NAAC Accreditation : 16 February 2004
NAAC Reaccrediration : 08 January 2011
NAAC Reaccrediration : 28 March 2017

Estd. : June 1964
NAAC : 'A' (CGPA : 3.01)

UGC (2F) dt. 20-03-1967,
Perm. Affi.No.-Affi./t.2/F.35/8275,dt.31-12-2002
Jr. College No. J 23.10.001

Shree Warana Vibhag Shikshan Mandal's

Yashwantrao Chavan Warana Mahavidyalaya

WARANANAGAR - 416 113, DIST. KOLHAPUR (MAHARASHTRA)

Affiliated to Shivaji University, Kolhapur

अनंत आमुची ध्येयासक्ती..!

I/C Principal
Prof. Dr. Prakash S. Chikurdekar
M.A.B.Ed.,M.Phil.,Ph.D.

Office : 02328 - 224041
Principal : 02328 - (O) 222820
Fax : 02328 - 224031
Website : www.ycwm.ac.in
E-Mail : ycwcwarana@yahoo.co.in

Founder Chairman : Late Shri V. A. Alias Tatyasaheb Kore

Chairman : Dr. Vinay V. Kore
M.L.A.

7.1: Institutional Values and Social Responsibilities

7.1.3: Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following.

- Green audit / Environment audit
- Energy audit
- Clean and green campus initiatives
- Beyond the campus environmental promotion activities

Other relevant documents to support the claim

Fire and Safety Audit Report

Reed Bed: Water Recycling plant details

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

Fire and Safety Audit Report

in

Academic Year- 2022

Prepared by-

Mr.Vilas.S.Patil - Coordinator
Fire and Safety Audit Committee (2021-22)
Assistant Professor, Department of Physics,

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

ISBN:

Published by: Dr. A. M. Shaikh.
M.Sc., Ph. D.
Principal,
Yashwantrao Chavan Warna Mahavidyalaya,Warananagar.
A/P : Warananagar, Tal: Panhala, Dist: Kolhapur
(Maharashtra)
Phone (O)-02328-224041
(R)
Mob:7588248845
Fax: amshaikh7@gmail.com
e-mail-

Mr. Vilas S. Patil.

Coordinator,
Fire and Safety audit Committee- (2016 to 2021-22),
Assistant Professor,
Department of Physics,
Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.
(Maharashtra, India)
Phone (O)-02328-224041.
Mob.: 9423282718.
e-mail: vspkodoil2201@gmail.com.

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(Maharashtra, India)

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

Fire and Safety Audit Report

in Year 2022.

Fire and Safety Audit Committee (2021-22)

- **Mr.Vilas S. Patil - Coordinator, Fire and Safety Audit Committee.**

Fire and Safety Audit Committee (2021-22)

Dr. S.S.Khot,	-Member	Dr.R.P.Kavane.	-Member
Prof. M.N.Patil.	-Member	Prof. A.K.Ladgaonkar.	-Member

Prof. Miss. P. A. Mitari-Member

Year- 2022

Chief Editor

Mr. Vilas S. Patil.

Coordinator,
Fire and Safety Audit Committee.

Editorial Team

Dr.R.P.Kavane.
Prof. M.N. Patil.
Prof. A.K.Ladgaonkar.
Prof. Miss. P. A. Motari.

Field Team

Dr. S.S.Khot- Member
Prof.U.D.Kadam
Prof.S.M.Arde
Prof.C.R.Jadhav
Prof.U.G.Jambhore
Prof. N.R.Chopade
Pfor. S.R.Ghodake
Shree Subhash B. Shirgave

Special Assistance:- M/S. Sandeep Fire Services, Manufacturer and Suppliers for Fire and Safety Equipment, ISO 9001-2015 Company, Authorized License agency of Maharashtra Govt. Fire Services

Photo Assistance Shubham K. Kumbhar (Alumni)

Hon. Principal, Dr. A.M. Shaikh.
Y.C. W. M. Warananagar.

Acknowledgement

In order to organize conscious, planned and determined efforts, in order to improve fire prevention, life safety and fire protection measures in the premises of Yashwantrao Chavan Warana Mahavidyalaya, Warnanagar, under the able leadership of Hon'ble Dr.Vinayravgi Kore (Savkarsaheb), Chairman, Shree. Warana Vibhg Shikshan Mandal, Warananagar, Who took a significant decision for Fire and life Safety auditing of YCWM campus, was one step ahead for strengthening the fire-safety of premises.

The fire and life safety audit report are to document the facility of fire protection and life safety necessities in the building campus. This report would serve as a useful reference to fire safety stakeholders of the institute.

The auditing team will investigate the fire safety situation of the required selected YCM campus thorough safety audit regarding the Fire prevention control system, Electrical systems, emergency preparedness, evacuation system and safety management etc.

I am thankful to the team of M/S. Sandeep Fire Services, Manufacturer and suppliers for fire and safety equipment, ISO 9001-2015 company, which is authorized license agency of Maharashtra fire services giving for valuable inputs that have added immense value to the contents of this report.

I also thankful to Mr. Vilas S. Patil and all the members of the fire and Safety committee of our college for taking hard efforts and working according to inputs and guidance of the M/S. Sandeep Lalasaheb Khatmode.

I express my sincere gratitude to all the members of the fire and Safety committee, the team of the M/S. Sandeep Fire Services, all HOD, teaching faculties and non- teaching staff of college for spearheading this initiative and making Hon'ble chairman's vision of life prevention and safety into a reality

I am happy to acknowledge the support and cooperation extended by Honorable Prof. Dr. Rasam Madam. Administrative Officer of our institute for completion of this audit and publication of this report.

Hon. Principal, Dr. A.M. Shaikh.
Y.C. W. M. Warananagar.

Mr. Vilas Shamrao Patil.
Coordinator, Fire and Safety Audit Committee,
Assistant Professor,
Department of Physics, Y.C.W.M. Warananagar.

Foreword

According to directions issued in the committee meeting on 2 July there necessary, to undertake the Fire and Life Safety Audits of our college premises. In compliance to this audit. A Safety Audit Committee was constituted by Central Electricity Authority vide Office Order under the provision fire prevention and life safety measure Act 2006 and abatement of 2007 we appoint M/S. Sandeep Fire Services, Manufacturer and suppliers for fire and safety equipment, ISO 9001-2015 company, which is authorized license agency of Maharashtra fire services in July 2022.

Physical Safety Audit of premises was carried out during the months of August 2022 to November 2022. The detailed Safety Audit Reports with emergency plan was shared to the stake holders of college through website publication. It is worth mentioning that Committee has carried out the Fire and life safety audit task within the time frame prescribed by Hon'ble Principal.

I wish to express my appreciation to all the members of the Committee for sparing their valuable time & sharing their experience and making valuable contribution in bringing out this report.

Further, I thank to the of Hon'ble Dr.Vinayravgi Kore (Savkarsaheb), Chairman, and Honorable Prof. Dr. Rasam Madam. Administrative Officer, of Warana Vibhg Shikshan Mandal, Warananagar, Hon'ble Principal, Dr. A. M. Shaikh of our college, for taking this Fire and Life safety audit in positive spirit and extending all the cooperation to the Committee members during the audit.

I express our sincere thanks to the Teaching, administrative staff and Non- teaching staff for their co-operation help, without which this Fire and Life Safety Audit could not have been possible.

Mr.Vilas Shamrao Patil.

Coordinator, Fire and Safety Audit Committee,
Assistant Professor,
Department of Physics, Y.C.W.M. Warananagar

SANDEEP
FIRE SERVICES
Fire safety on, accidents gone

SANDEEP FIRE SERVICES

Manufacturer and suppliers for fire extinguisher and safety equipment
ISO 9001-2015 / Maharashtra fire services authorised licence agency

Date: - 02/04/2023

FORM-B

(As per section 3 (3) and rule 4 (2)

"Six monthly certificates to be given to be every January and July by the owner or the occupier for compliance Of the Fire Prevention and Life Safety Measures"

CERTIFICATE

Certified that we have carried out inspection of the fire prevention and life safety Measures installed in the following building premises.

Yashwantrao Chavan Warana Mahavidhyalay
Warananagar
Tal. Panhala Dist . Kolhapur

We further certify that these installations in the above mentioned buildings Are maintained in good repair efficient conditions during the period **01/07/2022 to 31/12/2022**, as required under the provision of the Maharashtra fire prevention & Life Safety measure Act 2006 (Mah III of 2007).

कोल्हापूर महानगरपालिका अग्निशमन सेवा दल

3 APR 2023

For SANDEEP FIRE SERVICES.

sandlp lalasaheb khatmode

Digitally signed by sandlp lalasaheb khatmode
Date: 2023.04.02 14:32:22 +05'30'

Sandeep L Khatmode.
(Fire & Safety Engg)
Auth. sign
Licence No MFS-LA/RF-88/RD -83

Head Ofc-S.R. No. 84/2, Saidapur, Sambhaji Nagar, Medha Road, Post kondave, Tal- Dist - Satara 415002
+91-9923236015 / 8208543278 sandip_fire@ymail.com www.sandeepfireservices.com

SANDEEP
FIRE SERVICES
Fire safety on accidents gone

SANDEEP FIRE SERVICES
Manufacturer and suppliers for fire extinguisher and safety equipment
ISO 9001-2015 / Maharashtra fire services authorised licence agency

Date: - 02/04/2023

MEASUREMENT SHEET & TEST REPORT

To,
Yashwantrao Chavan Waran Mahavidhyalay
Warananagar
Tal. Panhala Dist . Kolhapur

Subject:- Maintenance of existing Fixed Fire Protection System

Side :- Warananagar Tal. Panhala Dist Kolhapur

Sr. No	Description	Quantity	Unit	Testing	Remark
1	Pump 3 HP	01	NOS	Yes	OK
2	Fire Hydrant Valve Dia 63 IS 5290	01	NOS	Yes	OK
3	Hose Reel Hose Dia 20mm.30 mtr long ISI Mark	06	NOS	Yes	OK
4	Single Door Hose Box	01	NOS	Yes	OK
5	Hose Pipe. 63 Mm Dai 15 Mtr Long	01	JOB	Yes	OK
6	Branch Pipe SS	01	NOS	Yes	OK
7	Starter	01	NOS	Yes	OK
8	Fire Inlet Two Way C.I Body IS 903	01	NOS	Yes	OK
9	Fire Alarm Panel Two Zone	01	NOS	Yes	OK
10	MCP	04	NOS	Yes	OK
11	Hooter	04	NOS	Yes	OK
12	Smoke Detector	30	NOS	Yes	OK
13	Fire Extinguisher Refilling Co2 4.5 Kg	02	NOS	Yes	OK
14	Fire Extinguisher Refilling ABC 4 Kg	04	NOS	Yes	OK

The above Fire Systems applied & providing & fixing and maintained by
As per Indian Standard Code of Practice and they are now in perfect working condition.
Thank you,
Yours Faithfully,

For SANDEEP FIRE SERVICES.
sandlp lalasaheb khatmode
Digitally signed by sandlp lalasaheb khatmode
Date: 2023.04.02 14:31:44 +05'30'
Sandeep L Khatmode.
(Fire & Safety Engg)
Auth. sign
Licence No MFS-LA/RF-88/RD -83

Head Ofc-S.R. No. 84/2, Saidapur, Sambhaji Nagar, Medha Road, Post kondave, Tal- Dist - Satara 415002
+91-9923236015 / 8208543278 sandip_fire@ymail.com www.sandeepfireservices.com

Govt. of Maharashtra
Directorate of Maharashtra Fire Service
Vidyanagri, Hans Bhugra Marg, Santacruz (East),
Mumbai – 400 098, Tel-022-26677555, Fax-022-26677666
www.mahafireservice.gov.in

FORM N
[(See section 9 (3) and rule 14]
License to act as a License Agency for the purpose of Fire Prevention and Life Safety Measure

License No. MFS / LA / RF-88 / RD-83 Date: 11.02.2023

License is hereby renewed under the provisions of sub-section (3) of section 9 of the Maharashtra Fire Prevention and Life Safety Measure Act, 2006 (Mah. III of 2007) to **M/s. Sandeep Fire Services** having their registration office at **M No. 322, Saidapur Post, Kondave Satara 415002** and their contact details are Office Number: 9923236015 and Email ID: sandip_fire@ymail.com with PAN registration No. BVPPK1324Q and GST No. 27BVPPK1324Q1ZO to act as a License Agency for the purpose of the said Act for execution of the fire prevention and life safety measures in relation to

1. **Fire Fighting and Sprinkler System:** **Class D**
2. **Detection and Fire Suppression System:** **Class D**

M/s. Sandeep Fire Services shall not issue Form A or Form B under sub-section (3) of section 3 regarding the compliance of the fire prevention and life safety measures or maintenance thereof in good repair and efficient condition, without there being actual such compliance or maintenance failing which license granted / renewed shall be suspended or cancelled as per sub section (4) of section 9 and shall be liable for penalty under section 36 of the Act.

Subject to the provision of sub section (4) of section 9 of the said Act and rule 14 of the Maharashtra Fire Prevention and Life Safety Measures Rules, 2009, the license will be valid for a period from **11.02.2023 to 10.02.2024**

Hatyal Kiran
Digitally signed by Hatyal Kiran
Date: 2023.02.21 09:56:34 +05'30'
Asst Director

SANTOSH SHRIDHAR WARICK
Digitally signed by SANTOSH SHRIDHAR WARICK
Date: 2023.02.21 15:20:14 +05'30'
(S S Warick)
Director
Maharashtra Fire Service

sandip lalasaheb khatmode
Digitally signed by sandip lalasaheb khatmode
Date: 2023.02.20 21:57:41 +05'30'

Digital Signature of Authorized Person to sign Form A or Form B

Note:
* in absence of digital sign of license holder (responsible to issue Form A or Form B) the license will be treated as invalid.

CONTENTS

PART-1 SUMMARY.

EXECUTIVE SUMMARY

1.1 Positive areas:

- Material kept below staircase was cleared immediately
- Some par of terrace was seen clean
- At some place cable trays are made for electric wiring
- Instructions are displayed as required.
- At chemical lab. and stores are displayed.
- Maintenance of firefighting arrangement should be done regularly.
- Dependingon the hazards they available in every room.
- Safe access ladders are present.
- While working in chemical Lab. staff and students wear apron.
- Ventilation safety is majorly implemented
- First aid box is maintained at required places.

1.2 Areas of Improvement:

- Reduction in fire load is required to be done by removing non – required item
- Newer equipment such as vacuum cleaner may be used for cleaning
- Dangling wires, unclean panel room, open main switches, access behind main panel are the electrical problem. Allproblems needs improvement
- Maintenance of earthing, checking its resistance is neglected insure periodically.
- combustible fire hazards are lying in every area of college, regular removal is a must.
- Wherever necessary refrigerator may be used for chemicalstorage.
- Safety during working at height is neglected everywhere, including certain area of terrace.
- Use suitable bird repellant to stop these birds entering in college premises
- Total emergency plan needs to be prepared
- Safe access should be provided to every work place.
- All aspects of safe chemical storage in laboratory must be implemented.
- Gas cylinder safety – teach concerned person and implement.
- Safety in canteen is totally neglected.
- Safety of all instruments should be ensured.
- Avoid corrosion everywhere. It may create bad accident.

1.3 Safety management-

- There should a separate safety department
- All concerned must be given safety training on various areas of safety suitable to college
- Immediately start accident / fire reporting system/ mechanism.
- Regular safety Inspection is required
- Safety in storage, handling, use and disposal of chemical must be ensured
- On site emergency plan should be prepared and mocks are drilled periodically.
- Safety in laboratory must be studied and implemented.

Mr. Vilas S. Patil
Coordinator
Fire and Safety
Audit Committee

Dr. S. S. Khot.
Coordinator IQAC

Dr.S.Y. Jadhav
NAAC Cr. VII

Dr. A. M. Shaikh.
Principal,
Y.C.W.M. Warananagar

Forwarded with best compliment for certification.

The Fire and Safety Audit Summary of Yashwantrao Chavan Warana Mahavidyalaya, Warananagar, Dist- Kolhapur (Maharashtra State) is Verified Certified by :

Dr. Prashant A. Banne, M.Sc. Ph.D. (Environmental Science)

- CEO & Managing Director, SAITECH Research & Development Organisation
- External Faculty, PCRA, Under petroleum Ministry, Govt. of India
- EIA Coordinator, was accredited by NABET, Quality Council of India

PART 2: GENERAL

2.1 Institution History:

Warananagar is a classic illustration of integrated rural development through co-operative movement. It is a well planned township throbbing with industrial and educational activities. It is a place named after the river Warana which originates at Prachitgad in Satara district and merges in the river Krishna at Haripur near Sangli. The length of the river Warana is 80 Km. The river Warana forms the boundary line between Sangli and Kolhapur districts. Warananagar is situated on the banks of river Warana at the foot of Panhala and Jyotiba hill ranges, at 10 Km. westwards from Kini-Wathar on National Highway No. 4. Warananagar, where Yashwantrao Chavan Warana Mahavidyalaya is situated, is a hilly and rural area, called Warana. It comprises of near about 60 townships, villages and some remote settlements. During the Freedom Movement this place provided shelter to many freedom fighters and today it is remarkably known as a successful industrial and educational center. Just six decades ago, this area was a barren tract of land, notorious for day-light robbery. Life was difficult and full of hardship. The main occupation of the people was agriculture and fortune of the farmers was tied to climatic changes, scarcity of rain and volatile market prices. People were downtrodden and ignorant. With the establishment of a co-operative sugar factory, this area has been totally transformed. The credit for this socio-economic transformation goes to late Hon'ble Vishwanath Anna alias Tatyasaheb Kore, a visionary man with foresight, rare organizational skills and dedication. Late Hon'ble Tatyasaheb Kore was fully aware of the fact that along with the material prosperity, the cultural development and enlightenment is equally important and necessitated the creation of educational facilities. He wanted to provide work to the empty hands and made them strong and self-reliant.

Warana co-operative sugar factory is established in 1960 and proved to be a turning point which brought about socio-economic and consequently educational changes in the life of the people of this area. The development of sugar factory changed the socio-economical standard and living standard of poor farmers in Warana valley. But economic enrichment was not his

only goal. His mission was to bring in the total transformation of rural youth and create a New Man who will be well educated, self-reliant, culturally rich and morally upright. He knew that along with the material prosperity, cultural development and moral enlightenment are equally important. He realized that creation of educational facilities, particularly facility of higher education was the prior need of this area.

Before the establishment of the aforesaid educational facilities, the students of this area were deprived of higher education and only a few well-to-do could afford to go to Kolhapur, the nearest city, for pursuing higher education. Having realised this, the leadership decided to create these facilities for the youth of this area for their total transformation. This led to the establishment of Shree Warana Vibhag Shikshan Mandal (Education Society) and subsequently, Shree Warana Mahavidyalaya, Warananagar in 1964. The college was renamed as Yashwantrao Chavan Warana Mahavidyalaya, in 1992. Since 1964. our education society is striving towards the fulfillment of the above mentioned objectives. Establishment of our college, the first step in higher education, was followed by setting up of Primary and Secondary Schools, Engineering College, English Medium School, Military Academy and other educational institutes. All these institutes have more than adequate infrastructural facilities like imposing buildings, beautiful premises, spacious playgrounds. well qualified staff, rich libraries and laboratories. Each institute has proved to be a step ahead towards the achievement of our mission of 'Creating A New Man'.

2.2 Mission:-

"We stand united and determined for the total transformation of rural youth of Warana region towards self reliance, confidence and enlightment through higher education".

2.3. Vision:-

"To become an Academy of excellence in higher education and human resource development in rural area".

2.4. Introduction

The Principal of Yashwantro Chavan Warana Mahavidyalaya, Wananagar form the committee and shouldered the responsibility of performing the complete Fire and Safety Audit of college, the committee was leaded by Mr. Vilas S. Patil as co-ordinator and Dr. R.P.Kavane, Prof. M.N. Patil, Prof. A.K.Ladgaonkar an Prof. Miss. P. A. Mitari are as the committee members. In committee meeting on 2 July 2022 decided to make the Fire and Safety Audit of college buildings should under the provision fire prevention and life safety measure Act 2006 and abatement of 2007. For this committee starts the searching of government registered vendors, consultant, authorized NGOs and authorized fire and safety engineers for auditing. After long discussion and visiting the college site for N- times the management can offer this work to M/S. Sandeep Fire Services, Manufacturer and suppliers for fire and safety equipment was the ISO 9001-2015 company, which is authorized licence agency of Maharashtra fire services. The working team of M/S. Sandeep Fire Services was visited periodically in between August 2022 to September 2022 and install the equipment's like, Pump 3 HP,Fir.e Hydrant Valve,Hose Reel Hose Diameter 20mm having 30 meter long ISI Mark, Single Door Hose Box Hose Pipe. 63 Mm Diameter 15 Meter Long, Branch Pipe SS, Starter, Fire Inlet Two Way C.I Body Fire Alarm Panel Two Zone, MCP, Hooter, Smoke Detector, Fire Extinguisher Refilling Co2 4.5 Kg, Fire Extinguisher Refilling etc, by the plan. Mean while they conduct the Fire and Safety Audit was conducted and certify accordance to provision fire prevention and life safety measures of Maharashtra State Govt.

2.5. Objectives

The objectives of the fire and safety audit are as follows:

1)Examine the existing fire and safety measures, procedures, system for controlling measures.

2)Identify potential hazards which have caused or are likely to causepersonal injury, property damage or loss of time.

3)Recommend on the basis of identified hazards, changes (if any) to improve upon the existing system and procedure of work.

2.6 Methodology

The following methodology has been adopted to achieve the objectives.

1)Actually visiting every room of college.

2)Visiting every nook and corner of the college.

3)Collecting all the existing fire load and safety deficiencies and positivesafety areas

4)Preparing report based on actual finding

5)Presenting the same to the dignitaries in the college on a conveniently suitable day and presenting draft report.

6)Getting suggestions. Based on the suggestions received prepare a final report and submit to the management.

2.7 Observations and recommendations-

The Safety Audit was conducted by actual field visit to see the actual hazards at site in terms fire and safety of requirements and accordingly recommendations and / or suggestions wherever applicable are given against each finding.

Since the audit is based on sample inspection, recommendation given in a particular case will be the same for any uncovered area where similar situation exists.

PART 3: PHYSICAL HAZARD

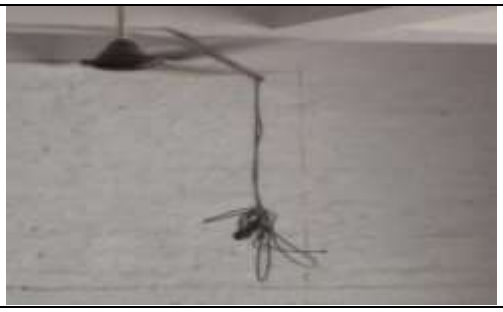
No.	OBSERVATIONS	RECOMMONDATIONS
3.1	**Fire load**	
	A)Visible items **b)Combustible material** Recorded book items -14786 Office Record- 2 tons (Highly important) Examination Record- (2.5 Tons) Departmental Files, Record, Manuals, Charts- 18 tons Furniture items: wooden plastic etc .-18030 Gas cylinders -13 (including Canteen) Burners – 343	**Visible items** Wherever possible reduce
	b)Electric load Electric items: lights, fans, etc-1396 **c)Computer, printers -230+** d**)Chemical equipment** such as incubator etc – 548	Systematic storage is required and reduce use wherever possible. Regular monitor the switch of drills.
	Chemical stalk in store (from all labs.) e) Flammable liquids in store – 24 nos. f) Toxics – 20 g) irritants – 10 h) oxidizing and reducing agents -13 i)Corrosive – 15	Display safety instructions where is required. Provide skill and trainings for proper safety use.
	Chemical LAB j) Hazardous chemical – Chemistry , Microbiology, Industrial Chemistry, Botany and Zoology labs. Handles grade II Hazardous chemicals. The Laboratory can maintained good records, Accession registers and their stick records.	Maintain and cross monitor the records regularly.

No.	OBSERVATIONS	RECOMMONDATIONS
	Entrance and Internal Road 1) Entrance road width – 5.10 Meter 2) Road width near library and canteen – 4 meter 3)Internal Road - 4 meter 4)West side road – 4.5 meter 5)Staircase in Office Buildings-2 meters 6)Staircase in old building-1.5 meters 7)Passage in both building -2 meters. 8)Four wheeler/ two wheeler parking	Entrance road and leaving roads are so wider. Passage is wider Make separate four wheeler and two wheeler parking design and implement it strictly.
3.2	**Proper Housekeeping**	
		
	Racks are kept on staircase leading to library. They becomestumbling hazard during emergency.	Staircases are not to be blocked any time. Not even for small time.
		
	Combustible material storage below the staircase	Action taken – It is removed.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Unclean electrical room at first	Clean it. While cleaning electrical
		
	Bottle etc. kept on parapet wall. Not cleaned. It may become verybad hazard if it falls down.	Clean it. Do not allow such practices.
	 	
	Keeping anything above the cupboard is unsafe. It may falldown on someone's head.	Do not allow any material to keepabove the cupboards

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Room for Non-Teaching staff – No lockers given for keeping clothes. They have hanged them nearswitch No place for keeping brooms and other cleaning equipment.	Give separate lockers for keeping their clothes etc. Give separate place for keeping all cleaning equipment
		
	Housekeeping inside the cupboardis equally important. All things mixed together. No labelling.	Keep similar things together. Lablethem.
		
	In lab. material kept on cupboards.	Do not allow any material to keep above the cupboards

No.	OBSERVATIONS	RECOMMONDATIONS
		
	–stationary above the cupboard.	Do not allow any material to keep above the cupboards
	 	
	housekeeping inside the cupboard is bad.	Housekeeping inside the cupboard is equally important.
		
	All this is lying on terrace	Remove it.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	This part of terrace is clean	Good
3.3	**Electrical Hazard**	
		
	Dangling wire in canteen. If it is live it may increase fire hazard	Remove and do not allow such thigs to happen
		
	Electrical switches should never be kept open like this. Dirt, dust enters, deposits and increases the resistance, draws more current, increases hazard of fire.	Do not allow such practice of keeping switches open.
		
	See this loose temporary wiring. Increase the chances of fire and electrocution.	Make permanent systematic wiring.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Electrical connection without plug top. It increases sparking in turn fire hazard, and electrocution hazard.	Use of plug top is a must.
		
	Burnt socket is indicator of overdrawing of current. Not investigated.	Investigate why it got burnt. Loose connection or any other reason and take corrective action.
		
	Broken switch	Repair
		
	Loose wiring outside the chemistry lab	Remove it immediately. Do not allow such things to happen.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Broken support to tube light. Room 209	Repair the same
	No protection above these electricwires on terrace.	Put some protection either wooden or flexible hose type, whatever.
3.4	**Combustible fire hazards**	
		
	Collection of dry leaves increase combustible fire hazard.	See that same is cleaned every day.
	Collection of gunny bags etc. increase fire hazard.	It should be in container and regularly removed.
		
	Paper scrap outside in lab ,office and in store.	Do allow to collect such material. Dispose it off immediately.

No.	OBSERVATIONS	RECOMMONDATIONS
	 	
	These dry leaves increase fire Hazard In botanical garden/ garden in front	Remove them regularly and monitor periodically.
		
	 	
	These dry leaves increase fire Hazard In botanical garden/ garden in front	Remove them regularly and monitor periodically.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Storage of combustible hazard below the tables in lab.	Remove it. And monitor periodically.
	Old removed pipes of burners.	Dispose them off
		
	Heap of papers kept on wooden Racks in store	Dispose them off use steel store case.
		
	Plastic paper kept on in rainy season in physics lab. itself is a fire hazard	Use non-combustible material cover Provide edge protection for the tables.

No.	OBSERVATIONS	RECOMMONDATIONS
	 	
	In store room and on some places at library such combustible material present	Remove as urgently aspossible Keep fire extinguisher extra in library and in store.
3.5	**Fire fighting**	
		
	This cracked glass may create a big hazard during fire.	Replace it immediately or use the glass if nacessory

No.	**OBSERVATIONS**	RECOMMONDATIONS
		
	Well is available. Separate waterstorage tank for emergency can be built for fighting fire.	Some water storage tank for fighting fire are available.
	The fire extinguisher was seen in Everywhere at required places in infrastructure.	But Foam type fire extinguisher are recommended.
		
	Fire extinguisher is kept on floor in In store.	Good, they should be kept at easily removable height at other all places
	Server room in office: No separate arrangement is madeto fight fire in server room.	Get it designed from specialist and implement the same.
3.6	**Bird hazard**	
		
	Bird are a hazards for electric connection, ventilation ducts	Use suitable bird repellant to stop these birds entering in college premises

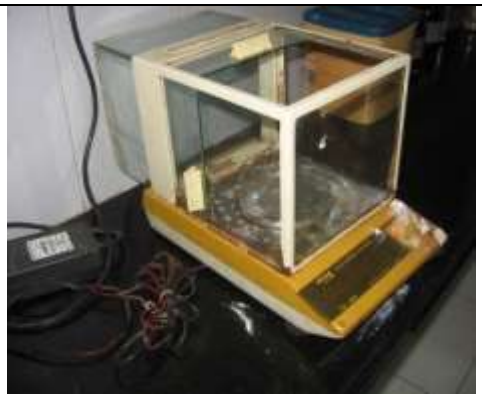
No.	OBSERVATIONS	RECOMMONDATIONS
3.7	**Structural Problems**	
		
	Green vegetation is allowed to increase in structure at two places.	It is dangerous. Remove it and monitor.
3.8	**Emergency Plan**	
		
	No lights on the ground	This ground may be useful for evacuation place during emergency.
	Night	Provide lighting.
3.9	**Apron and hand gloves**	
	A very casual approach to safety was seen among the students while working at practical's.	Not right. Casual approach to safetyis not acceptable use the **Apron and hand gloves**
		

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Burn resistant hand gloves or suitable tongs are not used/ provided	Provide burn resistant hand gloves or tongs.
	No system of hand cleaning with soap in college anywhere.	Provide soap at every hand washing place.
3.10	**Storage of Chemicals**	
		
	Even the basic principle of good labelling is missing.	Labelling is a must in chemical storage.

No.	OBSERVATIONS	RECOMMONDATIONS
3.11	**Gas Cylinder Safety**	
	 	
	Is it the use of gas cylinder?	Do not allow such practices

No.	OBSERVATIONS	RECOMMONDATIONS
3.12	**Canteen safety**	
	  	
	See the storage in canteen. Clothes, utensils, vegetables, grain bags all are stored together in plastic bags,No system for storage.	Separate area for each items. Grain etc. with labels. Use separate Containers for different vegetables. Prohibit use of plastic in canteen.
		

No.	OBSERVATIONS	RECOMMONDATIONS
	Look at the crack on the wall of toilet place inside the canteen. Is it surface or deep.	Repair it immediately.
	 	
		
	No cleaning of burner asdone. Regular check up the burners No changing of rubber piping done.	Clean burner regularly Get connections checkedregularly Regular check up and change of rubber piping isnecessary
		

No.	OBSERVATIONS	RECOMMONDATIONS
	No cover on this rotational ragada mixer machine. Someone may put his hand insidewhile it is running and get injured.	Put cover. Cover should be such that if it is opened ragada rotationl should stop.
		
	These cylinders are placed in a cage inside canteen. Good. But additional things are kept inside.	Do not allow any other storage insidethis gas cylinder cage.
	No training is given to canteen workers about gas cylinder safety.	Impart canteen workers training on gas cylinder safety.
		
	Plastic trays are kept near gas cylinders.	Do any combustible material or flammable liquid near gas cylinder.
3.13	**Instruments**	
		
	So much particles of material is deposited on balance? How will it give correct reading?	Clean regularly

No.	OBSERVATIONS	RECOMMONDATIONS
3.14	**Corrosion**	
		
	Corroded window frames	Change it.
3.15	**First aid box**	
		
	First aid box in passage in front ladies room, office and at different department locations.	First Aid box will be available in conditions.

No.	OBSERVATIONS	RECOMMONDATIONS
3.16	**Library**	
	 	
	So many books and periodicals. All are not required regularly Unnecessary storage increases fire load. Suitable number of fire extinguisherswere not seen in library and at VKCA.	Sort them out in two groups – required and nonrequired. Make separate storage of non-required so that it will reduce hazard of combustible load. Keep water expelling type of extinguishers or fog type.

3.17	**Disable friendly design** 1. Ramps for classroom and Library   	In both arts , Commerce and Science building ramps are erected with minor slope was very easy for the disable persons.

Part 4 : Safety Management

Sr. No.	Observation	Recommendation
4.1	**Safety Department**	
	There is no safety department in college campus or in premises also.	If possible, safety department maybe prepared so that it can take responsibility of safety inspection, organizing safety training, monitor the drills etc. Appoint the in charge of safety department should be minimum B.Sc. – Chemical + Advance Dip. In Industrial Safety (Or fire and safety at organization level in Campus.)
4.2	**Safety Training**	
	Security person do not knowhow to use fire extinguishers	Impart training on use of fire extinguishers to security people
	They Cannot identify firehazards in the college	Impart training on identification offire hazards to security people
	They have only one lathi with them. No training for use of lathi	Impart training on using lathi to security people
	All selected staff not giventraining on use of fire extinguishers	Impart training on Use of fire extinguishers to selected staff
	'Safety in use of gas cylinder' no training given	Safety in use of gas cylinder impart training to concerned person
	No training is imparted in various areas of safety such as1)Accident reporting investigation 2) Safe Storage of chemicals inlaboratory' 3) Machine/ experimental safety or guarding 4) Fire prevention and protection5) Other necessary subjects as and when necessary	Impart training to the concernedstaff as observed
4.3	**Accident/ fire incidence reporting**	
	No system of accident reporting,fire incidence reporting	Start reporting every minor accident, every fire incidence reporting
	Accident/ fire investigation donot exist.	After every report of accident/ fire department do investigation. Find out causes without blame fixing on anybody. Decide remedial measure in orderto prevent reoccurrence of such incident.

Sr. No.	Observation	Recommendation
4.4	**Safety Inspection**	
	Inspection of premises from Safety hazard and fire hazard not done.	Its monitoring should be done regularly by the concerned person.
4.5	**Housekeeping**	
	At present no understanding of housekeeping apart from common understanding.	Teach all concerned way of housekeeping and implement the same in premises.
4.6	**Storage and handling of Material**	
	No knowledge of safety in storage of chemicals.	Impart training and implement prevention of safety.
4.7	**Emergency Plan**	
	There is no emergency plan in college.	Prepare on site emergencyplan. Identify Possibleemergencies . Prepare different teams of students also. Educate them for their duties on table top exercise. Make actual mock drill and monitor. Identify deficiencies. Make improvement in everymock drill.

4.8	**Safety in Laboratory**	
	No study is done so far the safety of different labs.	In charge of safety department must study Safety in Laboratoryand implement in next.
4.9	**Fire protection**	
	Nobody is to look after fire Protection	Safety department has to look after this area too

Mr. Vilas S. Patil
Coordinator
Fire and Safety
Audit Committee

Dr. S. S. Khot.
Coordinator IQAC

Dr.S.Y. Jadhav
NAAC Cr. VII

Dr. A. M. Shaikh.
Principal,
Y.C.W.M. Warananagar

Forwarded with best compliment for certification.

The Fire and Safety Audit Report of Yashwantrao Chavan Warana Mahavidyalaya, Warananagar, Dist- Kolhapur (Maharashtra State) is Verified and Certified by :

Dr. Prashant A. Banne, M.Sc. Ph.D. (Environmental Science)

- CEO & Managing Director, SAITECH Research & Development Organisation
- External Faculty, PCRA, Under petroleum Ministry, Govt. of India

EIA Coordinator, was accredited by NABET, Quality Council of India

LORD

Nature Based Wastewater Treatment System for Composite Sewage (Reed Bed System)

At TKIET Campus, Warnanagar, Kolhapur

A Project By

CENTRE FOR ENVIRONMENTAL RESEARCH AND EDUCATION

In partnership with

Natural Solutions

Project: Nature Based Wastewater Treatment System at TKIET Campus, Warnanagar

Document: Project Handover Report

Date: November 2022

Authors: Centre for Environmental Research & Education (CERE) in partnership with Natural Solutions

Centre for Environmental Research & Education (CERE)
S-11, Ground Floor, Jamasji Apartments, 32 Naushir Bharucha Marg (Sleater Road), Grant Road (W), Mumbai – 400 007
Website: www.cere-india.org

About CERE

The Centre for Environmental Research and Education (CERE) is a Mumbai-based not-for-profit organization that works to promote environmental sustainability through action-oriented education, awareness and advocacy. CERE has successfully completed projects in both urban and rural India having worked closely with different government departments, educational institutions, multinational companies and civil society organizations. CERE also runs a Carbon Map & Cap program which helps corporate clients measure and mitigate their carbon footprint. In the past CERE has worked with partner organisations to facilitate the implementation of energy conservation, energy efficiency, solar and afforestation projects.

Disclaimer

CERE has taken all reasonable care to ensure that the facts stated as a part of this document are true and accurate in all material aspects as at the date of preparation and as per the information and data supplied by all stakeholders.

Contents

1. General Information

Tatyasaheb Kore Educational Campus, Warnanagar, founded by Hon. Tatyasaheb Kore is a premier institute in the region, giving multidisciplinary modern education for several decades.

An alumnus of the Engineering College, Mr. Anup Deshmukh, heads operations of Parker Lord in India. Through his initiative and coordination, and leadership from Dr. (Ms.) Rashneh Pardiwala of the Center for Environment Research and Education, a project the make the engineering college campus zero discharge, was initiated.

Due to high capital and operating costs, in the current situation, it was concluded that even the most advanced electro-mechanical system will not be viable. A suitable alternative was needed which would be economical to install, remain functional at low operating and maintenance cost, as well as add to the sustainability and aesthetic appeal of the campus.

Hence, based on the site topography and geomorphology a nature based assisted system was conceptualized and executed by Natural Solutions. This system has been in operation for the last four months and has not only succeeded in treating the incoming wastewater but has also digested the old accumulated sludge in the well.

While designing and executing the system care has been taken to create several different kinds of niches and conditions on which the students can conduct their projects and experiments.

In the next three years it will also become a food forest and a biodiversity refuge area.

Overall this will be a model system for many institutions to follow in the future. Given below are physical, electromechanical and biological details of the system. Also added are details on Dos and Don'ts and contact details of the service providers.

We will be present periodically, in the coming year, to oversee the AMC, as per the contract.

2. Components of the Nature-Based Treatment System.

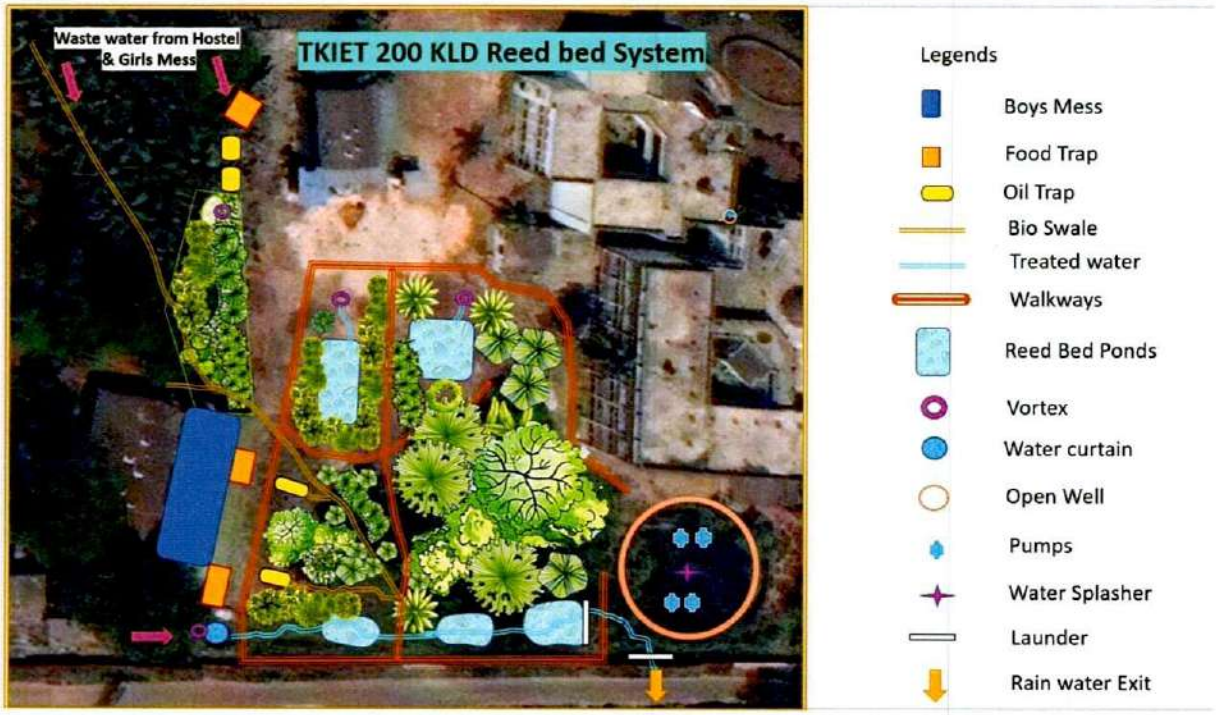
1. Bio Swales for starting the treatment of wastewater locally, from old hostels
2. Food traps for canteen utensils cleaning area, for both canteens.
3. Food trap tray for trapping bigger size food particles entering into food trap.
4. Oil trap for avoiding the entry of waste oil from the utensils area after washing, into the stream.
5. Reed Bed section 1

6. Culvert, for surface runoff from hostel area during the rainy season as well as wastewater from the hostels.
7. Reed bed section 2
8. Reed bed section 3
9. Wastewater treatment ponds within reed beds.
10. Launder for water retention and even flow movement, and water curtain aeration for addition of oxygen into the wastewater.
11. Conversion of old dilapidated Bio-Gas Chamber Tankage for additional treatment of wastewater with Vortex.
12. Micro aeration device with cascading.
13. Various range of rotameters, installed on Vortex pipe line for study purpose.
14. Recirculation system – Vortex system pump (1W+ 1S) 1 set, with automatic control panel and pumps floats.
15. Usage pump (1W+ 1S) 1 set with automatic control panel and pumps floats.
16. Water Splasher / Fountain with time based control.
17. Disc Filter for avoiding of silt or any kind of particles into the sprinkler system.
18. Sprinkler / Recirculation system with 18 no's impact sprinkler and 8 no's spray nozzles.
19. Usage water pipe line and interconnection with existing irrigation pipe line network.
20. Assorted species of acclimatized reed plants.
21. Bio-culture

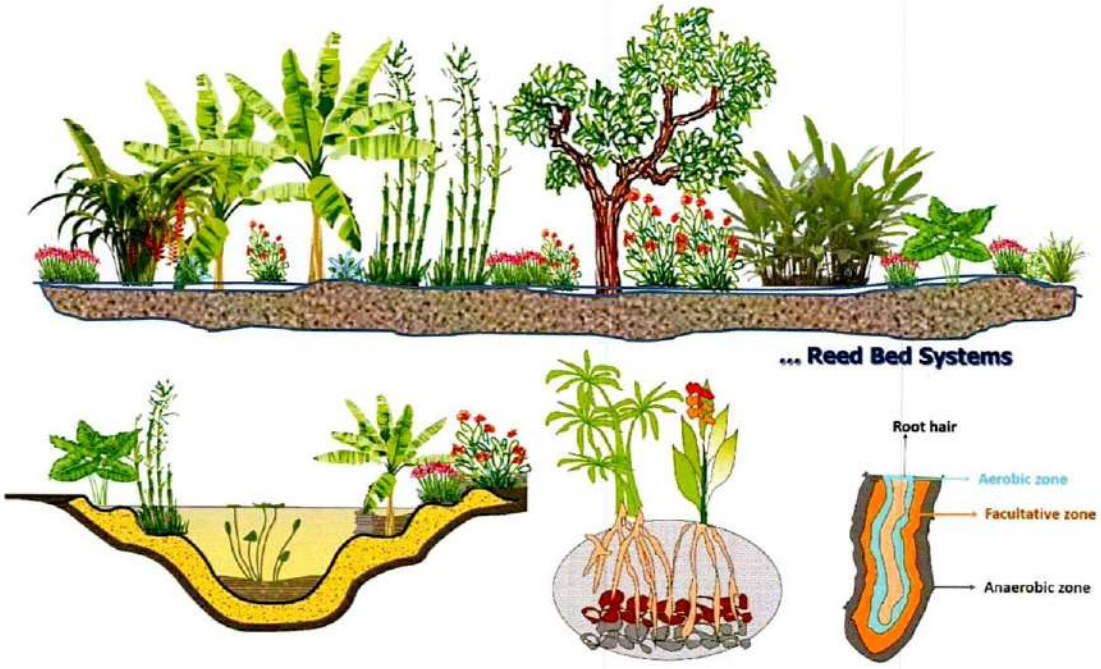
3. Acclimatized Plants Introduced As Per Niche on the Site

Sr. no	Reeds	Sr. no	Reeds
1	Lilium Type 1	31	Jasmine 5 Variety
2	Wedelia chinensis	32	Cestrum nocturnum
3	Lantana non-invasive 3 types	33	Carica papaya
4	Cana indica	34	Blood Grass / Pumpass
5	Phragmites australis	35	Gardenia ananta
6	Vetiveria zizanoides	36	Ranjai
7	Vinca Rosea	37	Bougainvillea
8	Cyperus alternifolius	38	Peltophorum
9	Acorus calamus	39	Colocasia Elephant Ear
10	Ipomoea batatas	40	Nyctanthes arbor-tristis
11	Acalifa	41	Moringa oleifera
12	Alamenda	42	Cassia fistula
13	Money Plant	43	Sonchafa Dwarf
14	Mulberry	44	Hibiscus
15	Curcuma amada	45	Millingtonia hortensis
16	Portulaca umbraticola	46	Golden Bamboo
17	Teccoma orange	47	Dev Chafa
18	Adhatoda Vasica	48	Pongamia pinnata
19	Cymbopogon citratus	49	Spathodia
20	Heliconia	50	Jakranda
21	Murraya paniculata	51	Citrus Lemen(kagzhi)
22	Rosa Centifolia	52	Cascabela Thevetia,
23	Nerium oleander	53	Phyllanthus emblica (Desi Amla & Rai Amla)
24	Ocimum kilimandscharicum	54	Bird cherry
25	Jatropha	55	Alstonia scholaris
26	Stachytarpheta	56	Guava
27	Caesalpinia	57	Jam
28	Banana Desi	58	Jamun
29	Sugarcane	59	kadamba
30	Murraya koenigii	60	Jackfruit

4. Schematic Layout of the Nature Based Reed Bed System



5. Schematic View of Nature Based Reed Bed System



Coarse media and bacteria interacting with roots

Thus, in a Reed Bed, all the types of microbes are properly maintained.

6. Schematic Layout of the Nature Based Reed Bed Pipelines

Legends

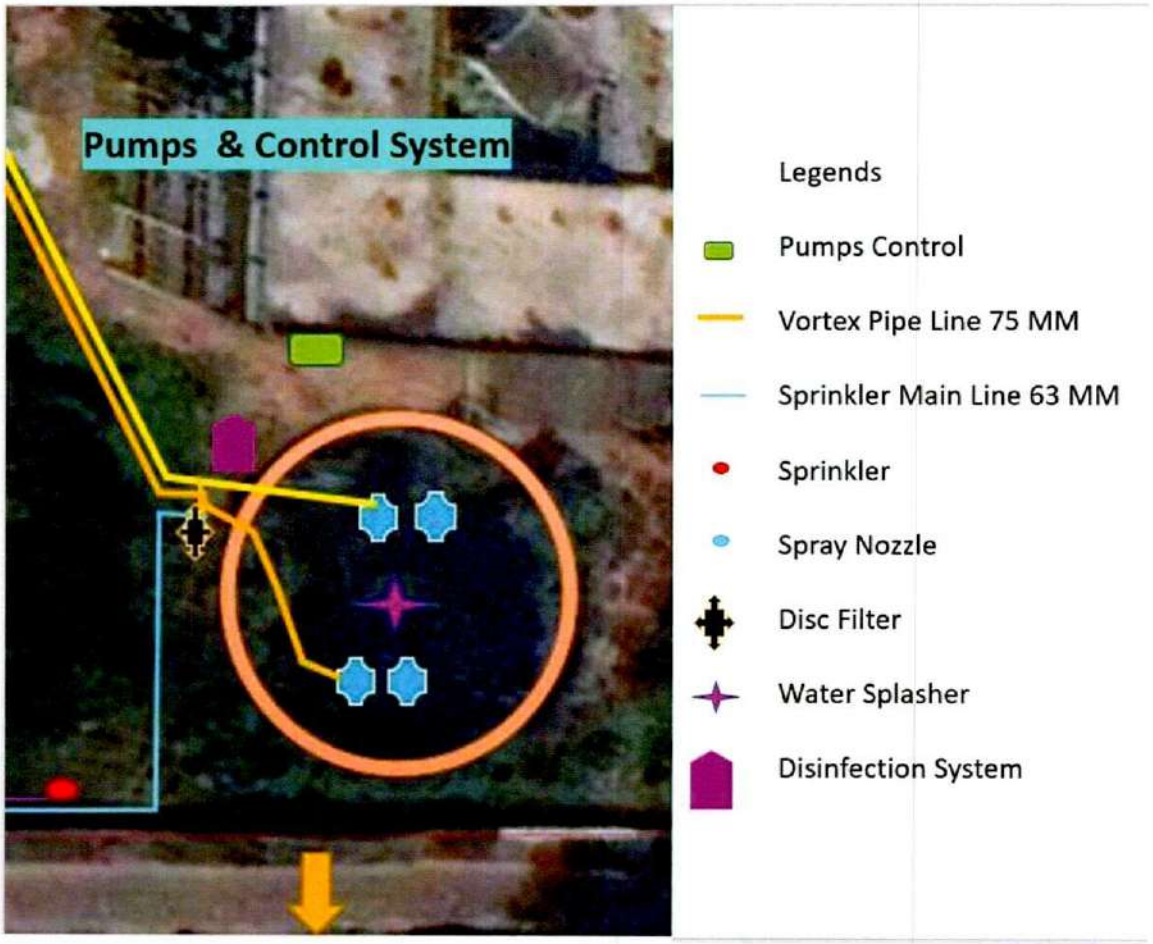
- Pumps Control
- Kitchen waste water Line 160 MM
- Usage Pipe Line 75 MM
- Vortex Pipe Line 75 MM
- Sprinkler Main Line 63 MM
- Sprinkler Submain 50 MM
- Sprinkler Submain 40 MM
- Sprinkler
- Spray Nozzle
- Disc Filter
- Disinfection System

7. Schematic Layout of the Nature Based Reed Bed Usage Pipelines

Legends

- Usage Pipe Line 75 MM
- Sub Main Usage Line 65 MM
- User Points for further irrigation
- Reed Bed usage Line interconnection with existing Irrigation Line Control Valve
- Pump Control
- Pumps
- Open well

8. Schematic Layout of the Nature Based Reed Bed Pumping Devices



9. Component and Equipment Sizing As Well As Technical Details

Sr. No	Items	Size / Technical Details	QTY
1.	Food Trap (Girls Mess)	2 M x 2 M x 0.5 M	1
2.	Food Trap (Boys Mess)	1 M x 3 M x 0.5 M	2
3.	SS food Trey for trapping food particles	1 M x1 M x 0.1 M	6
4	RCC Pipe Oil Trap	Dia 1.2 M L 2.5M	4
5.	Bio Swale for partially treating wastewater from old hostels	150 M x 1.5-2 M	1
6.	Nature based filling media arrangement Reed bed Zone 1	220 SQ. M	1
7.	Culvert for surface runoff		4
8.	Nature based filling media arrangement Reed bed Zone 2	1100 SQ. M	1

9.	Nature based wetland Reed Bed Zone 3	1000 SQ. M	1
10.	Waste water Treatment ponds	Total 450 Sq. M	5
11.	Granite Stone Launder	2.5 M & 2 M	2
12.	Existing Bio-Gas Chamber Tankage for additional treatment of wastewater with Vortex.	Diameter 3.5 M	1
13	Micro Aeration device with Cascading	6, 8, 12, 12 Inches	4
14	Various range of rotameter		4
15	**Recirculation- Vortex Pumps Type**: Open well Submersible, **Make**: Lubi, **Model No: LHL 9 BG, Phase** :3 Phase DOL	**Outlet**: 50 NB **Head**: 35 MWC, **Flow**: 40000	2(1W +1S)
16	**Usage Pumps Type**: Open well Submersible, Make: Lubi, **Model No: LHL 9 BG, Phase** :3 Phase DOL,	**Outlet**: 50 NB **Head**: 35 MWC, **Flow** 40000	2(1W +1S)
17	**Water Splasher Pump**: Open well Submersible, **Make**: Lubi, **Model No: , Phase** :3 Phase DOL,	**Outlet**: 40 NB **Head**: 15 MWC, **Flow**: 3500	
18	**Pumps Floats**, **MOC**: PVC container Filled with PU Foam,	**Connector Pipe**: 50 NB Threaded piece SS 304	1
19	**Disc Filter**, **MOC**: HDPE, **Disc**: 130 Micron	**Flow**: 40 m^3/ Hr., 50 NB threaded connection	1
20	**Sprinkler.** Adjustable Impact **Make**: Krishi, **MOC**: HDPE & Brass, **Flow**: 600LPH Regular Impact **Make**: Jain, **MOC**: HDPE & , **Flow**: 600LPH Spray Nozzle **Make**: Hunter **MOC**: HDPE, **Flow**: 150LPH	**Adjustable**: 6-9 M Dia, **Regular**: 6-9 M Dia , **Spray Nozzle**: 3 M Dia	9 9 8
21	PVC Pipe Make: Finolex,	160MM, 75 MM, 63 MM, 50 MM, 40 MM all 6 KG	
22	Dosing Pump	Flow: 4 LPH @ 4 KG / Cm^2	1
23	Dosing tank	1000 LTR	

10. Dos and Don'ts for the Best Output from the System

This system is treating the composite sewage using natural principles. It is not using any chemicals for treating the wastewater. Other than a few pumps it does not have any other artificial mechanical devices for the treatment.

The system has several sub-systems which are working in gestalt way along with natural processes. They will keep working on their own and keep treating the wastewater. In time, it will grow into a mixed forest like vegetation, with many different kinds of biological niches.

In order to make it look like a food forest type of garden, some simple activities will need to be done at certain frequency. Most of them are basic like garden maintenance. The activities related to the pumps and control panel will need an electrician and appropriate supervision over the electrician's work.

Actions to be done daily:

1. Cleaning the food trap nets

In order to keep the dining hall surroundings clean, simple activities like cleaning of the food traps and not dumping waste material into the old biogas tank are to be done daily. This has been informed and shown to the staff of the dining halls. They are currently following it fairly well.

Actions needed monthly:

2. Checking the oil trap and removing the oil, if it has a reached over 4 inches in depth.

Actions needed as per function:

3. The valves of the Sprinklers, Vortices and other pipelines are set to meet the requirements of the system. Please do not change them. In case for some particular reason you need to change them, please do so in consultation with Natural Solutions.
4. Currently one pump is working and one is on standby. If any change is to be done it should be done in consultation with Natural Solutions.
5. At present the Pumps used for Sprinklers and Vortex as well as usage pumps are on automatic mode under the control panel. Timer in the control panel has been set as under:
   A. Fountain: Morning 8am to 10am and afternoon 1pm to 3pm
   B. Sprinkler and Vortex: Morning 8am to 10am, afternoon 1pm to 3pm and night 7pm to 9pm
   C. Garden: Morning 7am to 7.20am

   These timings can be changed for appropriate reason after consultation. It is recommended to never run the pumps on manual mode. This can put the pumps under undue stress and the pumps / panels may get damaged.

6. If there is something wrong with the pumps or control panels, these need to be rectified through appropriate electrician or engineer. It is requested to keep Natural Solutions informed.
7. Do not change the valve settings of the Rotameters attached to Vortex pipeline.
8. If the system is to look like a garden, it should be trimmed from time to time. However, do not remove the plants altogether. Some of the plants may look like weeds, but they could be carrying out an important function in the system and supporting bees, beetles and butterflies.
9. Visitors to the System should take care not to harm the plants, bees, beetles, butterflies or even the snakes in the system. The snakes have been there and we have not meddled with them.
10. Take care that the goats, sheep, cattle etc. do not graze in the System area.
11. No plastic or any refuge should be thrown in the garden land or in the water.
12. Do not spray any pesticides, herbicides, insecticides, etc. on this planted system.
13. Please make sure nothing is discarded from pharmacy building into the system.
14. Only confirmed weeds are to be removed from the system. Never use weedicide, or matchstick (fire) to remove the weeds, wet and/or dry. This could trouble other plants.
15. Note: this system is matched to the inflow coming from the existing hostels and dining facilities. Increasing the volume or concentration could change the functioning of the system.

16. Vortex is made of acrylic. It is aerating the wastewater. Since the wastewater would have nutrients, it is possible that it would develop algae. These can be cleaned once in a while, with brush and lime / soap.
17. If dosing is needed, please keep the dosing pump and tank operational.

11. Contact Details

For all official correspondence:

Centre for Environmental Research and Education
Dr. Rashneh N. Pardiwala
Email: **rashneh.pardiwala@cere-idnia.org**
Phone: 9820660289

For general information and coordination:

Natural Solutions
Dr. Ajit Gokhale
Email: **ajit.naturalsolutions@gmail.com**
Phone: 9870423023

Avinash Niwate
Email: **avinash.naturalsolutions@gmail.com**
Phone: 9619967726

For Technical Issues with the Pumps: 18004193055

For Technical Issues with the Control Panel: Pump Guru 022 40560920

For any issues with the Vortex Acrylic / FRP: Mr. P D Patil 9823173641 Wathar