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To: Columbia Burrough
From: Robert Irwin
Date: 9/30/17

The team is happy to offer the below financial estimates for the new construction of the urban aquaponics farm to be located at the Columbia Market Place.

You will notice we have included cost breakdowns for the aquaponics system design, construction, and operation with the ROI on production with additional revenue estimates for vendor occupancy recovered by the township.

We are working on the weekly timeline for the build and operational dates and should have these figures early next week.

Lastly, the master planning concepts for the remodel of the Market Place itself will be offered mid-next week including two different concepts and price-points.

Thank you for your time and consideration in the matter. We look forward to hearing the Council's thoughts.

Kindly,
Robert Irwin

Robert P. Irwin

Principal Designer

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Cost Estimates Addendum 1.1

Aquaponics Vending Booth Cost Estimates (detailed)		
Aquaponics System	$20000.00	Includes Educational Ext. System
Plant Implementation	$500.00	
System Training	$500.00	
System and Booth Design	$8500.00	Includes Market Place Design
Construction Labor	$12000.00	3 Skilled Laborers
Construction Material	$25000.00	Includes FDA Walls
1 FTE / 1 yr	$30000.00	Amortized
Total	$96500.00	

Production ROI (1st Year)

Items	units	cost per	totals	notes
Plants (Annual)	3600	$8.00	$28800.00	
Media Bed Planting	520	$6.00	$3120.00	
Fish (Annual)	100	$5.00	$500.00	
Ancillary Vending	4	$1800.00	$7200.00	$150/mo/vendor
Educational Classes	50	$60.00	3050	3 Adults @$20 each/class
TOTAL Revenue (Aqua)			*$42670.00*	
Increase in Vendor Occupancy	*40*	$250.00	*$120000.00*	
TOTAL Influx Estimates			**$162670.00**	
Profit			**$66170.00**	

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Aquaponics Concept Sketch

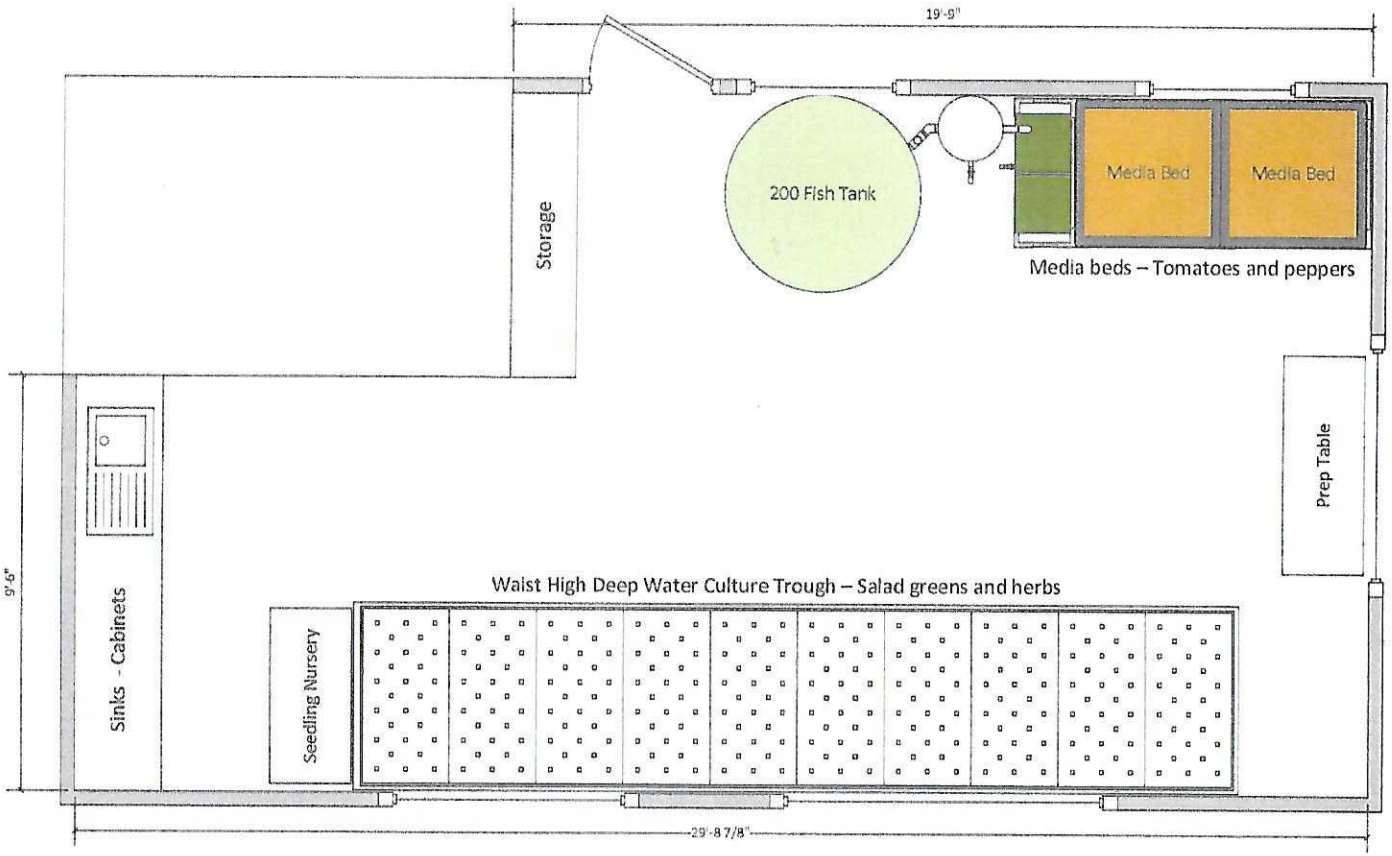
This is a conceptual layout of An AquaBundance Series II system with a combination of media beds along the north wall and an elevated deep water culture trough.

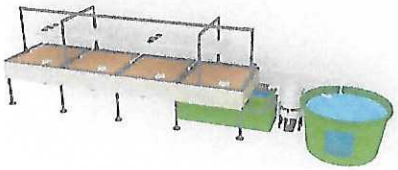
The aquaponics system is a CHOP II design which will take water and gravity feed it from the fish tank through the filtration system to a central sump tank. The sump tank can be located and partially buried under the media beds. A pump in the sump tank will move water to the media beds, DWC and fish tank simultaneously. The media beds and DWC beds are elevated at a height comfortable for harvesting.

The deep water culture system could produce an average of 3600 heads of lettuce or other leafy greens and herbs annually or about 70 heads per week assuming optimal conditions for the plants are being maintained in the greenhouse and a steady rotation of seeding, transplanting and harvesting is being followed.

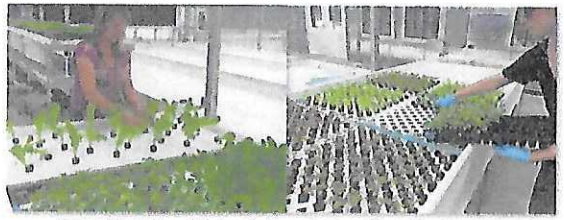
Media bed yields have not yet been calculated and will be dependent on crop choices. The media beds will be great for a wide variety of fruiting crops such as tomatoes, peppers, squash and other varieties.

Between 60 to 80 lbs of fish could be produced annually depending on species selection, stocking density, system management, water quality and other factors.





4 Bed Aquabundance Media Bed System with Light Rack Extension



Waist High Deep Water Culture Images from The Mental Health Center of Denver Aquaponics Farm

THE Aquaponic SOURCE
Growing Fish and Plants Together

Rob Irwin – Aquaponic Concept Sketch

Date: 9/26/16	Drawn by: JDS	Scale: ½" = 1'	Sheet no: 1 of 1