 g/T(silt)	2.1kW /T(feed)	426 kW
Polymer Consumption	Energy Consumption	Running power

CDE R4500 Scalping Unit

- Feeding
- Oversize protection
- Material pre-conditioning

The R4500 is purposely designed for sticky, clay-bound materials with a large maximum particle size of up to 500mm. The chain driven steel apron feeder ensures zero belt-slip when the weather and material conditions get difficult. The apron feeder provides suitable protection against snipped reinforced concrete or larger lump sizes which would otherwise damage traditional belt feeders. The apron feeder is fitted with a dribble conveyor underneath which contains all spillage and diverts it to the main feed conveyor and back into the process.

The apron feeder discharges the material over a high amplitude double deck screen fitted with bofar bars and tines in the top deck and steel mesh in the bottom deck. The aggressive screening removes excess clay from the oversize material providing a +80mm output suitable for secondary processing/crushing. Removing +80mm ensures the downstream process is protected. A collection conveyor running underneath the P2-75R screen receives all the 0-80mm material and discharges it on to the main feed conveyor.

Feed Conveyor

- Material transfer
- Primary ferrous metals removal

The main feed conveyor receives 0-80mm from the R4500. The wide belt (1000mm) allows the material to lay flat and spread as wide as possible in preparation for both the primary ferrous removal stage and ahead of feeding to the wash box.

Additional transfer conveyor included to allow flexible configuration to best fit site layout.

CDE AggMax

- Pre-Screening
- Aggregates Scrubbing
- Aggregates lightweights removal
- Secondary rinse

Pre-Screen:
Material enters the washbox at the head of the feed conveyor where large volumes of high-pressure water are added to maximise fluidisation and subsequent pre-screening efficiency. The pre-screen will be the CDE Infinity P2-75 complete with Tema PU media (double deck) designed for two primary functions:

- Maximise 0-4mm removal before the logwasher process. This is necessary to increase the stone-on-stone attrition and optimise wear life.
- The fluidised material will be hit with high pressure spray bars to assist in the breaking up and penetrating of clay material before entering the scrubbing phase. The double deck aids in this by splitting the material across two decks vs one.

The 0-4mm material gravity flows to the main sump under the AggMax. The +4mm material will feed directly into the CDE RotoMax (logwasher).

CDE RotoMax (LogWasher):
The CDE RotoMax 250 is the largest Logwasher unit available on the UK market; designed specifically to maximise attrition scrubbing on the most difficult of materials and to minimise wear. The CDE RotoMax has two counter rotating shafts fitted with interconnecting helical heavy duty mounts, each equipped with a highly wear resistant paddles (over 120). As these shafts rotate, they generate material-on-material attrition as well as transporting the material up the logwasher. The shearing action during the material-on-material attrition breaks up difficult "plastic" clays.

During the CDE RotoMax design process, the paddles were developed extensively under two key deliverables:

- **Maximise Attrition:** The CDE RotoMax paddles are designed specifically to promote as much scrubbing action as possible. The paddles are large, with a thick leading edge and corrugated face which imparts more energy into the material than thin flat blades. This ensures the maximum breakdown of difficult clays. Please see pictures below.
- **Minimise Wear:** This has been achieved through the robust paddle design, additional wear liners and appropriate material selection/development. The paddles and bracket protection are made to an exact CDE specification and will out-perform the traditional materials in the same application. By example, we have observed CDE paddles working on granite applications over 5 years and in iron ore applications having processed over 1 million tonnes without being changed. Furthermore, the logwasher is designed to line the hull with a layer of aggregate, providing complete wear protection without the need for sacrificial liners.

Proposal

Item 1: R SERIES

Model: R4500

Apron Feeder

- 2 off Bonfiglioili helical bevel gear unit – controlled by VSD in control panel
- Drive shaft with mounted sprockets on plummer block bearings
- Screw tensioned idler shaft with spring relief system mounted on take-up bearing design
- Steel paddle conveying belt system – 1400mm
- FL4 chains
- Idler rollers under steel paddles and chains
- Polyurethane paddle scraper
- Hardened steel return rollers
- Dribble conveyor underneath apron feeder

Integrated Feed Hopper

- 20T mild steel hopper with replaceable Hardox wear liners around base of hopper
- Adjustable PU skirting between bin and feeder
- Bridge and hanging weights for material flow control onto screen

Integrated Twin-Deck Screen

Model Infinity P2-75R

- Vibro-centric drive shaft
    - SKF Explorer bearings used as standard on the ProGrade™ screen range
    - Isenmann polyurethane liner
- 22kW WEG IE3 motor including drive pulleys, taper locks, mounts and guards
- Rosta motor base for efficient power transmission to shaft
- Galvanised patented Trilogy side wall design - bolted construction
- All structural connections Huck bolted
- Screen media
    - Top deck bofar bar impact zone followed by tine bar assemblies
    - Bottom deck woven wire mesh
- AB HD 50-1.6 Rosta suspension units
- Rubber-lined discharge chute liners
- Patented U-span cross members

Chassis

- Modular mild steel construction
- Designed for optimised maintenance access and wash through points

Collection Conveyor

- 5.5kW Rulmeca drive pulley
- Tensioned spoke tail drum
- High specification rubber belt – 1200mm
- Troughing rollers
- Tungsten tip belt scraper
- Disc return rollers and guide rollers

Walkways

- Galvanised GRP walkways and access steps, for easy access to both sides of the machine
- 800mm wide
- Allows secure safe access to the entire machine

Electrics

- Pre-wired and tested in CDE factory

Transfer conveyors

- Rubber lined feed boot
- 1000mm belt
- Adjustable skirting rubbers
- Adjustable Troughing rollers as standard
- Motorised drive pulley
- Tungsten tipped belt scraper
- Guarded to relevant standards
- Lagged head drum
- Crowned tail drum to assist belt tracking

Item 2: FEED CONVEYOR

Model: S2910

- 29m static conveyor
- 1000mm belt
- Self-supporting on stanchions
- Feed boot to receive material
- Adjustable skirting rubbers
- All necessary troughing rollers
- All necessary return rollers
- SNL series bearings fitted on belt feeder to suit heavy duty application with exception of gearbox side of the head drum which is fitted with a Cooper split bearing unit to allow replacement without need of gearbox removal
- Galvanised walkway along one side and around head section
- Handrail complete with high kick flat
- Direct coupled motor and gearbox
- Tungsten tipped belt scraper
- Guarded to CDE standards
- Emergency pull-cord along walkway
- Lagged head drum
- Crowned tail and head drums to assist belt track
- Belt weigher
- Overband magnet

Item 3: AGGMAX

Model: 253SR

Pre-Screen
Model: P2-75 (5m x 1.5m)

- Vibro-centric drive shaft
    - SKF Explorer bearings used as standard on the ProGrade™ screen range
    - Isenmann polyurethane liner
- 18.5kW WEG IE3 motor including drive pulleys, taper locks, mounts and guards
- Pre-wired from motor to isolator
- Rosta motor base for efficient power transmission to shaft
- Galvanised patented Trilogy side wall design - bolted construction
- All structural connections Huck bolted
- AB HD 50-1.6 Rosta suspension units – 8 per screen
- Isenmann polyurethane modules
- Isenmann polyurethane liners on discharge plate
- Isenmann polyurethane impact mats on feed plate – 30mm thick
- Isenmann polyurethane side wall liners
- Patented U-span cross members

Washing Unit

- Easily accessed main water manifold supplying spray bar network
- CDE sealing system on each spray bar to prevent water loss

- Individually valve-controlled polyurethane nozzles
- 6 Off spray bars per deck (2 decks) c/w individual control lever valves

Sump
- Mild steel rubber lined sump
- Integrated into AggMax chassis

Oversize Conveyor
- Oversize conveyor 2.2kW to the side of the AggMax

RotoMax Logwasher
Model: RX250

- Supplied fitted with a full set of heavy-duty blades
- Blades are cast from chrome–molybdenum
- Twin shaft design
- Single gearbox and motor driving both shafts
- Electric motor with VSD
- Synchronized drive mechanism for maximum efficiency
- GRP flooring over top of RotoMax to provide safe access to key areas
- Mild steel body; electro welded steel
- Main (heavy-duty) bearings mounted on outside of machine for straightforward maintenance
- Central feed point
- Retention time adjusted via rotation speed
- Low 'transmitted vibration' allows fitting over a screen where required
- Side and rear discharge points for removal of water and sand / silt so that minimal fines reach the main discharge point
- Single point water connection
- Valve fitted as standard to control water requirement as per customers material needs

Sizing Screen
Model: Infinity H3-45 (1.5m x 4m)

- Patented trilogy side wall construction
- Galvanised finish
- 3 decks
- Huck bolted structural connections
- CDE VibroSync technology:
    - Designed to transfer energy direct to side walls
    - Linear motion drive
    - Access to eccentric weights through end guards
    - 2 off 7.6kW Motors 50Hz
    - Quiet & cool in operation
- Patented U-Span cross members
- Excellent access for changing modules
- Isenmann polyurethane modules
- Isenmann polyurethane liners on discharge plate
- Isenmann polyurethane impact mats on feed plate – 30mm thick
- Isenmann polyurethane side wall liners
- Access panels at rear of screen for quick, safe inspection of screen decks; rubber covers are in place to contain material within the screen
- Rosta AB-HD50-2 suspension units – 4 per screen
- Discharge chutes (wear liner specific to application)
- Water manifold and spray bar kit fitted to screen
- Isenmann polyurethane snap-on spray bar protection covers

Sump
- Mild steel sump
- Integrated into AggMax chassis

Additional Specifications
- Hardox lined front product chute
- All necessary internal pipework and fittings

Trash Screen
Model: D1-63

- Patented trilogy side wall construction
- Galvanised finish
- Huck bolted structural connections
- CDE VibroSync technology:
    - Designed to transfer energy direct to side walls
    - Linear motion drive
    - Access to eccentric weights through end guards
    - 2 off 2.5kW Motors 50Hz
    - Quiet & cool in operation
- Patented U-Span cross members
- Excellent access for changing modules
- Isenmann polyurethane modules
- Isenmann polyurethane side wall liners
- 4 off Firestone marshmallow supports
- 5-meter trash conveyor

Sump
- Mild steel sump
- Integrated into AggMax chassis

Additional Specifications
- Fully integrated modular chassis and pipework to offer fully customisable plant. Galvanised walkways with GRP flooring provide access to all key maintenance areas.

Heavy-Duty Centrifugal Sand Slurry Pump
- Heavy-duty rubber lined centrifugal slurry pumps
    - 1 no. 6/4 22kW pump
    - 1 no. 10/8 75kW pump
- Complete with motor and drive

Item 4: SIZING SCREEN FEED CONVEYOR

Model: S2908

- 29m static conveyor
- 800mm belt
- Self-supporting on stanchions
- Feed boot to receive sand
- Adjustable skirting rubbers
- All necessary troughing rollers
- All necessary return rollers
- SNL series bearings fitted on belt feeder to suit heavy duty application with exception of gearbox side of the head drum which is fitted with a Cooper split bearing unit to allow replacement without need of gearbox removal
- Galvanised walkway along one side and around head section
- Handrail complete with high kick flat
- Direct coupled motor and gearbox
- Tungsten tipped belt scraper
- Guarded to CDE standards
- Emergency pull-cord along walkway
- Lagged head drum

- Crowned tail and head drums to assist belt track
- Belt weigher
- Overband magnet

Item 5: INFINITY PROGRADE

Model: P3-75 DRY SIZING SCREEN

- Vibro-centric drive shaft
    - SKF Explorer bearings used as standard on the ProGrade™ screen range
    - Isenmann polyurethane liner
- 22kW WEG IE3 motor including drive pulleys, taper locks, mounts and guards
- Pre-wired from motor to isolator
- Rosta motor base for efficient power transmission to shaft
- Galvanised patented Trilogy side wall design - bolted construction
- All structural connections Huck bolted
- AB HD 50-1.6 Rosta suspension units – 12 per screen
- Isenmann polyurethane modules
- Isenmann polyurethane liners on discharge plate
- Isenmann polyurethane impact mats on feed plate – 30mm thick
- Isenmann polyurethane side wall liners
- Access panels at rear of screen for quick, safe inspection of screen decks; rubber covers are in place to contain material within the screen
- Patented U-span cross members
- Support structure from subframe to customer walls
- Galvanised GRP walkways on both sides of screen with access
- Discharge chutes (wear liner specific to application);

Item 6: EVOWASH

Model: EVOWASH A(s),62(2).50.150.30 c/w CFCU 200

DeWatering Screen
Model: VibroSync D1-65

- Patented trilogy side wall construction
- Galvanised finish
- All structural connections Huck bolted
- CDE VibroSync technology;
    - Designed to transfer energy direct to side walls
    - Linear motion drive
    - Access to eccentric weights through end guards
    - 2 off 7.6kW Motors 50Hz
    - Quiet & Cool in operation
- Patented U-Span cross members
- Excellent access for changing modules
- Isenmann polyurethane modules
- Isenmann polyurethane side wall liners
- 8 off Firestone marshmallow supports
- Spray bars fitted to screen

CFCU 200

- Mild steel tank with viewing windows, rubber-lined overflow weir and rubber lined base
- Quick access inspection hatch
- Dual water manifolds (one either side of tank)
- Water inlet valve control
- Manifold assemblies
    - Pneumatic auto feed valves

    - Regulating valves
    - Pneumatic auto flush valves
- Two off ceramic pressure transducer to monitor teeter bed height
- Four off PLC controlled modulating valves to control bed height
- Digital flow meter to monitor upward flow water supply
- Rubber-lined feed box to feed sand from cyclones to CFCU
- All sand outlet pipes are rubber-lined
- Galvanised GRP platform around top of CFCU tank with access stairs and access to rear water manifold

Hydrocyclone

- Mild steel cyclone frame
- Natural rubber lined modular cyclone c/w overflow discharge chamber
    - 2 no. 625mm dia. Cyclone
    - 1 no. 500 dia. Cyclone

Sump

- Mild steel sand slurry sump
- Automatic sump level controls (stainless steel)
- Feed / overflow points either side
- Steel backed rubber pump protection mats
- Skid mounted with integrated base for pump and motor

Heavy Duty Centrifugal Sand Slurry Pump

- Heavy-duty rubber lined centrifugal slurry pump
    - 1 no. 6/4 30kW pump
- CDE high-abrasion hose and hot vulcanised rubber lined pipework between pump and cyclone
- Complete with prewired motor and drive unit for quick installation

Additional specifications

- Screen cover independent of vibrating screen
- Rubberlined chute for clean material transfer
- Prewired and tested in CDE factory

Organic screen
Model: VibroSync D1-65

- Patented trilogy side wall construction
- Galvanised finish
- All structural connections Huck bolted
- CDE VibroSync technology;
    - Designed to transfer energy direct to side walls
    - Linear motion drive
    - Access to eccentric weights through end guards
    - 2 off 7.6kW Motors 50Hz
    - Quiet & Cool in operation
- Patented U-Span cross members
- Excellent access for changing modules
- Isenmann polyurethane modules
- Isenmann polyurethane side wall liners
- 8 off Firestone marshmallow supports
- Shallow sump
- Antipegging spraybar system
- Walkways
- Access

Item 7: CONVEYORS

Model: 1 no. H0665 & 1 no. H1165 Sizing screen transfer conveyors

- Transfer Conveyor
- 650mm wide EP multi-ply fabric rubber conveyor belt
- Adjustable skirting rubbers
- Vari-Angle PU Troughing rollers as standard
- Motorized head drum
- Tungsten tipped belt scraper
- Guarded to CDE specification
- Lagged head drum
- Crowned tail and head drums to assist belt tracking

Model: R1565 (2 x Sands)
Quantity: 2 no.

- 15m Radial Conveyor
- Feed boot to receive sand
- 650mm wide EP multi-ply fabric rubber conveyor belt
- Adjustable skirting rubbers
- Vari-Angle PU Troughing rollers as standard
- Motorised head drum
- Tungsten tipped belt scraper
- Guarded to CDE specification
- Lagged head drum
- Crowned tail and head drums to assist belt tracking
- Motorised radial action to increase conveyor stockpile capacity
- Belt weigher

Item 8: AQUACYCLE WITH FLOCSTATION

Model: A900

- Mild steel Thickener Tank
- Capacity 900m^3/hr
- Galvanised steel support structure
- Scraper mechanism for conditioning of sludge.
- New CDE design specifically tailored to application with swept conditioning blade technology for enhanced sludge conditioning performance.
- Motor, gearbox, slewing ring and heavy duty shaft rake drive system
- Peripheral weir for collection and discharge of recycled water
- Primary de-aeration chamber pre-fitted onto bridge for primary dirty water treatment.
- Centralized controls for flocculent dosing
- Secondary de-aeration and diffusion chambers integrated onto rake drive and feed mechanism for receiving pre-dosed effluent.
- Conical bottom section complete with flushing valves and pipe-work
- Centrifugal pump with gland seal kit to discharge thickened sludge
- Pneumatic and electrically operated valves for control of sludge discharge
- Compressor fitted for pneumatics
- Full length static scraper support bridge and GRP walkway
- Access stairs and handrails
- Automatic operation
- Multiple dosing points for polyelectrolyte
- Automatic flushing of sludge pipe-work after de-sludging cycle
- Thickener requires constant uninterrupted power supply of 400V

Complete with Polyelectrolyte Dosing Station (P80)

- Loading hopper for (powder based) polyelectrolyte complete with screw-feeder
- Powder eductor system with cone to transfer powder to make-up tank and continual mixing process design
- Multiple, staged process, mixing tanks with access lids incorporating:
  - Stirrer unit twin propellers
  - Ultrasonic level monitor
- Dosing pump complete with:
  - In line dilution facility
  - Variable speed drive
- Plant installed and pre-tested in Thickener control station (below)

Scum Scraper

- The CDE scum scraper is a rotating skimmer located at the top of the AquaCycle
- Powered by the rakes motor, it scrapes any floating 'scum' into a channel above the water level in the unit

AutoFloc

- CDE 'Autofloc' Polymer Dosing Monitoring System
- Realtime monitoring of Aquacycle loading and settlement rate
- The system is used to optimise flocculant dosage rate into the Aquacycle by continuously sampling and testing settlement rate of incoming waste stream. Polymer dosage automatically controlled and easily adjustable.
- Fast adaptation to feed variations, eliminating overdosing and insuring consistent process operation.

Control Cabin

- 12m insulated control cabin
- Secure and vandal proof complete with lights
- FlocStation pre-installed into control cabin
- PLC control panel to control AquaCycle and FlocStation operation
- Modem installed for remote diagnostics

Additional items

- Coagulant & Antifoam dosing pumps

Item 9: WATER TANK WITH STATIC SCREEN

Model: 400m³ Concrete Water Tank (check it fits in layout)

- 400m³ Concrete water tank in civils by Client
- Water recycle pumps
  - 1 no. 250/200-110 pump
  - 1 no. 150/100-30 pump
- Ultra-sonic probe for measuring water level

Model: 4 Panel Static Screen

- Static Screen for removal of lightweights
- Inlet chamber to distribute evenly over width of screen
- Horizontally slotted apertures
- Gravity Solids discharge
- Anti-Pegging Spraybar system

Item 10: BUFFER TANK

Model: 400m³ Concrete Buffer Tank

- 400m³ Concrete buffer tank in civils by Client
- Agitator x2 - 15kW
- Bridge and access
- Ultrasonic probe

NOTE: Concrete style sludge buffer and process water tanks assumed, steel tank options available.

Item 11: FILTERPRESS

Model: 20.1 m3 Filter Press

TECHNICAL CHARACTERISTICS
- Total filter press volume: 20.1 m^3

OPERATION PRESSURE
- Filtration pressure: up to 15 bar (jack with oversized section)
- Acoustic emission <75 Db(A)

FILTER CLOTHS
- Recessed plates: Polypropylene

CLOSURE OF FILTER PACK
- Hydraulic jack, double effect 18.5kW motor

PLATE SHIFTING DEVICE
- Static Frequency Inverter 7.5kW motor

ACCESSORIES
- Double feeding piping: Carbon Steel

CORE BLOW
- Automatic core blow function

Description of the machine:
Filter press with upper beam, fixed and mobile header, embodied filtrate manifold, automatic plates shifting device controlled by inverter, automatic filtering pack closing system made by means of 4 hydraulic pull closing jacks, cake discharge by gravity.
Structural frame composed of a fixed header holding the jacks, a sliding mobile header, a support header, an upper oversized beam composed of "I profile beams where filtering plates are hanging and sliding. Four double effect type jacks, acted by a self-controlled hydraulic unit with low and high pressure pump, move the mobile header and assure the plate pack closure.
The automatic plate shifting is housed in the upper beam and is controlled by frequency inverter.
Double feeding on the header holding the jacks and on the mobile header, four connections for filtrate discharge on the fix header holding the jack. The machine is sandblasted and painted according to specifications.

Operation
The filter press with automatic cycle of closure, feeding, compacting and filtration end will be adjusted and controlled by a PLC inside the electric control panel.

Plate pack closing and opening device
Opening and closing strokes of the mobile header and the closing force of the plate pack, to compensate the operation pressure during filtration, is obtained with four hydraulic jacks. These jacks are automatically kept under pressure by a hydraulic unit.

Plate shifting device
The plate shifting device for cake discharge clasps the plate handles by means of a trolley place on the upper bearing beam and moved by a gear reducer by means of pinions and rails and adjusted by a static frequency inverter.
High pressure cloth washing system
Trolley with sensors, electric motor and electric fittings.

CLOTH WASH TANK AND PUMP: High pressure cloth washing pump
Installed power: 75kW

FEED PUMP:
VFD and starter for feeding pump
90kW motor

DRIP TRAY - for draining off the dripping filtrate as well as the filter cloth washing water.

With downwards opening and trays in carbon steel

ELECTRIC CONTROL PANEL - for operating the chamber filter press

Electrical control panel with Siemens PLC and colour display screen.

PRESS ENCLOSURE

A Filter Press enclosure is an essential for housing the filter press and provides a number of functions, including;

- Providing a safe environment for operators working at height
- Ensuring that Filter cloths are protected from sunlight
- Protects motors etc. from rain
- Frost protection from severe winter weather conditions
- Ensures dry cake storage area
- Storing of control panel

The Press Enclosure can be split into two elements;

Support Frame

- Support frame for press with walkway and access stairs with press support frame to be mounted on walls (Within customer civil supply).

Press Housing

- Press house to suite filter press structure. Includes roof cladding.

The Filter Press Access stairs will ensure safe access to and from the Filter Press enclosure by operators.

- Galvanised steel construction
- 0.8m wide
- Complete with handrails on both sides
- Anti-slip
- Designed around plant layout to ensure integration

MISCELLANEOUS ITEMS (included within CDE supply)

- 8" flow meter
- Compressor
- Air receiver tank
- Gland seal kit
- Core wash pump

Item 12: GROUND SUMP

Quantity: 2 no.

- Ground sump and pipework to catch plant run off
  - Ground sump components;
  - Steel frame
  - Cover (steel mesh)
  - Connection pipes
- Excess grit and water are caught in the sump (completed within plant civils) and are pumped back into the system