CONCLUSION

The design fulfils its intention of creating an architecture that empowers, which manifested from a detailed understanding of the existing community. The project aimed to create a space of justice; a space that the community can claim as their own, a space where they have the necessary resources and tools needed for their success, and a space that begins to break down social barriers and encourage interaction and new social relationships.

The project showcases a new model for the development of inner-city blocks in Johannesburg. It successfully illustrates the value of working within an existing fabric in order to support and strengthen existing networks, and create an interactive dynamic between building, street edge and pedestrian.

APPENDIX A: THE WATER BUDGET

RAINWATER YIELD

$$\text{Yield } (m^3) = P \times A \times C$$
$$= \text{precipitation x area x run-off coeffecient}$$

RAINWATER HARVESTING YIELD

Catchment surface	Area (m2)	Runoff coefficient weighted	Area of catchment weighted
Roof	3209,3	0,9	2888,37
Decking	552	0,9	496,8
Paving	3522,89	0,8	2818,312
lawn	1819	0,4	727,6
Total			6931,082

Column1	Ave. monthly p	Area of catchment weighted	Yield
January	0,105	6931,082	727,76361
February	0,121	6931,082	838,660922
March	0,096	6931,082	665,383872
April	0,039	6931,082	270,312198
May	0,025	6931,082	173,27705
June	0,009	6931,082	62,379738
July	0,003	6931,082	20,793246
August	0,007	6931,082	48,517574
September	0,019	6931,082	131,690558
October	0,078	6931,082	540,624396
November	0,085	6931,082	589,14197
December	0,109	6931,082	755,487938
Total	0,696	6931,082	4824,033072

RAINWATER DEMAND

DOMESTIC DEMAND SUPPLIED BY RAIN WATER YIELD

Month	Days/month	Working days/month	Water capita/day	Water capita/month	Domestic demand/month (m3)
January	31	20	560	11200	11,2
February	28	20	560	11200	11,2
March	31	20	560	11200	11,2
April	30	20	560	11200	11,2
May	31	20	560	11200	11,2
June	30	20	560	11200	11,2
July	31	20	560	11200	11,2
August	31	20	560	11200	11,2
September	30	20	560	11200	11,2
October	31	20	560	11200	11,2
November	30	20	560	11200	11,2
December	31	15	560	8400	8,4
					131,6

IRRIGATION DEMAND

Months	Planting Area (m2)	Irr. Depth/ month	Irrigation demand (m3 per month)
January	1819	0,16	291,04
February	1819	0,16	291,04
March	1819	0,16	291,04
April	1819	0,12	218,28
May	1819	0,08	145,52
June	1819	0,08	145,52
July	1819	0,08	145,52
August	1819	0,08	145,52
September	1819	0,12	218,28
October	1819	0,16	291,04
November	1819	0,16	291,04
December	1819	0,16	291,04
		Total	2764,88

RAINWATER BUDGET

WATER BUDGET - RAINWATER HARVEST

Months	Rainwater Yield	Irrigation Demand	Domestic Demand	Monthly Balance	Water in Tank (m³)
January	727,76361	291,04	11,2	425,52361	2353,076682
February	838,660922	291,04	11,2	536,420922	2889,497604
March	665,383872	291,04	11,2	363,143872	3252,641476
April	270,312198	218,28	11,2	40,832198	3293,473674
May	173,27705	145,52	11,2	16,55705	3310,030724
June	62,379738	145,52	11,2	-94,340262	3215,690462
July	20,793246	145,52	11,2	-135,926754	3079,763708
August	48,517574	145,52	11,2	-108,202426	2971,561282
September	131,690558	218,28	11,2	-97,789442	2873,77184
October	540,624396	291,04	11,2	238,384396	3112,156236
November	589,14197	291,04	11,2	286,90197	3399,058206
December	755,487938	291,04	8,4	456,047938	3855,106144
YEAR	4824,033072	2764,88	131,6	1927,553072	

GREATEST VOLUME IN TANK AT ANY TIME IS THE MIN CAPACITY OF TANK	3855,106144 m³
FINAL TANK /SIZE WITH 1.5 SAFETY FACTOR	5782,659216 m³
TANK SIZE	34 X 34 X 5

GREY WATER YIELD

Yield (m^3) = P x A x C
= precipitation x area x run-off coeffecient

GREY WATER YIELD

total people	Appliances	Litres/day/person served	total yield per day
80	Handwashing:spray taps	4	320
40	Urinial flushing 8h day	4	160
80	Drinking, food preparation a	15	1200
80	Washing dishes	10	800
			2480

GREY WATER RETURN

Month	Days/month	Working days/month	Water capita/day	Water capita/month	Domestic demand/month (m3)
January	31	20	2480	49600	49,6
February	28	20	2480	49600	49,6
March	31	20	2480	49600	49,6
April	30	20	2480	49600	49,6
May	31	20	2480	49600	49,6
June	30	20	2480	49600	49,6
July	31	20	2480	49600	49,6
August	31	20	2480	49600	49,6
September	30	20	2480	49600	49,6
October	31	20	2480	49600	49,6
November	30	20	2480	49600	49,6
December	31	15	2480	37200	37,2
					582,8

GREY WATER DEMAND

DOMESTIC WATER CAPITA/DAY (L)

total people	Appliances	Litres/day/person served	total demand/day
80	Handwashing:spray taps	4	320
40	Urinial flushing 8h day	4	160
80	WC flushing-urinals provided	5	400
		TOTALS	320
			560

Rainwater Yield
Greywater Yield

DOMESTIC DEMAND SUPPLIED BY GREY WATER YIELD

Month	Days/month	Working days/month	Water capita/day	Water capita/month	Domestic demand/month (m3)
January	31	20	320	6400	6,4
February	28	20	320	6400	6,4
March	31	20	320	6400	6,4
April	30	20	320	6400	6,4
May	31	20	320	6400	6,4
June	30	20	320	6400	6,4
July	31	20	320	6400	6,4
August	31	20	320	6400	6,4
September	30	20	320	6400	6,4
October	31	20	320	6400	6,4
November	30	20	320	6400	6,4
December	31	15	320	4800	4,8
					75,2

GREY WATER BUDGET

WATER BUDGET - GREY WATER HARVEST

Months	Grey Water Yield	Domestic Demand	Monthly Balance	Water in Tank (m^3)
January	49,6	6,4	43,2	550,8
February	49,6	6,4	43,2	594
March	49,6	6,4	43,2	637,2
April	49,6	6,4	43,2	680,4
May	49,6	6,4	43,2	723,6
June	49,6	6,4	43,2	766,8
July	49,6	6,4	43,2	810
August	49,6	6,4	43,2	853,2
September	49,6	6,4	43,2	896,4
October	49,6	6,4	43,2	939,6
November	49,6	6,4	43,2	982,8
December	37,2	4,8	32,4	1015,2
YEAR	582,8	75,2	507,6	

GREATEST VOLUME IN TANK AT ANY TIME IS THE MIN CAPACITY OF TANK	1015,2 m^3
FINAL TANK /SIZE WITH 1.5 SAFETY FACTOR	1522,8 m^3
TANK SIZE	20 X 20 X 4

LIST OF FIGURES

All images by author unless otherwise referenced

CHAPTER 1

CHAPTER 2

CHAPTER 3

CHAPTER 4

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CHAPTER 5

CHAPTER 6

BIBLIOGRAPHY

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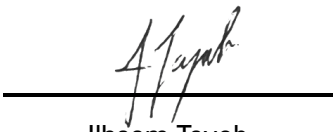
In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree of Master of Architecture (Professional), at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my thesis has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.



Ilhaam Tayob
November 2016