ENVIRONMENT AUDIT

FOR

INTEGRAL UNIVERSITY, LUCKNOW

DASAULI, P.O. BASHA, KURSI ROAD, LUCKNOW (UP)-226026

Year: 2021 – 2022

Conducted By:

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EARTH PROTECTION GROUP
ENVIRONMENTAL CONSULTANT PVT. LTD.

Accredited Ground Water Consultant Organization under the QCI-NABET Scheme

ISO: 9001, 14001 & OHSAS: 18001 Certified Company

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Year- 2022

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PREFACE

Integral University, Lucknow engaged our organization, **M/s Earth Protection Group Environmental Consultant Pvt. Ltd.** to carry out detailed Environment Audit for their University. We are submitting herewith the Environment Audit Report.

Report prepared on the basis of site visit (physical), one to one interaction with the concerned departmental officials & physical verification of the concerned documents.

This audit report has been prepared on the basis of valuable guidelines laid down by the different organizations / statutory bodies and our experience & expertise in the field. Our team members have exercised all reasonable skills, care and diligence in preparation of this report. In spite of our sincere efforts, errors may creep in. Error, omission or discrepancy, if any, may please be noted and brought to our notice for necessary correction.

(Dr. Nelesh Agrawal)
Managing Director
M/s Earth Protection Group Environmental Consultant Pvt. Ltd.

ENVIRONMENT AUDIT CONDUCTING TEAM

The details of audit team comprising the members from M/s Earth Protection Group Environmental Consultant Pvt. Ltd. (EPGEC) as well as university representatives are as under:

Name, Qualification & Experience of team	Role & Responsibility	Signature
Dr. Nelesh Agrawal Founder Director, EPGEC Ph.D. in Environmental Science, P.G. Diploma in Industrial Pollution & Management, PG Diploma in Health, Safety & Environment 22 years' experience in Environment & Industrial Safety consultancy.	**Lead Auditor** Responsibility Includes: • Selecting the audit team members, preparing the audit plan, audit checklist, planning scheduling and carrying out the field visit, briefing and guide the auditors to prepare the working document, reporting critical non-conformities resulting in imminent danger to the auditee, preparing audit report with the help of auditors, reporting the audit results objectively, clearly, conclusively. • Evaluation of possible impacts on Air, water environment, their mitigation and management measures, Observation & implementation of corrective action to improve environmental conditions & prepare the report. • Evaluation of possible impacts of Solid Hazardous Waste their mitigation and management measures, Observation & implementation of corrective action to improve environmental conditions & prepare the report • Check the Final Report	
Dr. Rajeev Kanaujia Founder Director, EPGEC Ph.D. in Environmental Science, P.G. Diploma in Industrial Pollution & Management, Post Diploma in Industrial Safety from RLI 22 years' experience in Environment & Industrial Safety consultancy.	**Auditor** Responsibility Includes: • Responsibility in project as Auditor for noise &vibration (NV) • Site visit for baseline monitoring and data collection. Evaluation of primary and secondary data • Ensuring compliance related to Noise & Vibration. • Submission of Audit Finding & Non-Conformities to Project Coordinator	
Mr. Mohd Asif Project Manager, EPGEC M.Sc. (Env. Science) & PG Diploma in Health, Safety & Environment 14 years' experience in Environment & Industrial Safety consultancy.	**Auditor** Responsibility Includes: • Site visit with Auditor • Reporting of Any observation/findings to the Auditor • Client Communication • Check the Reconciliation of Report • Finalize the Draft Report	

Prof. Monowar Alam Khalid Head (Environmental Science Deptt.) Integral University, Lucknow	**Coordinator** Inform relevant officials and staff about the objectives and scope of the audit; appoint officials to coordinate with auditor; provide all resources needed to auditor; provide access to the facilities and evidential material as requested by the auditors; co-operate with the auditors to facilitate achievements of audit objectives; of the audit results; Ensure implementation of corrective actions based on the audit report.	
Mrs. Kavita Agrawal Associate Professor & Head (Dept. of Computer Science & Engg.) Integral University, Lucknow	**Coordinator** Inform relevant officials and staff about the objectives and scope of the audit; appoint officials to coordinate with auditor; provide all resources needed to auditor; provide access to the facilities and evidential material as requested by the auditors; co-operate with the auditors to facilitate achievements of audit objectives; of the audit results; Ensure implementation of corrective actions based on the audit report.	
Mr. Mohammad Javed Siddique Superintendent Engineer Integral University, Lucknow	**Coordinator** Inform relevant officials and staff about the objectives and scope of the audit; appoint officials to coordinate with auditor; provide all resources needed to auditor; provide access to the facilities and evidential material as requested by the auditors; co-operate with the auditors to facilitate achievements of audit objectives; of the audit results; Ensure implementation of corrective actions based on the audit report.	

ABOUT ENVIRONMENTAL CONSULTANT

Our Organization, **M/s Earth Protection Group Environmental Consultant Pvt. Ltd.** was registered as a Pvt. Ltd. Company in the year 2000. (Company Identification No. U74210UP2000PTC025670) & ISO 9001:2015, 14001:2015 & 45001:2018 certified company. Organization is also accredited by QCI-NABET (Accreditation Certificate No. NABET/GWCO/IA/GW024) as for preparation of Impact Assessment Report / Hydrogeological Report for ground water.

We are one of the leading consultants in the field of Environment & Industrial Safety. Our organization is providing Legal & Technical Consultancy in the field of *Environment & Industrial Safety related issues for the last 22 years.* The Company EPGEC incepted with well-equipped facilities and qualified team, offers a complete solution for Pollution Control, Industrial Safety and for Ground Water Withdrawal for industrial use under single platform.We cover a wide range of disciplines such as Analysis of Water, Soil, Noise, Air Monitoring, Environmental Audit, Green Audit, Water Audit, Energy Audit, EIA, EMP, Impact Assessment Report for Ground Water, Hydrogeological Report, Waste Management, Safety Audit, Risk Analysis, HAZOPStudy, On Site & Off-Site Emergency Plan etc. and "Design, Construction, Installation &Commissioning" further "Operation & Maintenance" of STP, ETP, RO, WTP, Swimming Pool etc. We provide training on Environment Management, Industrial Safety, Operation & Maintenance of Waste Water Treatment Plant. We also provide the services for the Preparation & Filing of Statutory Documents for CGWA, UPGWD, HWRA etc. & PCB for obtaining NOC, CTE & CTO. EPGEC's clientele is very diverse. We provide services to different client segmentsas per their requirement.

M/s Earth Protection Group Environmental Consultant Pvt. Ltd. (EPGEC) is working underthe guidance of the Managing Director, Dr. Nelesh Agrawal and Executive Director Dr. Rajeev Kanaujia. Core management of the organization is managed by Technical Personnel having specialized qualification in the field of (Environment and Industrial Safety) i.e. Doctorate and Post Graduate Degree in Environment Science &Post Graduate Diploma in Industrial Safety. Organization also has a team of well-qualified and experienced persons from different disciplines who provide successful services to leading Industrial Houses, Government Department, Infrastructure Projects like Housing, Road, Hospitals, and Hoteletc.

1.0 ABOUT UNIVERSITY

Integral University is a premier university in Lucknow, the capital city of the state of Uttar Pradesh, India. It was established under the Act Number 9 of 2004 by the State Government and governed by U.P. Private University Act-2019. The University is duly approved by the University Grants Commission (UGC) under sections 2(f) and 12B of the UGC Act, 1956, National Medical Commission, Pharmacy Council of India, Indian Nursing Council, Council of Architecture, Bar Council of India, Indian Association of Physiotherapists, National Council for Teacher Education, UP State Medical Faculty. The University is a member of Association of Indian Universities. Integral University is recognized as a Scientific & Industrial Research Organization (SIRO) by the Department of Scientific & Industrial Research, Ministry of Science & Technology, Government of India. It was accredited as 'Good' by the National Assessment and Accreditation Council (NAAC) in 2015. In the recent past, the University has been a recipient of several prestigious awards in the education sector. The National Institutional Ranking Framework (NIRF), the most prestigious ranking by the Govt. of India, ranked Integral University as a leading institution in the country in Pharmacy from 2017 to 2022 consecutively. The University offers diploma, undergraduate, postgraduate and doctoral programs in the fields of Engineering & Information Technology, Sciences, Health & Medical Sciences, Commerce & Management, Pharmacy, Agriculture, Law, Architecture, Planning & Design, Education, Library & Information Science and Humanities & Social Sciences. The University offers more than 240 programs across 47 disciplines and currently hosts around 12000 students at its 120-acre campus. The medium of instruction is English for all programs. The academic programs are delivered in more than 200 classrooms and 28 laboratories & workshops across the campus.

The University maintains a decent and decorous atmosphere in the campus. The campus is highly disciplined and ragging-free, with all modern amenities for pursuit of higher education and sports. The campus provides state-of-the-art hostel accommodation, with the capacity to host 2600 students in the hostels, and houses a 800+ bedded hospital, as part of the Medical College, with state-of-the-art medical facilities, and more than 200 doctors. The grand Central Library of the University holds more than 100,000 books and several hundreds of journals and magazines. The University lays focus and stress on research programmes and career advancement of students. Interactive efforts with eighteen renowned universities and research organizations and campus selection of students by national and multinational organizations bear testimony to these efforts. On the international front, the University has MoUs and collaborations with World Food Preservation Centre LLC, Shepherdstown, WV, US, Yegungnam University, Gyeongsan, South Korea, Arsi University, Asella, Ethiopia,

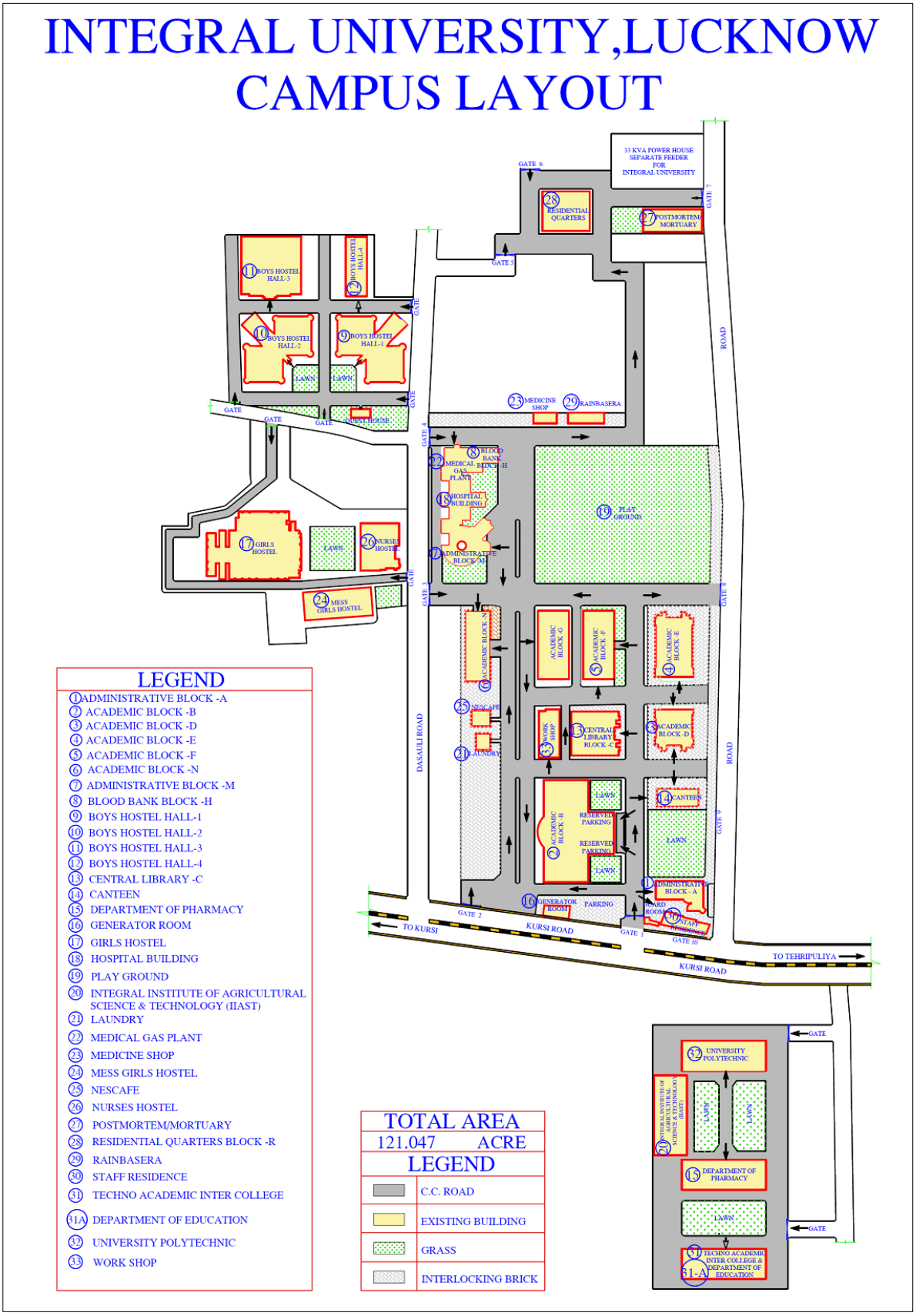
Harambee College, Adama, Ethiopia and University of Sarawak, Sarawak, Malaysia. The University is committed to imparting quality education and enriching experience to all its students, including almost 150 foreign students from Nigeria, Sudan, Kenya, Afghanistan, Bangladesh, Nepal, Germany and other countries. The University collaborates with some top MNCs and academic institutions of higher learning for academic enhancements at national and international levels. The University has hosted several diplomats and dignitaries from African and Asian countries and enjoys the trust and support of the embassies on account of its quality education/research facilities and infrastructure. The guidance and support that the University provides to its students in general and international students in particular, have brought accolades from the diplomatic community and student associations in the country.

2.0 LOCATION OF UNIVERSITY

Integral University is situated in Dasauli. P.O. Basha, Kursi Road, Lucknow-226026. The coordinates are Lat: 26.957487° N & Long: 80.999823° E. Map showing the location the university is depicted below:

(Fig. 2.0-a. Map showing the location of university)

Layout plan and location map of the University are as under:



(Fig. 2.0.b: Layout Plan)

3.0 AUDIT METHODOLOGY

Methodology adopted to conduct Environment Audit is as under: -

- Review of the existing Environmental Management system.
- Assessment and effectiveness of the system with reference to actual data provided during the audit.
- One to one interaction with concerned HODs and Officers.
- Interaction with ground level working personnel.
- Ground level inspection of the campus and the facilities provided.
- Verification of the compliance of the various regulations.
- Verification of the systems followed for enhancing the performance of the campus.
- Compliances of environment regulations

3.1 Objectives of Environment Audit

The overall objective of environmental auditing is to help safeguard the environment and minimize risks to human health. Clearly, auditing alone will not achieve this goal (hence the use of the word help); it is a management tool. The key objectives of an environmental audit therefore are to:

- determine how well the environmental management systems and equipment are performing
- verify compliance with the relevant national, local, or other laws and regulations
- minimize human exposure to risks from environmental, health and safety problems.

Pre-audit steps

Pre-audit steps include the administrative issues associated with planning the audit, selecting the personnel for the audit team, preparing the audit protocol used by the organization and obtaining background information about the facility.

Obtaining background information about a site and its processes/activities help to minimize the time spent onsite by the audit team and to focus its activities, thus saving resources. The composition of the audit team depends on the approach adopted by a particular organization/establishment.

Onsite-audit steps

- Assessing formal procedures and practices; record keeping and monitoring; inspection and maintenance programmes and physical controls for containing spills. The audit team gathers information on the various controls by observation, interviewing staff and the use of detailed questionnaires.
- Assessing strengths and weaknesses of internal controls. Evaluating the strengths and weaknesses of internal controls provides the rationale for conducting subsequent audit steps. Auditors look for indicators such as clearly defined responsibilities, competence of personnel, appropriate documentation and records and systems of authorization.
- Gathering audit evidence. The audit team attempts to verify that the steps and controls work as intended. Evidence may be collected through inquiry, observation, and testing.
- Recording audit findings. All the information obtained is recorded, and a comprehensive record of the audit and the state of the facility at the time is thus produced. Where a deficiency is found, it is noted as an audit "finding".
- Evaluating the audit findings. The audit team integrates and evaluates the findings of the individual team members. There may also be common findings. For some observations, an informal discussion with the plant manager may be sufficient; for others, inclusion in the formal report will be appropriate.
- Reporting the audit findings. This is usually done at a meeting with the establishment management at the end of the team's visit. Each finding and its significance can be discussed with the personnel.

Post-audit steps

Following the onsite work, the next step is to prepare a draft report, which is reviewed by the establishment management to confirm its accuracy. It is then distributed to senior management according to the requirements of the company/organization.

The other key step is to develop an action plan to address the deficiencies. Some company/organization ask for recommendations for corrective action to be included in the formal audit report. The organization will then plan for implementing these recommendations. Other company/organization require the audit report to state the facts and the deficiencies, with no reference to how they should be corrected. It is then the responsibility of the plant management to devise the means of remedying the failings. Once an audit programme is in place, future audits will include past reports and progress in the implementation of any recommendations made there in as part of their evidence.

4.0 UNIVERSITY INFRASTRUCTURE, FACILITIES & UTILITIES

4.1 Classrooms and training facilities

Spacious, well-lit, ventilated, and well-equipped classrooms, including 200 ICT and Wi-Fi-enabled ones to facilitate classroom teaching and 28 Seminar halls for interactive presentations. Students have access to training facilities that value-add to the curricula facilitating experimental learning.

4.2 Hostel Facility

Integral University has the best hostel facilities in the campus. Hostels for boys and girls with capacities exceeding 2500 occupants exist in the campus. Separate hostels for boys and girls are spread over 8 blocks.

4.3 Transport Facility

The University offers transportation services to faculty and students coming from practically every Lucknow neighbourhood. Average 04 buses are provided for transportation facility, for the students' safety, each bus has a well-trained driver, an attendant, and a first aid kit.

4.4 Library Facility

In keeping with the vision and mission of the University, the library aims “to promote knowledge generation and application through its effective dissemination”. The library, therefore, acts as the main learning resource centre of the university and provides services and facilities to meet the requirements of the university’s teaching, training, research, and consultancy, through one Central Library and 14 departmental libraries. The library and information science professionals manage all the libraries. The total collection strength of the Integral University Library System (IULS) is more than 1.40 lakhs

4.5 Medical Facilities

At Integral University an 800 bedded hospital, as part of the Medical College, with state-of-the-art medical facilities and more than 200 doctors are available to make the country progressive and prosperous in all walks of life.

4.6 Sports & Cultural Facility

The university has central sports facilities and huge play grounds for organizing the all sorts of games and capable of conducting state level programmes.

4.7 Facility of Gallery

Pictures automatically creates memories and we Integralists are the best curator of photos and the stories behind them. The Photos will take you through the Integral years full of events, achievements, celebrations, campus and lots of pride and nostalgia. Gallery-Our cherished memory lane from all the action at the Integral University

4.8 Facility for teaching & learning computer laboratories

University has been provided for Facilities for teaching & learning computer laboratories.

4.9 Training Facilities

- Moot Court – 01 nos.
- Design Studios and Museum – 01 nos.
- Business Research Laboratory – 01 nos.
- State-of-the-Art Workshop – 01 nos.
- Animal House – 01 nos.
- Vermicompost, Mushroom, Azolla Unit and Automatic Weather Station
- Mist House, Net House, NADEP Unit and Agriculture Farm
- Hospital Wards, Rural health, and training centre, Modular O.T. and I.C.U., Nursing Facilities

4.10 Sewage Treatment Plant of capacity 1.0 MLD

Sewage Treatment Plant (STP) of Capacity 1.0 MLD is installed in the university campus for the treatment of domestic sewage waste generated from the domestic activities.

4.11 RO for Drinking Water Purpose

Approximate 50 nos. of drinking booth with RO system have been provided to entire university campus.

4.12 Other Facilities

- State-of-the-Art laboratories
- Enriched central library – 01 nos.
- Hospital with Modular OT's and Labs at IIMSR – 01 nos.
- Student's activity centre – 01 nos.
- Gymnasium – 03 nos.
- Playground – 01 nos.
- Centre for Career Guidance and Development Cell – 01 nos.
- Modern Workshops – 02 nos.
- Campus wide networking with Internet facilities (Lease line 1.1 GBPS connection fully wi-fi campus, named jionet@integral & IUWiFi)

4.13 Canteens & Cafeteria

Total 07 numbers of canteen and cafeteria are available in University Campus. The details are as under:

SNo.	Name of Canteen	Seating Capacity
1.	Central Canteen	175 nos.
2.	Medical Canteen	50 nos.
3.	Neutrifresh	30 nos.
4.	Campus-2 Canteen	35 nos.
5.	PNB Block Canteen	15 nos.
6.	Boy's Hostel Canteen	30 nos.
7.	Girls's Hostel Canteen	30 nos.
Cafeteria		
8.	Yuba Café	
9.	Amul Café	
10.	Romio Pizza	
11.	Street Food Stall – 6 nos.	

5.0 TOTAL LAND AREA OF UNIVERSITY CAMPUS

University campus is spread over the **278172** Sq.m. The land use breakup is given in below table:

S. No.	Type of Land	Area (Sq.m.)
1.	Covered Area	62368
2.	Road/Paved Area	64998
3.	Green Area	71953
4.	Open Area	78853
Total		**278172**

6.0 TOTAL DAILY MOVEMENT OF POPULATION

S. No.	Particulars	Numbers
1.	Student (Day Scholar)	9484
2.	Student (Hosteller)	1869
3.	Staff (Teaching, Non-Teaching & Admin)	1764
4.	Staff Resident (Hostel Wardens)	25
5.	Staff Resident (in flats)	390
6.	Visitors (Guest House)	143
7.	Visitors	150
Total		**13825**

7.0 LEGAL COMPLIANCES

SNo.	Particulars	Certificate number & Validity
1.	Consent under section 21/22 of the Air (Prevention and Control of Pollution) Act, 1981 (as amended)	Consent Ref. no: 152162/UPPCB/ Lucknow (UPPCBRO)/CTO/both/ LUCKNOW/2022
2.	Consent under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 (as amended)	Valid up to 31.12.2022
3.	Authorization for operating a facility for generation, collection, reception, treatment, storage, transport, and	Authorization Ref. No: G/BMW-75/18, Dt: 27/09/18 Valid up to 26/09/2023

	disposal of Bio Medical Wate Under Rule-10 of "The Bio-Medical Waste Management Rules, 2016"	

8.0 ENVIRONMENT AUDIT

8.1 WATER ENVIRONMENT

Water is a natural resource; all living matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water is available for all. Aquifer depletion and water contamination are taking place at unprecedented rates. It is therefore essential that any environmentally responsible institution should examine its water use practices. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible institution examine its water use practices.

8.1.1 Source of Water

To full fill the water requirement in the University Campus, total 21 numbers of bore well have been constructed at different places to abstract the ground water. The detail of bore wells are as under:

Bore Well No.	Year of Constr.	Location	Dia (Hosng Pipe)	Dia (Disch. Pipe)	Pump Capacity
BW No.1	1994	Gate Complex	102 mm	25 mm	1.5 HP
BW No.2	1998	Central Library	102 mm	50 mm	2.0 HP
BW No.3	1998	HALL-1	102 mm	25 mm	1.5 HP
BW No.4	2000	HALL-2	102 mm	25 mm	1.5 HP
BW No.5	2001	Old Girls Hostel	102 mm	25 mm	1.5 HP
BW No.6	2004	Hospital Block	102 mm	25 mm	1.5 HP
BW No.7	2005	HALL-3	102 mm	25 mm	1.5 HP
BW No.8	2006	Pharmacy Block	102 mm	25 mm	1.5 HP
BW No.9	2007	HALL-4	102 mm	25 mm	1.5 HP
BW No.10	2010	Polytechnic	102 mm	25 mm	1.5 HP

BW No.11	2011	New Girls Hostel-A	152 mm	75 mm	7.5 HP
BW No.12	2012	Laundry	102 mm	25 mm	1.5 HP
BW No.13	2012	NLT-A (Block-D)	102 mm	25 mm	1.5 HP
BW No.14	2012	NLT-B (Block-E)	102 mm	25 mm	1.5 HP
BW No.15	2013	New Girls Hostel-B	152 mm	75 mm	7.5 HP
BW No.16	2013	Mess (Girls)	102 mm	25 mm	1.5 HP
BW No.17	2014	Guest House Campus	152 mm	75 mm	7.5 HP
BW No.18	2016	PG Hostel	102 mm	25 mm	1.5 HP
BW No.19	2018	Medical Phase-II	102 mm	50 mm	2.0 HP
BW No.20	2020	Agriculture Block	102 mm	25 mm	1.5 HP
BW No.21	2021	Mess (Boys)	102 mm	25 mm	1.5 HP

8.1.2 Water Supplying System

Overhead water storage tanks (PVC / Cemented) at the roof top of respected buildings are provided, which are directly fill through the bore wells and supply to the different places inside the campus for their use and consumption.

Adequate quantity of drinking water booth with RO System is provided in the University campus for the purpose of providing drinking water to the students, staff, teachers, workers etc. Sample photographs of drinking water booth are depicted below:

Drinking water booth (Photo)

8.1.3 Water Consumption

In university campus, water consumes mainly for domestic purpose and in green belt. Apart from this water is also used in the laundry. This laundry used only for the purpose of washing the cloths, bedsheets generated in medical college.

As per the NBC 2016, BIS, the detail of daily water consumption of domestic purpose and in laundry is given in below table:

S.No.	Particulars	Number of Persons	Water consumption as per NBC Norms (Litre/Head)	Total Water Consumption (In KL/Day)
1.	Student (Day Scholar)	9484	45	426.78
2.	Student (Hosteller)	1869	135	252.32
3.	Staff (Teaching, Non-Teaching & Admin)	1764	45	79.38
4.	Staff Resident (Hostel Wardens)	25	135	3.38
5.	Staff Resident (in flats)	390	135	53.65
6.	Visitors (Guest House)	143	135	19.30
7.	Visitors	150	15	2.25
8.	In Laundry	-	-	4.00
Total Water Consumption (In KL/Day)				**841.06** **Say 841.00**

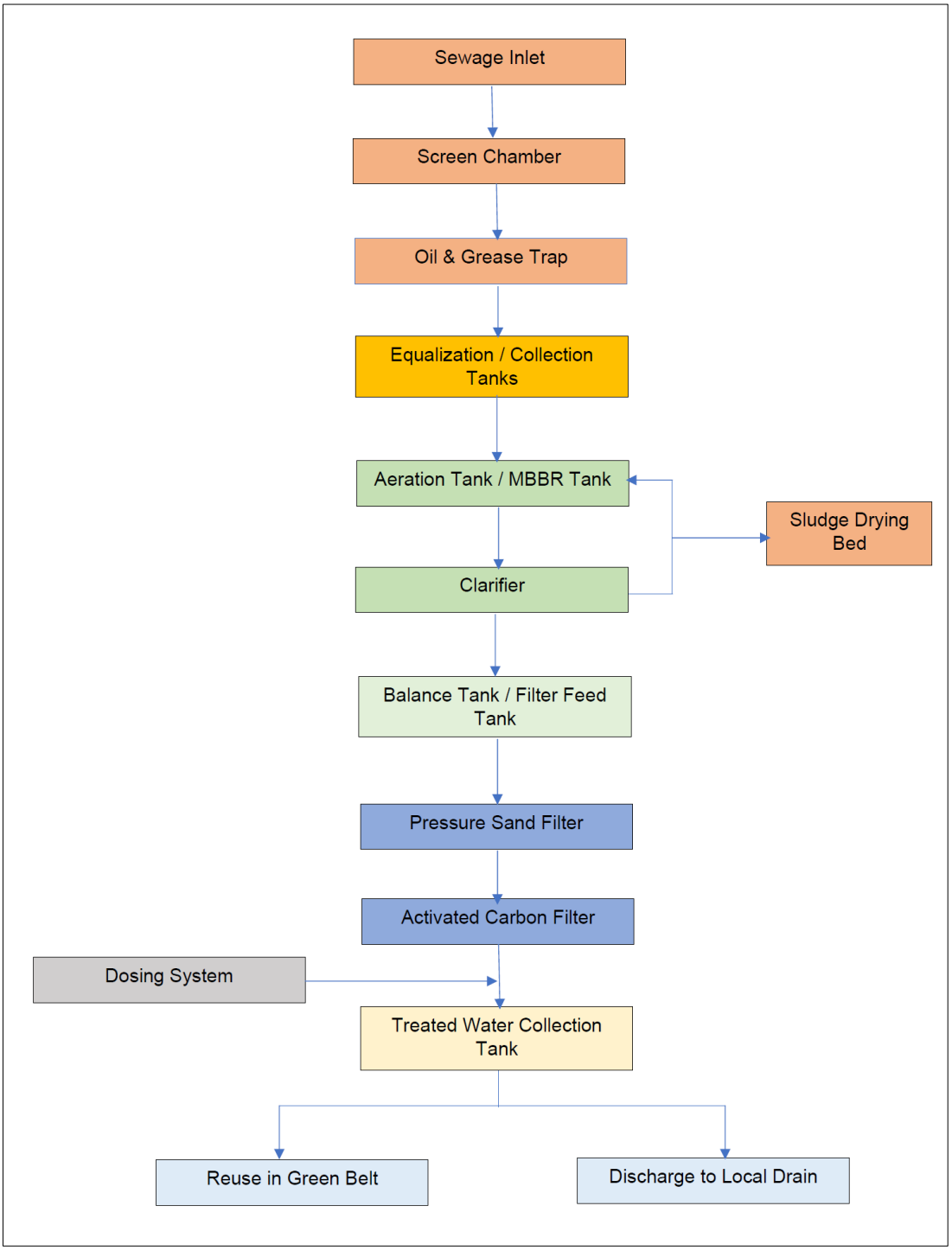
8.1.4 Waste Water Generation

Around 754 KL/Day waste water generated from domestic activities of students, teaching faculty, non-teaching staff & visitors etc. And around 3.20 KL/Day waste water (effluent) also generated from the laundry used only for the purpose of washing the cloths, bedsheets etc. generated in medical college.

8.1.4 Waste Water Management

For the treatment of domestic sewage waste water, University has installed a Sewage Treatment plant (STP) of capacity 1.0 MLD. The treated water from STP reuse in green belt and the rest treated water discharge to the local drain.

Treatment Process flow diagram STP and sample photographs of STP are depicted below:



Process Flow Diagram of STP

Sample photographs of STP are depicted below:

Control Panel

Aeration Tank

PCF & ACF

8.1.5 Reuse / Recycle of Treated Water

- The treated water from STP reuses in green belt and the rest treated water discharge to the local drain.
- RO reject generated from the RO installed within campus premises for drinking purpose, reuse in green belt.

8.1.6 RAIN WATER HARVESTING

University has implemented the rain water harvesting system to recharge the ground water by constructing 03 numbers of rain water recharge structures/pits.

02 numbers of recharge structures are connected with the roof top of B-Block building and 01 is connected with the roof top area of D&E Block building. Each pit consists of 01 number of recharging well of 152 mm diameter.

The photograph of rain water recharge structure is depicted below:

Photograph showing the Rain Water Recharge Structure / Pit Campus Area

Recommendations / Suggestion:

- *Being a 800 bedded hospital with laundry, management is advice to install an Effluent Treatment Plant (ETP) of Capacity 400 KLD for the treatment of waste water generated from the Hospital and laundry.*
- *Management is advised to comply all the conditions incorporated in water consent order issued by U.P. Pollution Control Board.*
- *Install the Digital Water Flow Meter with telemetry system at the outlet of each Bore Well and record should be maintained in a logbook in respect the daily abstracted ground water.*
- *Conduct the Ground Water Quality Analysis pre & post monsoon by the NABL / MoEFCC approved laboratory.*
- *Management is advice to maintain the logbook of Sewage Treatment Plant.*

8.2 AIR ENVIRONMENT

8.2.1 Sources of Air Pollution

The main source of the ambient air pollution in the University campus is 06 numbers of D.G. Set provided for the alternate electrical energy source as standby. Another source of ambient air pollution in the campus is vehicular emission. The detail of DG Sets and vehicular movement are as under:

SN.	Particulars	Capacity	Stack Height
1.	D.G. Set	500 KVA	5.5 meter
2.	D.G. Set	500 KVA	5.5 meter
3.	D.G. Set	500 KVA	5.5 meter
4.	D.G. Set	320 KVA	4.0 meter
5.	D.G. Set	160 KVA	3.0 meter
6.	D.G. Set	160 KVA	3.0 meter

Daily Vehicular Movement: Around 06 nos. of Buses, 750 nos. of cars and 1105 nos. of two wheelers have daily movement in the university campus. Sample Photo Graph of D.G. Set and parking area is depicted below:

Photograph of D.G. Set

Parking Area (Two Whelers)

8.2.2 Management of Air Pollution

Following measures have been taken to control the air pollution in university campus:

- All the D.G. Sets are installed with adequate height of stack and acoustic enclosure.
- Maximum numbers of vehicles are allowed up to the parking area.
- For the movement inside the campus golf cart & battery vehicle are also available.

Recommendations / Suggestion:

- *Management is advised to comply all the conditions incorporated in air consent order issued by U.P. Pollution Control Board.*
- *Management is advised the make the proper arrangement for stack monitoring such as Port Hole & Sampling Platform at the stack of DG Sets.*
- *It is also advised to conduct the six-monthly Stack Monitoring of all D.G. Sets by NABL/MoEFCC Approved Laboratory.*
- *Management is advised to conduct the six-monthly ambient air monitoring at least at three locations of the campus & record should be maintained.*

8.3 NOISE ENVIRONMENT

8.3.1 Sources of Noise Pollution & its management

The source of the ambient noise in the campus area is 06 number of DG Sets of capacity 3 x 500 KVA, 1 x 320 KVA & 2 x 160 KVA installed for the alternate electrical energy source as standby. All DG Sets are installed with acoustic enclosure to reduce the noise. Another source of noise in the campus from vehicular movement. The entry of vehicles is restricted in the campus.

8.4 WASTE GENERATION AND ITS MANAGEMENT

The solid waste management is in order with the placing of dust bins and their daily cleaning. The University has its own collection facility that collects the solid wastes daily from Residential complex, Hostels and Departments. This helps in maintaining the cleanliness by providing an efficient, safe and regulated management of solid wastes in the Campus.

8.4.1 Waste disposal of University Campus

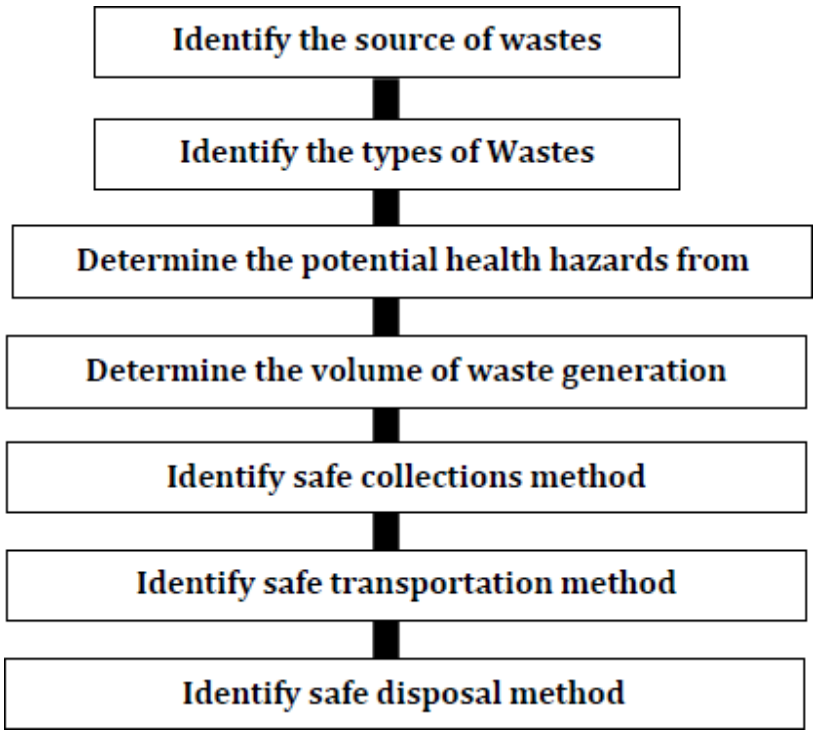
Waste disposal are the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, and disposal of waste, together with monitoring and regulation of the waste management process. Integral University has the MoU with M/s Eco Green Energy Lucknow Private Limited for the disposal of Solid Waste.

The waste from all around the university is separated daily as wet and dry waste in different bags which are disposed separately. Dry waste includes paper, cardboard, glass tin cans etc. on the other hand; wet waste refers to organic waste such as vegetable peds, left-over food etc. Separation of waste is essential as the amount of waste being generated today causes immense problem. The material was composted and evaluated as a fertilizing material. Disposal of these waste results in the production of good quality organic manure that can be used as soil amendments and source of plant nutrients.

8.4.2 Generation of Solid Waste & Management

Approximate 2000 Kg/Day Solid Waste generated in the university and disposed of through an authorized agency from Nagar Nigam (Lucknow) named M/s Eco Green Energy Lucknow Private Limited. The weight or volume of materials and products that enter the waste stream before disposal takes place. Also, can represent the amount of waste generated by a given source or category of sources.

Solid waste generation and composition analysis is a critical first step towards developing successful and effective planning of waste management service and strategies across university campus. This indicator addresses waste production and disposal of different wastes like paper, food, plastic, glass, dust etc.



Photograph showing the collection and disposal facility of Solid Waste

8.4.3 Hazardous Waste Management

In University campus the hazardous waste such as waste lubricant oil from DG Sets, oil contaminated cloth etc. generated. The generated hazardous waste should be disposed off through an approved agency from UPPCB / TSDF.

8.4.4 E-Waste Management

For e-waste management Integral University has initiated the process of establishing an e-waste management system to ensure that e-waste is properly segregated, stored at a designated place and given to authorized agency for their disposal. As Lucknow capital of Uttar Pradesh is an educational/Information Technology hub, the University is surrounded by schools and colleges. In some instances, photocopying machines and other office peripherals are replaced under buy-back schemes.

E-waste comprises of wastes generated from used electronic devices and household appliances which are not fit for their original intended use and are destined for recovery, recycling or disposal. Such wastes encompass wide range of electrical and electronicdevices such as computers, hand held cellular phones, personal stereos, including large household appliances such as refrigerators, air conditioners etc. Electronic waste or e- waste or e-scrap or waste electrical and electronic equipment (WEEE) can be defined as the discarded waste computers, office electronic equipment's entertainment device electronics, mobile phones, television sets and the refrigerators. The term E-waste is loosely applied to consumer and business electronic equipment that is near or at the end of it's useful life. It is a waste consisting of any broken or unwanted electrical or electronic appliance.
Waste generated from the following electronic equipment is generally referred to as the E-waste:

- IT and Telecom equipment like computers, laptops, tablets, and systems used in offices, laboratories & classrooms.
- Medical devices like CT scan machine, X-Ray machine, etc.
- Monitoring and control devices
- Small household appliances like PC's, mobile phones, MP3 players, I-Pods, Tablets etc
- Consumer and lighting equipment like bulbs, CFL, fluorescent tube lights

8.4.5 Generation Source of Biomedical Waste

At Integral University a 800 bedded hospital, as part of the Medical College, with state-of-the-art medical facilities and more than 200 doctors are available to make the country progressive and prosperous in all walks of life.

Integral Institute of Medical Sciences and Research (IIMS&R) which is a hi-tech 800 bedded hospital, fully furnished with advanced facilities and managed by highly qualified medical staff. It has 18 departments besides Emergency & Trauma Care Unit. IIMS&R, have 23 departments to provide training and patient care. There are numbers of PG and UG courses are running and imparting medical education and dedicated social services to the local and off course regional human kind too at very nominal cost.

8.4.6 Biomedical Waste Generation & Management

Average 550 kg/month biomedical waste generated from the hospital of Integral University and disposed off through Common Bio-medical Waste Treatment Facility approved from U.P. Pollution Control Board named M/s SMS Watergrace Mediwaste Management Pvt. Ltd. The generated biomedical waste segregated at source and kept in respected color coadded dust bins (yellow, red, white, blue) for the proper disposal.

8.4.7 Management of Discarded Batteries

Discarded batteries such as inverted battery, UPS battery etc. are generated from the different departments and disposed as buy back through dealers.

8.4.8 Management of Plastic Waste

All the plastic waste generated in the campus is properly collected, segregated, stored at designated place and disposed through authorised vendors only.

8.4.9 Management of Construction & Demolition Waste

The construction and demolition waste generates only during construction activities. The generated construction and demolition waste is collected, segregated, and reuse wherever required inside the campus.

Recommendations / Suggestion:

- *Management is advised to store all the discarded chemicals at a designated place and disposed through only authorized vendor. It also advised to maintain the record for generation and their disposal.*

- *It is advised to maintain the annual record for the generation & disposal of e-waste and E-waste should be disposed through only authorised recycler.*
- *It is advised to identify the activities, where construction and demolition waste can be reused and disposed.*
- *University should submit the Environmental Statement as per the Rule-14 of "The Environment (Protection) Rules, 1986" for every financial year on or before 30th September.*

8.5 ENERGY (Electrical)

8.5.1 Sources & Distribution

The sanctioned load of electricity is 1.0 MW which is being fulfilled by Madhyanchal Vidyut Vitran Nigam, Lucknow. And the electricity is distributed in the entire campus through five numbers of transformers.

Additionally, 06 number of DG Sets of capacity 3 x 500 KVA, 1 x 320 KVA & 2 x 160 KVA are available for the alternate electrical energy source as standby.

8.5.2 Electricity Consumption

Monthly consumption of electricity is around from 200000 to 400000 unit.

8.5.3 Energy Conservation measures adopted

In tune with international trend, Integral University has installed 1 MWp Rooftop Grid Interactive Solar Power Plant as per Solar Energy Corporation of India (SECI) guidelines & specifications. For SPV grid interactive system, available roof area on the building is used for setting up solar PV plants. Rooftop solar PV systems are easy to install & maintain, have long life and are modular in nature. The excess unused electricity generated here is fed back to transmission grid. Details of building on which solar panels installed are given below:

SNo.	Name of Building	Capacity (kWp)	Modules (320 Wp)	Inverters
1.	Block B (Academic Block-I)	200	720 nos.	66 kVA (3 nos.)
2.	New Girls Hostel	150	460 nos.	50 kVA (3 nos.)
3.	Block-F (Civil Block)	110	417 nos.	66 kVA (1 nos.), 25 kVA (1 nos.), 20 kVA (1 nos.)

4.	Block-J (Medical Phase II)	110	343 nos.	50 kVA (2 nos.)
5.	Block H (Medical Phase I)	100	400 nos.	25 kVA (4 nos.)
6.	Block E (BNLT Block)	90	340 nos.	66 kVA (1 nos.), 25 kVA (1 nos.)
7.	Resident Block	80	240 nos.	50 kVA (1 nos.), 30 kVA (1 nos.)
8.	Block C (Library)	70	220 nos.	50 kVA (1 nos.), 20 kVA (1 nos.)
9.	Old Girls Hostel	60	180 nos.	50 kVA (1 nos.)
10.	Block D (NLTA Block)	40	120 nos.	50 kVA (1 nos.)

Sample photographs of solar panels and solar based street lights are depicted below:

Photographs showing the Solar Panels at the Roof Top of University Building

Photographs showing the street lights in University Campus

8.5.4 Benefits of Solar Power System:

After installation of solar power system, approx. 30% revenue saving, the plant avoids around 1400 tons of carbon dioxide annually and reduces emissions from grid power and backup diesel generators.

8.6 FIRE FIGHTING SYSTEM

University has granted the NOC from the Fire Department. All the buildings of university are covered with fire hydrant system and the sufficient numbers of fire extinguishers and other firefighting facilities are as under:

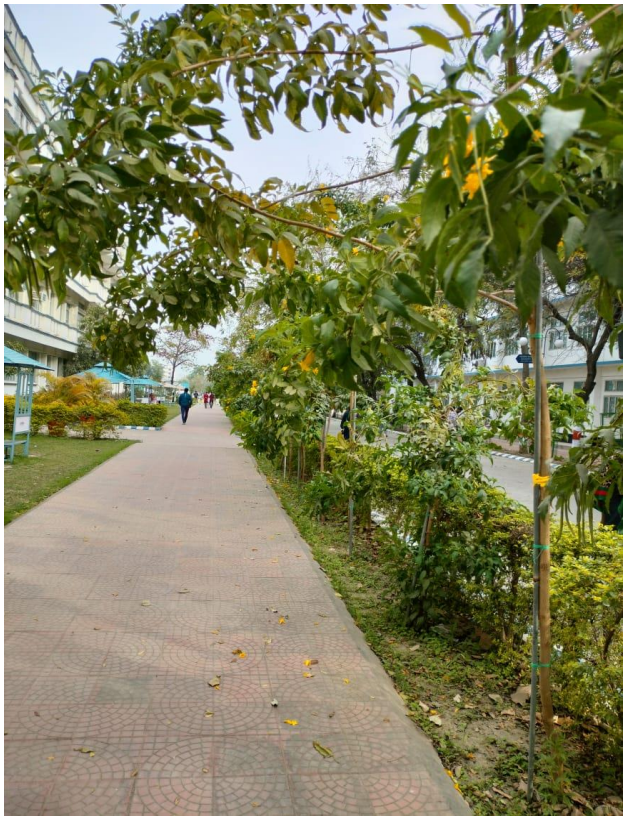
SNo.	Particulars	Quantity
Fire Fighting Facilities		
1.	Jockey Pump (15 HP)	01 nos.
2.	Electric Pump (60 HP)	01 nos.
3.	Diesel Pump (69 BHP)	01 nos.
4.	Fire Water Storage Tank (Storage Capacity-127.42 m^3)	01 nos.
Fire Extinguishers		
5.	CO_2 Type (4.5 Kg)	59 nos.
6.	ABC Type (06 Kg)	212 nos.

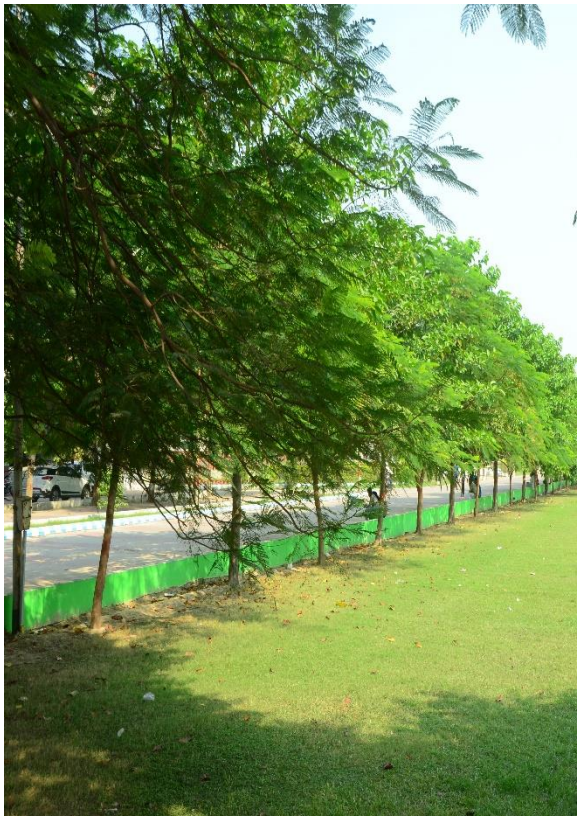
8.7 DETAILS OF GREEN BELT

Green belt is already developed and regularly maintained by dedicated staff and sprinkler irrigation system a measure to conserve water. As the opportunity shows to further develop the green belt, the management of university takes all necessary initiatives immediately.

Three numbers of vermicomposting pits are constructed inside the campus area for the degradation of generated horticulture waste (grass, tree leaves etc.), and covert into the organic manure.

Sample photographs showing the green belt area are depicted below:





Photographs showing the green belt

9.0 GIST OF RECOMMENDATIONS / SUGGESTIONS

1. Management is advice to depute a designated environment officer for the compliances of environment related issues.
2. Being a 800 bedded hospital with laundry, management is advice to install an Effluent Treatment Plant (ETP) of Capacity 400 KLD for the treatment of waste water generated from the Hospital and laundry.
3. Management is advised to comply all the conditions incorporated in water consent order issued by U.P. Pollution Control Board.
4. Install the Digital Water Flow Meter with telemetry system at the outlet of each Bore Well and record should be maintained in a logbook in respect the daily abstracted ground water.
5. Conduct the Ground Water Quality Analysis pre & post monsoon by the NABL/MoEFCC approved laboratory.
6. Management is advice to maintain the logbook of Sewage Treatment Plant.
7. Management is advised to comply all the conditions incorporated in air consent order issued by U.P. Pollution Control Board.
8. Management is advised the make the proper arrangement for stack monitoring such as Port Hole & Sampling Platform at the stack of DG Sets.
9. It is also advised to conduct the six-monthly Stack Monitoring of all D.G. Sets by NABL/MoEFCC Approved Laboratory.
10. Management is advised to conduct the six-monthly ambient air monitoring at least at three locations of the campus & record should be maintained.
11. Management is advised to store all the discarded chemicals at a designated place and disposed through only authorized vendor. It also advised to maintain the record for generation and their disposal.
12. It is advised to maintain the annual record for the generation & disposal of e-waste and E-waste should be disposed through only authorised recycler.
13. It is advised to identify the activities, where construction and demolition waste can be reused and disposed.
14. University should submit the Environmental Statement as per the Rule-14 of “The Environment (Protection) Rules, 1986” for every financial year on or before 30th September.