

**APPENDIX C:
ALTERNATIVES PROJECT COST ESTIMATES**

Project: Bayshore Village Sewage Works Effluent Spray Irrigation Class EA

File No.: 100080-2

Subject: EA Cost Estimates

Date: 1/25/2013

Design: KES

KES Revised Aug. 29, 2014

KES Revised Dec. 10, 2015

KES Revised Nov 9, 2016

Checked: ST

ALTERNATIVE 2: ALTER SPRAY IRRIGATION PRACTICES

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 10,000	\$ 10,000
2.0	UV disinfection	L.S.	1	\$ 200,000	\$ 200,000
3.0	Bonds and insurance	%	2%	\$ 4,200	\$ 4,200
4.0	Estimate allowance/contingency	%	15%	\$ 32,130	\$ 33,000
	Estimated construction cost				\$ 247,200
5.0	Engineering and approvals	%	15%	\$ 37,080	\$ 38,000
	Estimated project cost w engineering				\$ 285,200

Exclude land acquisition and ex. Equipment refurbishment costs

Project: Bayshore Village Sewage Works Effluent Spray Irrigation Class EA

File No.: 100080-2

Subject: EA Cost Estimates

Date: 1/25/2013

Design: KES

KES Revised Aug. 29, 2014

KES Revised Dec. 10, 2015

KES Revised Nov 9, 2016

Checked: ST

ALTERNATIVE 3A: ESTABLISH ONE NEW SPRAY IRRIGATION FIELD

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 10,000	\$ 10,000
2.0	Spray irrigation on West Field				
	Spray irrigation equipment	L.S.		\$ 300,000	\$ 300,000
	Seed field	m2	16,000	\$ 2.50	\$ 40,000
3.0	New pumphouse with UV disinfection				
	Pumphouse (process piping, etc.)	L.S.	1	\$ 100,000	\$ 100,000
	UV disinfection equipment	L.S.	1	\$ 100,000	\$ 100,000
4.0	Rehabilitate North Field				
	Till field	hr	32	\$ 180	\$ 5,800
	Seed field	m2	10,000	\$ 2.50	\$ 25,000
5.0	Rehabilitate South Field				
	Till field	hr	40	\$ 180	\$ 7,200
	Seed field	m2	13,600	\$ 2.50	\$ 34,000
6.0	Tree line	ea.	275	\$ 500	\$ 138,000
7.0	Additional monitoring wells	L.S.	1	\$ 10,000	\$ 10,000
8.0	Bonds and insurance	%	2%	\$ 17,780	\$ 17,800
9.0	Estimate allowance/contingency	%	15%	\$ 118,170	\$ 119,000
	Estimated construction cost				\$ 906,800
10.0	Engineering and approvals	%	15%	\$ 136,020	\$ 137,000
	Estimated project cost w engineering				\$ 1,044,000

Exclude land acquisition and ex. Equipment refurbishment costs

Project: Bayshore Village Sewage Works Effluent Spray Irrigation Class EA

File No.: 100080-2

Subject: EA Cost Estimates

Date: 1/25/2013

Design: KES

Checked: ST and revised 2017

ALTERNATIVE 3B: ESTABLISH TWO NEW SPRAY IRRIGATION FIELDS AND ABANDON NORTH FIELDS

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 10,000	\$ 10,000
2.0	Spray irrigation on West Field				
	Spray irrigation equipment	LS	1	\$ 300,000	\$ 300,000
	Seed field	m2	16,000	\$ 2.50	\$ 40,000
3.0	Spray irrigation on East Field				
	Spray irrigation equipment	LS	1	\$ 200,000	\$ 200,000
	Seed field	m2	6,000	\$ 2.50	\$ 15,000
4.0	Rehabilitate South Field				
	Till field	hr	40	\$ 180	\$ 7,200
	Seed field	m2	13,600	\$ 2.50	\$ 34,000
5.0	Decommission/remove spray equip in North Field	L.S.	1	\$ 20,000	\$ 20,000
6.0	New pump house with UV disinfection				
	Pumphouse (process piping, etc)	L.S.	1	\$ 100,000	\$ 100,000
	UV disinfection equipment	L.S.	1	\$ 100,000	\$ 100,000
7.0	Tree line	ea.	275	\$ 500	\$ 138,000
8.0	Additional monitoring wells	L.S.	1	\$ 20,000	\$ 20,000
9.0	Bonds and insurance	%	2%	\$ 19,684	\$ 19,700
10.0	Estimate allowance/contingency	%	15%	\$ 150,585	\$ 151,000
	Estimated construction cost				\$ 1,154,900
11.0	Engineering and approvals	%	15%	\$ 173,235	\$ 174,000
	Estimated project cost w engineering				\$ 1,329,000

Exclude land acquisition and ex. Equipment refurbishment costs

Project: Bayshore Village Sewage Works Effluent Spray Irrigation Class EA

File No.: 100080-2

Subject: EA Cost Estimates

Date: 7/2/2013

Design: KES

KES Revised Aug. 29, 2014

KES Revised Dec. 10, 2015

KES Revised Nov 9, 2016

Checked: ST

ALTERNATIVE 4: BUILD EFFLUENT RECHARGE BED AND MAINTAIN SOUTH FIELD

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 10,000	\$ 10,000
2.0	Effluent pumping station	L.S.	1	\$ 500,000	\$ 500,000
	Effluent forcemains	m	1,140	\$ 85	\$ 96,900
	Distribution valves and chambers	ea.	14	\$ 1,250	\$ 26,300
3.0	Recharge bed				
	Site preparation	hrs	80	\$ 300	\$ 24,000
	Sand	tonne	147,620	\$ 9.50	\$ 1,403,000
	Infiltrator chambers	m	18,986	\$ 16.40	\$ 312,000
	Distribution piping	m	18,986	\$ 5.00	\$ 94,900
	General labourers	hrs	480	\$ 450	\$ 216,000
	Cover, grade, topsoil and seed	m2	5,000	\$ 12.50	\$ 62,500
4.0	UV disinfection	L.S.	1	\$ 200,000	\$ 200,000
5.0	Tree line	ea.	200	\$ 500	\$ 100,000
6.0	Additional monitoring wells	L.S.	1	\$ 10,000	\$ 10,000
7.0	Bonds and insurance	%	2%	\$ 61,112	\$ 61,100
8.0	Estimate allowance/contingency	%	15%	\$ 467,505	\$ 468,000
	Estimated construction cost				\$ 3,584,700
9.0	Engineering and approvals	%	15%	\$ 537,705	\$ 538,000
	Estimated project cost w engineering				\$ 4,123,000

Exclude land acquisition and ex. Equipment refurbishment costs

Project: Bayshore Village Sewage Works Effluent Spray Irrigation Class EA

File No.: 100080-2

Subject: EA Cost Estimates

Date: 7/2/2013

Design: KES

KES Revised Aug. 29, 2014

KES Revised Dec. 10, 2015

KES Revised Nov 9, 2016

Checked: ST

ALTERNATIVE 5: BUILD EFFLUENT RECHARGE BED AND DISCONTINUE SPRAY IRRIGATION

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 10,000	\$ 10,000
2.0	Effluent pumping station	L.S.	1	\$ 500,000	\$ 500,000
	Effluent forcemains	m	1,352	\$ 85	\$ 114,900
	Distribution valves and chambers	ea.	14	\$ 1,250	\$ 26,300
3.0	Recharge bed				
	Site preparation	hrs	80	\$ 300	\$ 24,000
	Sand	tonne	174,240	\$ 9.50	\$ 1,656,000
	Infiltrator chambers	m	22,502	\$ 16.40	\$ 370,000
	Distribution piping	m	22,502	\$ 5.00	\$ 112,500
	General labourers	hrs	480	\$ 450	\$ 216,000
	Cover, grade, topsoil and seed	m2	5,000	\$ 12.50	\$ 62,500
4.0	Decommission/remove spray equip in North and South Fields	L.S.	2	\$ 10,000	\$ 20,000
5.0	UV disinfection	L.S.	1	\$ 200,000	\$ 200,000
6.0	Additional monitoring wells	L.S.	1	\$ 10,000	\$ 10,000
7.0	Bonds and insurance	%	2%	\$ 66,444	\$ 66,400
8.0	Estimate allowance/contingency	%	15%	\$ 508,290	\$ 508,000
	Estimated construction cost				\$ 3,896,600
9.0	Engineering and approvals	%	15%	\$ 584,490	\$ 585,000
	Estimated project cost w engineering				\$ 4,482,000

Exclude land acquisition and ex. Equipment refurbishment cos

Project: Bayshore Village Sewage Works Effluent Spray Irrigation Class EA

File No.: 100080-2

Subject: EA Cost Estimates

Date: 1/25/2013

Design: KES

KES Revised Aug. 29, 2014

KES Revised Dec. 10, 2015

KES Revised Nov 9, 2016

Checked: ST

ALTERNATIVE 6: UPGRADE STP AND DISCHARGE EFFLUENT TO WAINMAN CREEK

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 20,000	\$ 20,000
2.0	Tertiary treatment plant	L.S.	1	\$ 2,000,000	\$ 2,000,000
3.0	Gravity outfall to Wainman Creek				
	Gravity sewer to outfall structure	m	400	\$ 250	\$ 100,000
	Outfall structure	L.S.	1	\$ 100,000	\$ 100,000
4.0	Decommission/remove spray equip in North and South Fields	L.S.	2	\$ 10,000	\$ 20,000
5.0	Bonds and insurance	%	2%	\$ 44,400	\$ 44,000
6.0	Estimate allowance/contingency	%	15%	\$ 342,600	\$ 343,000
	Estimated construction cost				\$ 2,627,000
7.0	Engineering and approvals	%	15%	\$ 394,050	\$ 395,000
	MOE Review fees and permit fees (allowance)				\$ 10,000
	Estimated project cost w engineering				\$ 3,032,000

Exclude land acquisition and ex. Equipment refurbishment costs