

INPUT DATA

Project Name	Riverwood North	Date	21.10.10
Location	Block A	Issue	A
Client	PAYCE	For	Comment

Water Usage

Water 1.2 \$/kL

Population Male 102 per day
Female 102 per day

Irrigation = 4,571 L/day

	m ²	L/m ² /day	=			
Turf	1000	4.29	=	4,286	L/day	30 mm/m ² /week
Garden		2.86	=	0	L/day	20 mm/m ² /week
	No	L/tree				
Trees	20	14.25	=	285	L/day	

Washing Machine No 0 l/use 80 = 0 L/day usage factor 10%

Carwash No of wash 0 L/each 40 = 0 L/day

General Use Factor L/use 908 L/day

Fem	1	5 =	510 L/day
Male	0.6	4.5 =	275
Urinal	0.4	3 =	122 L/day

Total 5,479 L/day Wet Weather 908 L/day
5.48 kL/day 0.91 kL/day

Load Profile

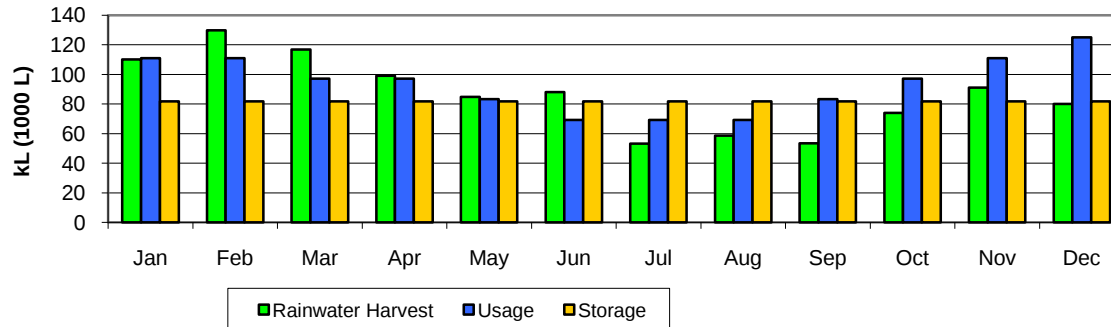
	Irrigation		Washing Machine		Carwash		Domestic Water		Totals
	%	kL	%	kL	%	kL	%	kL	kL
January	60%	83.4	100%	0.0	100%	0.0	100%	27.6	111.0
February	60%	83.4	100%	0.0	100%	0.0	100%	27.6	111.0
March	50%	69.5	100%	0.0	100%	0.0	100%	27.6	97.1
April	50%	69.5	100%	0.0	100%	0.0	100%	27.6	97.1
May	40%	55.6	100%	0.0	100%	0.0	100%	27.6	83.2
June	30%	41.7	100%	0.0	100%	0.0	100%	27.6	69.3
July	30%	41.7	100%	0.0	100%	0.0	100%	27.6	69.3
August	30%	41.7	100%	0.0	100%	0.0	100%	27.6	69.3
September	40%	55.6	100%	0.0	100%	0.0	100%	27.6	83.2
October	50%	69.5	100%	0.0	100%	0.0	100%	27.6	97.1
November	60%	83.4	100%	0.0	100%	0.0	100%	27.6	111.0
December	70%	97.3	100%	0.0	100%	0.0	100%	27.6	124.9
Total	48% 792.4		100% 0.0		100% 0.0		100% 331.3	1,123.8	

Cost Analysis and Rainwater Use

Project Name	Riverwood North
Location	Block A
Client	PAYCE

Date	21.10.10
Issue	A
For	Comment

Rainfall - Use - Storage



Roof Area

Total Storage

Tank

Diameter

Height

82 m³

7.60 m

1.80 m

No

1,196 m²

82 kL

1 Tanks

Rainwater use

90.65%

Cost

Tanks

Pumps

STW

Water

Builders

\$0

\$0

\$0

\$0

\$0

Each Tank

\$0

Total

\$0

Money Saved

Year

\$1,176

1

\$1,293

2

\$1,423

3

\$1,565

4

\$1,722

5

\$1,894

6

\$2,083

7

\$2,291

8

\$2,521

9

\$2,773

10

Year

\$3,050

11

\$3,355

12

\$3,690

13

\$4,059

14

\$4,465

15

\$4,912

16

\$5,403

17

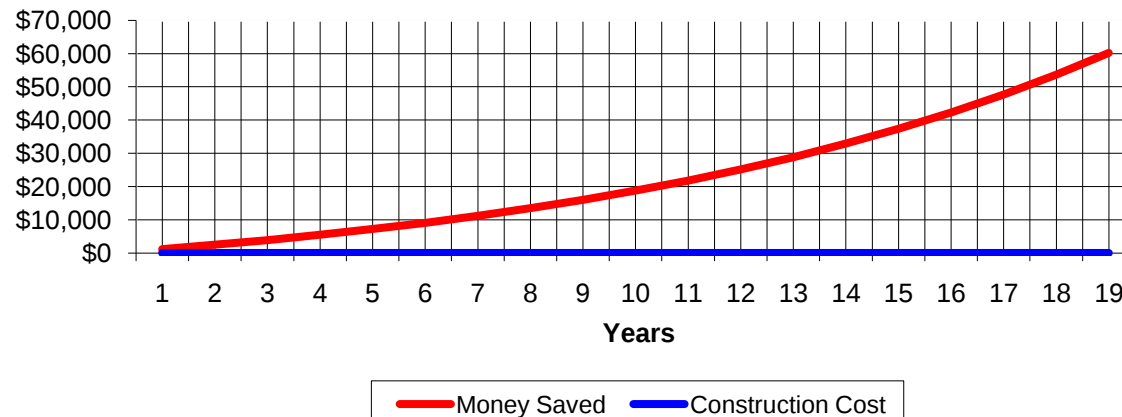
\$5,943

18

\$6,538

19

Payback



Tank Size and Utilisation

Project Name	Riverwood North
Location	Block A
Client	PAYCE

Date	21.10.10
Issue	A
For	Comment

Building	Roof Area		1,196 m ²		Tank Size		=		81,656 L		81.7 kL			
					Rectangle		81.65 m ³		Round		81.66 m ³		No	1
					Length		15.12 m		Diameter		7.60 m			
					Width		3.00 m		Height		1.80 m			
					Height		1.80 m							
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
Mean	92.1	108.5	97.6	82.8	70.9	73.6	44.6	49.1	44.7	61.9	76.1	67	866.9	
Days	11.2	11	11.2	8.6	9.9	9.3	8	7.3	7.7	9.4	11	9.7	114.3	
Lowest	3.6	9.8	12.7	2.6	2.8	3	0.2	0.2	0.6	1.2	8.6	8.4		
Harvest from Roof														
Harvest mean (kL)	110	130	117	99	85	88	53	59	53	74	91	80	1,039	
Harvest low (kL)	4	12	15	3	3	4	0	0	1	1	10	10	64	
Usage														
Usage per month (kL)	111	111	97	97	83	69	69	69	83	97	111	125	1,124	
Make up required														
Mean Harvest (kL)	-1	19	20	2	2	19	-16	-11	-30	-23	-20	-45	-85	
Storage and use														
Storage provided (kL)	82	82	82	82	82	82	82	82	82	82	82	82		
Actual Make up req (kL)	-29	-29	-15	-15	-2	12	12	12	-2	-15	-29	-43	-144	
Rainwater used (kL)	82	82	82	82	82	82	82	82	82	82	82	82	980	
Utilisation	74%	74%	84%	84%	98%	100%	100%	100%	98%	84%	74%	65%	91%	
Cost Saving	\$98	\$98	\$98	\$98	\$98	\$98	\$98	\$98	\$98	\$98	\$98	\$98	\$1,176	

INPUT DATA

Project Name	Riverwood North	Date	21.10.10
Location	Block B	Issue	A
Client	PAYCE	For	Comment

Water Usage

Water 1.2 \$/kL

Population Male 82 per day
 Female 83 per day

Irrigation = 4,571 L/day

	m ²	L/m ² /day	=			
Turf	1000	4.29	=		4,286 L/day	30 mm/m ² /week
Garden		2.86	=		0 L/day	20 mm/m ² /week
Trees	No 20	L/tree				
		14.25	=		285 L/day	

Washing Machine No 0 l/use 80 = 0 L/day usage factor 10%

Carwash No of wash 0 L/each 40 = 0 L/day

General Use Factor L/use 735 L/day
 Fem 1 5 = 415 L/day
 Male 0.6 4.5 = 221
 Urinal 0.4 3 = 98 L/day

Total 5,306 L/day Wet Weather 735 L/day
 5.31 kL/day 0.73 kL/day

Load Profile

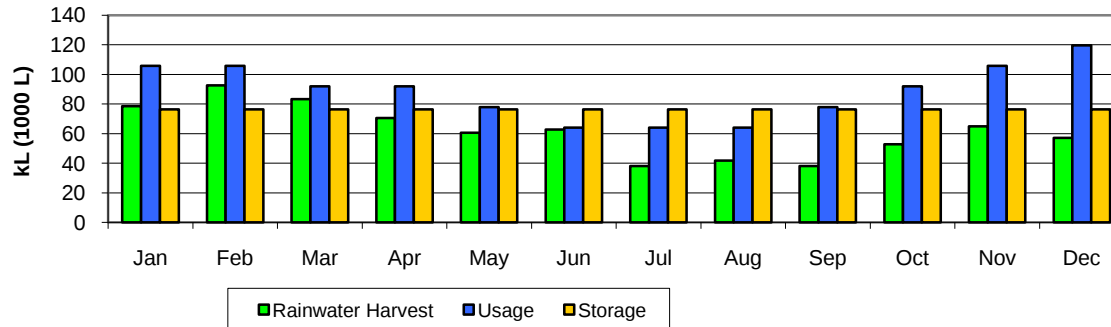
	Irrigation		Washing Machine		Carwash		Domestic Water		Totals
	%	kL	%	kL	%	kL	%	kL	kL
January	60%	83.4	100%	0.0	100%	0.0	100%	22.4	105.8
February	60%	83.4	100%	0.0	100%	0.0	100%	22.4	105.8
March	50%	69.5	100%	0.0	100%	0.0	100%	22.4	91.9
April	50%	69.5	100%	0.0	100%	0.0	100%	22.4	91.9
May	40%	55.6	100%	0.0	100%	0.0	100%	22.4	78.0
June	30%	41.7	100%	0.0	100%	0.0	100%	22.4	64.1
July	30%	41.7	100%	0.0	100%	0.0	100%	22.4	64.1
August	30%	41.7	100%	0.0	100%	0.0	100%	22.4	64.1
September	40%	55.6	100%	0.0	100%	0.0	100%	22.4	78.0
October	50%	69.5	100%	0.0	100%	0.0	100%	22.4	91.9
November	60%	83.4	100%	0.0	100%	0.0	100%	22.4	105.8
December	70%	97.3	100%	0.0	100%	0.0	100%	22.4	119.7
Total	48%	792.4	100%	0.0	100%	0.0	100%	268.2	1,060.6

Cost Analysis and Rainwater Use

Project Name	Riverwood North
Location	Block B
Client	PAYCE

Date	21.10.10
Issue	A
For	Comment

Rainfall - Use - Storage



Roof Area

853 m²

Total Storage

76 kL

Tank

76 m³

No

1 Tanks

Diameter

7.35 m

Height

1.80 m

Rainwater use

90.29%

Cost

Tanks

\$0

Pumps

\$0

STW

\$0

Water

\$0

Builders

\$0

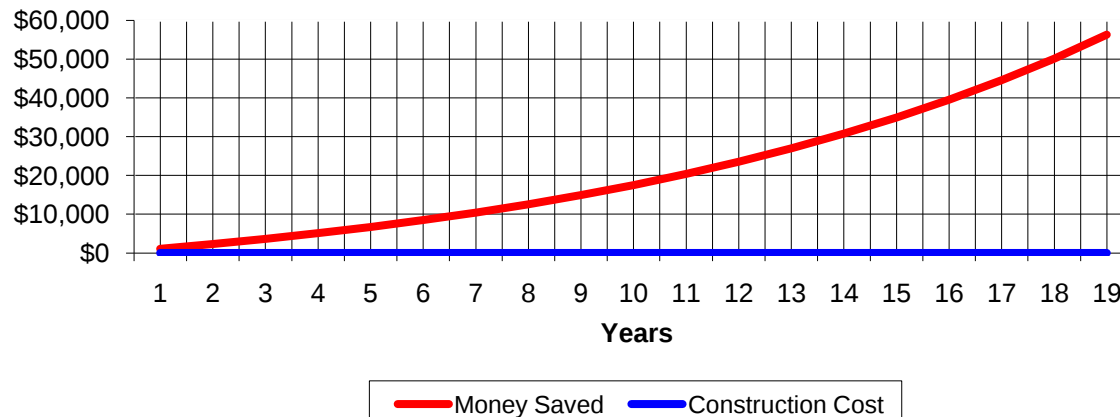
Total

\$0

Each Tank

\$0

Payback



Money Saved

Year

\$1,100

1

\$1,210

2

\$1,331

3

\$1,464

4

\$1,610

5

\$1,771

6

\$1,948

7

\$2,143

8

\$2,357

9

\$2,593

10

Year

\$2,853

11

\$3,138

12

\$3,452

13

\$3,797

14

\$4,176

15

\$4,594

16

\$5,053

17

\$5,559

18

\$6,115

19

Tank Size and Utilisation

Project Name	Riverwood North
Location	Block B
Client	PAYCE

Date	21.10.10
Issue	A
For	Comment

Building	Roof Area		853 m ²		Tank Size		=		76,373 L		76.4 kL			
					Rectangle		76.36 m ³		Round		76.37 m ³		No	1
					Length		14.14 m		Diameter		7.35 m			
					Width		3.00 m		Height		1.80 m			
					Height		1.80 m							
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
Mean	92.1	108.5	97.6	82.8	70.9	73.6	44.6	49.1	44.7	61.9	76.1	67	866.9	
Days	11.2	11	11.2	8.6	9.9	9.3	8	7.3	7.7	9.4	11	9.7	114.3	
Lowest	3.6	9.8	12.7	2.6	2.8	3	0.2	0.2	0.6	1.2	8.6	8.4		
Harvest from Roof														
Harvest mean (kL)	79	93	83	71	60	63	38	42	38	53	65	57	741	
Harvest low (kL)	3	8	11	2	2	3	0	0	1	1	7	7	46	
Usage														
Usage per month (kL)	106	106	92	92	78	64	64	64	78	92	106	120	1,061	
Make up required														
Mean Harvest (kL)	-27	-13	-9	-21	-17	-1	-26	-22	-40	-39	-41	-63	-319	
Storage and use														
Storage provided (kL)	76	76	76	76	76	76	76	76	76	76	76	76		
Actual Make up req (kL)	-29	-29	-15	-15	-2	12	12	12	-2	-15	-29	-43	-144	
Rainwater used (kL)	76	76	76	76	76	76	76	76	76	76	76	76	916	
Utilisation	72%	72%	83%	83%	98%	100%	100%	100%	98%	83%	72%	64%	90%	
Cost Saving	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$1,100	

INPUT DATA

Project Name	Riverwood North	Date	21.10.10
Location	Block C	Issue	A
Client	PAYCE	For	Comment

Water Usage

Water 1.2 \$/kL

Population Male 40 per day
Female 41 per day

Irrigation = 4,571 L/day

	m ²	L/m ² /day	=			
Turf	1000	4.29	=	4,286	L/day	30 mm/m ² /week
Garden		2.86	=	0	L/day	20 mm/m ² /week
	No	L/tree				
Trees	20	14.25	=	285	L/day	

Washing Machine No 0 l/use 80 = 0 L/day usage factor 10%

Carwash No of wash 0 L/each 40 = 0 L/day

General Use Factor L/use 361 L/day

Fem	1	5 =	205 L/day
Male	0.6	4.5 =	108
Urinal	0.4	3 =	48 L/day

Total 4,932 L/day 4.93 kL/day

Wet Weather
361 L/day
0.36 kL/day

Load Profile

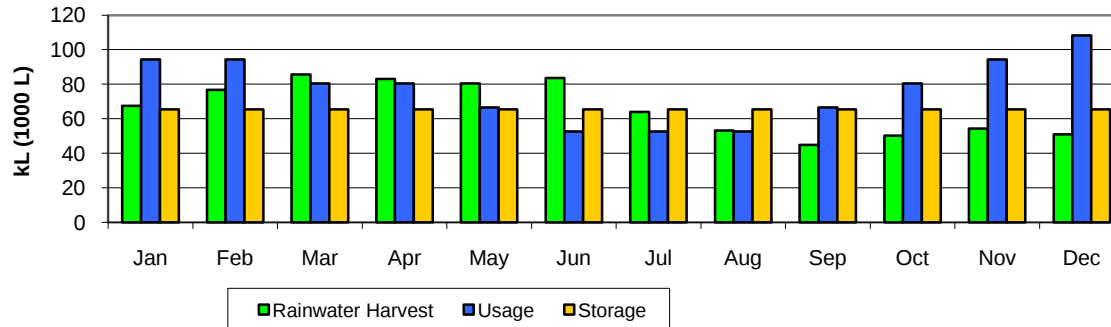
	Irrigation		Washing Machine		Carwash		Domestic Water		Totals
	%	kL	%	kL	%	kL	%	kL	kL
January	60%	83.4	100%	0.0	100%	0.0	100%	11.0	94.4
February	60%	83.4	100%	0.0	100%	0.0	100%	11.0	94.4
March	50%	69.5	100%	0.0	100%	0.0	100%	11.0	80.5
April	50%	69.5	100%	0.0	100%	0.0	100%	11.0	80.5
May	40%	55.6	100%	0.0	100%	0.0	100%	11.0	66.6
June	30%	41.7	100%	0.0	100%	0.0	100%	11.0	52.7
July	30%	41.7	100%	0.0	100%	0.0	100%	11.0	52.7
August	30%	41.7	100%	0.0	100%	0.0	100%	11.0	52.7
September	40%	55.6	100%	0.0	100%	0.0	100%	11.0	66.6
October	50%	69.5	100%	0.0	100%	0.0	100%	11.0	80.5
November	60%	83.4	100%	0.0	100%	0.0	100%	11.0	94.4
December	70%	97.3	100%	0.0	100%	0.0	100%	11.0	108.3
Total	48% 792.4		100% 0.0		100% 0.0		100% 131.8		924.2

Cost Analysis and Rainwater Use

Project Name	Riverwood North
Location	Block C
Client	PAYCE

Date	21.10.10
Issue	A
For	Comment

Rainfall - Use - Storage



Roof Area

653 m²

Total Storage

65 kL

Tank

65 m³

No

1 Tanks

Diameter

6.80 m

Height

1.80 m

Rainwater use

90.02%

Cost

Tanks

\$0

Pumps

\$0

STW

\$0

Water

\$0

Builders

\$0

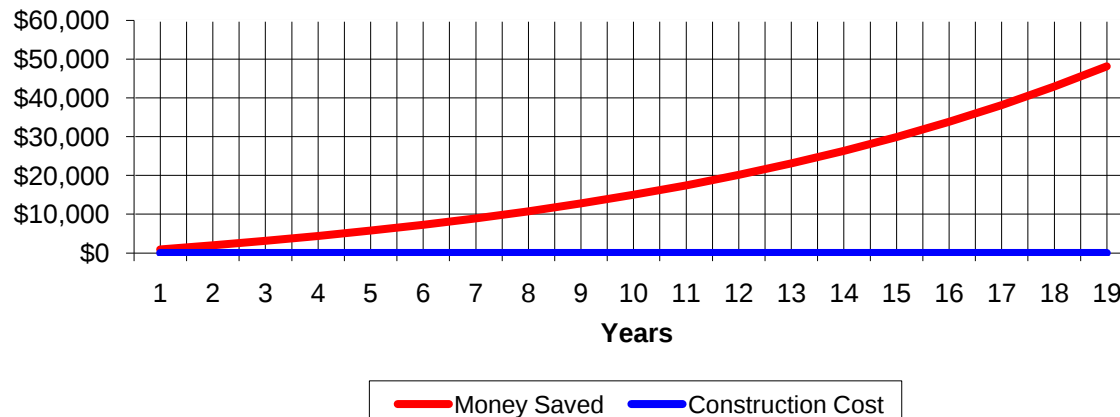
Total

\$0

Each Tank

\$0

Payback



Money Saved

Year

\$941

1

\$1,035

2

\$1,139

3

\$1,253

4

\$1,378

5

\$1,516

6

\$1,668

7

\$1,834

8

\$2,018

9

\$2,220

10

Year

\$2,442

11

\$2,686

12

\$2,954

13

\$3,250

14

\$3,575

15

\$3,932

16

\$4,325

17

\$4,758

18

\$5,234

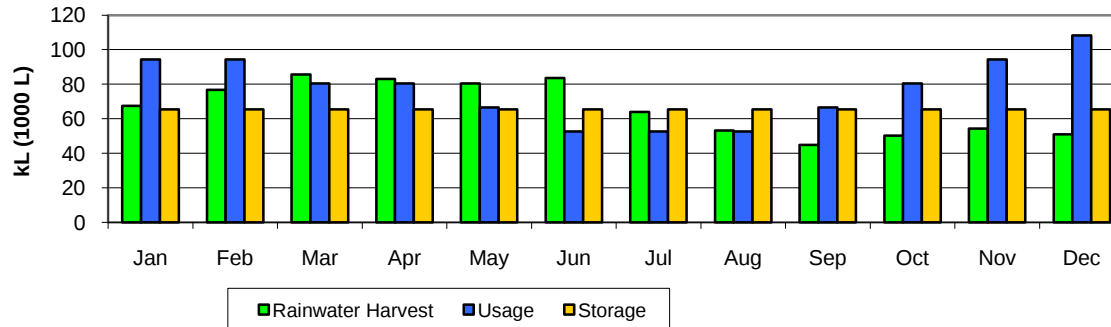
19

Cost Analysis and Rainwater Use

Project Name	Riverwood North
Location	Block C
Client	PAYCE

Date	21.10.10
Issue	A
For	Comment

Rainfall - Use - Storage



Roof Area

653 m²

Total Storage

65 kL

Tank

65 m³

No

1 Tanks

Diameter

6.80 m

Height

1.80 m

Rainwater use

90.02%

Cost

Tanks

\$0

Pumps

\$0

STW

\$0

Water

\$0

Builders

\$0

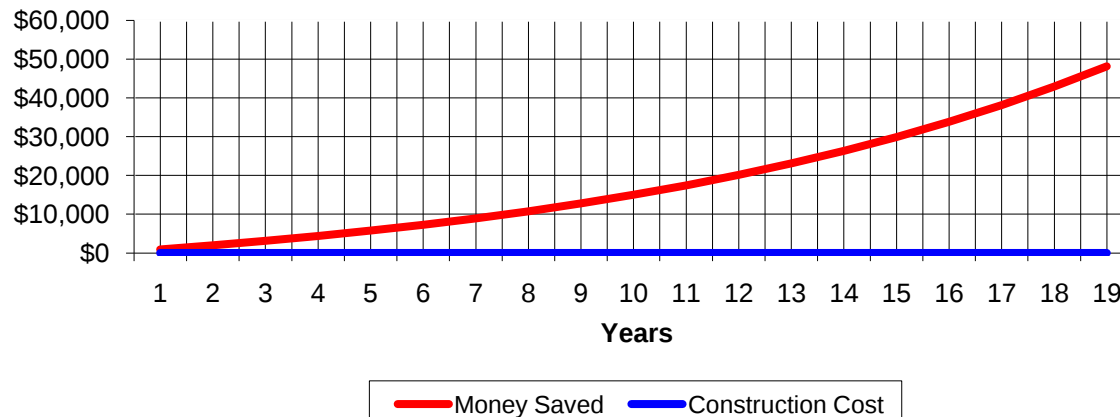
Total

\$0

Each Tank

\$0

Payback



Money Saved

Year

\$941

1

\$1,035

2

\$1,139

3

\$1,253

4

\$1,378

5

\$1,516

6

\$1,668

7

\$1,834

8

\$2,018

9

\$2,220

10

Year

\$2,442

11

\$2,686

12

\$2,954

13

\$3,250

14

\$3,575

15

\$3,932

16

\$4,325

17

\$4,758

18

\$5,234

19