

ORANGE RIVER CELLARS

NEW RAISIN PROCESSING FACILITY

Feedback Report – Conceptual Design Phase



EXECUTIVE SUMMARY

This Conceptual design and cost estimate provides for the establishment of a Raisin processing and packaging facility on the Kanoneiland premises of Orange River Cellars.

The scope of work includes for the construction and installation of infrastructure, as well as the required services and utilities to accommodate production of 8000 to 16 000 tons per annum.

The Capital cost for the complete project is estimated at R_147_m

The estimated project duration is 21 Months.

The estimated construction period is 11 Months.

TABLE OF CONTENTS

1. Scope of Project	1
2. Key Parameters- and Assumptions	2
3. Site Selection and Existing Services	3
4. Production Capacity Requirement	4
5. Masterplan	10
6. Capital Expenditure	11
7. Operational Expenditure	13
8 Renewable Resources and Sustainability	17
9 Project Program	18
Annexure A	19
Capacity model	19
Annexure B	20
Facility Layout	20
Annexure C	21
Capex Budget	21
Annexure D	22
Project Program	22
Annexure E	23
Proposed Organogram	23
Annexure F	24
Process Flow Diagram	24

1. Scope of Project

The Scope of Project provides for the establishment of a Green Fields Raisin Processing Facility on the Kanoneiland premises of Orange River Cellars.

The conceptual design of the facility-, its processes and services are prepared to handle 16 000 tons production per annum.

The project will include for the following:

- Environmental Impact study
- Construction and Civil Works
- Process Equipment
- Installation of Services
- Acquisition and Installation of Equipment
- Commissioning of Plant

2. Key Parameters- and Assumptions

The following key parameters and main assumptions form the basis of the proposed facility and its requirements:

- Facility to ideally be in production for the 2017 season or part thereof
- Facility to be sustainable
- Production of 8000 tons per annum expanding to 16 000 tons during a 5-year period
- Production Capacity: 6 tons per hour
- Hours per Shift: 8
- Production days per Month: 22 (average)
- Production months per annum: 11 (February to December)
- Raw Material Distribution: 60% Dark, 40% Light
- Bin Weight: 450 kg
- Fumigation Cycle: 6.5 days
- Dispatch: 30 Tons per Container
- 4 Product Classifications : small, medium, large, jumbo
- Inflation: 7% per Annum
- Escalation over construction period 4%
- Effluent Plant to accomplish a 30% saving in water consumption

3. Site Selection and Existing Services

The site of Kanoneiland was selected for the proposed Raisin processing facility.

Kanoneiland hosts the following attributes and existing services:

- Correct zoning for the purposes
- Fresh water supply
- Electricity supply
- Effluent Treatment Plant (limited capacity)
- Existing personnel structure to be re-applied
- Total Area: 298 729 m²
- Existing Infrastructure: 2 746m²
- New Proposed Site: 34 414 m²
- New Proposed Facility: 16 120 m²

4. Production Capacity Requirement

Annexure A refers

The Production Capacity Requirement was established by means of a Capacity Model as reported on in this section.

Data used as input to this model is mainly based on assumptions which are clearly indicated as such.

The initial Production Requirement for the facility is 8,000 tons expanding to 16,000 tons raw material over a 5-year period.

4.1 Basic Mass Balance

Basic Mass Balance summary as per Table below is based on the following assumptions:

- The Dry Processing Line will remove 7% of intake weight in waste (sticks, caps etc.)
- The Wet Processing Line will add 2% Moisture weight.

Intake Product	No Value	Post Dry Processing	Wet Processing	Post Wet Processing
100.0%	-7.0%	93.0%	2.0%	94.86%

CONCLUSION:

Final Product should be equal to 94.86% of Intake Weight.

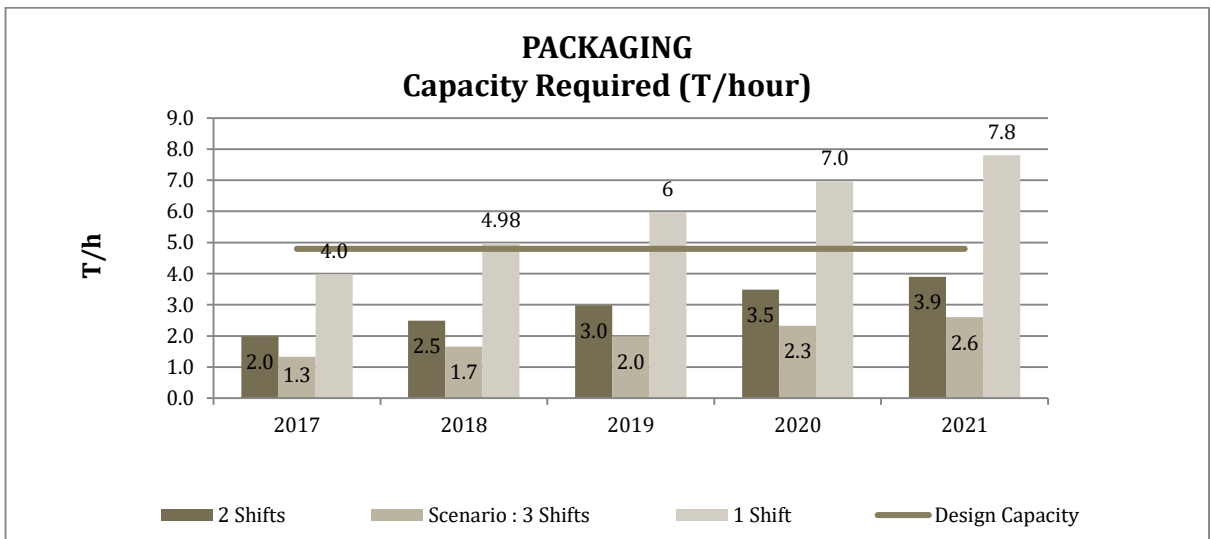
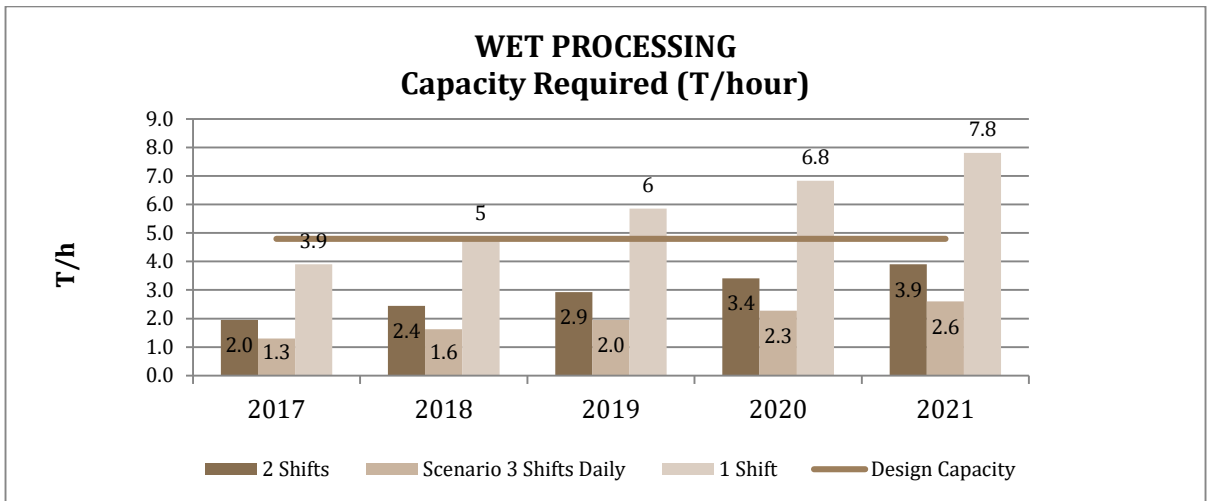
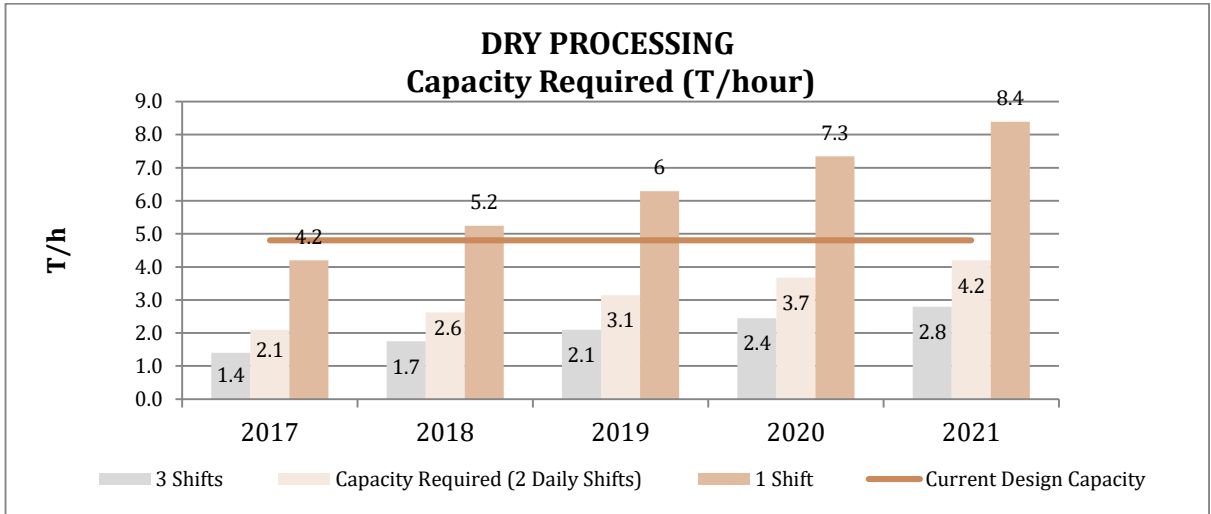
4.2 Production Capacities

Design capacity for both the Dry- and Wet Processing Lines is assumed and specified at 6 tons per hour. However, a utilization Factor of 80% was taken into account for unforeseeable eventualities.

The Production Capacity tables and -charts below is based on the following assumptions:

	Converted Design Capacity	Unit	Utilisation Factor	Design Capacity
Dry Processing	4.8	T/h	80%	6
Wet Processing	4.8	T/h	80%	6
Packaging	4.8	T/h	80%	6

The charts below indicate the maximum process capacity requirements (t/hour) for 3 shift scenarios.



CONCLUSION:

A Single Shift should be sufficient for the 2017- and 2018 Production years. As from 2019 an additional shift alternatively additional production line should be considered.

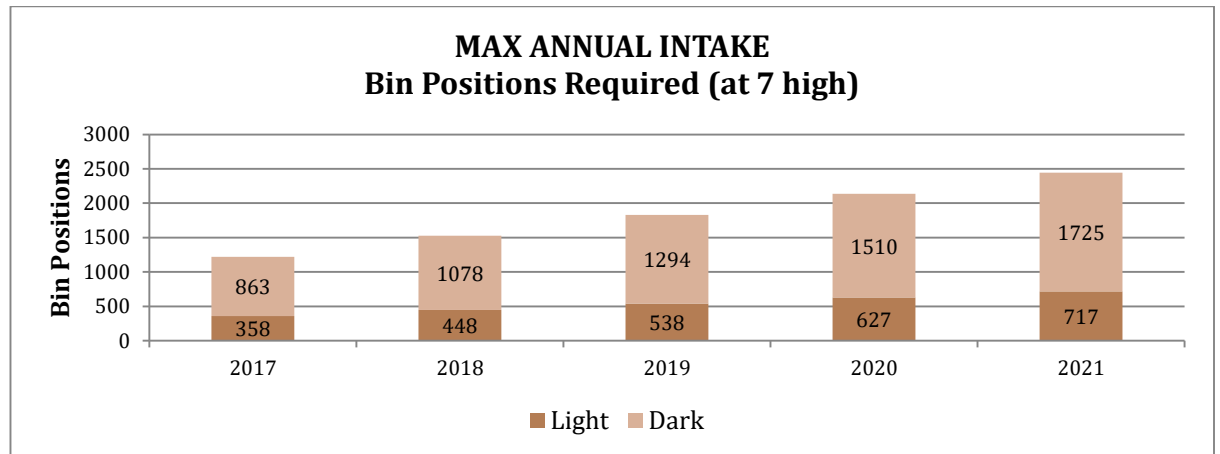
4.3 Raw Material Intake

The following assumptions were captured in order to calculate space required for raw material storage:

Intake Products Distribution	Dark	Light
	%	%
	60%	40%
Weeks per Month	4.33	Weeks
Bin Weight	0.45	Tons
Stack Height	7	Bins per Position

CONCLUSION:

The Raw Material (Intake) storage requirement is reflected as Bin Positions stacked 7 bins high.



4.4 Pre-fumigation Buffer

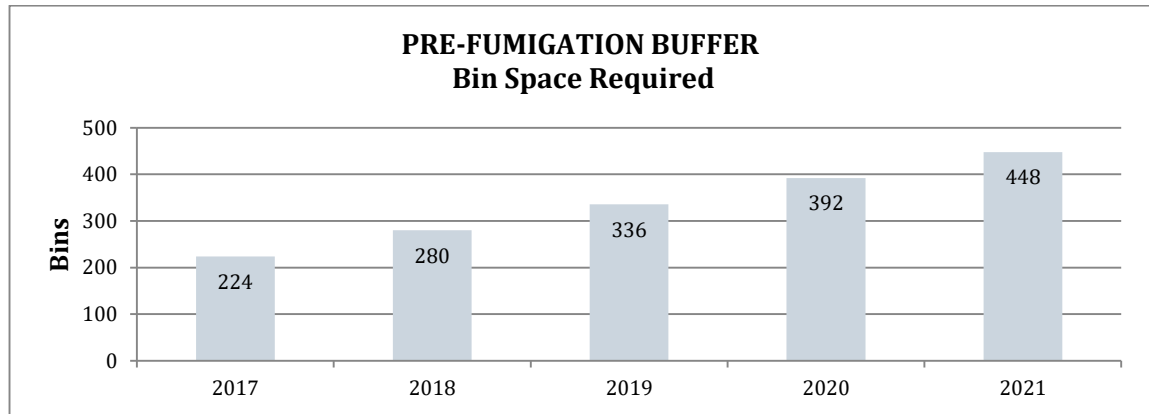
The Pre-fumigation buffer area was created to assemble a batch to be fumigated. Hereby the fumigation rooms will be utilized to its full capacity.

The following assumptions is applied to calculate space requirement for buffer area:

2	Fumigation Rooms	
224	Bins	*As per Fumigation room assumption in following section
2	Pick faces Per Classification	Distributed equally between classifications
4	Classifications	Small, medium, large, jumbo

CONCLUSION:

The Pre-fumigation buffer space requirement is reflected by the chart below:



4.5 Fumigation

The Fumigation Room requirement was calculated assuming that buffer bins can be accumulated and is not dependent on either the Dry- or Wet Processing Line.

Assumptions below were taken into account for this requirement calculation:

Fumigation Cycle Assumption:

Load	0.1	days
Fumigation	6	days
De-Gas, Unload	0.4	days
Total Cycle	6.5	days

General Fumigation Assumptions:

Avg Production Days per Month	22	days
Pre-cleaned Bin Weight	0.45	tons
Pre-Cleaned Bins to Fumigation	10	Bins/hour
Fumigation Room	112	Bins per Room

CONCLUSION:

Assuming 112 bins per fumigation room, eight (8) rooms is required to accommodate production capacity in year 2021.

4.6 Packaging Material Storage

The Packaging Material Storage requirement is based on various assumptions including packaging classifications, order lead time, safety stock etc.

They are as follow:

Packaging Classification:

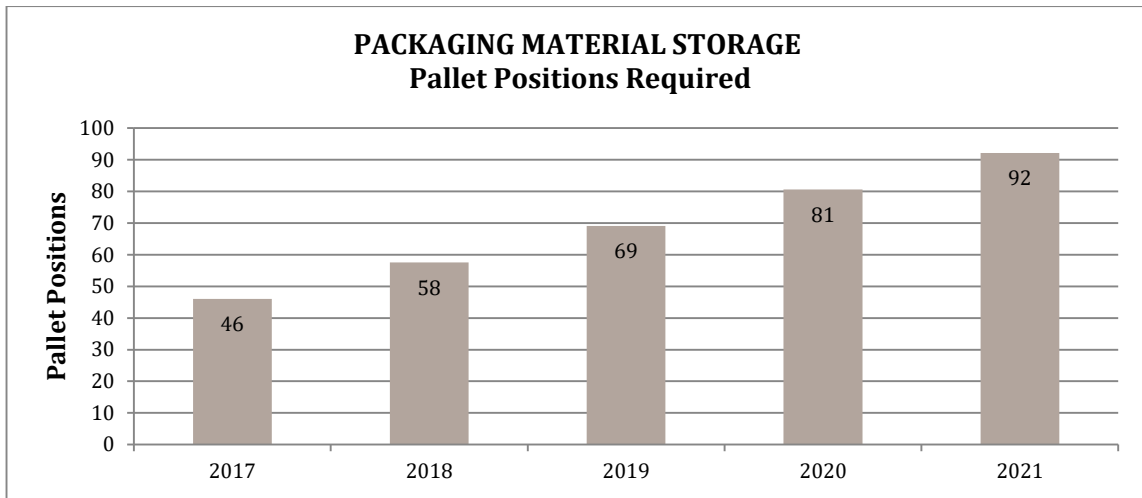
Packaging Classification	Kg per Packaging	Distribution
1	15	60%
2	10	30%
3	5	10%
4	1	0%

General Packaging Assumptions:

		Unit	Converted: Production Days
Carton consumption	62090	Cartons/month	22
Buffer Stock	40120	Cartons	14
Order Lead Time	14	Days	10
Cartons per Pallet	750	Cartons/Pallet	
Stack height	2		

CONCLUSION:

Pallet Positions required for packaging material is reflected in the chart below.



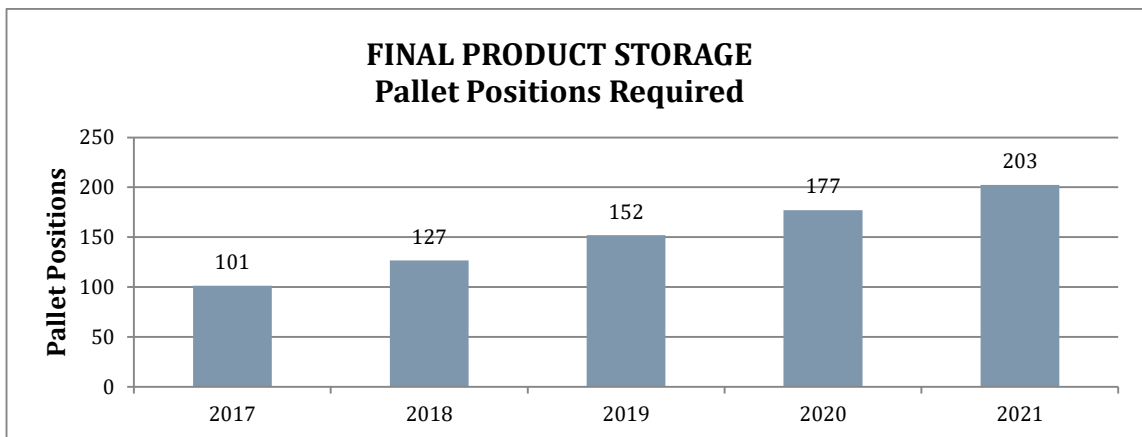
4.7 Final Product Storage

Assumptions incorporated in order to calculate the Final Product Storage requirement as follows:

Final Product per container	30	T
Final Product per Pallet	1	T
Weeks per Month	4.3	Weeks
Weekly Dispatch	5	Containers
Stack Height	1	Pallets high

CONCLUSION:

Pallet Positions required for packaging material is reflected in the chart below.



5. Masterplan

Annexure B refers

The total project can effectively be executed in 2 phases. It was however decided by Management not to follow the phased philosophy.

The Complete approach will establish the facility to reach a maximum capacity of 16 000 tons per year which should be sufficient for the first 5 years of production.

- Admin Facilities
- Security and Personnel Control
- Workshop and Spares Storage Facility
- Services Facilities (Compressor Room, Electrical Room, Water Services Area)
- Fork Truck Charging/Washing Facility
- Dry Processing Warehouse, including Inspection Office
- Wet Processing Warehouse, including Laboratory
- Final Goods and Packaging Material Warehouse
- 7 off Raw Material Store
- 8 off Fumigation Rooms
- Bin Repair / Wash Facility
- Intake and Dispatch Areas and offices
- Effluent Treatment Plant

6. Capital Expenditure

Annexure C refers

The Capital outlay is summarized as follow:

New Raising Processing Facilities			
Provisional Budget Summary			Cost
Land, Legal and Administrative			
Cost of Land			No Cost Allowed
Cost of a Basic Environmental Impact Assessment (EIA)		R	120 000
Local Council and approvals		R	100 000
Sub total		R	220 000
Building & Civils			
Processing + Canopy		R	17 874 398
Bin Wash		R	2 004 195
Phase 2 Raw Store + Canopy		R	22 941 241
Phase 2 Fumigation		R	2 957 745
Admin + Security + Workshop		R	5 376 632
Roads + Landscaping + Hardsurfaces		R	8 437 488
Sub total		R	59 591 699
Process Equipment			
New Precleaning Facility		R	18 505 000
Wet Processing & Packaging Line		R	16 381 250
Fruit Receiving		R	1 260 000
Packaging Area		R	390 000
Weighing		R	40 000
Forklift charging / Washing		R	90 000
Bin Cleaning / Washing		R	105 000
Sub total		R	36 771 250
Services & Utilities			
Hot water		R	1 315 250
Process & Instrument air		R	1 716 750
Mains Water		R	1 407 000
Process Piping		R	250 000
Electrical Installation		R	4 557 000
Ventilation		R	1 950 000
Effluent		R	5 075 000
Sanitation		R	128 000
Solar Power Installation		R	1 577 953
Mechanical Installation		R	100 000
Catwalks, Structures, walkways		R	50 000
Fire Services		R	3 025 000
Sub total		R	21 151 953
Other Aspects			
IT		R	700 000
Telecoms		R	100 000
Furniture		R	250 000
Security & Access		R	150 000
Laboratory Equipment		R	450 000
Data Collection & Scanning Technology		R	700 000
Other		R	300 000
Sub total		R	2 650 000
Total		R	120 384 902
Escalation	4%	R	4 815 396
Contingency / Design Development Allowance	10%	R	12 038 490
Engineering & Services	7.5%	R	9 931 754
TOTAL		R	147 170 543

6.1 The following items are excluded from the Capital Budget :

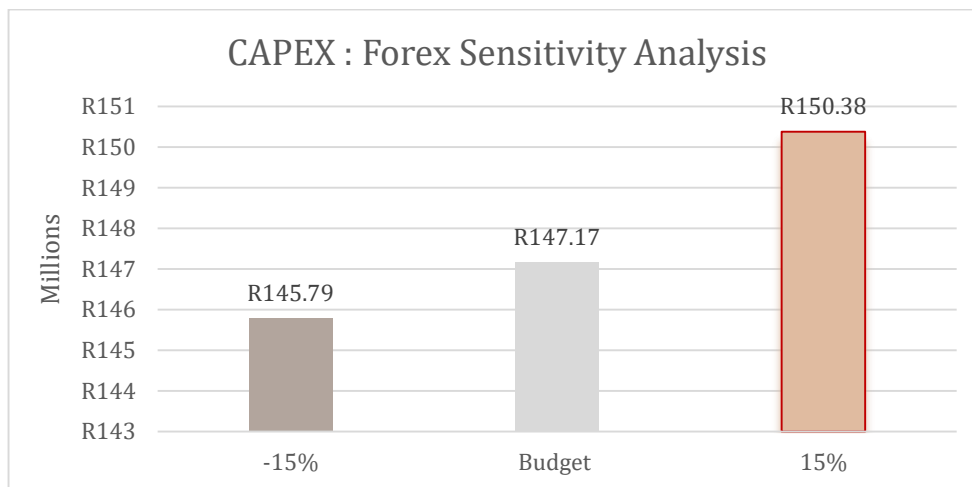
- 6.1.1 Bins
- 6.1.2 Forklifts
- 6.1.3 Vehicles

6.2 The Capital Expenditure provides for the following:

- 6.2.1 Euro : R17,50
- 6.2.2 US Dollar : R16,00

6.3 Foreign Exchange Sensitivity analysis as reflected by chart

(Approx. Impact of +- 15% forex fluctuation)



7. Operational Expenditure

The Operational Expenditure in this section includes for the following:

- Energy
- Water
- Effluent

7.1 Energy

Average energy cost per kWh is based on the January 2016 Orange River Cellars Eskom rates. The Average is calculated at R0.82/kWh and R15.01/kVa escalating at an annual rate of 7%. Energy Consumption is assumed at 105.09 kWh/ton Product.

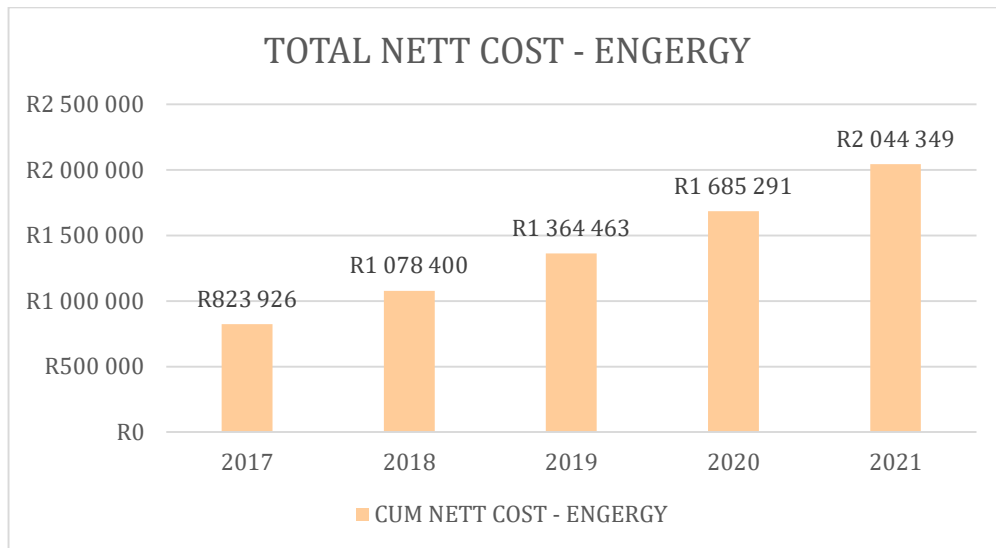
The installation of 75 kWp Photovoltaic Panels will result in a saving of 133,050 kWh per annum.

Annual Saving (kWh/kWp)	1774					
Installation (kWp)	75					
Annual Saving (kWh)	133050					
Annual Saving kWh /T Product		2017	2018	2019	2020	2021
		17	13	11	10	8

Energy Consumption is reflected in the table below:

Year	PRODUCTION	ENERGY CONSUMPTION (KwH)
2017	8 000	840788
2018	10 000	1050985
2019	12 000	1261182
2020	14 000	1471379
2021	16 000	1681576

The Total Annual Nett Cost and Total Annual Cost Saving of Energy is reflected in the charts below:



7.2 Water

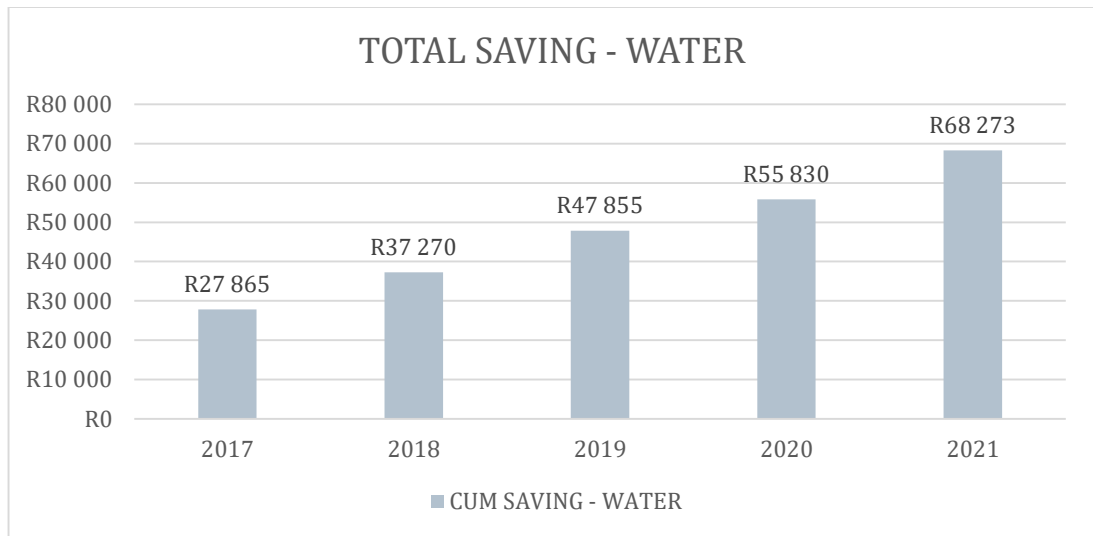
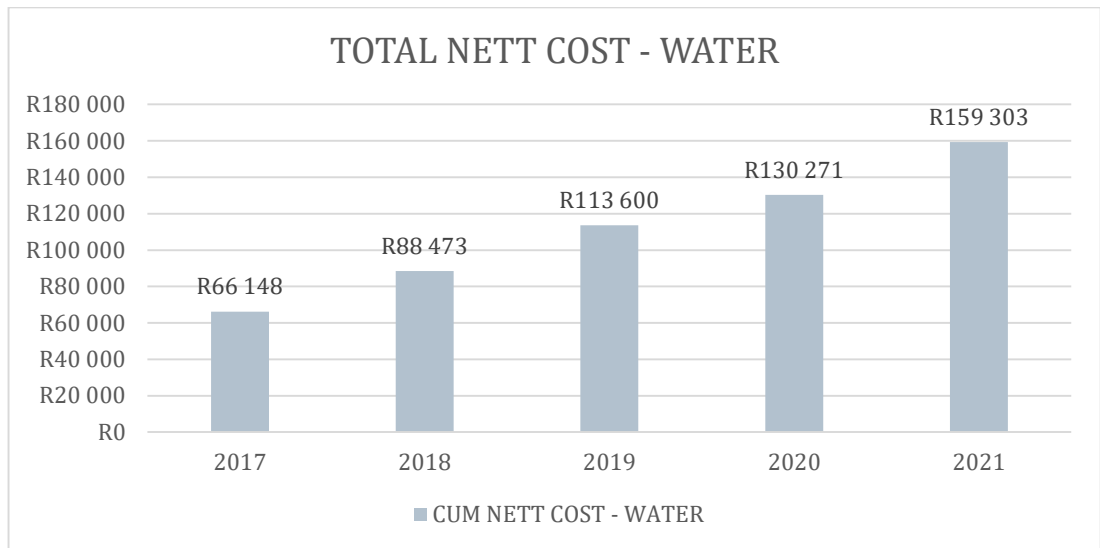
Average water cost per kiloliter is assumed at R4/kl.

The Proposed Effluent Treatment Plant should contribute a 30% saving in water consumption assuming a 2.06kl consumption/Ton product.

Water Consumption is reflected in the table below:

Year	PRODUCTION	WATER CONSUMPTION (KL)	WATER SAVING (KL)	NETT WATER CONSUMPTION (KL)
2017	8 000	21702	6511	15191
2018	10 000	27128	8138	18989
2019	12 000	32553	9766	22787
2020	14 000	37979	11394	26585
2021	16 000	43404	13021	30383

The Total Nett Cost and Total Cost Saving of Water is reflected in the charts below (mains water treatment costs are excluded):

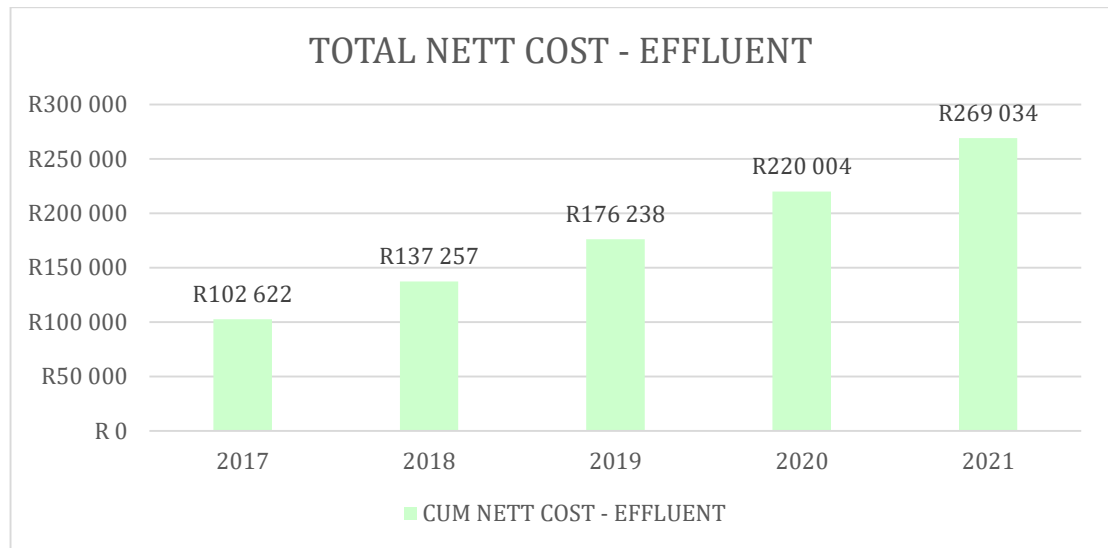


7.3 Effluent

Effluent expenditure is assumed at R5/kl for treatment cost only (excluding electricity).

YEAR	PRODUCTION	EFFLUENT TREATMENT (KL)
2017	8 000	19182
2018	10 000	23977
2019	12 000	28773
2020	14 000	33568
2021	16 000	38363

The Total Nett Cost of Effluent is reflected in the chart below:



7.4 Summary

Tables below reflects a summary of sections 7.1 to 7.3.

TOTAL NETT COST	PRODUCTION	ENERGY	WATER	EFFLUENT	TOTAL	R/T PROD
2017	8 000	R823 926	R66 148	R102 622	R992 697	R124
2018	10 000	R1 078 400	R88 473	R137 257	R1 304 131	R130
2019	12 000	R1 364 463	R113 600	R176 238	R1 654 301	R138
2020	14 000	R1 685 291	R130 271	R220 004	R2 035 566	R145
2021	16 000	R2 044 349	R159 303	R269 034	R2 472 685	R155

TOTAL SAVING	PRODUCTION	WATER	TOTAL	R/T PROD
2017	8 000	R27 865	R27 865	R3
2018	10000	R37 270	R37 270	R4
2019	12000	R47 855	R47 855	R4
2020	14000	R55 830	R55 830	R4
2021	16000	R68 273	R68 273	R4

The Operational Expenditure in this section exclude the following:

- Maintenance of equipment, buildings and services
- Personnel costs
- Logistics
- General administrative costs

8 Renewable Resources and Sustainability

The goal of sustainability is essential in the design of the facility.

The following elements are implemented to reach such goals:

- 75 kWp Photovoltaic Panels are included in the Capex (+-550 sqm)
- Natural Light is used where possible
- Solar + Heat Pumps for heated water
- Thermal Insulation for wall- and roof panels
- 100% of Effluent regenerated to recyclable process-water and irrigation

**Energy- and Water Savings as detailed in section 7, Operational Expenditure.*

9 Project Program

Annexure D refers

Annexure A

CAPACITY MODEL

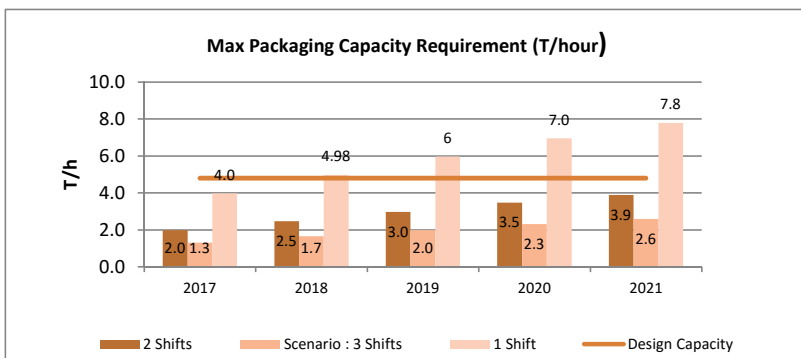
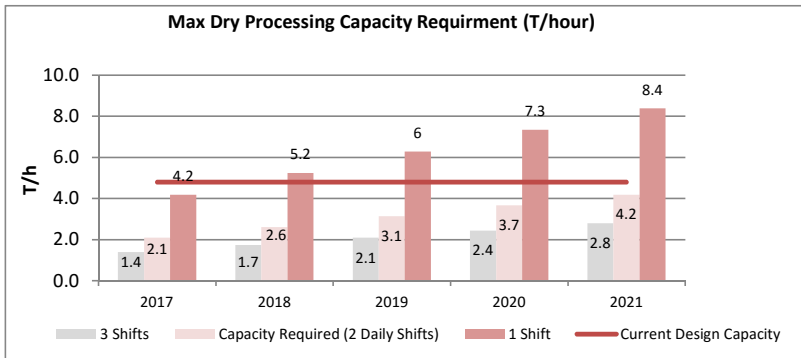
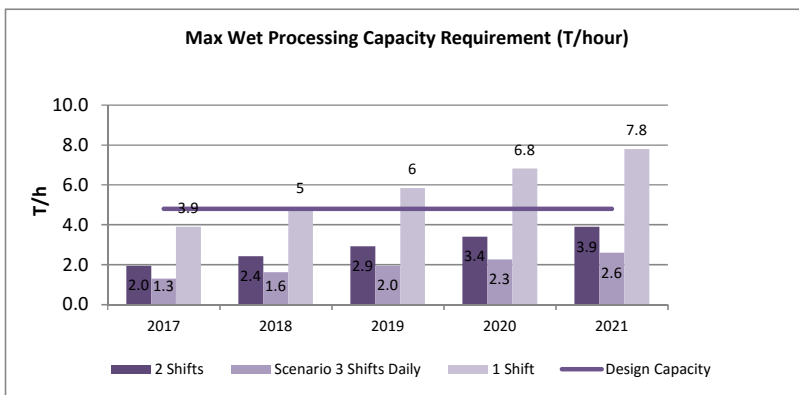
Tons per Annum Forecast (Intake Weight)	2017	2018	2019	2020	2021
	8 000	10 000	12 000	14 000	16 000

1. BASIC MASS BALANCE

Intake Product	No Value	Post Dry Processing	Wet Processing	Post Wet Processing
	7.0%	93.0%	2.0%	94.86%

2. PRODUCTION CAPACITIES

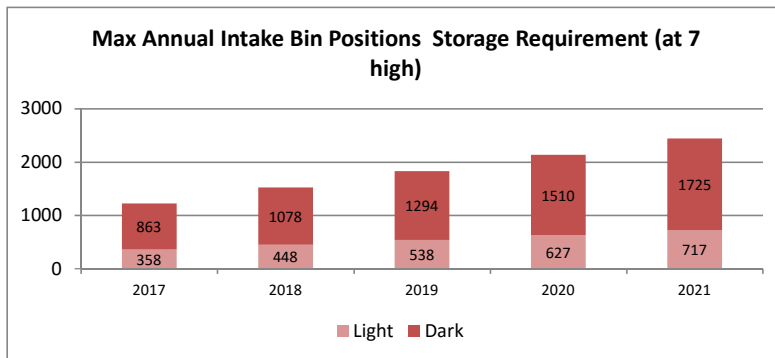
	Converted Design Capacity	Unit	Utilisation Factor	Design Capacity	Rework	Converted Capacity
Dry Processing	4.8	T/h	80%	6	0%	4.80
Wet Processing	4.8	T/h	80%	6		
Packaging	4.8	T/h	80%	6		



3. RAW MATERIAL INTAKE

Intake Products Distribution	Dark	Light
	%	%
	60%	40%
Weeks per Month	4.3	Weeks
Bin Weight	0.45	Tons
Stack Height	7	Bins per Position

Month	MAX	MAX	MAX
Week	DARK	LIGHT	TOTAL
2017	863	358	1221
2018	1078	448	1526
2019	1294	538	1832
2020	1510	627	2137
2021	1725	717	2442

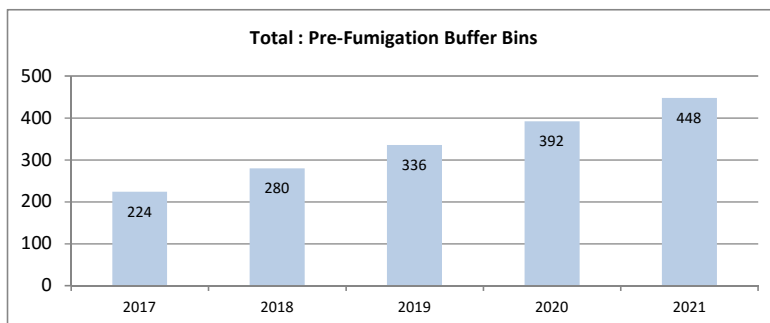


4. PRE-FUMIGATION BUFFER

Assumption

	2 224 100.8	Fumigation Rooms Bins Tons
Pickfaces (Small, Medium, Large, Jumbo)	2 4	Per Classification Classifications

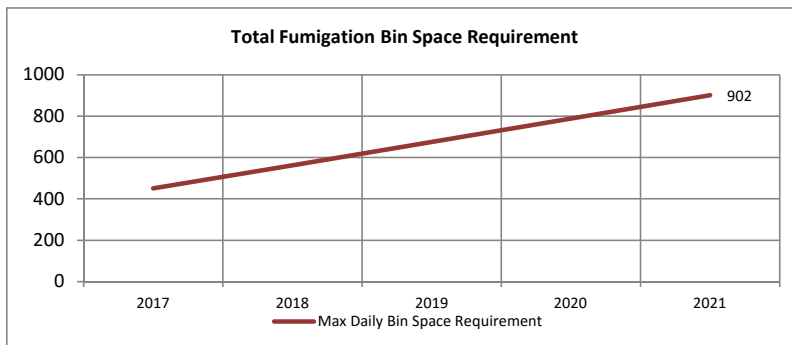
2017	2018	2019	2020	2021
No. of Bins per Pickface				
28	35	42	49	56
Total Bins Pre-Fumigation				
224	280	336	392	448



5. FUMIGATION

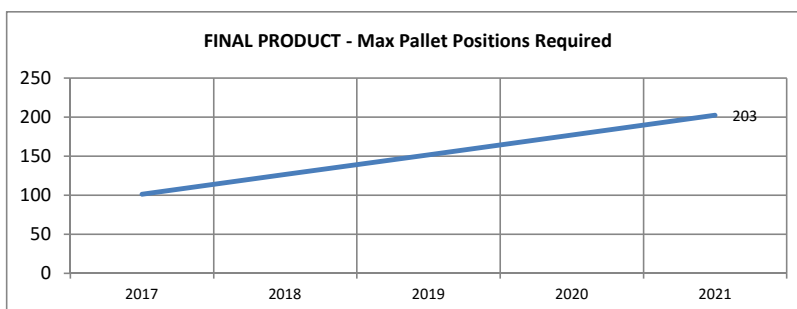
Assumption: Fumigation is not dependant on either Dry- or Wet Processing.
Buffer Bins can be accumulated

Total Cycle	6.5	days
Fumigation Room	112	Bins per Room
	Max Daily Bin Space Requirement	Fumigation Rooms Required
2017	451	4
2018	564	5
2019	676	6
2020	789	7
2021	902	8



6. FINAL PRODUCT STORAGE

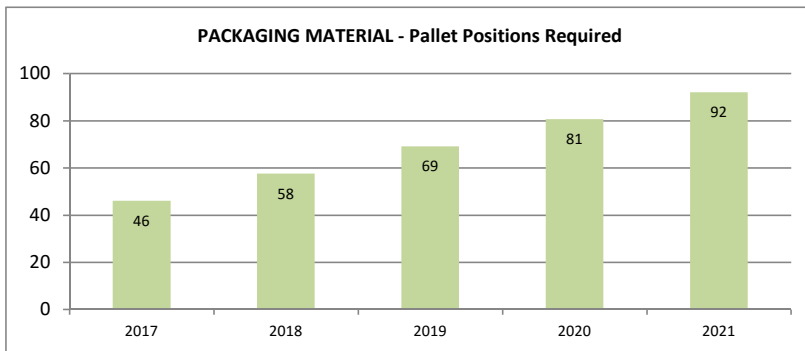
		Unit	2017	2018	2019	2020	2021
Max Pallet Positions Required			101	127	152	177	203
Final Product per container	30	T					
Final Product per Pallet	1	T					
Weekly Despatch	5	Containers					
Avg Pallets per Container	30	Pallets					
Stack Height	1	Pallets High					



7. PACKAGING MATERIAL STORAGE

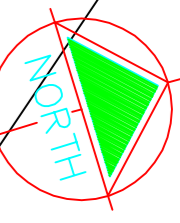
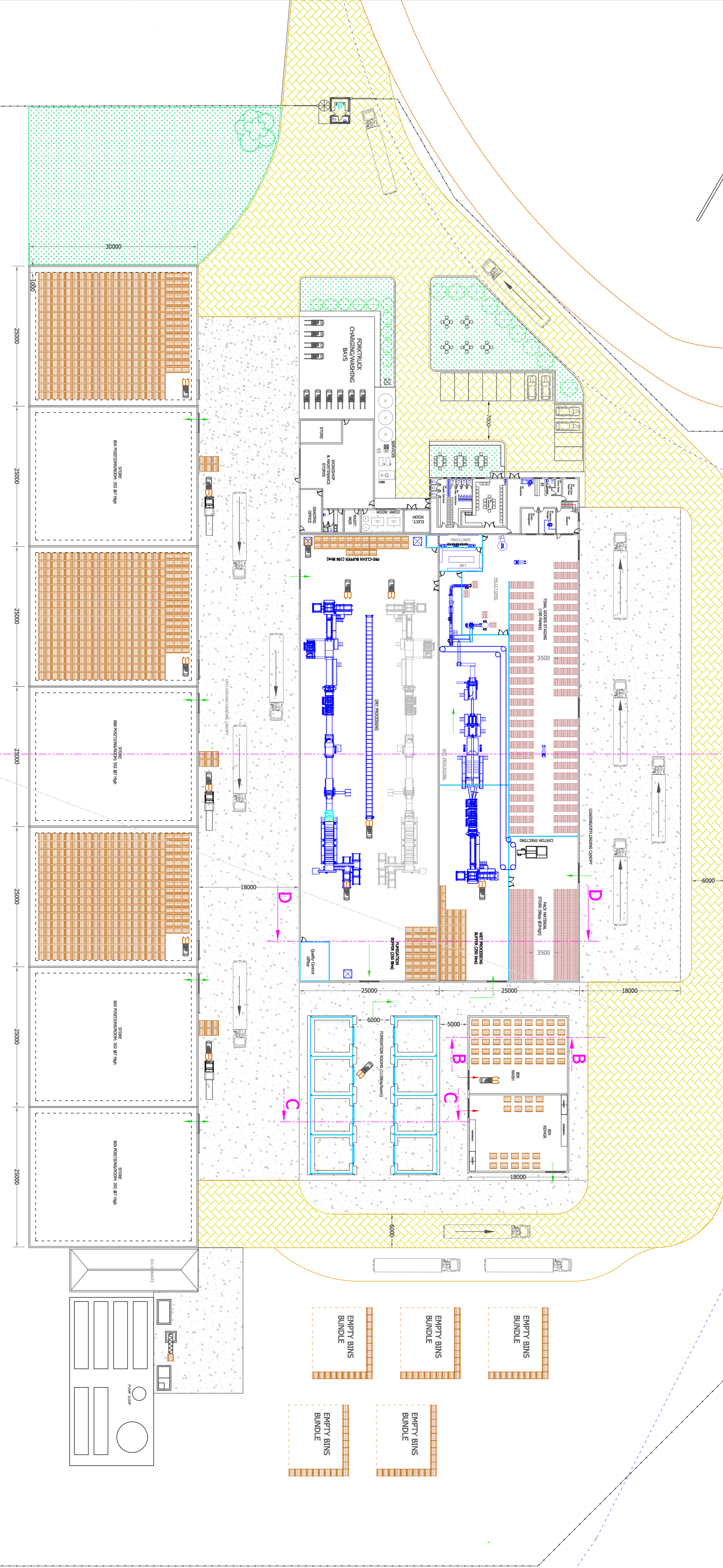
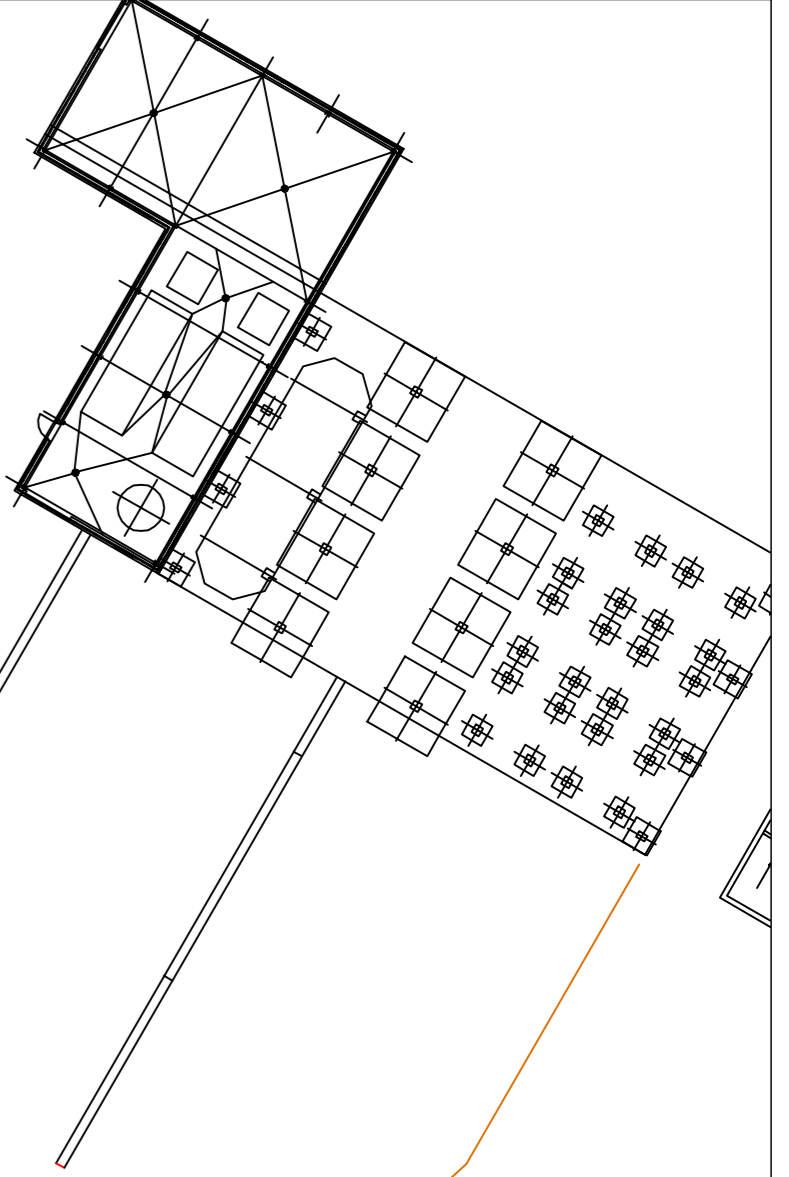
		Unit
Carton consumption	62090	Cartons/month
Buffer Stock	40120	Cartons
Order Lead Time	14	Days
Cartons per Pallet	750	Cartons/Pallet
Stack height	2	

	Unit	2017	2018	2019	2020	2021
Peak Carton Storage Requirement	Cartons	69095	86369	103643	120917	138190
	Pallets	92	115	138	161	184
	Pallet Positions	46	58	69	81	92



Annexure B

FACILITY LAYOUT



Scale: 1: 350 Print Size: A1		Project: New Raisin Processing Facility		Client: ORANGE RIVER CELLARS		Drawing description: Master Plan		BY: APPROVED		DATE: 02.06.2016		Drawing number: OMK-15-LO-100.2		Drawing issued for: Quotation	
-Paving		Description		ORANGE RIVER CELLARS		Concept Factory Layout		CHECKED		02.06.2016		ENGINEERING		Information Only	
-Concrete Surface		By		ORANGE RIVER CELLARS		Concept Factory Layout		DRAWN		02.06.2016		1/1		Construction	
-Grass		No.		ORANGE RIVER CELLARS		Concept Factory Layout		RVT		02.06.2016		1/1		Record	
		Date		ORANGE RIVER CELLARS		Concept Factory Layout									
		Revision		ORANGE RIVER CELLARS		Concept Factory Layout									

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Page 1/1 Rev. E

Annexure C

CAPEX BUDGET



Oranjerivier Wynkelders
New Raisin Processing Facilities

PROVISIONAL BUDGET COST

R

147 170 543

Location

Kanoneiland

Products

Raisins

DATE

Wednesday, 08 June 2016

New Raising Processing Facilities			
Provisional Budget Summary			Cost
Land, Legal and Administrative			
Cost of Land			No Cost Allowed
Cost of a Basic Environmental Impact Assessment (EIA)		R	120 000
Local Council and approvals		R	100 000
Sub total		R	220 000
Building & Civils			
Processing + Canopy		R	17 874 398
Bin Wash		R	2 004 195
Phase 2 Raw Store + Canopy		R	22 941 241
Phase 2 Fumigation		R	2 957 745
Admin + Security + Workshop		R	5 376 632
Roads + Landscaping + Hardsurfaces		R	8 437 488
Sub total		R	59 591 699
Process Equipment			
New Precleaning Facility		R	18 505 000
Wet Processing & Packaging Line		R	16 381 250
Fruit Receiving		R	1 260 000
Packaging Area		R	390 000
Weighing		R	40 000
Forklift charging / Washing		R	90 000
Bin Cleaning / Washing		R	105 000
Sub total		R	36 771 250
Services & Utilities			
Hot water		R	1 315 250
Process & Instrument air		R	1 716 750
Mains Water		R	1 407 000
Process Piping		R	250 000
Electrical Installation		R	4 557 000
Ventilation		R	1 950 000
Effluent		R	5 075 000
Sanitation		R	128 000
Solar Power Installation		R	1 577 953
Mechanical Installation		R	100 000
Catwalks, Structures, walkways		R	50 000
Fire Services		R	3 025 000
Sub total		R	21 151 953
Other Aspects			
IT		R	700 000
Telecoms		R	100 000
Furniture		R	250 000
Security & Access		R	150 000
Laboratory Equipment		R	450 000
Data Collection & Scanning Technology		R	700 000
Other		R	300 000
Sub total		R	2 650 000
Total		R	120 384 902
Escalation	4%	R	4 815 396
Contingency / Design Development Allowance	10%	R	12 038 490
Engineering & Services	7.5%	R	9 931 754
TOTAL		R	147 170 543

Process Equipment						Budget
PROVISIONAL BUDGET COST	Specification	No of.	Units	@		Cost
New Precleaning Facility						
Tipping System / Bin Tipper	Update to Rotary tipper	1	ea	R 650 000	R	650 000
Operator Platform		1	ea	R 70 000	R	70 000
Tipping Belt						
Cluster breaker shaker		1	ea	R 300 000	R	300 000
Elevator		1	ea	R 400 000	R	400 000
- Metering Wheel		2	ea	R 50 000	R	100 000
- Catwalk		1	ea	R 60 000	R	60 000
Magnet		1	ea	R 25 000	R	25 000
Scalping Screen	Kry Valley opsie	1	ea	R 550 000	R	550 000
Rework line		1	ea	R 1 030 000	R	1 030 000
Aspirator		1	ea	R 250 000	R	250 000
Ducting		0	ea	R 20 000	R	-
Catwalk		1	ea	R 30 000	R	30 000
Elevator		1	ea	R 400 000	R	400 000
- Metering Wheel		1	ea	R 50 000	R	50 000
- Catwalk		1	ea	R 60 000	R	60 000
Magnet		1	ea	R 25 000	R	25 000
Double Dry Capper		1	ea	R 850 000	R	850 000
Vacuum		2	ea	R 250 000	R	500 000
Ducting		0	ea	R 25 000	R	-
Product Shakers		2	ea	R 200 000	R	400 000
Elevator		1	ea	R 320 000	R	320 000
Super-Vac	Valley	1	ea	R 1 600 000	R	1 600 000
Elevator		1	ea	R 260 000	R	260 000
Magnet		1	ea	R 25 000	R	25 000
Optical Sorter		1	ea	R 4 175 000	R	4 175 000
Operator platform		1	ea	R 30 000	R	30 000
Elevator Rejects		1	ea	R 40 000	R	40 000
Elevator from sorter		1	ea	R 200 000	R	200 000
Bucket Elevator		1	ea	R 560 000	R	560 000
Size Grader	Valley	1	ea	R 2 650 000	R	2 650 000
Additional screens		1	ea	R 80 000	R	80 000
Grader Operator Platforms		2	ea	R 75 000	R	150 000
Grader Conveyors		3	ea	R 55 000	R	165 000
Grader Conveyors		1	ea	R 40 000	R	40 000
Bulk Bin Conveyors	QP	1	ea	R 200 000	R	200 000
Scale system		1	ea	R 100 000	R	100 000
Empty Bin Conveyors		1	ea	R 200 000	R	200 000
Floor scale		3	ea	R 20 000	R	60 000
Delivery		1	ea	R 150 000	R	150 000
Installation		1	ea	R 200 000	R	200 000
Electrical & Control		1	ea	R 900 000	R	900 000
Shipping Cost & Duties		1	ea	R 300 000	R	300 000
Sub total					R	18 155 000
Other						
Other Equipment		1	ea	R 350 000	R	350 000
Sub total					R	350 000
Total					R	18 505 000
Contingency				10%	R	1 850 500
Engineering & Services				7.5%	R	1 526 663
TOTAL					R	21 882 163

Process Equipment PROVISIONAL BUDGET COST	Specification	No of.	Units	@	Cost
Wet Processing & Packaging Line					
Pallet Chain Conveyor system		1	ea	R 650 000	R 650 000
Bin Tipper Operator Platform		1	ea	R 75 000	R 75 000
Incline Elevator		1	ea	R 400 000	R 400 000
Metering Wheels		1	ea	R 50 000	R 50 000
Rare Earth Magnet		1	ea	R 25 000	R 25 000
Double Dry Capper		1	ea	R 900 000	R 900 000
Vacuums		3	ea	R 250 000	R 750 000
- Ducting		0	ea	R 20 000	R -
Product Shakers		3	ea	R 200 000	R 600 000
Screw Auger (tf. Riffle Washer)		1	ea	R 160 000	R 160 000
Riffle Washer Shakers		2	ea	R 250 000	R 500 000
Riffle Washers		2	ea	R 260 000	R 520 000
- Operator Platform		2	ea	R 60 000	R 120 000
- Circulation Pump		2	ea	R 120 000	R 240 000
- Circulation Pipework		1	ea	R 80 000	R 80 000
Dewatering Auger Feeder (tf. Sand Tank)		1	ea	R 160 000	R 160 000
Sand Tank		1	ea	R 220 000	R 220 000
Dewatering Shaker		1	ea	R 400 000	R 400 000
- Operator Platform		2	ea	R 30 000	R 60 000
Rotary Recleaner		2	ea	R 750 000	R 1 500 000
Screw Auger (tf. Scanner)		1	ea	R 150 000	R 150 000
Optical Scanner		1	ea	R 4 350 000	R 4 350 000
Scanner conveyoring		2	ea	R 100 000	R 200 000
- Operator Platform		1	ea	R 30 000	R 30 000
Incline Throughbelt Conveyor		1	ea	R 40 000	R 40 000
Inspection Conveyor		1	ea	R 90 000	R 90 000
Weighbelt Conveyor		1	ea	R 60 000	R 60 000
Oil dosing Pump		1	ea	R 70 000	R 70 000
Oil Tank		1	ea	R 50 000	R 50 000
Oil Heating		1	ea	R 50 000	R 50 000
Auger Feeder	Change to Bucket + High level MD	1	ea	R 280 000	R 280 000
Cross Feed Vibratory Shaker (tf. Bulk Scale)		1	ea	R 100 000	R 100 000
Bulk Scale		1	ea	R 300 000	R 300 000
Bulk Scale Platform		1	ea	R 70 000	R 70 000
Box Vibratory Conveyor		1	ea	R 60 000	R 60 000
Gravity Roller Conveyor		1	ea	R 30 000	R 30 000
Tape Sealer		1	ea	R 150 000	R 150 000
Metal Detector High Level		1	ea	R 350 000	R 350 000
Metal Detector Carton + Reject		1	ea	R 446 250	R 446 250
Top Up scale		1	ea	R 10 000	R 10 000
Carton turn		1	ea	R 45 000	R 45 000
Carton Printer		1	ea	R 200 000	R 200 000
Gravity Roller Conveyor (tf. Palletising)		1	ea	R 30 000	R 30 000
Floor scale		3	ea	R 20 000	R 60 000
Delivery Local eqt		1	ea	R 150 000	R 150 000
Installation & Commissioning		1	ea	R 200 000	R 200 000
Electrical Panel, Wiring & Control		1	ea	R 900 000	R 900 000
Shipping Cost & Duties		1	ea	R 300 000	R 300 000
Other		1	ea	R 200 000	R 200 000
Total					R 16 381 250

Contingency				10%	R 1 638 125
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Engineering & Services				7.5%	R 1 351 453
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TOTAL					R 19 370 828
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Process Equipment		2016			
PROVISIONAL BUDGET COST	Specification	No of.	Units	@	Cost
Fruit Receiving					
Product Receiving / Grading / sampling Line		3	ea	R 400 000	R 1 200 000
Floor Scales		3	ea	R 20 000	R 60 000
Sub total					R 1 260 000
Packaging Area					
Monorail Packaging Conveyor		1	ea	R 350 000	R 350 000
Electrical installation		1	ea	R 40 000	R 40 000
Sub total					R 390 000
Weighing					
Floor Scales		1	ea	R 40 000	R 40 000
Sub total					R 40 000
Forklift charging / Washing					
Washing Equipment		2	ea	R 15 000	R 30 000
Charging Equipment		10	ea	R 3 500	R 35 000
Extraction		1	ea	R 25 000	R 25 000
Sub total					R 90 000
Bin Cleaning / Washing					
Bin Washing Equipment		3	ea	R 15 000	R 45 000
Bin repair tools & Equipment		1	ea	R 60 000	R 60 000
Sub total					R 105 000
Total					R 1 885 000
Contingency				10%	R 188 500
Engineering & Services				7.5%	R 155 513
TOTAL					R 2 229 013

Services & Utilities						
PROVISIONAL BUDGET COST	SPECIFICATION	No of.	Units	@	Cost	
Hot water						
Hot water vessel, insulation, cladding	5000 L Capacity	1	ea	R 120 000	R	120 000
Feed Pump Package		1	ea	R 100 000	R	100 000
Heat Pump	100 KW each	2	ea	R 235 000	R	470 000
Circulation Pumps		1	ea	R 40 000	R	40 000
Process Piping Installation		1	ea	R 125 000	R	125 000
Factory Piping Reticulation		1	ea	R 250 000	R	250 000
Electrical & Control		1	ea	R 100 000	R	100 000
Heat Exchanger		1	ea	R 50 000	R	50 000
Other Overheads		5%		R 60 250	R	60 250
Sub total					R	1 315 250
Process & Instrument air						
Compressor Package	2 x 55 Kw Airstream screw VSD	2	ea	R 500 000	R	1 000 000
Air Dryer		1	ea	R 75 000	R	75 000
Filter Package		1	ea	R 25 000	R	25 000
Receiver Tank	1000 L	1	ea	R 35 000	R	35 000
Compressor room Piping Installation		1	ea	R 100 000	R	100 000
Factory Piping Reticulation		1	ea	R 300 000	R	300 000
Electrical & Control		1	ea	R 100 000	R	100 000
Other Overheads		5%		R 81 750	R	81 750
					R	-
Sub total					R	1 716 750
Mains Water						
Buffer Tanks	20000 L	3	ea	R 50 000	R	150 000
Buffer Tanks	275 KL	1	ea	R 350 000	R	350 000
Feed Pump To plant + installation		1		R 50 000	R	50 000
Filter Package		1		R 100 000	R	100 000
Circulation Pumps		1		R 100 000	R	100 000
Process Piping Installation		1		R 90 000	R	90 000
Factory Piping Reticulation		1	ea	R 400 000	R	400 000
Electrical & Control		1		R 100 000	R	100 000
Other Overheads		5%		R 67 000	R	67 000
Sub total					R	1 407 000
Process Piping						
General Reticulation		1	ea	R 250 000	R	250 000
Sub total					R	250 000
Electrical Installation						
Main Feed Cable		1	ea	R 250 000	R	250 000
Main DB / electrical room		1	ea	R 300 000	R	300 000
Factory Sub DB		12	ea	R 50 000	R	600 000
Reticulation from Main DB to factory DB, MCC	SWA Cabling on Galv trays	1300	ea	R 800	R	1 040 000
Standby Generator	500 kVA	1	ea	R 600 000	R	600 000
Factory Lighting		320	ea	R 2 500	R	800 000
Factory Services		75	ea	R 2 000	R	150 000
General Labour and Installation		1	ea	R 600 000	R	600 000
Other Overheads		5%	ea	R 217 000	R	217 000
Sub total					R	4 557 000

Services & Utilities							
PROVISIONAL BUDGET COST	SPECIFICATION	No of.	Units	@		Cost	
Ventilation							
Main Factory Evaporative Coolers	EC22	6	ea	R 85 000	R	510 000	
Main Factory Extraction		6	ea	R 15 000	R	90 000	
WasherExtraction Canopy		1	ea	R 200 000	R	200 000	
General Airconditioning and ventilation		1	ea	R 250 000	R	250 000	
Electrical & Control		1	ea	R 100 000	R	100 000	
Fumigation Rooms Extraction Systems		1	ea	R 200 000	R	200 000	
Fumigation Rooms Electrical and Control		1	ea	R 150 000	R	150 000	
Raw Materials Stores Ventilation System		1	ea	R 300 000	R	300 000	
Raw Materials Stores Electrical and Control		1	ea	R 150 000	R	150 000	
Sub Total					R	1 950 000	
Effluent							
Upstream Pretreatment	Screw press, Pumps	1	ea	R 250 000	R	250 000	
Complete Water treatment plant	130 000 L/d , 6000<75 COD Biological treatment	1	ea	R 4 350 000	R	4 350 000	
Evaporation Ponds	2 x 3750 m2	0	ea	R 2 201 675	R	-	
Feed to evaporative ponds		1	ea	R 75 000	R	75 000	
Electrical & Control		1	ea	R 100 000	R	100 000	
Buffer Tank	100 KL - Reuse Existing	1	ea	R 50 000	R	50 000	
Outlet Pumps and Piping		1	ea	R 150 000	R	150 000	
Other		1	ea	R 100 000	R	100 000	
Sub Total					R	5 075 000	
Sanitation							
General sanitation		1	ea	R 75 000	R	75 000	
Lockers		40	ea	R 700	R	28 000	
Other		1	ea	R 25 000	R	25 000	
Sub Total					R	128 000	
Solar Power Installation							
Complete Package Installed	75 KW	75	ea	R 20 038	R	1 502 813	
Other Overheads		5%		R 75 141	R	75 141	
Sub Total					R	1 577 953	
Mechanical Installation							
Other Mechanical		1	ea	R 100 000	R	100 000	
Sub Total					R	100 000	
Catwalks, Structures, walkways							
General Provision		1	ea	R 50 000	R	50 000	
Sub Total					R	50 000	
Fire Services							
Twin Booster Connection		1	ea	R 90 000	R	90 000	
Hydrants		1	ea	R 90 000	R	90 000	
FH Reels		1	ea	R 105 000	R	105 000	
Fire Extinguishers		1	ea	R 55 000	R	55 000	
Signage		1	ea	R 60 000	R	60 000	
Sprinkler Systems		0	ea		R	-	
Smoke ventilation		1	ea	R 1 425 000	R	1 425 000	
Fire Detection		1	ea	R 300 000	R	300 000	
Fire Stopping		1	ea	R 50 000	R	50 000	
Connecting Mains		1	ea	R 100 000	R	100 000	
Hydrant booster pump set		1	ea	R 500 000	R	500 000	
Fire tank & Piping		1	ea	R 150 000	R	150 000	
Electrical & Control		1	ea	R 100 000	R	100 000	
Sub Total					R	3 025 000	
Total					R	21 151 953	
Contingency			10%		R	2 115 195	
Engineering & Services			7.5%		R	1 745 036	
TOTAL					R	25 012 185	

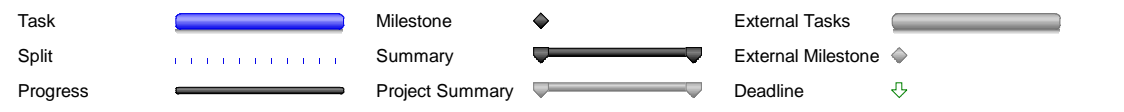
Process Equipment PROVISIONAL BUDGET COST	2016			
	No of.	Units	@	Cost
General Aspects				
IT	1	ea	R 700 000	R 700 000
Telecoms	1	ea	R 100 000	R 100 000
Furniture	1	ea	R 250 000	R 250 000
Security & Access	1	ea	R 150 000	R 150 000
Laboratory Equipment & outfit	1	ea	R 450 000	R 450 000
Data Collection & Scanning Technology	1	ea	R 700 000	R 700 000
Sub total				R 2 350 000
Other				
Other Aspects	1	ea	R 300 000	R 300 000
Sub total				R 300 000
Total				R 2 650 000
Contingency			10%	R 265 000
Engineering & Services			7.5%	R 218 625
TOTAL				R 3 133 625

Annexure D

PROJECT PROGRAM

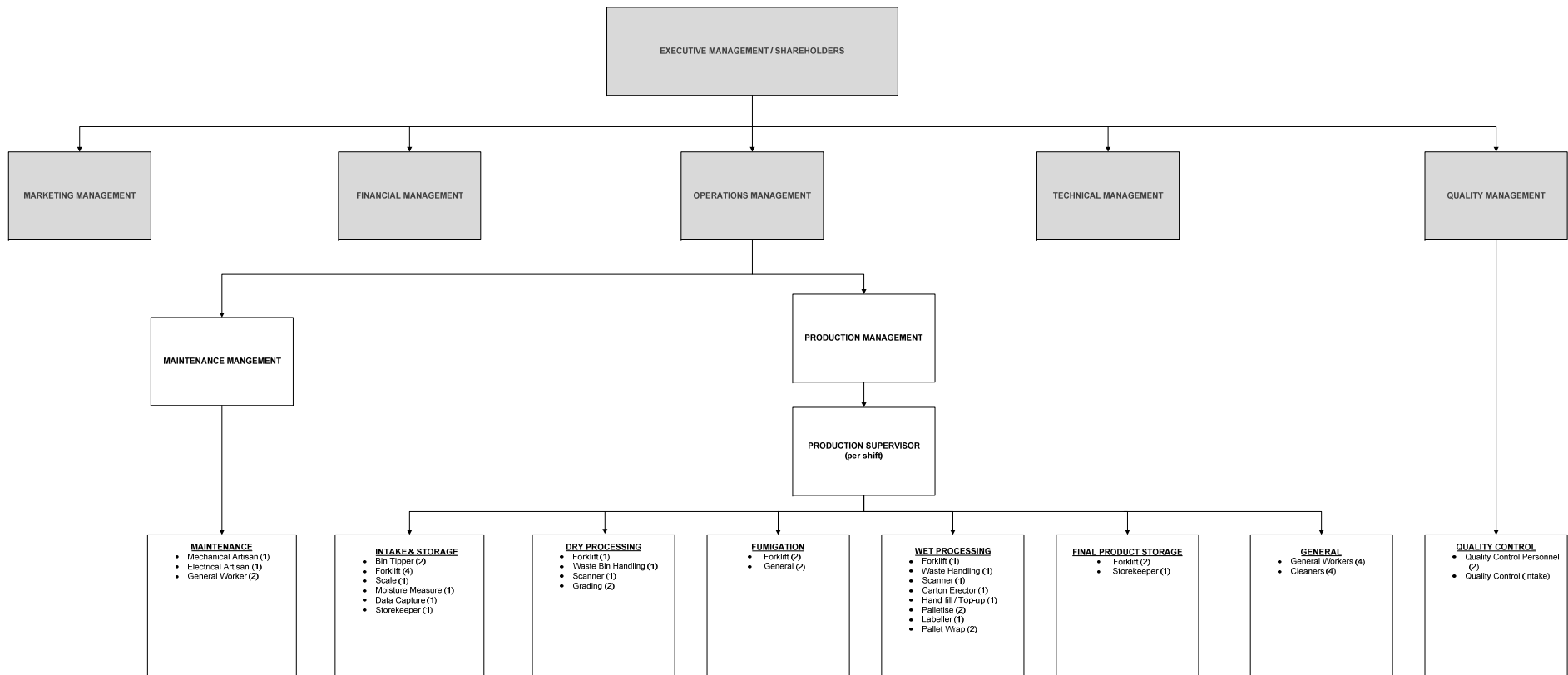
ID	Task Name	Duration	Start	Finish	2016												2017												201
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	OWK New Raisin Processing Facilities	440 days	Mon 15-02-16	Fri 17-11-17																									
2	High Level Investigation - Report	0 days	Mon 15-02-16	Mon 15-02-16	15-02																								
3	Concept Approval	4 wks	Mon 15-02-16	Fri 11-03-16																									
4	Concept Design & Capex	12 wks	Mon 14-03-16	Fri 03-06-16																									
5	Environmental Impact Assessment & Approvals	26 wks	Mon 14-03-16	Fri 09-09-16																									
6	Capex Approval	4 wks	Mon 06-06-16	Fri 01-07-16																									
7	Detail Design & Specifications	12 wks	Mon 04-07-16	Fri 23-09-16																									
8	Building Plan Approval	8 wks	Mon 12-09-16	Fri 04-11-16																									
9	Tenders Out	4 wks	Mon 26-09-16	Fri 21-10-16																									
10	Contractor Appointments	40 days	Mon 24-10-16	Fri 16-12-16																									
11	Main Building Contract	2 wks	Mon 24-10-16	Fri 04-11-16																									
12	Major Equipment	2 wks	Mon 24-10-16	Fri 04-11-16																									
13	Minor Equipment	8 wks	Mon 24-10-16	Fri 16-12-16																									
14																													
15	Delivery Phase	120 days	Mon 07-11-16	Fri 19-05-17																									
16	Delivery of Imported Equipment	24 wks	Mon 07-11-16	Fri 19-05-17																									
17	Manufacturing of Local Equipment	24 wks	Mon 07-11-16	Fri 19-05-17																									
18	Manufacture Minor Equipment	16 wks	Mon 16-01-17	Fri 05-05-17																									
19																													
20	Construction Phase	250 days	Mon 07-11-16	Fri 17-11-17																									
21	Building and Civils Construction	250 days	Mon 07-11-16	Fri 17-11-17																									
22	Site services and Infrastructure	8 wks	Mon 07-11-16	Fri 27-01-17																									
23	Processing + Canopy	18 wks	Mon 16-01-17	Fri 19-05-17																									
24	Bin Wash	10 wks	Mon 14-08-17	Fri 20-10-17																									
25	Raw Mat Store + Canopy	18 wks	Mon 22-05-17	Fri 22-09-17																									
26	Fumigation	12 wks	Mon 22-05-17	Fri 11-08-17																									
27	Admin + Security + Workshop	20 wks	Mon 22-05-17	Fri 06-10-17																									
28	Roads + Landscaping + Hardsurfaces	12 wks	Mon 30-01-17	Fri 21-04-17																									
29	Effluent treatment plant	12 wks	Mon 30-01-17	Fri 21-04-17																									
30	Landscaping and finishing	4 wks	Mon 23-10-17	Fri 17-11-17																									
31	Completion Building Contracts	0 days	Fri 17-11-17	Fri 17-11-17	17-11																								
32																													
33	Process Equipment & Services Installation	125 days	Mon 22-05-17	Fri 10-11-17																									
34	Services and Utilities Main Plant	12 wks	Mon 22-05-17	Fri 11-08-17																									
35	Equipment Installation Main Plant	8 wks	Mon 22-05-17	Fri 14-07-17																									
36	Services and Utilities Other	3 wks	Mon 23-10-17	Fri 10-11-17																									
37	Commissioning and Testing Main plant	4 wks	Mon 14-08-17	Fri 08-09-17																									
38	Ready for Production Trials	0 days	Fri 08-09-17	Fri 08-09-17	08-09																								
39	Commissioning and Testing Other	1 wk	Mon 13-11-17	Fri 17-11-17																									
40	Completion Equipment & Services	0 days	Fri 17-11-17	Fri 17-11-17	17-11																								
41	Handover to Client	0 days	Fri 17-11-17	Fri 17-11-17	17-11																								

Project: OWK-16-Program R1
Date: Thu 09-06-16



Annexure E

PROPOSED ORGANOGRAM



Annexure F

PROCESS FLOW DIAGRAM

PROCESS FLOW DIAGRAM RAISIN PROCESSING

