TECHNICAL FIELD VISIT REPORT

V.V. SANGHA'S

RAO BAHADUR. Y. MAHABALESWARAPPA ENGINEERING COLLEGE, BALLARI 2022-23

DEPARTMENT OF CIVIL ENGINEERING

BATCH NO: 07

SL NO	NAME OF THE STUDENT	USN	SIGNATURE OF TRIP CO -ORDINATOR
1	SARFARAZ	3VC21CV427	
2	SHADRACH CHRISTOPHER	3VC21CV428	
3	SHARANABASAVANA GOUDA M	3VC21CV429	
4	SHARANAMMA G	3VC21CV430	
5	SUNITHA H G	3VC21CV431	
6	SYED MUSEEB	3VC21CV432	
7	V ARUN KUMAR	3VC21CV433	
8	VANDAVAGALI ASHOKA	3VC21CV434	
9	VANI B	3VC21CV435	
10	YOGESH S	3VC21CV436	
11	ZAYYAN	3VC21CV437	

Name of Project: Field visit to Sanganakal Treatment plant

Date of visit: 05/12/2022

Objective of visit: Field visit to Sanganakal Treatment plant

Organized by: Department of Civil Engineering RYMEC Ballari.

Faculty Coordinator: - Mr. Manohar P

Faculty Members for Visit –

1. Mr. Manohar P
2. Mr. Ganesh H
3. Mr. Veereshaiah H M
4. Ms. Megha N Belagal
5. Mr. Tilak Kumar S
6. Mr. Rohan Desai V

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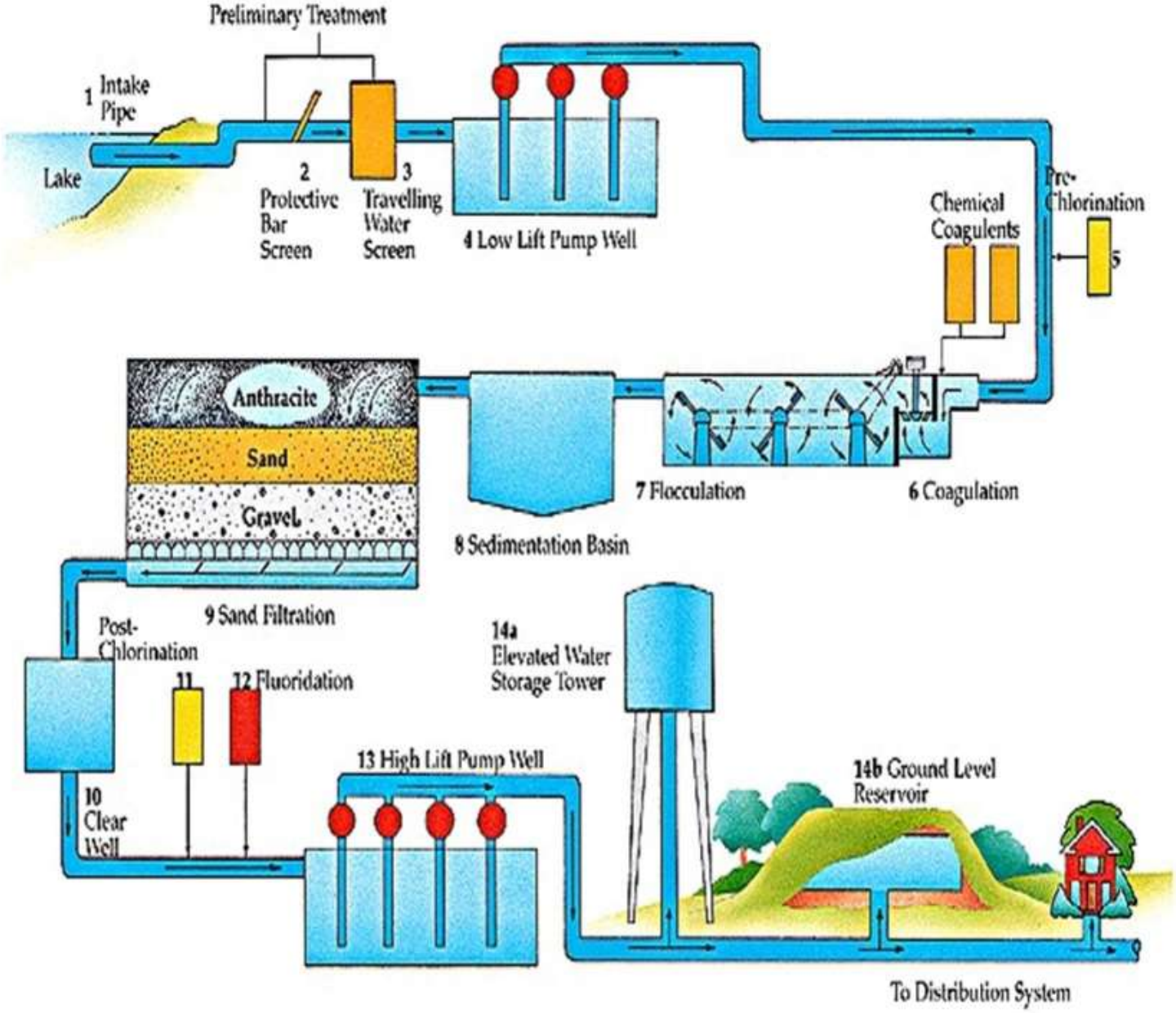
SL NO	COURSE OUTCOMES At the end of the course, students will be able to:	BLOOM'S LEVEL
CO 1	**List the various stages in the water treatment plant at Moka Intake Structure, Sanganakal Water Treatment Plant**	Knowledge, Understand (L1,L2)
CO 2	**Identify types of treatment provided and its benefits.**	Knowledge, Understand (L1,L2)
CO 3	**Categorize the various units under the stages of treatment**	Knowledge, Understand (L4,L6)
CO 4	**Justify and validate a presentable report**	Knowledge, Understand (L4,L5,L6)

CO-PO Mapping

CO \ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CO 1	1					2	2					2			3
CO 2	1					2	2			1		2			3
CO 3	1					2	2					2			3
CO 4						2	2			1		2			3
Average	1					2	2			1		2			3

WATER TREATMENT PLANT
SURFACE WATER SUPPLY



FIELD VISIT TO SANGANAKAL TREATMENT PLANT

The field visit to Sanganakal water treatment plant has taken place on 05/12/2022 at 11:00 am from Civil Department of Rao Bahadur Y Mahabaleswarappa Engineering college by college buses.

The main objective of this visit is to enhance the knowledge of water treatment and practical situations that takes place on field.

Places covered in the visit are:-

1. MOKA RESERVOIR.
2. SANGANAKAL RESERVOIR AND TREATMENT PLANT.
3. NEW WATER TREATMENT PLANT NEAR KRS FUNCTION HALL, MOKA ROAD.

STAFF AND STUDENTS ENROUTE TO TREATMENT PLANT

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

1.MOKA RESERVOIR:-

The first location of visit was Moka reservoir which is about 35km away from Ballari city. The storage capacity of this reservoir is about 1262ML (million litres).

LATITUDE: 15◦ 12’ N
LONGITUDE: 77◦ 1’E

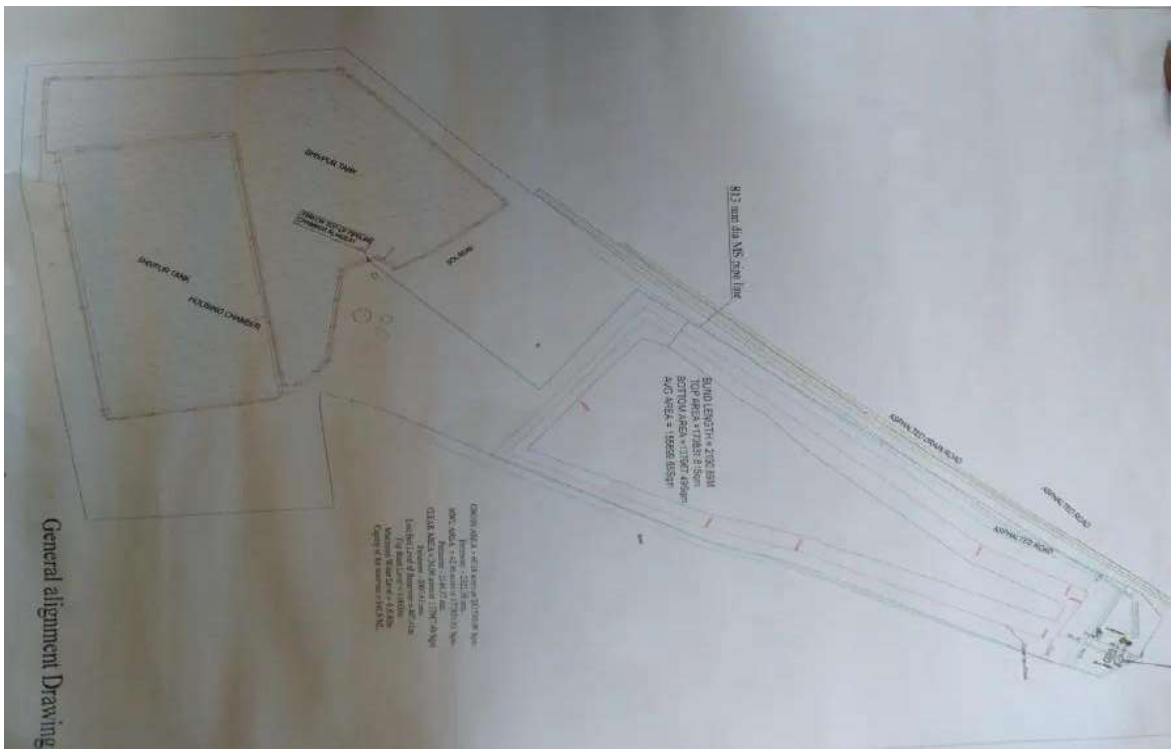
The main source for this reservoir is Tungabhadra right bank low level canal, which carry water for a period of 9 months in a year.

The main purpose of this reservoir is to store water and supply it to the Allipur treatment plant and reservoir.

The reservoir is spread across 50 acres of land on an total area of 65 acres, the cost of this project is nearly 40 crore rupees.

EARTHEN BUND DETAILS

Capacity of the reservoir = 841.90ML (million liters)
Bund length = 2190.89 m
Top bund level = 418.00 m
Maximum water level = 416.80 m
Lowest bed level = 407.41 m
Gross area = 60.18 acres or 243530 Sqm
Perimeter = 2322.56 m
Area @ MWL = 42.96acres or 17381 Sqm
Perimeter = 2146.67 m
Clear area = 34.09acres or 137967 Sqm
Perimeter = 2003.61 m
Top width of bund = 3.00 m
U/S Slope = 2.5:1
D/S Slope = 2:1



FIELD VISIT TO SANGANAKAL TREATMENT PLANT

The water is collected from the low level canal through intake structure constructed at the banks of the canal, this intake structure is provided with bar screens in grid shape to remove all the floating materials.

Screening provided to intake structure

Canal intake structure

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

The water is then sent jack well/sump from where the water is sucked and pumped to the rerservoir which is 1.5 km away from the canal, pumping done with the help of 3 pumps with 142hp capacity, these pumps can be operated accordingly as per the demand of supply, the work of these pumps is only to pump the water from jack well to the reservoir.

JACK WELL

CENTRIFUGAL PUMPS OF 142HP CAPACITY

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

The water stored in the reservoir is pumped to Allipur treatment plant, Allipur reservoir Sanganakal treatment plant, this is done with the help of 3 powerful pumps of 690 KW capacity, these pumps are operated as per the demand of water at the treatment plant.

2. SANGANAKAL WATER TREATMENT PLANT:-

This treatment plant is situated near Sanganakal village of Ballari district. The project was completed and inaugurated by his highness SHRI JAYA CHAMARAJA WADIYAR (Governor of Mysore) on 14/01/1984 under the presidentship of Hon. Shri S NIJALINGAPPA (Chief minister of Mysore).

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

The units of this treatment plant are:

Screening, coagulation, sedimentation, filtration, disinfection and storage.

The water coming from the reservoir is passed through screens of different size to remove the floating matters, then the water is sent to coagulation room were coagulant (Alum) is mixed with water and made into a slurry form and mixed with the raw water coming from screens, it is down to increase the settlement of particles. Then the water is sent to sedimentation tank by reducing the flow velocity. The water is allowed to stay in the sedimentation tank for a period of time so that all the suspended particles may settle.

ALUM ADDED IN SLURRY FORM

SEDIMENTATION TANK

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

Then the water is allowed to pass through the filter beds, here rapid sand filters are used for filtration process.

RAPID SAND FILTER

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

Disinfection is done by passing chlorine gas to the filtered water to make it safe for drinking. Through chlorination pathogenic bacteria are killed and it provides protection against waterborne diseases.

3.NEW WATER TREATMENT PLANT NEAR KRS FUNCTION HALL:

This new treatment facility of constructed exactly opposite to KRS function hall, Moka road Ballari. This treatment plant has all the treatment units required for the treating of raw water.

The raw water is screened and sent to aeration process, here cascade type of aeration is adopted with 4 steps, the water flows downwards after falling on the steps in the form of thin sheets. Aeration is done to remove the foul smell of the water and release the gases to the atmosphere, through aeration oxygen content in the water is also increased.

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

CASCADE AERATION

ALUM POWDER

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

The water is then mixed with the coagulant (alum) and allowed to flow to sedimentation tank, here tube settlers are used, they are placed at an inclination of 40 to 60 ◦.

The rate of settling will be more as compared to normal sedimentation tank, because the settling area will be much more in tube settlers. No backwashing is required for removal of sludge from the tubes. The water is then sent to filter beds for filtration process.

TUBE SETTLERS

Filtration process is by rapid sand filters and filter beds are back washed 3 to 4 times in a day, the filtration process removes all the solid particles that are not removed sedimentation and screening process.

FIELD VISIT TO SANGANAKAL TREATMENT PLANT

Rapid sand filters

The filtered water is then sent to disinfection process where chlorine is introduced to the water in the form of powder, gas or liquid, to kill all the pathogenic bacteria from the water that are harmful to human health and cause waterborne diseases.

FIELD VISIT TO SANGANAKAL TREATMENT PLANT