


- 1) **Status of the Sewerage Scheme executed under the OPEC Project:-**
- (a) **An STP (Lalpani) of capacity 19.35MLD was constructed with a cost of Rs. 17.51 Crores. A network of various dias of D.I.pipes has been laid for a length of 63.40 KM. with a cost of Rs. 21.01 Crores. Present utilization is only 1.25 MLD. IPH department has released 296 sewerage connection in this zone .**
- (b) **An STP (Summer Hill) of capacity 3.93MLD was constructed with a cost of Rs. 3.16 Crores. A network of various dias of D.I.pipes has been laid for a length of 15.70 KM. with a cost of Rs. 2.07 Crores. Present utilization is only 0.164 MLD. IPH department has released 11Nos. sewerage connection in this zone.**
- (c) **An STP (Snowdon) of capacity 1.35MLD was constructed with a cost of Rs. 2.29 Crores. A network of various dias of D.I.pipes has been laid for a length of 10.70 KM. with a cost of Rs.0.95 Crores. Present utilization is only 0.10 MLD IPH. department has released 15Nos. sewerage connection in this zone.**
- (d) **An STP (North Disposal) of capacity 5.80MLD was constructed with a cost of Rs. 6.45 Crores. A network of various dias of D.I.pipes has been laid for a length of 35.80 KM. with a cost of Rs. 8.11Crores. Present utilization is only 0.57 MLD. IPH department has released 80Nos. sewerage connection in this zone.**
- (e) **An STP (Sanjauli-Malyana) of capacity 4.44 MLD was constructed with a cost of Rs. 3.58 Crores. A network of various dias of D.I.pipes has been laid for a length of 40.80 KM. with a cost of Rs. 7.70 Crores. Present utilization is only 1.25 MLD. IPH department has released 630Nos. sewerage connection in this zone.**
- (f) **An STP (Dhallil) of capacity 0.76 MLD was constructed with a cost of Rs. 1.14 Crores. A network of various dias of D.I.pipes has been laid for a length of 12.60 KM. with a cost of Rs. 1.96 Crores. Present utilization is only 0.33 MLD. IPH department has released 287Nos. sewerage connection in this zone.**

  
Executive Engineer  
North Disposal (N.D.)  
Banda (U.P.)

## 2.7 SIZES OF TREATMENT PLANT UNITS

S.No.	Units	Nos.	Size/capacity	MOC
<b>A</b>	<b>Civil Units</b>			
1	Inlet chamber	1	4.5 m x 3.2 m x 1.5 m SWD	RCC
2	Mechanical screen channel	1	6.0 m long x 1.5 m wide x 0.7m SWD	RCC
3	Manual screen channel	1	6.0 m long x 1.5 m wide x 0.7m SWD	RCC
4	Manual grit channels	2 + 1	12.5 m long x 2 m x 0.5 m SWD	RCC
5	UASB reactor 4A	1	20 m x 40 m x 6 m SWD	RCC
6	UASB reactor 4B	1	32 m x 24 m x 6 m SWD	RCC
7	Extended aeration tanks	4	35 m x 17.5 m x 3.6 m SWD	RCC
8	Extended aeration tanks	2	17.5 m x 17.5 m x 3.6 m SWD	RCC
9	Secondary clarifiers	5	18.8 m dia x 3 m SWD	RCC
10	Flash mixer	1	2.2 m x 2.2 m x 3 m SWD	RCC
11	Clariflocculators	3	19 m dia x 2.5 m SWD with flocculator of 7.5m dia x 2.0m SWD	RCC
12	Alum dosing tanks	2	1.3 m x 1.3 m x 1.5 m SWD	RCC
13	Polyelectrolyte dosing tanks	2	1.3 m x 1.3 m x 1.5 m SWD	RCC
14	Lime tanks	2	1.3 m x 1.3 m x 1.5 m SWD	RCC
15	Filter Press House	G + 1	12 m X 13 m	RCC
16	Administrative Building	G + 1	11.5 m x 7m	RCC
17	MEP cum Transformer room		Transformer room 12 m x 10 m & MEP room 8 m x 5 m	RCC
18	Sludge well	1	4.43 m X 4.43 m x 3.0 m SWD + 1.0 m FB	RCC
<b>B</b>	<b>Mechanical Units</b>			
1	Cl Gates	5		MS epoxy painted
2	Manual bar screens	1	To suit bar screen channel of 1.5 m wide	MS epoxy painted
3	Mechanical bar Screen	1	To suit bar screen channel of 1.5m wide	
4	Fixed type slow speed aerators	10	30 HP	MS epoxy painted
5	Clarifier	5	Centrally driven, fixed type to fit in	MS epoxy



S.No.	Units	Nos.	Size/capacity	MOC
6	Flash Mixer	1	RCC tank of size 18.8 m dia x 3 m SWD + 0.5 m freeboard 3 HP mixer to fit in RCC tank of 2.2 m x 2.2 m x 1 m SWD + 0.5 m freeboard	painted SS-316
7	Clariflocculator	3	Centrally driven, with paddle type flocculator to fit in RCC tank of size 19 m dia x 2.5 m SWD + 0.5 m freeboard	SS-316
8	Alum Mixer	2	2 HP mixer to fit in RCC Tank of 1.3m x 1.3m x 1.5m + 0.5 m freeboard	SS-316
9	Polyelectrolyte mixer	2	2 HP mixer to fit in RCC Tank of 1.3m x 1.3m x 1.5m + 0.5 m freeboard	SS-316
10	Lime Mixer	2	2 HP mixer to fit in RCC Tank of 1.3m x 1.3m x 1.5m + 0.5 m freeboard	SS-316
11	Sludge Agitator	1	1 HP mixer to fit in RCC tank of 2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	SS-316
12	Sludge Recycle pumps	4	Horizontal Centrifugal pumps of capacity 160 m <sup>3</sup> /hour @ 14 m head	CI with 2% Nickel
13	Filter press feed pumps	3	Positive displacement type pumps of capacity 45 m <sup>3</sup> /hour at 6 Kg/sq.cm	SS-304/CI
14	Filter Press	1	Manual 600 lit (minimum) wet cake holding capacity	Polypropylene recessed
15	Sludge Recycle pumps	4	Horizontal Centrifugal pumps of capacity 160 m <sup>3</sup> /hour @ 6 m head	CI with 2% Nickel
16	Sludge Recycle pumps	2	Horizontal Centrifugal pumps of capacity 160 m <sup>3</sup> /hour @ 18 m head	CI with 2% Nickel

### 3.5 TREATMENT PROCESS

The treatment process at the Summer Hill STP will consist of the following treatment units:

1. Inlet Chamber
2. Screen Channel
3. Grit Channel
4. Extended Aeration Tanks
5. Secondary Clarifier
6. Flash mixer
7. Clariflocculator
8. Sludge Pumping Station
9. Filter Press (Mechanical Dewatering)

The inlet chamber will receive the raw sewage to pass it further to screen channel and subsequently to the grit channel. In screen channel floating matters are trapped and removed whereas in grit channel, grit is removed. The sewage after removal of screenings and grit material is treated biologically by the extended aeration process.

The sewage after passing through grit channel is aerated in the aeration tanks and subsequently the sewage is conveyed to the secondary clarifiers. The treated sewage from the secondary clarifier will meet the discharge standards stipulated by the Himachal Pradesh Pollution Control Board during favorable weather conditions of the year during summer.

The fall in temperature during extreme winter season reduces the efficiency of extended aeration process. Hence during this period, the sewage from secondary clarifier is further treated by coagulation and flocculation of suspended particles in a physico-chemical process. It is treated physico-chemically by adding alum in flash mixer and settling out the flocs in clariflocculator. The sludge from the secondary clarifier and from clariflocculator is dewatered using filter press before disposal.

### 3.6 SIZES of treatment plant units

S. No	Unit	Nos.	Size / Capacity	MOC
A	Civil Units			
1	Inlet Chamber	1	1.5 m x 1.0 m x 1.5 m SWD	RCC
2	Manual Screen Channel	2	3.5 m long x 0.625 m wide x 0.4 m SWD + 0.30 FB	RCC
3	Manual grit channels	2	13.50 m x 0.90 m wide x 0.5 m SWD + 0.30m FB	RCC
4	Extended Aeration Tank	3	12.55 m x 25.10 m x 3.6 m SWD + 0.60 m freeboard	RCC
5	Secondary Clarifier	2	15.85 m x 3.0 m SWD + 0.50 m freeboard	RCC
6	Flash Mixer	1	2.1 m x 1.2 m x 2.0 m SWD	RCC



S. No	Unit	Nos.	Size / Capacity	MOC
7	Clarriflocculator	1	17.1 m dia x 2.5 m SWD + 0.5 m freeboard & flocculator of 6.5 m dia x 2 m SWD	RCC
8	Alum dosing tank	2	1.3 m x 1.3 m x 1.5m SWD	RCC
9	Polyelectrolyte dosing tank	1	1.3 m x 1.3 m x 1.5m SWD	RCC
10	Lime Dosing Tank	2	1.3 m x 1.3 m x 1.5m SWD	RCC
11	Sludge well	1	2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	RCC
12	Filter Press House	1	8.5 m x 5 m <del>(Shifted to STP)</del>	RCC
13	Administration cum MEP room	1	8.23 m x 4.2 m	RCC
<b>B</b>	<b>Mechanical Units</b>			
1	Gates	2	To suit 0.625m wide channel	CI
2	Manual screens bar	1+1	To suit 0.625m wide channel	MS epoxy painted
3	Fixed type slow speed aerators	6	15 HP	MS epoxy painted
4	Clarifier	2	Centrally driven, fixed type to fit in RCC tank of size 15.85 m dia x 3 m SWD + 0.5 m freeboard	MS
5	Clariflocculator	1	Centrally driven, with paddle type flocculator to fit in RCC tank of size 17.10 m dia x 2.5 m SWD + 0.5 m freeboard	SS-316
6	Flash Mixer	1	1 HP mixer to fit in RCC tank of 1.2 m x 1.2 m x 2 m SWD + 0.5 m freeboard	SS-316
7	Alum Mixer	2	0.5 HP mixer to fit in RCC Tank of 1.3m x 1.3 m x 1.5m + 0.5 m freeboard	SS-316
8	Polyelectrolyte mixer	1	0.5 HP mixer to fit in RCC Tank of 1.3m x 1.3 m x 1.5m + 0.5 m freeboard	SS-316
9	Lime Mixer	2	0.5 HP mixer to fit in RCC Tank of 1.3m x 1.3 m x 1.5m + 0.5 m freeboard	SS-316
10	Sludge Agitator	1	2 HP mixer to fit in RCC tank of 2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	SS-316
11	Sludge Recycle pumps	2	Horizontal Centrifugal pumps of capacity 82 cum/hr at 30m head	CI with 2% Nickel
12	Sludge Recycle pumps	2	Horizontal Centrifugal pumps of capacity 82 cum/hr at 30m head	CI with 2% Nickel
13	Filter press feed pumps	1+1	Positive displacement type pumps of capacity 15 m <sup>3</sup> /hour @ 60 m head	SS-304/CI
14	Filter Press	1	Manual 120 lit (minimum) wet cake holding capacity <del>(Shifted to STP)</del>	Polypropylene recessed

The sewage after passing through grit channel is aerated in the aeration tanks and subsequently the sewage is conveyed to the secondary clarifiers. The treated sewage from the secondary clarifier will meet the discharge standards stipulated by the Himachal Pradesh Pollution Control Board during favorable weather conditions of the year during summer.

The fall in temperature during extreme winter season reduces the efficiency of extended aeration process. Hence during this period, the sewage from secondary clarifier is further treated by coagulation and flocculation of suspended particles in a physico-chemical process. It is treated physico-chemically by adding alum in flash mixer and settling out the flocs in clariflocculator. The sludge from the secondary clarifier and from clariflocculator is dewatered using filter press before disposal.

### 3.7 SIZES OF TREATMENT PLANT UNITS

Sr. No	Unit	Nos.	Size / Capacity	MOC
A	Civil Units			
1	Inlet Chamber	1	1.2 m x 1.2 m x 1.45 m SWD + 0.6 m freeboard	RCC
2	Manual Screen Channel	1 + 1	3.2 m long x 0.5 m wide x 0.55 m SWD + 0.30 m freeboard	RCC
3	Manual Grit Channel	1 + 1	10.7 m long x 0.5 m wide x 0.55 m SWD + 0.30 m freeboard	RCC
4	Extended Aeration Tank	2	14.7 m x 14.7 m x 3.6 m SWD + 0.60 m freeboard	RCC
5	Secondary Clarifier	1	13.2 m x 3.0 m SWD + 0.60 m freeboard	RCC
6	Flash Mixer	1	0.8 m x 0.8 m x 1.5 m SWD + 0.5 m FB	RCC
7	Clariflocculator	1	10.30 m dia x 2.5 m SWD + 0.5 m freeboard & flocculator of 4.3 m dia x 2 m SWD	RCC
8	Alum dosing tank	1	500 litres	HDPE
9	Polyelectrolyte dosing tank	1	200 litres	HDPE
10	Lime Dosing Tank	1	500 litres	HDPE
11	Sludge well	1	2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	RCC
12	Filter Press House	1	6 m x 5 m	RCC
13	Administration cum MEP room	1	7.96 m x 4.2 m	RCC



Sr. No	Unit	Nos.	Size / Capacity	MOC
<b>B</b>	<b>Mechanical Units</b>			
1	Aluminum gates	2	500 mm x 500 mm	
2	Manual bar screens	1+1	To suit	MS epoxy painted
3	Fixed type slow speed aerators	2	20 HP	MS epoxy painted
4	Clarifier	1	Centrally driven, fixed type to fit in RCC tank of size 13.2 m dia x 3 m SWD + 0.5 m freeboard	MS
5	Clariflocculator	1	Centrally driven, with paddle type flocculator to fit in RCC tank of size 10.3 m dia x 2.5 m SWD + 0.5 m freeboard	SS-316
6	Flash Mixer	1	1 HP mixer to fit in RCC tank of 0.8 m x 0.8 m x 1.5 m SWD + 0.5 m freeboard	SS-316
7	Alum Mixer	1	0.5 HP mixer to fit in HDPE Tank of 500 litres + 0.5 m freeboard	SS-316
8	Polyelectrolyte mixer	1	0.5 HP mixer to fit in HDPE tank of 200 litres + 0.5 m freeboard	SS-316
9	Lime Mixer	1	0.5 HP mixer to fit in HDPE Tank of 500 litres + 0.5 m freeboard	SS-316
10	Sludge Agitator	1	3 HP mixer to fit in RCC tank of 2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	SS-316
11	Sludge Recycle pumps	1+1	Horizontal Centrifugal pumps of capacity 32 m <sup>3</sup> /hour @ 12 m head	CI with 2" Nickel
12	Filter press feed pumps	1+1	Positive displacement type pumps of capacity 6 m <sup>3</sup> /hour @ 60 m head	SS-304/CI
13	Filter Press	1	Manual 90 lit (minimum) wet cake holding capacity	Polypropylene recessed

The inlet chamber will receive the raw sewage to pass it further to screen channel and subsequently to the grit channel. In screen channel floating matters are trapped and removed whereas in grit channel, grit is removed. The sewage after removal of screenings and grit material is treated biologically by the extended aeration process.

The sewage after passing through grit channel is aerated in the aeration tanks and subsequently the sewage is conveyed to the secondary clarifiers. The treated sewage from the secondary clarifier will meet the discharge standards stipulated by the Himachal Pradesh Pollution Control Board during favorable weather conditions of the year during summer.

The fall in temperature during extreme winter season reduces the efficiency of extended aeration process. Hence during this period, the sewage from secondary clarifier is further treated by coagulation and flocculation of suspended particles in a physico-chemical process. It is treated physico-chemically by adding alum in flash mixer and settling out the flocs in clariflocculator. The sludge from the secondary clarifier and from clariflocculator is dewatered using filter press before disposal.

## 2.5 SIZES OF TREATMENT PLANT UNITS

Sr. No	Unit	Nos.	Size / Capacity	MOC
A	Civil Units			
1	Inlet Chamber	1	2.65m x 1.7m x 1.3 m SWD + 0.3 m freeboard	RCC
2	Manual Channel Screen	1 + 1	5 m x 0.75 m x 0.8 m SWD + 0.3 m freeboard	RCC
3	Mechanical Channel Screen	1	5 m x 0.75 m x 0.8 m SWD + 0.3 m freeboard	RCC
4	Manual grit channels	1 + 1	13.3 m x 1.6 m x 1 m SWD + 0.3 m freeboard	RCC
5	Extended Tank 5A Aeration	1	30.44 m x 15.22 m x 3.6 m SWD + 0.60 m freeboard	RCC
6	Extended Tank 5B Aeration	1	30.44 m x 15.22 m x 3.6 m SWD + 0.60 m freeboard	RCC
7	Extended Tank 5C Aeration	1	30.44 m x 15.22 m x 3.6 m SWD + 0.60 m freeboard	RCC
8	Secondary Clarifier 5A	1	19.5 m x 3.0 m SWD + 0.60 m freeboard	RCC
9	Secondary Clarifier 6 B	1	19.5 m x 3.0 m SWD + 0.60 m freeboard	RCC
10	Flash Mixer	1	2.45 m x 1.65 m x 2 m SWD + 0.5 m FB	RCC
11	Clariflocculator	1	21.2 m dia x 2.5 m SWD + 0.5 m	RCC



Sr. No	Unit	Nos.	Size / Capacity	MOC
			* freeboard & flocculator of 8.8 m dia x 2 m SWD	
12	Alum dosing tank	1+1	1.3m x 1.3 m x 1.37 m + 0.3 m FB	RCC
13	Polyelectrolyte dosing tank	2	1.3m x 1.3 m x 1.37 m + 0.3 m FB	RCC
14	Lime Dosing Tank	1+1	1.3m x 1.3 m x 1.37m + 0.3 m FB	RCC
15	Sludge well	1	3.2 m x 3.2 m x 2 m SWD + 0.5 m freeboard	RCC
16	Filter Press House	GF +1	7.5 m x 6 m	RCC
17	Administration cum MEP room	1	6.8 m x 4.2 m	RCC
<b>B</b>	<b>Mechanical Units</b>			
1	CI gates	4	750 mm wide channel	
2	Manual bar screens	1	To suit 0.75m wide channel	MS epoxy painted
3	Mechanical Bar Screen	1	To suit 0.75m wide channel	MS epoxy painted
4	Fixed type slow speed aerators	6	25 HP	MS epoxy painted
5	Clarifier	2	Centrally driven, fixed type to fit in RCC tank of size 19.5 m dia x 3 m SWD + 0.5 m freeboard	MS
6	Clariflocculator	1	21.2 m dia x 2.5 m SWD + 0.5 m freeboard & flocculator of 8.8 m dia x 2 m SWD Centrally driven, with paddle type flocculator	MS
7	Flash Mixer	1	2 HP mixer to fit in RCC tank of 1.25 m x 1.25 m x 2 m SWD + 0.5 m FB	SS-316
8	Alum Mixer	1+1	1 HP mixer to fit in RCC tank	SS-316
9	Polyelectrolyte mixer	1+1	1 HP mixer to fit in RCC tank	SS-316
10	Lime Mixer	1+1	2 HP mixer to fit in RCC tank	SS-316
11	Sludge Agitator	1	5 HP mixer to fit in RCC tank of 3.2 m x 3.2 m x 2 m SWD + 0.5 m freeboard	SS-316
12	Sludge Recycle pumps for clarifier 6 A	1+1	Horizontal Centrifugal pumps of 125 cum/hr capacity at 55m head	CI with 2% Nickel
13	Sludge Recycle pumps for clarifier 6 B	1+1	Horizontal Centrifugal pumps of 125-cum/hr capacity at 55m head.	CI with 2% Nickel
14	Clariflocculator sludge pumps	1+1	Horizontal Centrifugal pumps of 5 cum/hr capacity at 10m head	CI with 2% Nickel
15	Filter press feed pumps	1+1	Positive displacement type pumps of 15-cum/hr capacity at 6 Kg/sqcm.	SS-304/CI
16	Filter Press	1	Mechanical 120 lit (minimum) wet cake holding capacity	Polypropylene recessed



### 3.6 TREATMENT PROCESS

The treatment process at the Sanjauli Maliana STP will consist of the following treatment units:

1. Inlet Chamber
2. Screen Channel
3. Grit Channel
4. Extended Aeration Tank
5. Secondary Clarifier
6. Flash mixer
7. Clariflocculator
8. Sludge Pumping Station
9. Filter Press (Mechanical Dewatering)

The inlet chamber will receive the raw sewage to pass it further to screen channel and subsequently to the grit channel. In screen channel floating matters are trapped and removed whereas in grit channel, grit is removed. The sewage after removal of screenings and grit material is treated biologically by the extended aeration process.

The sewage after passing through grit channel is aerated in the aeration tanks and subsequently the sewage is conveyed to the secondary clarifiers. The treated sewage from the secondary clarifier will meet the discharge standards stipulated by the Himachal Pradesh Pollution Control Board during favorable weather conditions of the year during summer.

The fall in temperature during extreme winter season reduces the efficiency of extended aeration process. Hence during this period, the sewage from secondary clarifier is further treated by coagulation and flocculation of suspended particles in a physico-chemical process. It is treated physico-chemically by adding alum in flash mixer and settling out the flocs in clariflocculator. The sludge from the secondary clarifier and from clariflocculator is dewatered using filter press before disposal.

### 3.7 SIZES OF TREATMENT PLANT UNITS

Sr. No	Unit	Nos.	Size / Capacity	MOC
A	Civil Units			
1	Inlet Chamber	1	2.65 m x 1.45 m x 1.2 m SWD + 0.5 m freeboard	RCC
2	Manual Screen Channel	1 + 1	5.0 m long x 0.7 m wide x 0.4 m SWD + 0.30 m freeboard	RCC
3	Manual grit channels	1 + 1	13.75 m x 1.0 m wide x 0.5 m SWD + 0.15 m grit collection trough + 0.3 m freeboard	RCC



Sr. No	Unit	Nos.	Size / Capacity	MIOC
4	Extended Aeration Tank 5A	1	13.35 m x 26.7 m x 3.6 m SWD + 0.60 m freeboard	RCC
5	Extended Aeration Tank 5B	1	13.35 m x 26.7 m x 3.6 m SWD + 0.60 m freeboard	RCC
6	Extended Aeration Tank 5C	1	11.85 m x 26.7 m x 3.6 m SWD + 0.60 m freeboard	RCC
7	Secondary Clarifier 6A	1	16.9 m x 3.0 m SWD + 0.60 m freeboard	RCC
8	Secondary Clarifier 6B	1	16.9 m x 3.0 m SWD + 0.60 m freeboard	RCC
9	Flash Mixer	1	1.25 m x 1.25 m x 2 m SWD + 0.5 m FB	RCC
10	Clariflocculator	1	18.55 m dia x 2.5 m SWD + 0.5 m freeboard & flocculator of 7.7 m dia x 2 m SWD	RCC
11	Alum dosing tank	1+1	1.3m x 1.3 m x 1.37 m + 0.3 m FB	RCC
12	Polyelectrolyte dosing tank	1	1.3m x 1.3 m x 1.37 m + 0.3 m FB	RCC
13	Lime Dosing Tank	1+1	1.3m x 1.3 m x 1.37m + 0.3 m FB	RCC
14	Sludge well	1	2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	RCC
15	Filter Press House	1	8.5 m x 5 m	RCC
16	Administration cum MEP room	1	8 m x 4.2 m	RCC
B	<b>Mechanical Units</b>			
1	CI gates	2	700 mm x 700 mm	MS epoxy painted
2	Manual bar screens	1+1	To suit	MS epoxy painted
3	Fixed type slow speed aerators	6	20 HP	MS epoxy painted
4	Clarifier	2	Centrally driven, fixed type to fit in RCC tank of size 16.9 m dia x 3 m SWD + 0.5 m freeboard	MS
5	Clariflocculator	1	18.55 m dia x 2.5 m SWD + 0.5 m freeboard & flocculator of 7.7 m dia x 2 m SWD Centrally driven, with paddle type flocculator	MS
6	Flash Mixer	1	1 HP mixer to fit in RCC tank of 1.25 m x 1.25 m x 2 m SWD + 0.5 m FB	SS-316
7	Alum Mixer	1+1	0.75 HP mixer to fit in RCC tank	SS-316
8	Polyelectrolyte mixer	1	0.75 HP mixer to fit in RCC tank	SS-316

Sr. No	Unit	Nos.	Size / Capacity	MOC
9	Lime Mixer	1+1	0.75 HP mixer to fit in RCC tank	SS-316
10	Sludge Agitator	1	2 HP mixer to fit in RCC tank of 2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	SS-316
11	Sludge Recycle pumps	1+1	Horizontal Centrifugal pumps of capacity 95 m <sup>3</sup> /hour @ 33 m head	CI with 2% Nickel
12	Sludge Recycle pumps	1+1	Horizontal Centrifugal pumps of capacity 95 m <sup>3</sup> /hour @ 42 m head	CI with 2% Nickel
13	Filter press feed pumps	1+1	Positive displacement type pumps of capacity	SS-304/CI
14	Filter Press	1	Manual 120 lit (minimum) wet cake holding capacity	Polypropylene recessed



The inlet chamber will receive the raw sewage to pass it further to screen channel and subsequently to the grit channel. In screen channel floating matters are trapped and removed whereas in grit channel, grit is removed. The sewage after removal of screenings and grit material is treated biologically by the **extended aeration process.**

The sewage after passing through grit channel is aerated in the aeration tanks and subsequently the sewage is conveyed to the secondary clarifiers. The treated sewage from the secondary clarifier will meet the discharge standards stipulated by the Himachal Pradesh Pollution Control Board during favorable weather conditions of the year during summer.

The fall in temperature during extreme winter season reduces the efficiency of extended aeration process. Hence during this period, the sewage from secondary clarifier is further treated by coagulation and flocculation of suspended particles in a physico-chemical process. It is treated physico-chemically by adding alum in flash mixer and settling out the flocs in clariflocculator. The sludge from the secondary clarifier and from clariflocculator is dewatered using filter press before disposal.

### 3.7 SIZES OF TREATMENT PLANT UNITS

Sr. No	Unit	Nos.	Size / Capacity	MOC
A	Civil Units			
1	Inlet Chamber	1	1 m x 1.2 m x 1.35 m SWD + 0.3 m freeboard	RCC
2	Manual Screen Channel	1 + 1	3.5 m long x 0.5 m wide x 0.4 m SWD + 0.30 m freeboard	RCC
3	Manual grit channels	1 + 1	4.7 m x 0.50 m wide x 0.15 m SWD + 0.15 m grit collection trough + 0.3 m freeboard	RCC
4	Extended Aeration Tank	1	29.7 m x 9.9 m x 3.0 m SWD + 0.60 m freeboard	RCC
5	Secondary Clarifier	1	9.85m x 3.0 m SWD	RCC
6	Flash Mixer	1	0.75 m x 0.75 m x 1 m SWD + 0.5 m FB	RCC
7	Clariflocculator	1	7.70 m dia x 2.5 m SWD + 0.5 m freeboard & flocculator of 3.2 m dia x 2 m SWD	RCC
8	Alum dosing tank	1	500 litres	HDPE
9	Polyelectrolyte dosing tank	1	200 litres	HDPE

Sr. No	Unit	Nos.	Size / Capacity	MOC
10	Lime Dosing Tank	1	500 litres	HDPE
11	Sludge well	1	2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	RCC
12	Filter Press House	1	5 m x 4 m	RCC
13	Administration cum MEP room	1	8 m x 4.2 m	RCC
<b>B</b>	<b>Mechanical Units</b>			
1	Aluminum gates	2	500 mm x 500 mm	
2	Manual bar screens	1+1	To suit	MS epoxy painted
3	Fixed type slow speed aerators	3	7.5 HP	MS epoxy painted
4	Clarifier	1	Centrally driven, fixed type to fit in RCC tank of size 9.85 m dia x 3 m SWD + 0.5 m freeboard	MS
5	Clariflocculator	1	Centrally driven, with paddle type flocculator to fit in RCC tank of size 7.70 m dia x 2.5 m SWD + 0.5 m freeboard	SS-316
6	Flash Mixer	1	1 HP mixer to fit in RCC tank of 0.75 m x 0.75 m x 1 m SWD + 0.5 m freeboard	SS-316
7	Alum Mixer	1	0.5 HP mixer to fit in HDPE Tank of 500 litres + 0.5 m freeboard	SS-316
8	Polyelectrolyte mixer	1	0.5 HP mixer to fit in HDPE tank of 200 litres + 0.5 m freeboard	SS-316
9	Lime Mixer	1	0.5 HP mixer to fit in HDPE Tank of 500 litres + 0.5 m freeboard	SS-316
10	Sludge Agitator	1	3 HP mixer to fit in RCC tank of 2.5 m x 2.5 m x 2 m SWD + 0.5 m freeboard	SS-316
11	Sludge Recycle pumps	1+1	Horizontal Centrifugal pumps of capacity 32 m <sup>3</sup> /hour @ 12 m head	CI with 2% Nickel
12	Filter press feed pumps	1+1	Positive displacement type pumps of capacity 6 m <sup>3</sup> /hour @ 60 m head	SS-304/CI
13	Filter Press	1	Manual 90 lit (minimum) wet cake holding capacity	Polypropylene recessed



## Status of staff deployed by the IPH Division No. II, Shimla-171003.

Sr. No.	Category	Sanctioned strength	Existing Strength	Vacancy	Remarks
1	Executive Engineer	1	1	-	-
2	Assistant Engineer	5	5	-	-
3	Divisional Accountant	1	1	-	-
4	Supdt. Gr. II	1	1	-	-
5	H.D.M	1	1	-	-
6	Junior Engineer	7	5	2	-
7	Addl. Assistant Engineer	2	2	-	-
8	Junior Engineer (Cont)	2	2	-	-
9	Sr. Assistant	7	6	1	-
10	Clerk/ Jr. Assistant	4	1	3	-
11	D/Man	2	2	-	-
12	Jr. D/Man	2	1	-	-
13	Peon	1	1	-	-
14	Chowkidar	3	3	-	-
15	Sweeper	3	3	-	-
16	Surveyor	1	1	-	-
17	Work Inspector	7	7	-	-
18	Store Keeper	1	1	-	-
19	Assistant Store Keeper	2	2	-	-
20	Foreman	3	2	1	-
21	Assistant Chemist	2	2	-	-
22	Lab Technician	1	1	-	-
23	Pump Operator	1	1	-	-
24	Pump Operator (Cont)	37	35	2	-
25	Electrician	2	1	1	-



26	Driver	8	2	6	-
27	Masson	3	3	-	-
28	Fitter	5	3	2	-
29	Mate	1	1	-	-
30	PO Cum Helper	1	1	-	-
31	P.O.H.	16	14	2	-
32	Helper	2	2	-	-
33	Lab Helper	3	3	-	-
34	Cleaner	1	1	-	-
35	Chowkidar	5	5	-	-
36	Beldar	139	100	39	-
37	Sweeper	2	2	-	-
38	Telephone Attendant	3	1	2	-
39	Foreman	3	1	2	-
40	Electrician	3	1	2	-
41	Pump Driver	20	18	2	-
42	Assistant Pump Driver	36	15	21	-
43	Mate	4	1	3	-

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Executive Engineer,  
IPH Division No.II,  
Shimla-171003.