

Addendum A



SYSTEM LOCATION DATA				
Country	South Africa			
Location	Pietersburg			
Latitude (-ve = South)	-24			
Longitude (+ve = East)	29			
Elevation (Meters)	1230			
PSH (Max) Hours	6.06			
PSH (Min) Hours	5.59			
PSH Selected	5.4			
Array Tilt Angle	32			
Annual PSH - Tilted	2,120	Tilted PSH		
Horizontal	1,931	Horizontal PSH		
Selected PSH				

NOMINAL VOLTAGE				
12				

DC-LOAD item	Quantity	Watts	Hours	Wh/Day
Lights	150	11	6	9,900
Fans	15	50	6	4,500
System Losses 20%				
DC Watt Hours / Day 17,280				

AC-LOAD item	Quantity	Watts	Hours	Wh/Day
LOAD	1	1000	1	1,000
System Losses 30%				
AC Watt Hours / Day 1,300				
Total Daily Watt Hours used by the system 18,580				

SYSTEM SPECIFICATIONS				
Days Used per Week	7			
BATTERY	SOLAR			
Capacity (Amp Hours)	16,002	Array Peak Watts	3910	
Depth of Discharge	40%	Solar Module Peak (W)	85	
Autonomy (Calculated)	4.1	Modules in Series	1	
Block or Cell Voltage	12	Modules in Parallel	46	
Batteries in Series	1			
Batteries in Parallel	21			
Number of Cells or Blocks	21	Number of Solar Modules	46	
INVERTER	REGULATOR			
AC Load (Watts)	1000	Solar Array (Amps)	207	
		DC Load (Amps)	200	

SYSTEM BUDGET COST INDICATION - ex VAT				
Solar Modules	85W	2,800.00	128,800.00	
Structure per Module	ROOF	560.00	25,760.00	
Battery	RT25	1,435.00	30,135.00	
Regulator	CML20	520.00	520.00	
Inverter	1200W SINEWAVE	5,300.00	5,300.00	
Wiring	-	0.00	0.00	
Installation	-	0.00	0.00	
Delivery	-	0.00	0.00	
Other	-	0.00	0.00	
Other	-	0.00	0.00	
Other	-	0.00	0.00	
		ZAR	190,515.00	

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PSH (Min) Hours	5.59			
PSH Selected	5.4			
Array Tilt Angle	32			
Annual PSH - Tilted	2,120	Tilted PSH		
Horizontal	1,931	Horizontal PSH		
Selected PSH				

NOMINAL VOLTAGE				
12				

DC-LOAD item	Quantity	Watts	Hours	Wh/Day
Lights	34	11	6	2,244
Fans	2	50	6	600
System Losses 20%				
DC Watt Hours / Day 3,413				

AC-LOAD item	Quantity	Watts	Hours	Wh/Day
LOAD	1	1000	1	1,000
System Losses 30%				
AC Watt Hours / Day 1,300				
Total Daily Watt Hours used by the system 4,713				

SYSTEM SPECIFICATIONS				
Days Used per Week	6			
BATTERY	SOLAR			
Capacity (Amp Hours)	4,572	Array Peak Watts	850	
Depth of Discharge	40%	Solar Module Peak (W)	85	
Autonomy (Calculated)	4.7	Modules in Series	1	
Block or Cell Voltage	12	Modules in Parallel	10	
Batteries in Series	1			
Batteries in Parallel	6			
Number of Cells or Blocks	6	Number of Solar Modules	10	
INVERTER	REGULATOR			
AC Load (Watts)	1000	Solar Array (Amps)	45	
		DC Load (Amps)	40	

SYSTEM BUDGET COST INDICATION - ex VAT				
Solar Modules	85W	2,800.00	28,000.00	
Structure per Module	ROOF	560.00	5,600.00	
Battery	RT25	1,435.00	8,610.00	
Regulator	CML20	520.00	520.00	
Inverter	1200W SINEWAVE	5,300.00	5,300.00	
Wiring	-	0.00	0.00	
Installation	-	0.00	0.00	
Delivery	-	0.00	0.00	
Other	-	0.00	0.00	
Other	-	0.00	0.00	
Other	-	0.00	0.00	
		ZAR	48,030.00	

SYSTEM LOCATION DATA				
Country	South Africa			
Location	Pietersburg			
Latitude (-ve = South)	-24			
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Elevation (Meters)	1230			
PSH (Max) Hours	6.06			
PSH (Min) Hours	5.59			
PSH Selected	5.4			
Array Tilt Angle	32			
Annual PSH - Tilted	2,120	Tilted PSH		
Horizontal	1,931	Horizontal PSH		
Selected PSH				

NOMINAL VOLTAGE				
12				

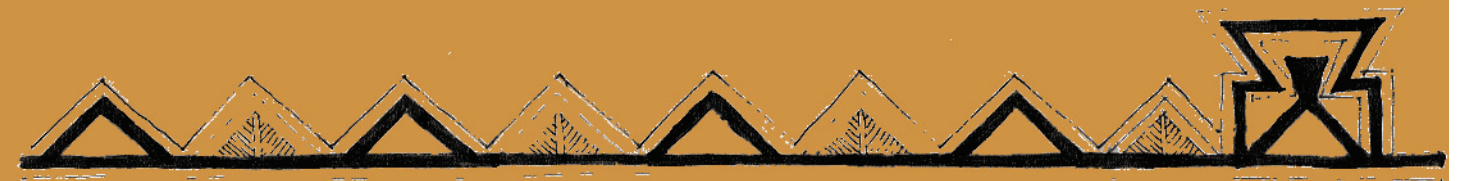
DC-LOAD item	Quantity	Watts	Hours	Wh/Day
Lights	68	11	6	4,488
Fans	10	50	6	3,000
System Losses 20%				
DC Watt Hours / Day 8,986				

AC-LOAD item	Quantity	Watts	Hours	Wh/Day
LOAD	1	1000	1	1,000
System Losses 30%				
AC Watt Hours / Day 1,300				
Total Daily Watt Hours used by the system 10,286				

SYSTEM SPECIFICATIONS				
Days Used per Week	7			
BATTERY	SOLAR			
Capacity (Amp Hours)	9,144	Array Peak Watts	2125	
Depth of Discharge	40%	Solar Module Peak (W)	85	
Autonomy (Calculated)	4.3	Modules in Series	1	
Block or Cell Voltage	12	Modules in Parallel	25	
Batteries in Series	1			
Batteries in Parallel	12			
Number of Cells or Blocks	12	Number of Solar Modules	25	
INVERTER	REGULATOR			
AC Load (Watts)	1000	Solar Array (Amps)	113	
		DC Load (Amps)	104	

SYSTEM BUDGET COST INDICATION - ex VAT				
Solar Modules	85W	2,800.00	70,000.00	
Structure per Module	ROOF	560.00	14,000.00	
Battery	RT25	1,435.00	17,220.00	
Regulator	CML20	520.00	520.00	
Inverter	1200W SINEWAVE	5,300.00	5,300.00	
Wiring	-	0.00	0.00	
Installation	-	0.00	0.00	
Delivery	-	0.00	0.00	
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		ZAR	107,040.00	

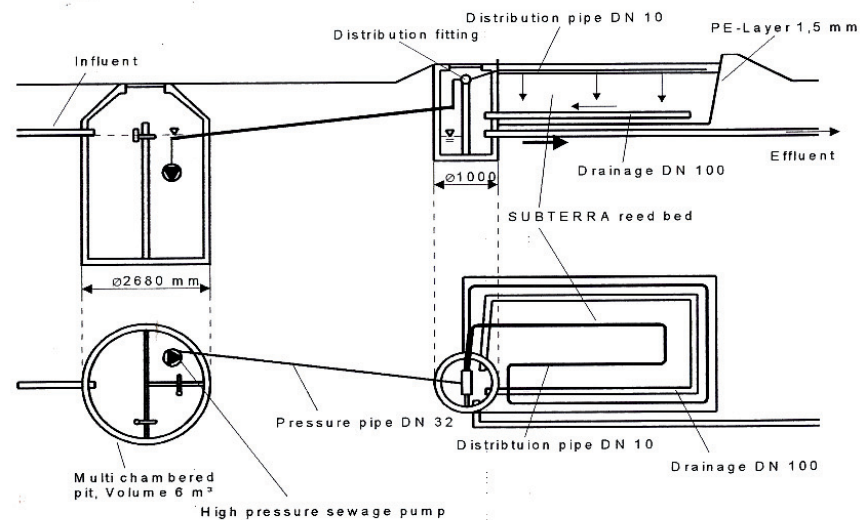
Addendum B



SUBTERRA PROCESS

The "Subterra" process is based entirely on natural processes. The pre-treatment of sewage takes place in a conventional septic tank. Secondary treatment takes place in a vertical flow biological filter. The conceptual drawing below shows the components of a typical small installation: (Drawings with more detail of a typical Subterra natural filter are attached B).

- Pre-treatment in a multi-chamber septic tank;
- Buffer tank to attenuate peaks in demand if necessary (the drawing below shows the buffer tank combined with the septic tank);
- Pump installation and transportation pipe to transport water from the buffer tank to the Subterra beds;
- The Subterra beds.



The SUBTERRA system is technically described as a planted vertical flow soil filter. The bed consists of sand and gravel layers and biological substrates to adapt the system to different climates and sewage qualities. An important element of the system is a subsurface irrigation pipe system, which sprays the sewage homogeneously over the entire reed-bed area into the top stone layer of the filter at a depth of 150mm. Irrigation takes place for 5 to 10 minutes per hour only. This ensures that the bed is never saturated but only damp. It also ensures almost constant humidity throughout the bed.

The irrigation pipe material was specifically developed for this purpose and is manufactured in Europe under license from Joachim Kruger Pflanzenkllaranlagen GmbH. The pipe is flexible but very tough. The pipe is perforated in order to spray water into the beds. The perforations only open when the pipe is pressurized to approximately 2 to 3 bar. The pipe's diameter increases from 12mm to approximately 20mm when pressurized. This movement ensures that plant roots do not enter and block the pipe system.

As mentioned above, the bed consists of different layers of sand, substrates and gravel and is planted mainly with reeds e.g. phragmites. The root system of the plants i.e. the rhizomes ensures aeration of the soil. Soil aeration results from the oxygen inflow via the vascular system of the roots and the loosening of the soil by root development. This ensures the hydraulic flow-through on a long-term basis.

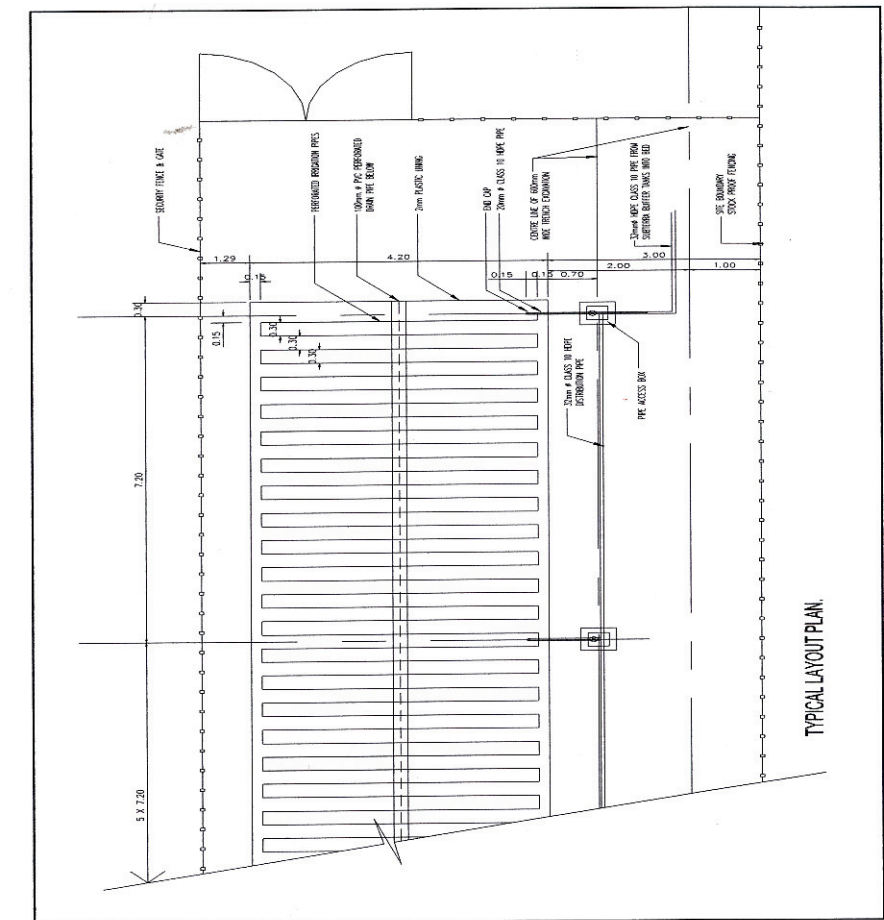
A layer of microorganisms forms on the roots and substrates. The grading of the substrate is specified in order to ensure large surface areas for microorganisms to grow. Comparing the specific surface areas of this technology with any of the package plants shows the massive advantage of the Subterra natural filters with thousands of square meters of surface area per cubic meter of substrate.

Nitrifiers and de-nitrifiers break down organic components to such an extent that even benzols and phenols are decomposed.

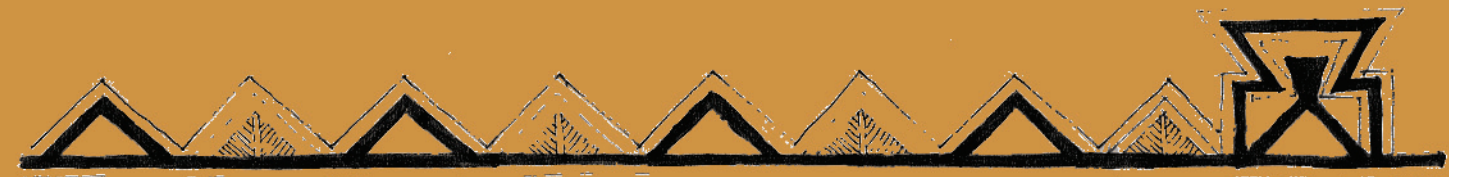
The purified water is collected in a simple subsurface drainage pipe system, from where it flows to a control tank, where it can be monitored and tested. After that it is discharged to a river, pond or reused for irrigation or secondary water cycle purposes. As the reed-bed has a dry surface and is entirely covered by gravel it has no smell. Seasonal fluctuations have minimal effect on this process and therefore satisfactory quality of effluent is also guaranteed during peak periods.

The mechanical pre-purification of wastewater, before it enters the Subterra beds takes place in a multi-chambered pit. The minimum size is 6m³, but it ultimately depends on the number of connected households. The subsequent transport of wastewater to the Subterra bed is brought about by a pressure pipe system.

Drawings with detail of Subterra natural filters



Addendum C



Feasibility Study

Calculation of design parameters:

Dimensions of site	350	hectares
Footprint of building	2065	sqm
Number of floors	1	
Total construction area of building	2065	sqm
Rentable area	950	sqm
Parking required	1.25 per accommodation unit(25 units)	
Landscaping area	31.25	bays
	124	sqm

Estimate of total capital expenditure:

Estimated current building cost			
Restaurant	177	sqm @ R 4,100.00	R 725,700.00
Shops	174	sqm @ R 3,000.00	R 522,000.00
Landscaping	124	sqm @ R 800.00	R 99,120.00
Agriculture	336	sqm @ R 2,300.00	R 772,800.00
Accommodation	882	sqm @ R 3,100.00	R 2,734,200.00
Infrastructure	3500	m @ R 80.00m@	R 280,000.00
Central facilities	496	sqm @ R 4,000.00	R 1,984,000.00
			<u>R 7,117,820.00</u>

Escalation:

Pre-contract period escalation factor	6months@	0.50% p.m.comp.	
Pre-contract period escalation	R 7,117,820.00		R 213,534.60
Building cost at start of construction			R 7,331,354.60
Construction period escalation factor	9months@	0.60% p.m.comp.	1.1137
Adjusted with Haylett & drawn down factor	0.85	0.6	0.568
Escalation during construction period	0.568	R 7,331,354.60	R 4,164,114.11

Estimated total escalated building cost

R 11,495,468.71

Professional fees:	14.00%	R 11,495,468.71	R 1,609,365.62
Developer's fee			R 70,000.00
Marketing fee			R 50,000.00
EIA			R 120,000.00
Sundry Fees:			
Legal fees			R 13,000.00
Rates & taxes			R 1,000.00
Plan approval fees			R 18,000.00
Letting fees			R 57,000.00

Total cost excl land, cost of capital

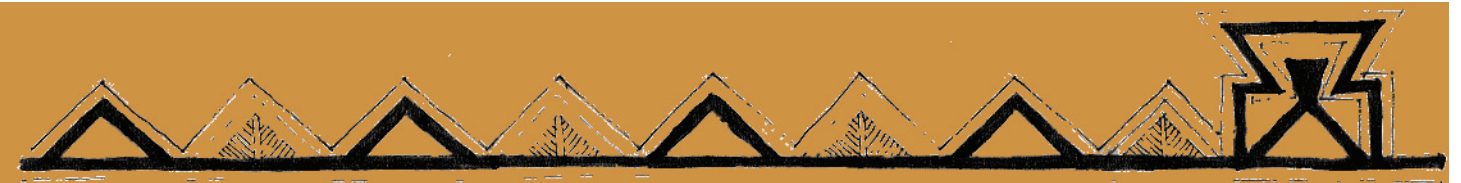
R 13,433,834.32

Land cost (incl transfer fees less VAT)	R 525,000.00	1.14	R 460,526.32
Interim interest (cost of capital):			
Land	9.00%	R 460,526.32	15months
Construction period	9.00%	R 13,433,834.32	9
			0.4
			R 54,619.62
			R 373,787.52
Total project cost			<u>R 14,322,767.77</u>

Estimated net annual income:	area/ number	esc. Factor	R/smq or bay	months	annual income
Shops	153	1.1449	R 45.00	12	R 94,591.64
Restaurant	230	1.1449	R 45.00	12	R 142,196.58
Accommodation (per unit) Unit A	24	1.1449	R 450.00	12	R 148,379.04
Accommodation (per unit) Unit B	20	1.1449	R 100.00	12	R 27,477.60
Conference Facility	1	1.1449	R 3,000.00	12	R 41,216.40

Nett income Agricultural activities			R 1,200,000.00
Total gross income			R 1,653,861.26
Less: Non-recoverable expenses			R 750,000.00
Total gross income before allowance for vacancies			R 903,861.26
Total gross income after allowance for vacancies of	35.00%		<u>R 587,509.82</u>
(a) Yield (Return on total capital expend.,year 1)	R 587,509.82	R 14,322,767.77	<u>4.10%</u>
(b) Development Profit			
Sales price	R 587,509.82	9.75%	R 6,025,741.72
Less: Total capital expenditure			R 14,322,767.77
Profit			<u>-R 8,297,026.05</u>

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Acknowledgements



Ma & Pa

Baie dankie vir al julle ondersteuning en geduld deur die jare.

My susters

Liezel Basson
Karen van Helsdingen
Nadia van Rooyen

Amy Blaine
Sonia Cunha
Lerentha Ludik
Sonika van Niekerk

Kate Blaine
John Blaine
Colleen Blaine

Niel Crafford
Abre Crafford
Mireille Bezuidenhout