Reed Bed

on

Sir Bani Yas Island, U.A.E.

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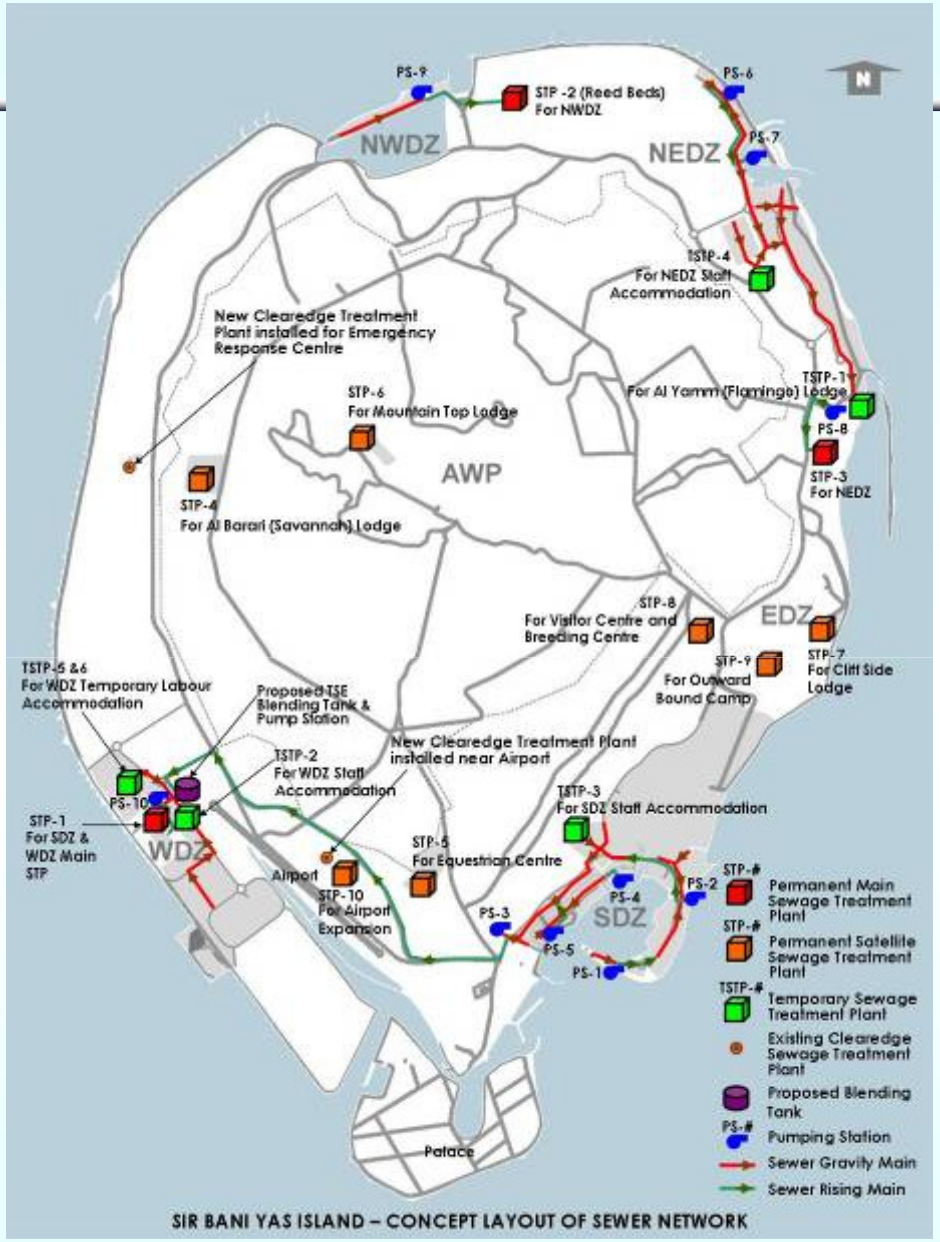
Project description

Project description



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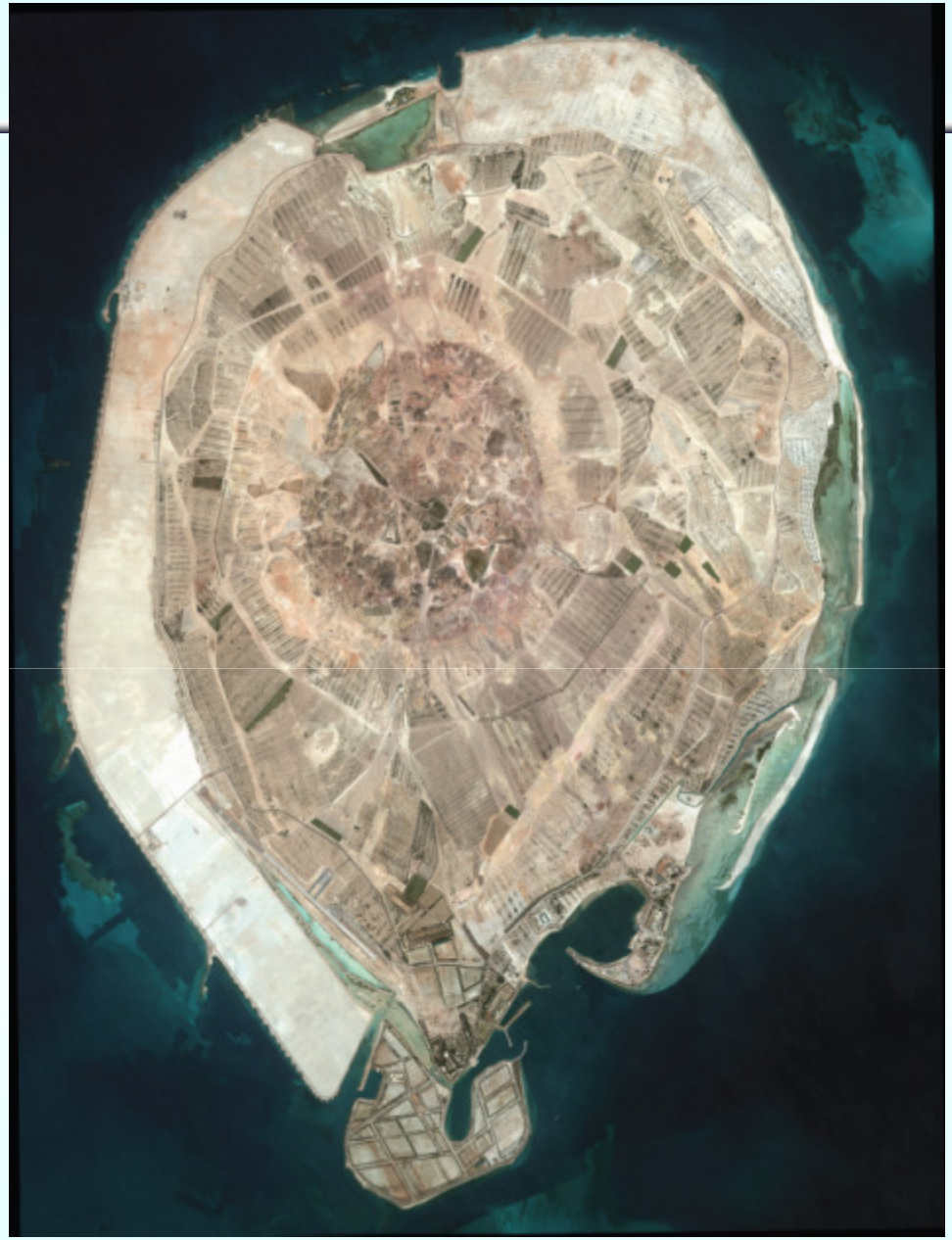

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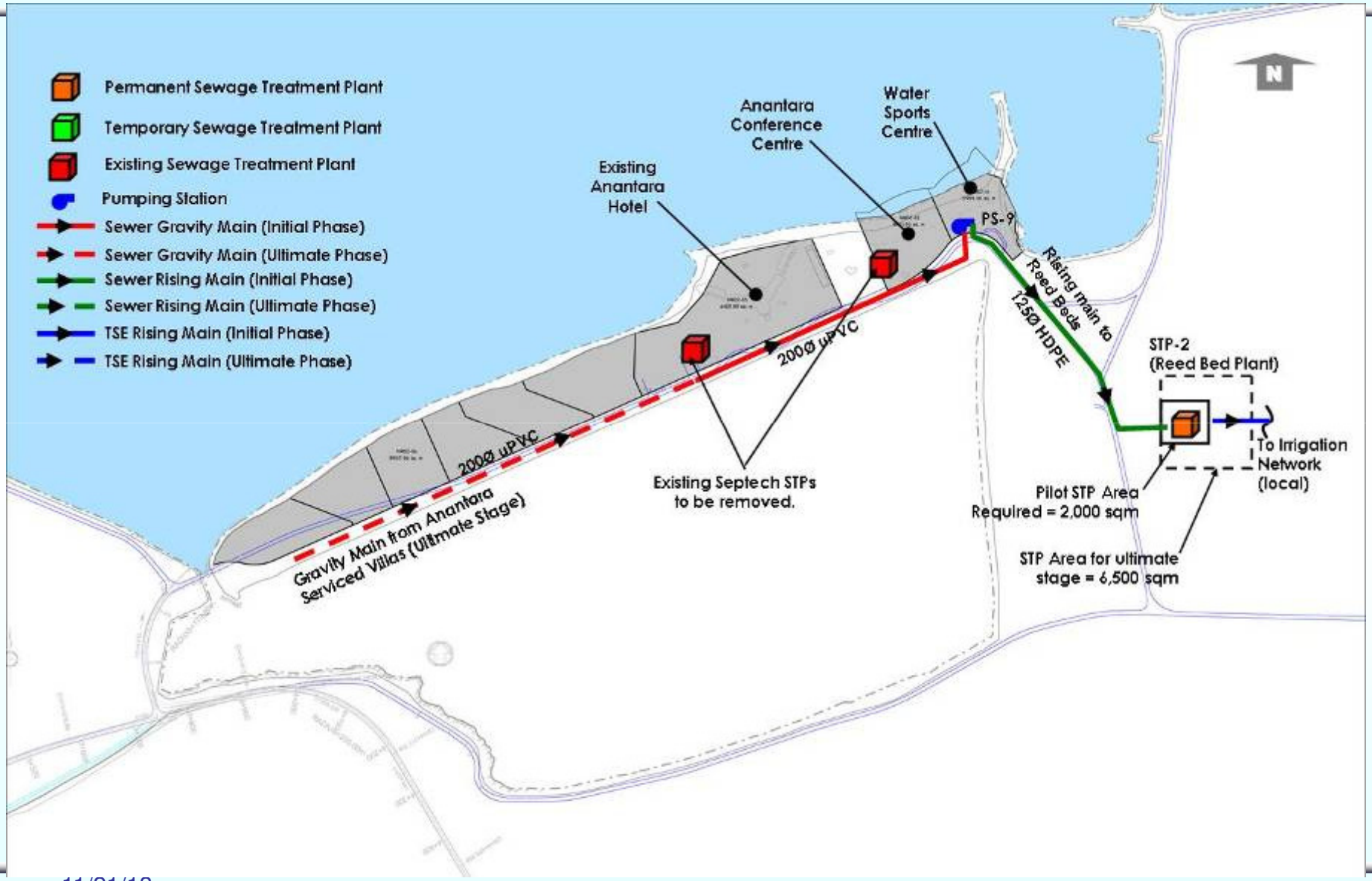


Project description

Design Criteria

Flow Variation expected				
Location	**Peak (m^3/d)**	**Average (m^3/d)**	**Off-Peak (m^3/d)**	**Date Required**
RBP 1 : NWDZ (first phase)	**125**	**100**	**25**	**Aug 2010**
RBP 1 : NWDZ (ultimate expansion)	**310**	**250**	**75**	**December 2011**
RBP 2: Savannah Lodge	**22**	**18**	**6**	**Aug 2010**

Parameter	Value	Parameter	Value
BOD_5 (mg/L)	290	$SCOD_{bio}$ (mg/L)	255
TSS (mg/L)	330	SCOD (mg/L)	278
COD (mg/L)	580	NH_4-N (mg/L)	32.7
TKN (mg/L)	52.1	NO_3-N (mg/L)	0.0
TP (mg/L)	7.3	Ortho-P (mg/L)	5.1
VSS (mg/L)	264	TSP (mg/L)	5.8
$SBOD_5$ (mg/L)	170	Alkalinity (mg/L $CaCO_3$)	80

Real: 86

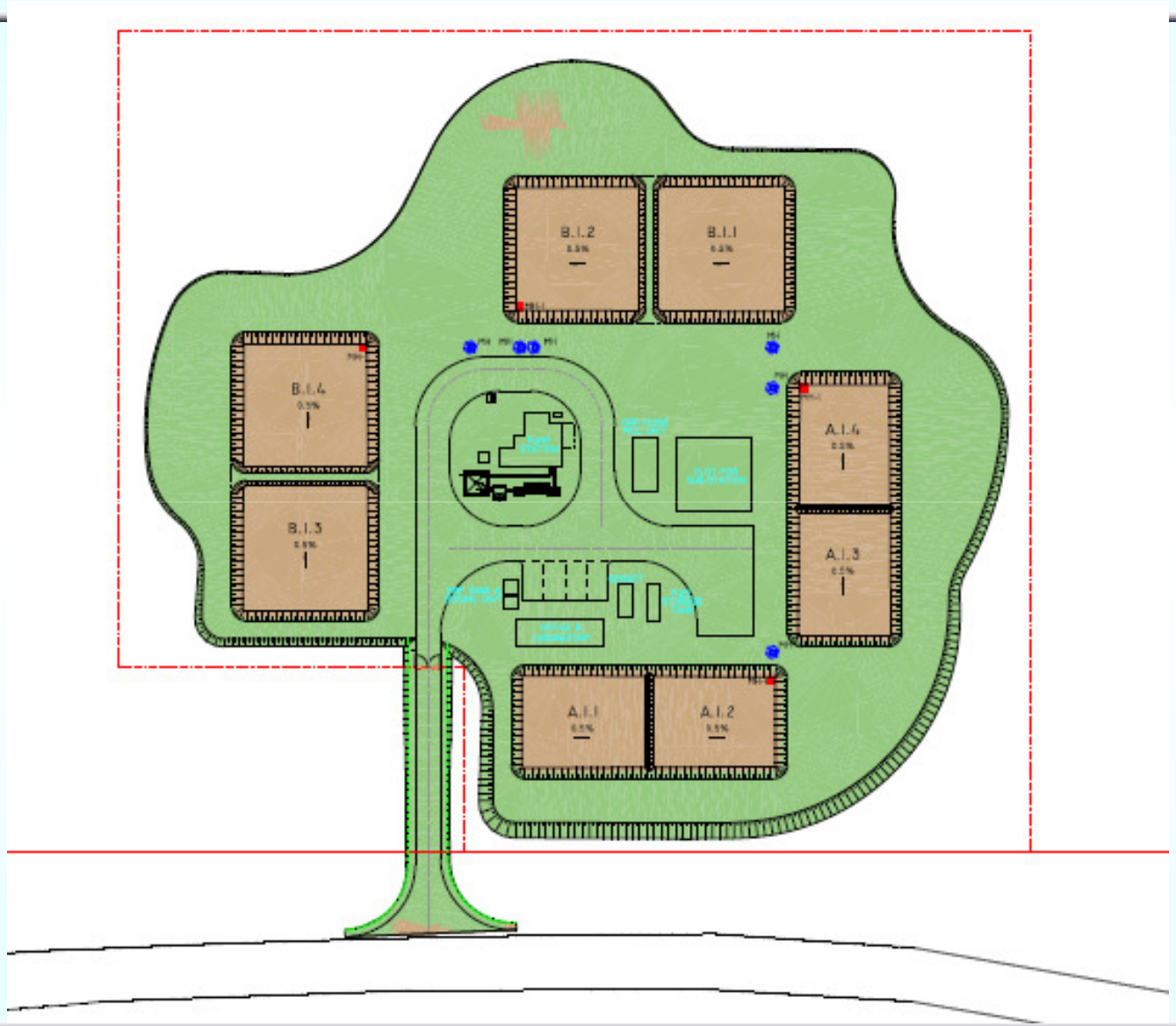
Design Criteria

	Design criteria	Design criteria
1. Step Vertical filter	≥ 3.2 m²/PE	
	Flow ≤ 65 mm/d = 65 l/(m²*d)	depth ≥ 30 cm
2. Step Vertical filter	≥ 4.5 m²/PE (V)	
	Flow ≤ 45 mm/d = 45 l/(m²*d)	depth ≥ 50 cm (V)

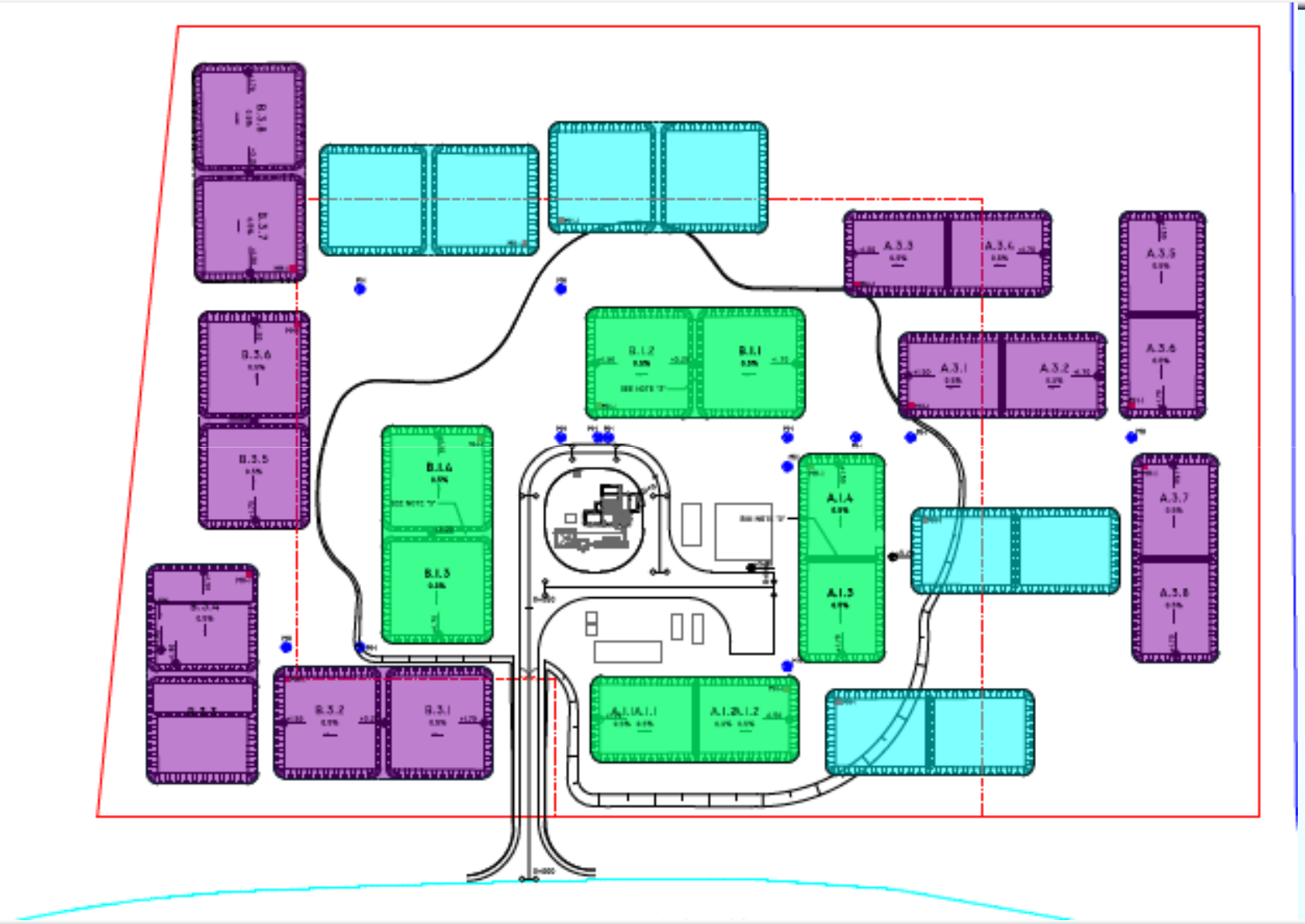
Design, Pump stations and Reed Bed Basins

Parameter	Volume, Area, pump performance
Average daily flow	62,5 m^3
Stage A lift station	15 m^3, Cutter pump, 2 x 36 m^3/hr @ 9m
Stage A basins	4 x 240 m^2 (960 m^2)
Stage B lift station	12 m^3, submersible drain pumps,2 x 45 m^3/hr @ 19m
Stage B basins	4 x 340 m^2 (1360 m^2)
TSE lift station	15 m^3, submersible well pumps 2 x16 m^3/hr @ 70m

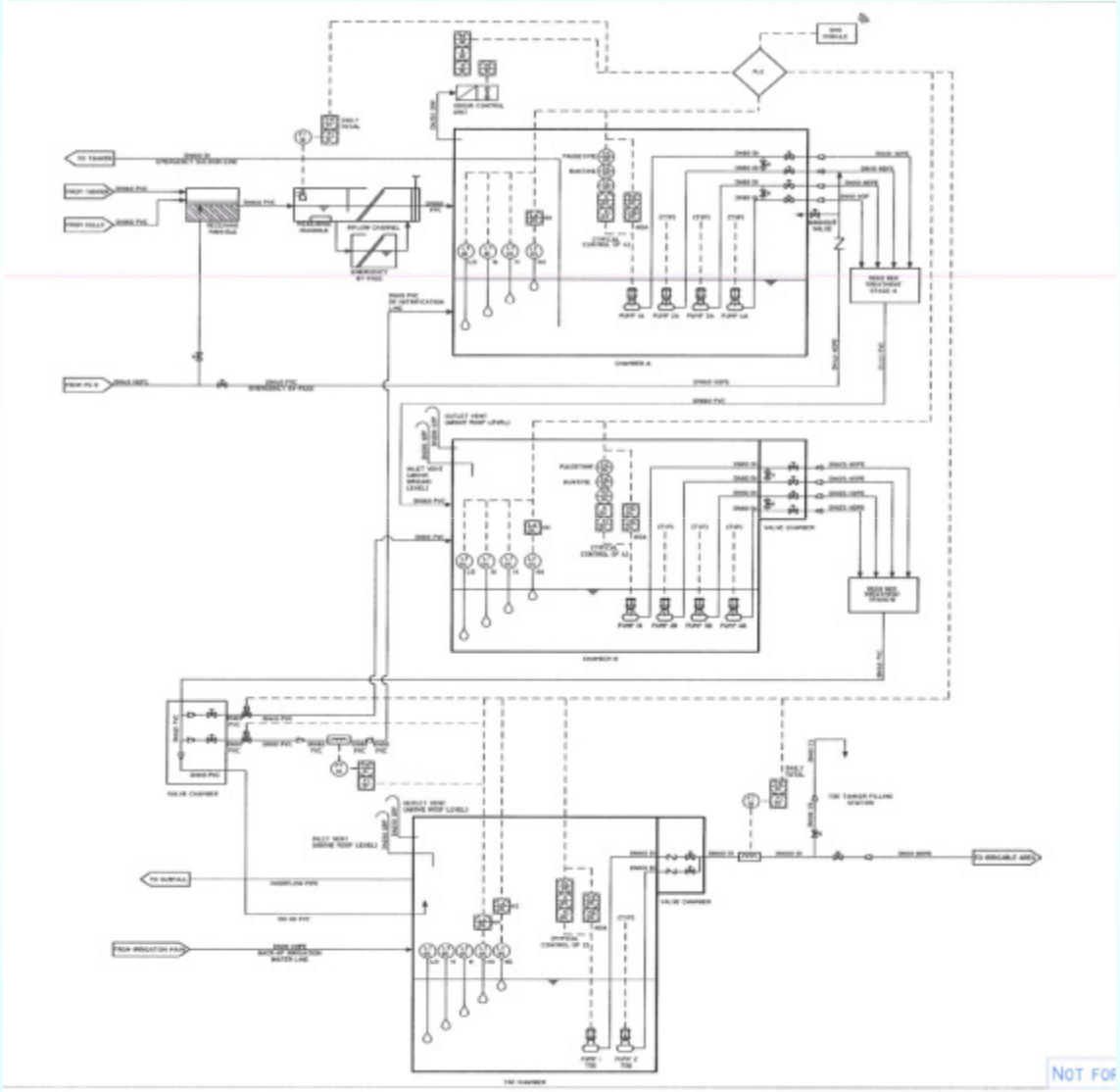
Design, 1st Phase for 62,5 m³ per day



Design, Final Phase for 350 m³/day



Design, Process Flow



Execution

Execution

Execution

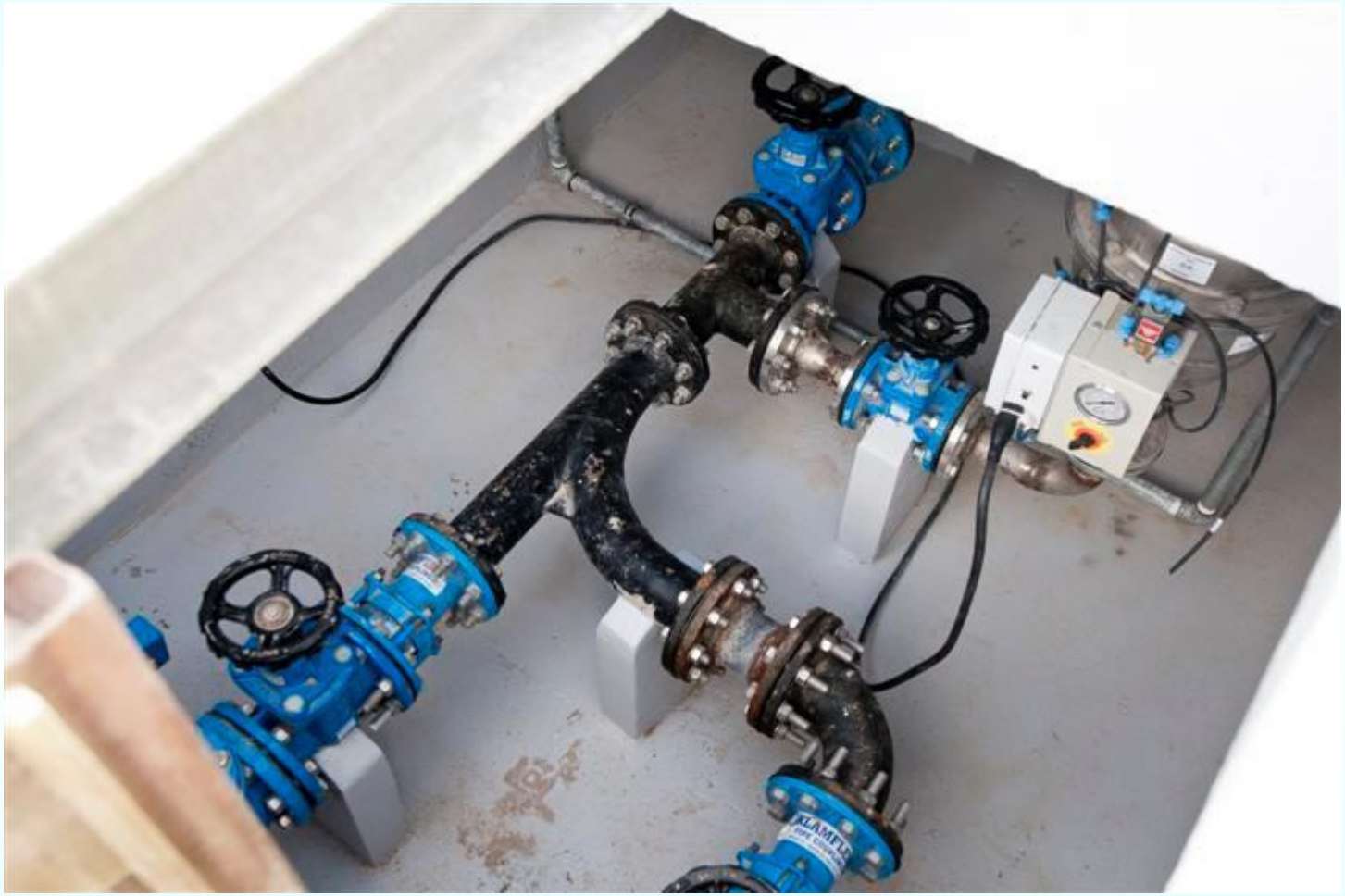
Execution

Execution

Execution

Execution

Execution



Execution

Execution

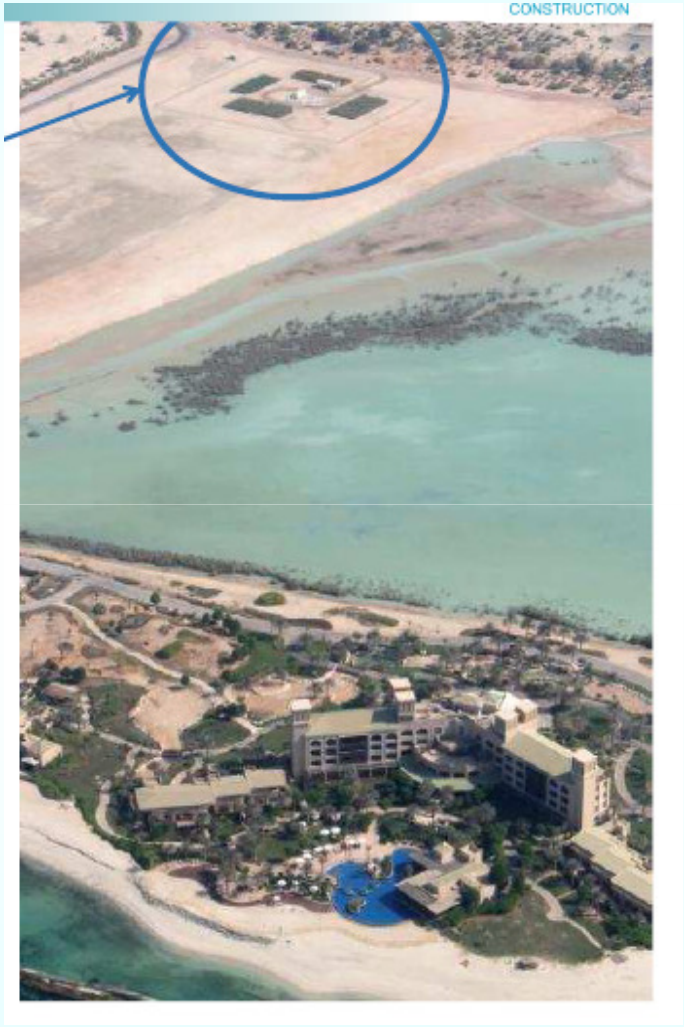
Execution

Start-up

Operation

1 year operation

Final



Monitoring

Reed Bed Sir Bani Yas Island, monitored by Masdar University:

	COD	BOD	NH4-N	PO4-P	TSS	DO	Turbidity	pH
	[mg/l]	[mg/l]	[mg/l]	[mg/l]	[mg/l]	[mg/l]	NTU	
Raw sewage, Inflow	161	77	24.6	2,6	62,5	1,33	29,7	7,6
Reed Bed Stage A	41,1	9,5	2,05	1.0	2,2	7.24	1.91	7.8
Reed Bed Stage B, TSE	38	8,6	0,5	0.2	2,7	6.75	1.93	7.7
RSB-Standard P1	100	10	-	-	10	>1	5	6 - 8
ADSSC	-	10	2	2	10	>3	2	6 - 8

THANK YOU