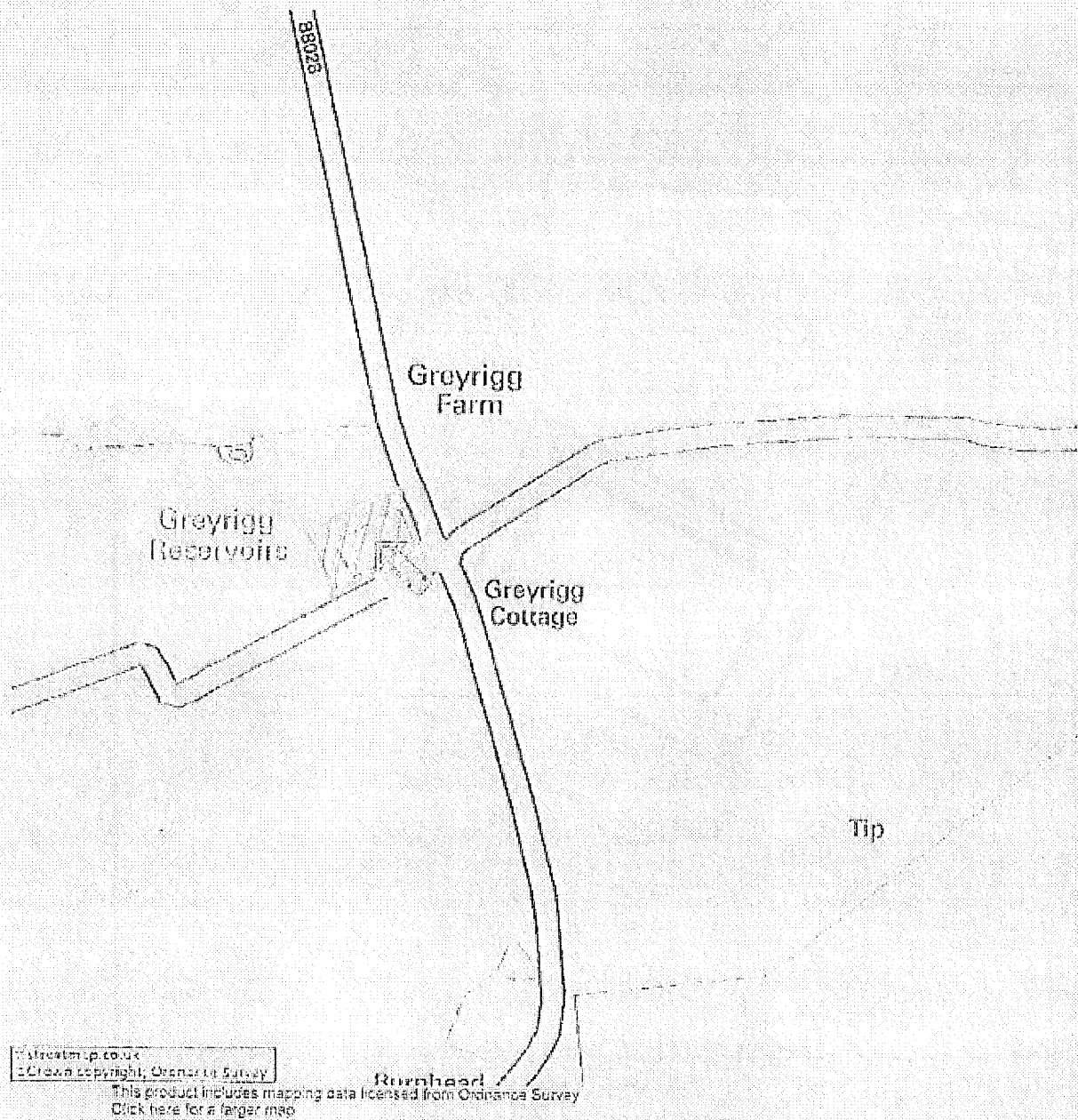


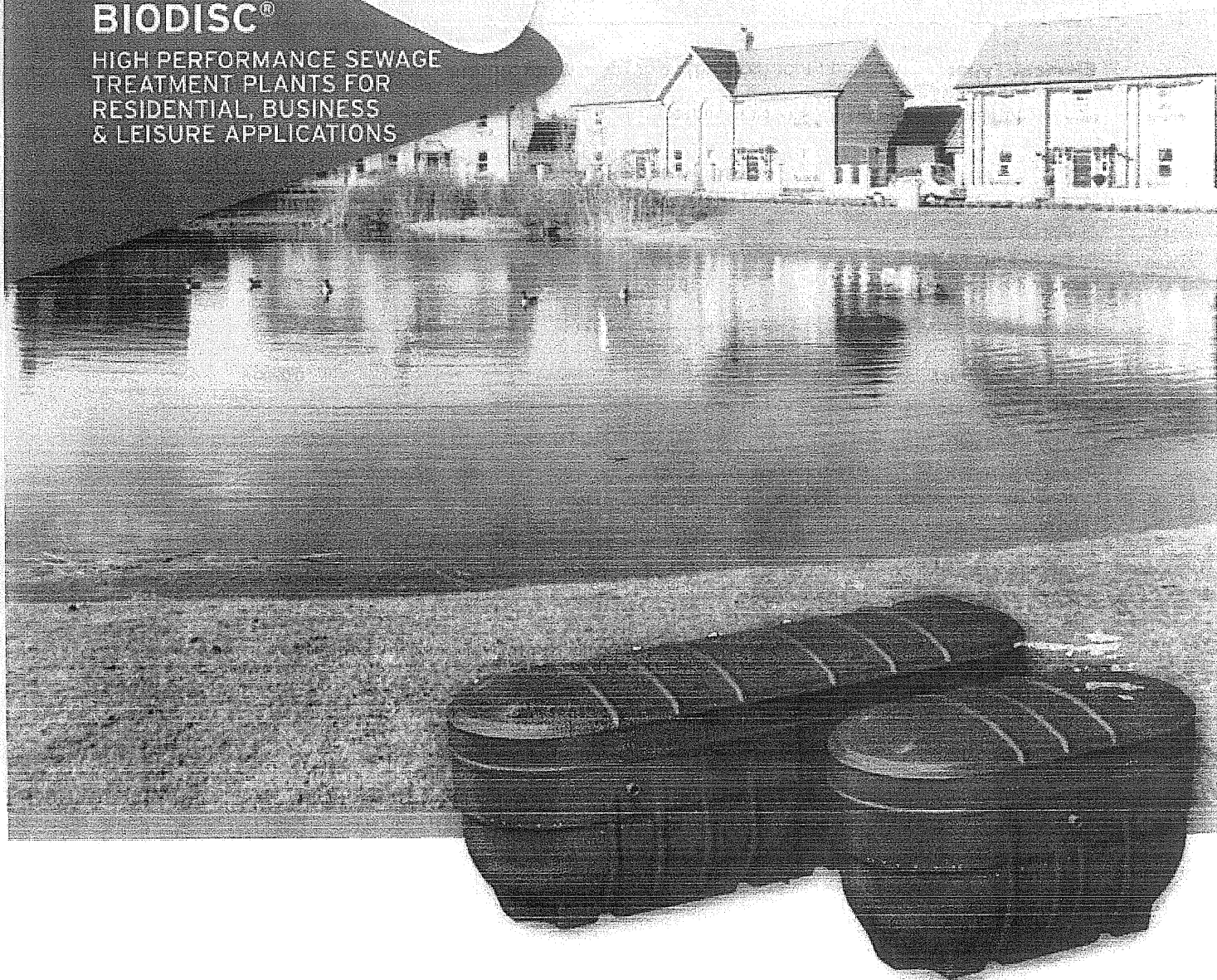


Reference	P/09/0790/PPP
Alternative Reference	Not Available
Application Received	Mon 02 Nov 2009
Address	Greyrigg Reservoirs California Falkirk
Proposal	Development of Land for Residential Purposes
Status	Planning Permission in Principle Granted
Appeal Status	Not Available
Appeal Decision	Not Available

Kingspan Klargester

BIODISC®

HIGH PERFORMANCE SEWAGE
TREATMENT PLANTS FOR
RESIDENTIAL, BUSINESS
& LEISURE APPLICATIONS



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Kingsr
Environ



U-Value Calculator

Project

PROPOSED ONE STOREY REAR EXTENSION AT 25
MADRAS ROAD, AUCHTERMUCHTY, KY14 7BW

Reference

MR2011

Building Type

Concrete Slab Floor Construction

Element Type: Ground Floor (floating)

✓ **Max U-Value** $U = 1/RT$

Perimeter (m): 11.25

Area (m²): 18.125

P/A = 0.621

Material	Thermal Cond. (W/m ² K)	%	Thickness (mm)	Resistance (m ² K/W)
Internal Surface (R _{si})				0.1700
Concrete Ground Floor Slab	0.16	100	150	0.9375
Kingspan K3 Floor Deck	0.020	100	100	5.0000
External Surface (R _{se})				0.0200

Total thickness:		250.0	mm
Total resistance:	$RT = R_{si} + R + R_{se} =$	6.127	m ² K/W
U-Value (uncorrected):	$U = 1/RT =$	0.163	W/m ² K
Total U_o	$= 0.05 + 1.65(P/A) - 0.6(P/A)^2$	0.843	
U-Value (corrected):	$1/(1/U_o + R) =$	0.137	W/m ² K

BioDisc

HIGH PERFORMANCE SEWAGE
TREATMENT PLANTS FOR RESIDENTIAL,
BUSINESS & LEISURE APPLICATIONS

The Klargester BioDisc® utilises proven rotating biological contactor (RBC) technology, and this range of larger BioDisc® treatment plants enables Klargester to offer solutions against a much wider range of applications.

All Klargester treatment plants are delivered direct to site and ready to install. The process is self-establishing, and does not require the addition of cultures or chemicals.

Improving environmental standards, more stringent controls, new European guidelines and the introduction of new Building Regulations have placed greater responsibility on specifiers and users to ensure they select the correct treatment system for their application.

Klargester BioDisc® treatment plants have been designed to provide an engineered package solution to meet a wide range of applications and discharge qualities.

ASSURED PERFORMANCE

Klargester's unique patented Managed Flow System has been specifically designed to maintain optimum performance despite shock organic loadings and hydraulic surges. The detrimental effects of modern disinfectants and cleaning materials are minimised by the managed flow system.



COMMERCIAL APPLICATIONS

Certain commercial applications, such as pubs, clubs, hotels and industrial units, place additional stresses on the wastewater treatment process.

The sewage strength from the cocktail of detergents, cleaners, and chemicals demands a greater treatment capacity than a purely residential application. In such instances Klargester can advise on the best possible treatment and BioDisc® can meet your requirements efficiently and cost-effectively.

PROCESS DESIGN

BioDisc® uniquely provides four separate treatment zones within a single vessel.

Primary Settlement Section (1):

Wastewater enters the primary chamber. Solids and heavy particles, including non-biodegradable items, settle and consolidate into a sludge which requires periodic removal. Liquid still containing some solid particles rises upwards into the

Primary Biozone (2):

Discs in this area, rotating at approximately two revolutions per minute, allow oxygen to be absorbed into the developing biofilm as naturally occurring bacteria attach to the discs. These discs provide a highly beneficial pre-treatment area.

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Flow Management Device (3): Forward flow is controlled by a baling device attached to the rotor assembly and a pre-determined volume of partially treated waste is transferred into the secondary disc zone. Incoming flows in excess of the baling device capacity stay in the primary area and it is this that creates hydraulic balancing within the plant. Zones 1 and 2 (as above) between them have a balancing capacity equal to approximately 25% of the design flow of the plant and it is this feature that can allow the plant to retain six hours flow in the event of a power failure.

This is now a requirement under the latest Building Regulations Part H2.

Secondary Disc Zone (4): Flows entering this zone are exposed to a second and separate bank of discs on which grow a further matrix of bacteria. Protected from flow variation and harmful contaminants, the bacteria efficiently use the nutrients in the effluent as a food source.

The rotation of the discs creates a gentle flow path within both disc zones that moves wastewater along the zone and rotation also sloughs ageing or surplus bacteria from the discs creating space for new bacteria to develop.

A key benefit of BioDisc® is that the whole surface area is continually regenerated with new biological growth and that there is constant replenishment as all spent bacteria are flushed into the final settlement zone.

It is often the case with submerged or fixed media treatment processes, that the biological zones become clogged with dead or excessive biological growth, inhibiting treatment and demanding expensive and dirty maintenance.