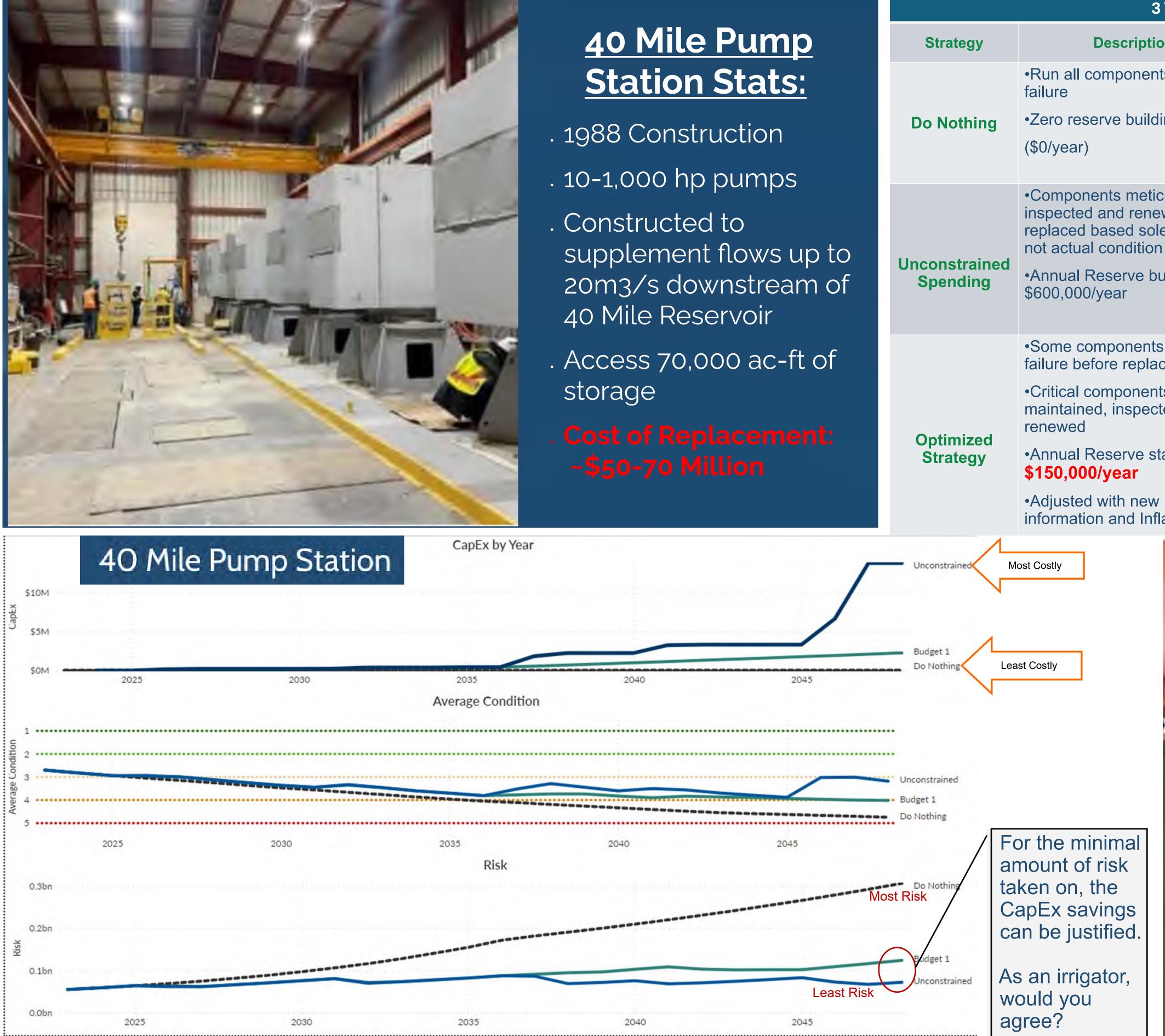
SMRID Facility Asset Management Plans



	3 Types of M	aintenance Manage	ement Strategies	
Strategy	Description	Pros	Cons	Anticipated Outcomes at End of 25-yr forecast
	•Run all components to failure	•Short Term Cost Savings	 Likely service disrup- tions to entire SMRID 	•Facility will be in "Very Poor" Condition
Do Nothing	•Zero reserve building (\$0/year)		•Extensive overhaul required at the end of forecast	•High risk Strategy as short -term cost savings are negated by cost to rehabilitate facility
Unconstrained Spending	 Components meticulously inspected and renewed/ replaced based solely on age not actual condition Annual Reserve building of \$600,000/year 	 Least Risk Minimal service disruptions 	 Components in ac- ceptable condition needlessly replaced Most costly Out-competes other infrastructure for funding 	 Facility will be in "Fair" condition Lowest risk Strategy Most expensive in the long run
Optimized Strategy	 Some components are run to failure before replacement Critical components are maintained, inspected, and renewed Annual Reserve starting at \$150,000/year 	 Long Term Cost Savings Least wasteful Adaptable with changing service expectations 	 Service disruptions cannot be entirely avoided Very active approach Out-competes other infrastructure for funding 	 Facility will be in "Fair – Poor" Condition Not entirely risk neutral Least cost is long term strategy

information and Inflation

40 Mile Technical Inspections Performed January, 2023



Building a Facility Asset Management Plan

1.Assemble Inventory of components from records



40 Mile Technical Inspections Performed January, 2023

. Determine cost of replacement, age-based condition, etc. 2. Perform technical inspections and test equipment 3.Update Inventory with real world condition data 4. Understand the consequences of facility interruption 5. Determine organizational risk appetite

6. Develop scenario forecasts and determine appropriate targets

Bow Island 12 Pumpstation



Create Asset Inventory of Facilities Components (310 components tallied)

	Condition Data						Basic Asset Data Age/Useful Life										
Utilized condition Grade Description	Utilized condition grade	Utilized condition	Assessed Condition Grade Description	Assessed Condition Grade #	Age-Based Condition Grade Description	Age-Based condition Rating	Age-Based RSL	Age	Applied ESL	Modified ESL	Standard ESL	In Service Date	Asset Type	Asset Category	Asset Name	item #	Facility Name
2-Good	2	Age-Based	None	Q	2-Good	2	64	36	100	0	100	1987-01-01	Intake Piping	Civil	Intake Conduit 1	IST-01	ntake Structure
2-Good	2	Assessed	2-Good	2	4-Poor	4	14	36	50	0	50	1987-01-01	Rip-rap	Civil	Intake Structure	IST-07	ntake Structure
3-Fair	3	Assessed	3-Fair	3	4-Poor	4	14	36	50	0	50	1987-01-01	Gates and frames	Process Mechanical	Inlet Gates and Frames	IST-08	umpstation Main
2-Good	2	Assessed	2-Good	2	3-Fair	3	24	36	60	0	60	1987-01-01	Interior Wall finish	Architectural	Electrical Area Wall finishes	MBG-01	umpstation Main
2-Good	2	Assessed	2-Good	2	5-Very Poor	5	-6	36	30	0	30	1987-01-01	Motor Control Centre	Electrical	P1-L1 Fused Disconnect	Mbg-111	umpstation Main
1-Very Good	1	Assessed	1-Very Good	1	5-Very Poor	5	-6	36	30	0	30	1987-01-01	Motor Control Centre	Electrical	P1-H1 Motor Protection Relay	MBG-116	umpstation Main
2-Good	2	Assessed	2-Good	2	5-Very Poor	5	-11	36	25	0	25	1987-01-01	Exterior Door	Architectural	Exterior Door	MBG-14	umpstation Main
2-Good	2	Assessed	2-Good	2	5-Very Poor	5	-6	36	30	0	30	1987-01-01	Motor Control Centre	Electrical	P4-L1 Fused Disconnect	MBG-134	umpstation Main
2-Good	2	Assessed	2-Good	2	4-Poor	4	4	36	40	0	40	1987-01-01	Cable	Electrical	PC-2L	MBG-125	umpstation Main

Risk Bands and Mitigation Measures

	A CONTRACTOR OF A DESCRIPTION OF A DESCRIPANTE A DESCRIPANTE A DESCRIPANTE A DESCRIPTION OF A DESCRIPTION OF
 Risk Description	Potential Risk

Likelihood of Even

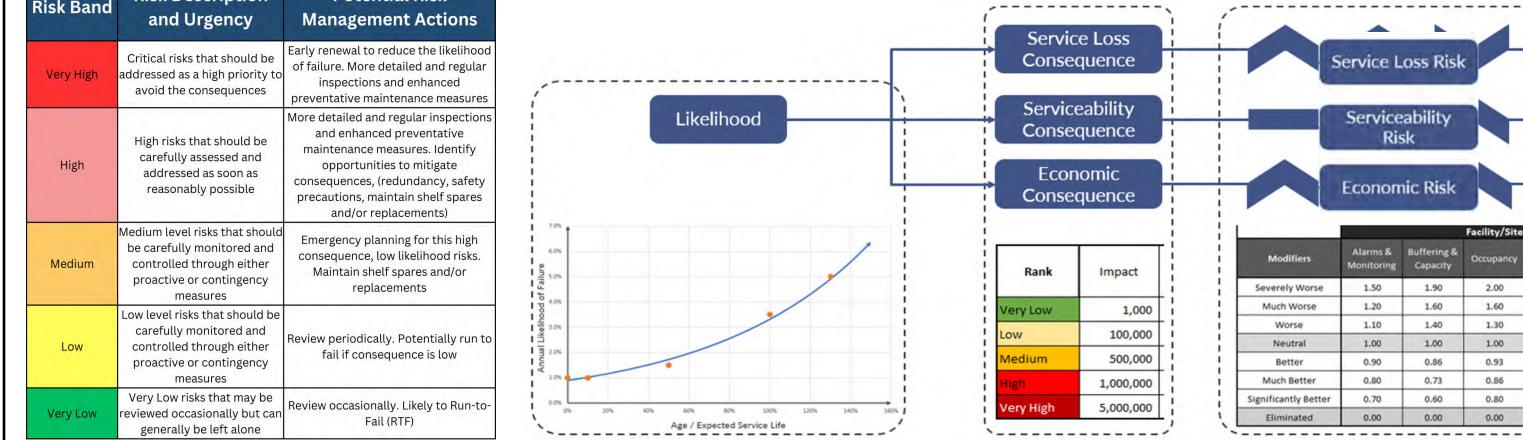
Condition vs % Life Expended

% of Life Expend

Determine Organizational Risk Tolerance

Risk

Score



Estimate Cost to Replace Components

A	В	C	D	E	F				J	к	L	M	N	0	A I	B C	D
	TATION CRV ESTIMATE	ACT COC	10				Fraom Stats C Calgary 01 1981							and the second se	1 LOOKUP LISTS		
			alworking/let/2022-3533-00/asst/analysis/CRVs/lst_	and Alma		ation when									2 PICK LISTS - FACILITY AREA & ASSET C	ATEGORY	ASSET
COPT ONLY -TO	a calculation to 2025 see. Ha	.caiuat	are orking netrizozz-5555-001 asstranalysister vsnsc	smind_40mp	s_cosceated	ation.aise	Inflation Facto								3		
											25%	2%	25%	20%	4 FACILITY AREA	ASSET CATEGORY	Civil
1						1	14,078,190.9	\$ 47,528,279.66		\$47,528,279.66	\$11,766,634.86	\$ 833,877.38	***********	\$ 9,621,628.37	5 Areas 👻	Category 💌	Compo
		-					Construction of the								6 Intake Structure	Civil	Fencir
						1	imount (\$)	Amount (\$)							7 Pumpstation (Main Building)	Architectural	Gates
A second second	туре 💌		Description		and the second second		nadjusted,	Adjusted, 2023	-					PROCESS			
CONTRACT	FENCING		CHAINLINK FENCING		Unit Price X	139 1	om PDF	Costs 3 \$ 27,592.90	CHECK *	\$ 27,592.90		ARCHITECTUF *	STRUCTURE	MECHANICA *	8 Pumpstation (Pumpwell)	Structural	Roads
CONSTRUCTION	FENCING	105/07	GAURDRAIL	m 3	50.00	102 1				\$ 27,532.50					9 Outlet Structure	Process_Mechanical	Roads
CONSTRUCTION	FENCING	105/08	PRECASTCONCRETEm	m 4	75.03	4 1				\$ 1,103.28					10 Grounds	Building_Mechanical	Parkin
CONSTRUCTION		106/06	STILLWELL	LS. 3		100%			ok	\$ 10,803,27					11 Other	Electrical	Parking
CONSTRUCTION	GEOTECHNICALINSTRUMENT		SLOPE MONUMENTS AND REBOUND GAUGES	LS. 1		100% 3				\$ 37,136,24		-			17	Controls	Turfed
CONSTRUCTION	STRUCTUREDRAINAGESYST		100mmPERF.PVCPIPE	m 3	11.00	36 4			ok		\$ 1,432.72	-					
CONSTRUCTION	STRUCTUREDRAINAGESYST		150mmPERF.PVCPIPE	m	12.00	2 4		\$ 81.02	ok	\$ 81.02		-	-		13 Other (Unassigned)	Other (Unassigned)	Landso
CONSTRUCTION	STRUCTUREDRAINAGESYST		150mmSOLIDPVCPIPE	m 3	11.00	42 4			ok	\$ 1.554.52		-			14		Land D
CONSTRUCTION	STRUCTUREDRAINAGESYST		100mmDIA.GALVANIZED STEEL PIPE	m 4	48.00	30 4					\$ 4,838.78				15		Sidewa
CONSTRUCTION	SEEDING	113/03	SEEDING	m2 3	0.05	29480 \$				\$ 4,976.26					16		Sanita
CONSTRUCTION	EXCAVATION	201/07	COMMONEXCAVATIONANDSTRIPPINGOTHERTHANROCK	m3 3	1.90	730884 4	1,388,679.6	\$ 4,688,212.60	ok	\$ 4,688,212.60	10000				17		Sanita
CONSTRUCTION	EXCAVATION	201/08	STRUCTUREANDTRENCH	m3 4	5.50	672 4	3,696.0	\$ 12,477.78	ok	\$ 12,477.78			1		18		
CONSTRUCTION	EARTHFILL	202/12	ZONEIAFILL	m3 \$	\$ 3.30	93528 \$	308,642.4	\$ 1,041,983.47	ok	\$ 1,041,983.47					18		Water
CONSTRUCTION	EARTHFILL	202/13	ZONE2AFILL	m3 3	2.45	137723 \$	337,421.3	5 \$ 1,139,141.83	ok	\$ 1,139,141,83					19		Storm :
CONSTRUCTION	EARTHFILL	202/20	TOPSOILPLACEMENTm3	m3 \$	\$ 3.30	5396 4				\$ 60,116.14					20		Draina
CONSTRUCTION		204/04	ZONE3ASAND	m3 1	\$ 34.00	99 4				\$ 11,363,69					21		Outlet
CONSTRUCTION		204/13	ZONE4AGRAVEL	m3 4		220 \$		\$ 21,539.02		\$ 21,539.02					22		Intake
CONSTRUCTION		204/17	ZONE48GRAVEL	m3 1	28.50	545 4				\$ 52,438.06		· · · · · · · · · · · · · · · · · · ·		1 · · · · · · · · · · · · · · · · · · ·	23		
CONSTRUCTION		204/22	ZONE5AGRAVEL	m3 \$	25.30			\$ 990,026.16		\$ 990,026.16		-		1			Rip-Ra
CONSTRUCTION		204/26	ZONE58RIPRAPBEDDING	m3 3	21.50	5886 \$				\$ 427,232.18					24		Pedest
CONSTRUCTION		204/31	ZONESCGRANULARCOVER	m3 4		6254 4		\$ 494,059.18		\$ 494,059.18		-			25		Site Co
CONSTRUCTION	PREVIOUSFILLANDRIPRAP		ZONESEGRAVEL	m3 1	64.00	6 4				\$ 1,296.39					26		Site El
CONSTRUCTION	PREVIOUSFILLANDRIPRAP			m3 1	18.00	10452 \$		\$ 635,151.24		\$ 635,151.24		-			27		Site Lip
CONSTRUCTION	REINFORCING STEEL		REINFORCING STEEL	kg 3	0.87	920866		2 \$ 2,704,770.15		\$ 2,704,770.15		-	\$ 2,704,770.15		28		Site Li
CONSTRUCTION		303/01	CLASSA-2PUMPSTATIONOUTLETBASIN	m3 4		5 4				\$ 26,890.01 \$ 748.464.03		1	\$ 26,890.01 \$ 748,464.03				-
CONSTRUCTION		303/02	CLASSB-2PUMPWELLSUB.FOUND.BASESLAB CLASSB-2PUMPWELLSUBSTRUCTUREWALLS	m3 1	\$ 250.00 \$ 300.00	887 1		3 \$ 748,464.03 3 \$ 3,720,342,26		\$ 3,720,342,26			\$ 746,464.03		29		End (Ur
CONSTRUCTION		303/03	CLASSB-2PUMPWELLSUBSTRUCTUREWALLS	m3 4 m3 4	\$ 400.00			3 \$ 3,720,342.26 3 \$ 1,240,755.53	ok	\$ 3,720,342.26 \$ 1,240,755.53			\$ 3,720,342.26		30		
CONSTRUCTION				m3 3	660.00	57 1		3 \$ 1,240,755.53		\$ 126,404,33			\$ 126,404,33		31		
CONSTRUCTION		303/10	CLASSE-3CONCRETE	m3 3	\$ 740.00	294 3		3 \$ 734,787.09		\$ 734,787.09			\$ 734,787.09		32		
CONSTRUCTION		303/11	CLASSC-2PIPEBEDDING	m3 3	\$ 300.00			\$ 1,493,069.27		\$ 1,493,069,27			\$ 1.493.069.27		22		
CONSTRUCTION			SLUSHGROUT	m3 3	14.00	1950				\$ 92,165.40		1	\$ 92,165.40		33		
CONSTRUCTION	CONCRETE GROUTING	304/01	GROUT-CLOUMNBASEPLATES	kg 3	2.30	170 1			ok				\$ 1,320.02		34		
CONSTRUCTION	CONCRETE GROUTING	304/02	GROUT-PUMPUNITS	kg 3	1.80	3450 \$				\$ 20,965.10		-	\$ 20,965.10		35		
CONSTRUCTION	CONCRETE GROUTING	304/03	GROUT-BULKHEADGATEguides	kg 3	1.40	25850		\$ 122,178,23		\$ 122.178.23		-	\$ 122,178,23		36		
CONSTRUCTION		305/01	INSULATION	m2 4	30.00	888 1				\$ 89,907.85			\$ 89,907.85		37		
CONSTRUCTION		305/04	TYPE'TWATERSTOP	m 3	\$ 30.00	60 4			ok	\$ 6,109.25			\$ 6,109.25		37		
CONSTRUCTION		305/05	TYPE'3'WATERSTOP	m 3	24.00	60 \$			ok	\$ 4,835.54	3. C. T. T. T.		\$ 4,835.54		38		
CONSTRUCTION	PRECASTCONCRETEPIPE		2143mmDIAMETER	m s	2,800.00			\$ 6,025,348.15	ok	\$ 6,025,348.15	\$ 6,025,348.15				39		
CONSTRUCTION	PRECASTCONCRETEPIPE	341/06	1050/1200mmDIAMETER	m 4		638 \$	669,606.0	\$ 2,260,604.45		\$ 2,260,604.45					40		
CONSTRUCTION	STRUCTURALSTEEL	501/01	STRUCTURALSTEEL	L.S. 3	\$ 27,500.00	1 4			ok	\$ 32,840.60			\$ 92,840.60		41		
CONSTRUCTION	MISCELLANEOUSMETALWOR		MISCELLANEOUSMETALWORK	kg 3	0.20	39782				\$ 705,100.72			\$ 705,100.72		42		
CONSTRUCTION	MISCELLANEOUSMETALWOR				6,000.00	1 4		\$ 20,256.13		\$ 20,256.13		1	\$ 20,256.13				
CONSTRUCTION	BULKHEADGATES, FRAMESA	508/01	BULKHEADGATESANDFRAME	L.S. 3	\$ 235,000.00	1 4	295,000.0	\$ 995,926.43	ok	\$ 995,926.43				\$ 995,926.43	43		

Estimate Service Life of Components

Consequence or Impact

A	В	C	D	E	F	G H	1	1	К	L	M N	0
ISTS												
- FACILITY AREA & ASSET	CATEG	ORY		ASSET TYPE & SUB-TYPE (IF ASSIGNE	D) BY ASSET (CATEGORY (DISCIPLINE) & ESL						
REA		ASSET CATEGORY		Civil		Architectural			Structural		Process_Mechanical	
*	_	Category *		Component Types	ESL		▼ ESL		Component Types	ESL	Component Types	ESL
ucture	_	Civil		Fencing	30	Interior Wall	60		Structural Foundation Slab - Slab-On-Grade	50	Pump	60
ion (Main Building)	_	Architectural		Gates	30	Exterior Wall	50		Structural Foundation Slab - Slab-On-Glade	50	Valve	30
ion (Pumpwell)		Structural		Roads (Surfaced)	40	Floor Finishes	20		Structural Wall - Concrete	50	Piping	60
ucture	_	Process_Mechanical		Roads (Gravel)	40	Roof Envelope	20		Structural Wall - CMU	50	Motor	40
Jetore		Building Mechanical		Parking Area (Surfaced)	40	Ceiling	60		Structural Slab (Suspended) - Concrete	50	Instrument Air	40
		Electrical		Parking Area (Gravel)	40	Ceiling Finishes	20		Roof Structure - Steel Rafters	50	Gates and Frames	50
		Controls		Turfed Area	40	Guards and Handrails	50		Structural Columns - Concrete	50	Static Screens	50
assigned)	_	Other (Unassigned)		Landscaped Area	40	Exterior Door	25	-	Structural Columns - Steel	50	Static Sciecits	50
assigned)		outer (onessigned)		Land Drainage	40	Interior Door	25		Monorall or Crane	50		
	-			Sidewalk	40	Exterior Window	20		Platforms and Walkways	50		
				Sanitary Sewer (Gravity)	80	Interior Window	20		Stairs - Concrete	50	Other (Unassigned)	TB
				Sanitary Sewer (Gravity) Sanitary Piping (Pressure)	60		N/A		Stairs - Concrete Stairs - Steel	50	other (unassigned)	18
				Water Piping (Pressure)	80	Interior Cabinetry Interior Wall Finish	60		Ladders	50		
				Storm Sewers	80	Exterior Wall Finishes	50		Housekeeping Pads	50		
				10110011010000000000000000000000000000	50		30	-		50		
				Drainage Channel		Roof Drainage	50		Apron and Approach Slabs	50		
				Outlet Piping	100		-		Structural Floor Framing Beams - Concrete			
				Intake Piping	100				Structural Floor Framing Beams - Steel	50		
				Rip-Rap	50		-		Hatches and Opening Covers	50		
				Pedestrian Plazas and Walkway:	40	-		_	Guards	50		
				Site Communcations Systems	40					_		
				Site Electric Distrib Systems	40	and the second second	-					
				Site Lighting	30	End (Unassigned)	4	-	End (Unassigned)			
				-								
				End (Unassigned)	TBC							
							-					
						CHANGES (From LT):			CHANGES (From LT):			
						Interior Wall Finishes	60		From LT Spreadsheet (Added into abvove)			
						Exterior Wall Finishes	50		Structural Foundation Slab - Slab-On-Grade	50		
						Floor Finishes	20		Structural Foundation Slab - Raft Slab	50		
						Roof Envelope	20		Structural Wall - Concrete	50		
						Wall Finishes			Structural Wall - CMU	50		
						Ceiling Finishes	20		Structural Slab (Suspended) - Concrete	50		
						Hand Railing Guards and			Roof Structure - Steel Rafters	50		
						Exterior Door	25		Structural Columns - Concrete	50		
						Interior Door	25		Structural Columns - Steel	50		
						Exterior Window	20		Monorail or Crane	50		
						Interior Window	20		Platforms and Walkways	50		
						Interior Cabinetry			Stairs - Concrete	50		