



हरकोर्ट बटलर प्राविधिक विश्वविद्यालय

नवाबगंज, कानपुर - 208002, उ.प्र., भारत

HARCOURT BUTLER TECHNICAL UNIVERSITY

NAWABGANJ, KANPUR - 208002, U.P., INDIA

(Formerly Harcourt Butler Technological Institute, Kanpur)

Phone : +91-0512-2534001-5, 2533812, website : <http://www.hbtu.ac.in>, Email : [vc@hbtu.ac.in](mailto:vc@hbtu.ac.in)

**100** YEARS  
1921 - 2021

**HEI Response: Metric ID 7.1.4**

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(Prof. S.K. Sharma)  
Registrar  
Harcourt Butler Technical University  
Kanpur-208002



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## Rain Water Harvesting



(Prof. S.K. Sharma)  
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## Rain Water Harvesting

### RWH Near Classrooms (G1 to G7)





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## Open Well Recharge



**HBTU, Uttar Pradesh, India**

278/279/280/A, Nawabganj, Kanpur, Uttar Pradesh 208002,

Long 80.309620°

Lat 26.494380°

09/1/2023 03:08 PM



(Prof. S.K. Sharma)

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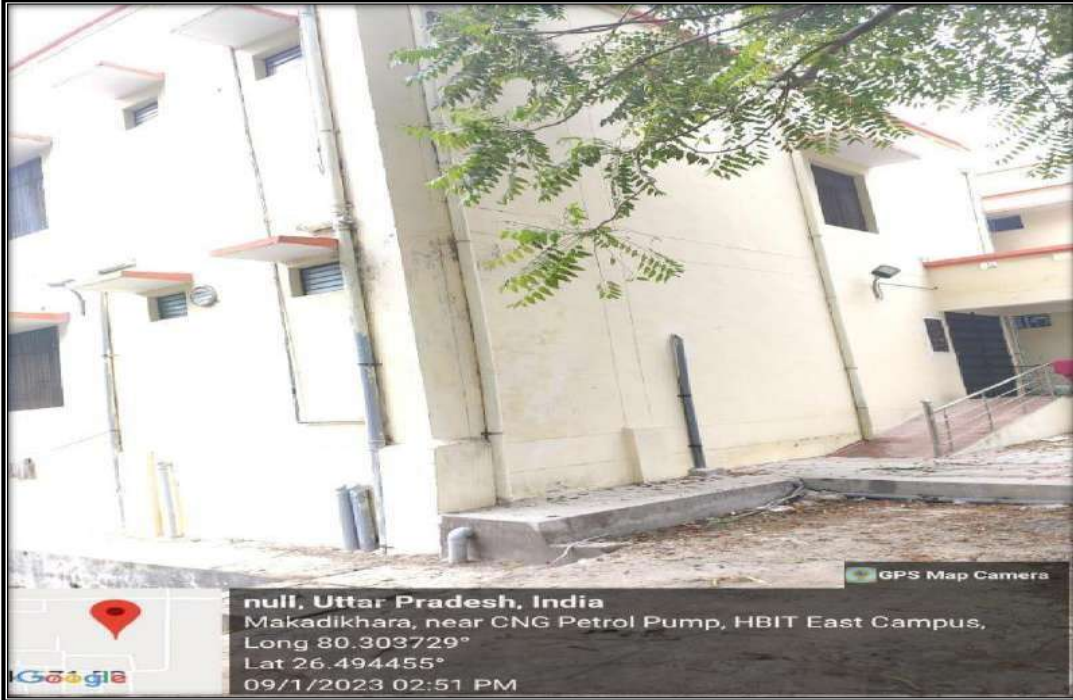
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## Borwell Recharge



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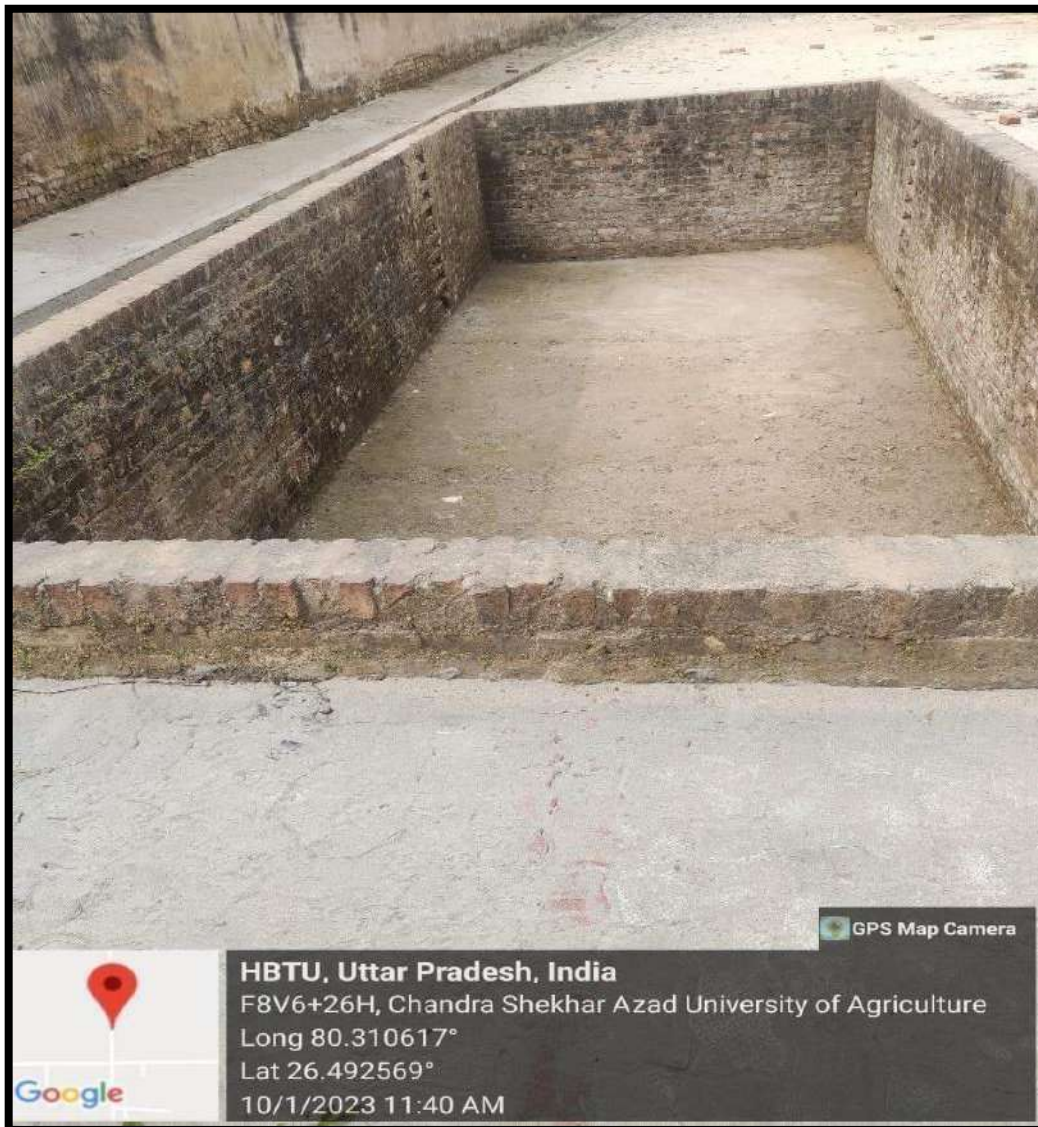
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## Construction of Tanks and Bunds



  
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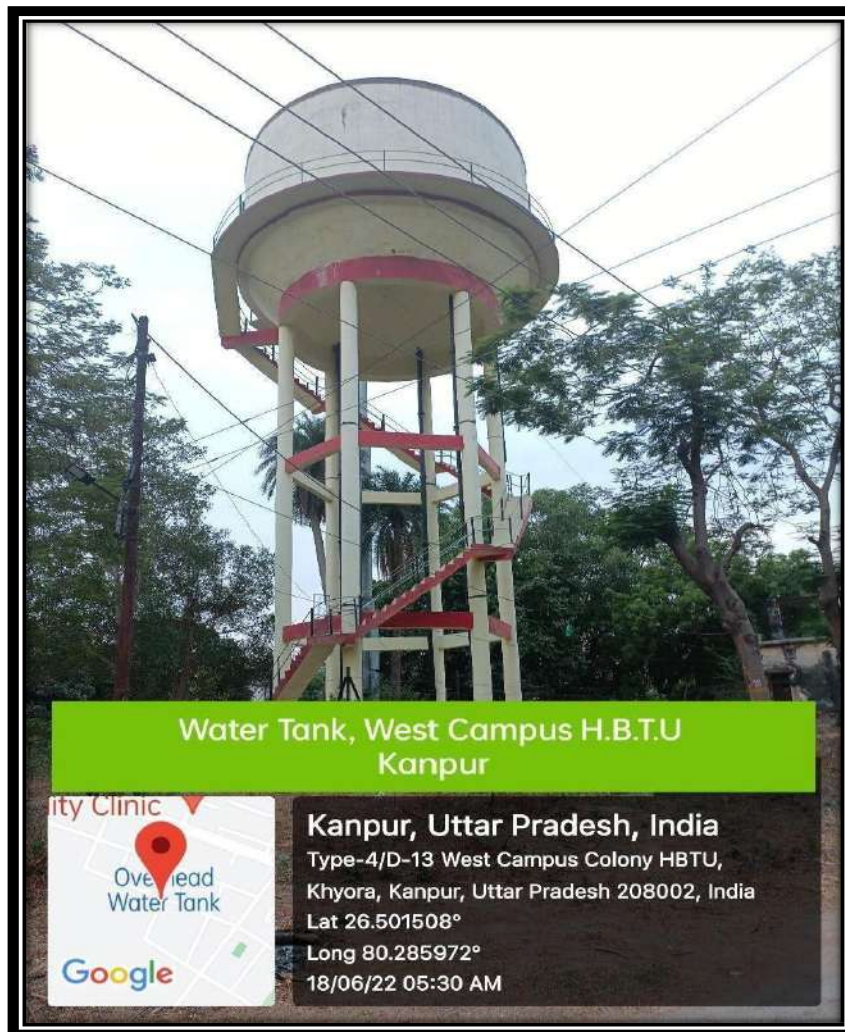
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## Maintenance of water bodies and distribution system in the campus: Water Tank in West Campus



  
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## Bills for Rainwater Harvesting

### Preliminary Estimate of Lecture Hall Block, HBTI KANPUR

RCC Framed Structure based on Plinth Area Rates w.e.f. 01.01.2018

S.No.	Items	Qty.	Unit	Rate	Amount
1.1	Ground Floor				
1.2	First Floor + mumty	752.34	Sq.m.	14140.00	10638087.60
1.3	total area	742.34	Sq.m.	14140.00	10496687.60
		1,494.64	Sq.m.		21134775.20
B	Additional Provisions				
	Total Amount Extra for Height above 2.90 MT.				
1		1494.68	Sq.m.	1590.00	2376541.20
2	Extra for anti termite treatment	752.34	Sq.m.	230.00	173038.20
3	Rain Water Harvesting	1.00	No.s	300000.00	300000.00
4	Extra for larger module	1514.00	Sq.m.	500.00	757000.00
5	Computer Networking	21134775.20	%	1.00	211347.75
6	Internal Water Supply & sewerage	21134775.20	%	4.00	845391.01
7	External Sewerage	21134775.20	%	5.00	1056738.76
8	Internal site development	21134775.20	%	5.00	1056738.76
9	Internal Electrification	21134775.20	%	12.50	2641846.90
10	Add modular Switch	21134775.20	%	0.50	105673.88
11	Central call bell system	21134775.20	%	0.50	105673.88
12	Power Wiring	21134775.20	%	4.00	845391.01
13	Fire Fighting	1494.68	Sq.m.	1790.00	2675477.20
					13362206.29
	<b>TOTAL (A+B)</b>				<b>34496981.49</b>

(सुधीर कुमार)  
उप अभियन्ता (सि)  
उ.प्र. राजकीय निर्माण नियम लि०  
इकाई - 4, कानपुर

(सुधीर कुमार)  
उ.प्र. राजकीय निर्माण नियम लि०  
इकाई - 4, कानपुर

(आर० एम० अभिषेक)  
अपर परियोजना प्रबंधक  
उ.प्र. राजकीय निर्माण नियम लि०  
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**100 YEARS**  
1921 - 2021

(14)

<b>Preliminary Estimate of Incubation Centre Block, HBTU, KANPUR</b>					
<b>RCC Framed Structure based on Plinth Area Rates w.e.f. 01.01.2018</b>					
S.No.	Items	Qty.	Unit	Rate	Amount
A	Ground Floor	412.74	Sq.m.	14140	5836143.60
b	First Floor	412.74	Sq.m.	14140	5836143.60
c	Second Floor	174.52	Sq.m.	14140	2467712.80
A	Ground Floor + First Floor	1000.00	Sq.m		14140000.00
<b>B Additional Provisions</b>					
1	Total Amount Extra for Height above 2.90 MT.	1000.00	Sq.m.	1590.00	1590000.00
2	Extra for anti termite treatment	412.74	Sq.m.	230.00	94930.20
3	Rain Water Harvesting	1	No.s	300000.00	300000.00
4	Extra for larger module	1050.00	Sq.m.	500.00	525000.00
5	Computer Networking	14140000.00	%	1.00	141400.00
6	Internal Water Supply & sewerage	14140000.00	%	4.00	565600.00
7	External Sewerage	14140000.00	%	5.00	707000.00
8	Internal site development	14140000.00	%	5.00	707000.00
9	Internal Electrification	14140000.00	%	12.50	1767500.00
10	Add modular Switch	14140000.00	%	0.50	70700.00
11	Central call bell system	14140000.00	%	0.50	70700.00
12	Power Wiring	14140000.00	%	4.00	565600.00
13	Fire Fighting	1000.00	Sq.m	1790.00	1790000.00
14	Air conditioning	135.00	tonnes	40000.00	5400000.00
15	Furniture in training center	1.00	LS.	300000.00	300000.00
16	Furniture in conference	1.00	LS.	350000.00	350000.00
17	Furniture in administrative office	2.00	LS.	600000.00	1200000.00
18	Furniture in cabin	16.00	LS.	120000.00	1920000.00
19	Furniture in seminar hall	1.00	LS.	300000.00	300000.00
20	Furniture in cafeteria with Interiors	1.00	LS.	500000.00	500000.00
21	Equipment in kitchen	1.00	LS.	300000.00	300000.00
22	False ceiling with lighting	1000.00	Sq.m	1200.00	1200000.00
23	Computers, Printers, Projectors and electronic accessories		L.S		4000000.00
				<b>Total</b>	<b>24365430.20</b>
<b>TOTAL (A+B)</b>					<b>38505430.20</b>

(रुपय) रु. 38505430.20  
उपरोक्त राशि (रु.)  
प्र. 0 राजकीय निर्माण निगम लि.  
इकाई - 4, कानपुर

(रु.) रु. 38505430.20  
स्थानिक (रु.)  
उपरोक्त राशि (रु.)  
प्र. 0 राजकीय निर्माण निगम लि.  
इकाई - 4, कानपुर

(आर० एम० अग्निहोत्री)  
अपर परियोजना प्रबन्धक  
उपरोक्त राजकीय निर्माण निगम लि०  
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**100 YEARS**  
1921 - 2021

(13)

PRELIMINARY ESTIMATE FOR CONSTRUCTION OF AUDITORIUM AT H.B.T.I KANPUR					
SL.NO.	DESCRIPTION OF WORK	QTY.	UNIT	RATE	AMOUNT
1	COST OF CONSTRUCTION				
	GROUND FLOOR	595	sqm	13600	8092000.00
	<b>TOTAL(A)</b>				<b>8092000.00</b>
2	provision for extra ceiling height of building 6.5-2.9=3.6/3=12*570=6840	595	sqm	6840	4069800.00
3	provision for extra plinth height (.90-.60) )/.30*570	595	sqm	570	339150.00
4	provision for extra plinth height (.90-.60) )/.30*570	595	sqm	570	339150.00
5	Add extra for larger module ie.35sqm	595	sqm	950	565250.00
6	Add extra for anti -termite treatment	595	Sqm	250	148750.00
	ADD EXTRA FOR FIRE FIGHTING ARRANGMENT	595	Sqm	550	327250.00
7	Cost of internal water supply and sanitary work @ 5.00%				404600.00
8	COST OF EXTERNAL WATER SUPPLY AND SANITARY WORK @5.00%				404600.00
9	COST OF INTERNAL electrification @12.00%				971040.00
10	add extra for power wiring @4.00%				404600.00
11	add extra for internal site development @4.00%				404600.00
12	add for extra for rain water harvesting			LS.	800000.00
	add extra for external site development @4.00%				404600.00
14	add extra for ac provisions			LS.	3000000.00
15	add furniture			LS.	1360000.00
16	acoustic treatment , carpeting etc.			LS.	3365000.00
	<b>TOTAL(B)</b>				<b>17308390.00</b>
	<b>TOTAL A + B =</b>				<b>25400390.00</b>
	less 5.00%				-1270019.50
					24130370.50
	add centage charge @12.5%				3016296.31
	add labour cess @ 1%				241303.70
	G.S.T. @ 12%				2895644.40
	contengency @ 2 %				482607.40
	external electric connection				856000.00
	<b>Grand total</b>				<b>31622222.31</b>

Say Total Amount 316.22 Lacs.

(सुधीर कुमार)  
उप अभियन्ता (सि)  
सं.प्र.राजकीय निर्माण निगम लि  
इकाई - 4, कानपुर

(सुधीर कुमार)  
स्वामिक अभियन्ता (सि)  
सं.प्र.राजकीय निर्माण निगम लि  
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(Prof. S.K. Sharma)  
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STATE CONSTRUCTION & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

Summary of Cost

शासनादेश संख्या-28/2020/275/सोलह 1-2020-09 (बजट-2)/202 दिनांक 28.03.2020

Name of Work:- Construction of Class Room & Work Shop at Mechanical Engineering Department at H.B.T.U Kanpur Nagar

S.No	Particulars	T.S. Amount
1	Cost of Main Building (Frame Structure) (Non Residence, Medium Class)	87.41
2	Cost Inner and Outer Painting	13.41
3	Cost of Internal Water Supply and Sanitary work	9.40
4	Cost of External Sewerage System	5.17
5	Cost of Internal Electrification with Power Wiring	14.78
6	Cost of Fire Alarm System	3.19
7	Cost of Sprinkale System (Powder)	1.54
8	Cost of Rain Water Harvesting	6.37
9	Cost of Boring with 1.5 H.P Submersible Pump	1.51
	<b>Total</b>	<b>142.78</b>
	Contingencies @ 2%	2.86
	<b>Total</b>	<b>145.64</b>
	Less 5% due to Work Done by Nigam	-7.28
	<b>Total</b>	<b>138.35</b>
	Add Centage Charge @ 12.5 %	17.29
	<b>Total</b>	<b>155.65</b>
	Add G.S.T @ 12 %	18.68
	<b>Total</b>	<b>174.33</b>
	Add Labour Cess @ 1%	1.74
	<b>Total</b>	<b>176.07</b>

J.E

A.G.

(S)

T.S. No.....518... Dated..24/03/2021

Technical Sanction Accorded for Rs. 176.07 Lac.

( Rs. One Crore Seventy Six Lac Seven Thousand Only.)

For the Const of Class Room & Work Shop at  
Mechanical Engineering Department at H.B.T.U Kanpur Nagar

24/03/2021

(Prof. S.K. Sharma)

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## Bill of Quantity

Name of Work : Preliminary Estimate for Construction of 100 Single Bedded Boys Hostel at East Campus, HBTU. Kanpur

(Based on Plinth Area Rates w.e.f. 14.08.2020) RCC Framed Structure

Sl. No.	Items	Qty.	Unit	Rate	Amount in Lacs
<b>A</b>	<b>Civil Work</b>				
1	<b>Construction of Tutorial Rooms on the Second Floor in New Academic Block</b>				
(i)	Ground Floor	1000.00	Sqm	15750.00	157.50
(ii)	First Floor	1000.00	Sqm	15750.00	157.50
(iii)	Second Floor	113.92	Sqm	15750.00	17.94
	<b>Total</b>	<b>2113.92</b>	<b>Sqm</b>	<b>Total (A)</b>	<b>332.94</b>
<b>B</b>	<b>Additional Provisions</b>				
2	Add- Extra For Additonal Height More than 2.90 Mtr.	2113.92	Sqm	280.00	5.92
3	Add- Anti Termite For Ground Floor	1000.00	Sqm	230.00	2.30
4	Internal Water Supply & Sewerage	332.94	%	8.00	26.64
5	Rainwater Harvesting	1.00	Nos.	320000.00	3.20
6	Add- Third Party Quality Assurance	332.94	%	1.00	3.33
7	Lighting Conductors	332.94	%	0.25	0.83
8	Telephone Conduits	332.94	%	0.25	0.83
9	Internal Electrification	332.94	%	12.50	41.62
10	Power Wiring	332.94	%	4.00	13.32
11	Fire Fighting With Wet Riser systems	2113.92	Sqm	640.00	13.53
12	Fire Automatic Alarm systems	2113.92	Sqm	480.00	10.15
	<b>Total (B)</b>				<b>121.66</b>
	<b>Grand Total(A+B)</b>				<b>454.60</b>

(सुधीर कुमार)  
अवर अभियन्ता (सि०)  
उ०प्र०रा० निर्माण निगम लि०  
सूडा इकाई-1 कानपुर

(Prof. S.K. Sharma)  
Registrar  
Harcourt Butler Technical University  
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(D.C. PANT)  
UNIT INCHARGE  
U.P.R.N.N.LTD.  
SUDA UNIT- I, KANPUR



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1921 - 2021

## Bills for Construction of Tubewell

**OFFICE OF THE PROJECT MANAGER, C. & D. S. (E/M) NALKOOP WING  
UP JAL NIGAM, LUCKNOW.**

**Final Bill for Construction of 300x200mm size of 370/340m deep New  
Tubewell and allied works at East Compound of HBTU, Kanpur.**

### Abstract of Cost

S.No.	Description	Unit	Qnt.	Rate	Amount
1	Construction of Tubewell 300X200 mm size 370/340 M deep	No.	1	4703547.72	4703547.72
2	Pumping plant of 1500 LPM capacity with 45 M head and allied works with all accessories and Chlorinating Plant.	No.	1	540350.00	540350.00
3	Laying of 150 mm dia DI K-7 Raising main line and other works	Job	1	637296.06	637296.06
4	Construction of New Pump House	Job	1	428210.64	428210.64
5	Electrification of New Pump House	Job	1	26780.00	26780.00
				<b>Total :</b>	<b>6336184.42</b>

PROJECT MANAGER

(Prof. S.K. Sharma)  
Registrar  
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Kanpur-208002



हरकोर्ट बटलर प्राविधिक विश्वविद्यालय

नवाबगंज, कानपुर - 208002, उ.प्र., भारत

HARCOURT BUTLER TECHNICAL UNIVERSITY

NAWABGANJ, KANPUR - 208002, U.P., INDIA

(Formerly Harcourt Butler Technological Institute, Kanpur)

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100 YEARS  
1921 - 2021

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**Office of Project Manager, Unit-52, C.&D.S., U.P. Jal Nigam,  
Lucknow**

**Estimate for Construction of New Tubewell of 900 LPM 75 M head,  
370/340 M deep with 300x200 mm Dia. Size Tubewell assembly at  
West Campus HBTU, Kanpur**

**Abstract of Cost**

S.No.	Description	Unit	Qnt.	Rate	Amount
1	Construction of Tube well 300X200 mm size 370 M deep	No.	1	4144725.00	4144725.00
2	Pumping plant of 900 LPM capacity with 75 M head and alied works with all accessories and Chlorinating Plant.	No.	1	528250.00	528250.00
3	Laying of 150mm dia K-7 Raising main line and other works	Job	1	597390.00	597390.00
4	Construction of Pump House as per U.P. Jal Nigam approved type Design complete in all respect.	Set	1	415000.00	415000.00
5	Internal Electrification of Pump House	Job	1	50000.00	50000.00
				<b>G. Total :</b>	<b>5685365.00</b>

*FGW*  
Resident Engineer

  
(Prof. S.K. Sharma)  
Registrar  
Harcourt Butler Technical University  
Kanpur-208002

# GREEN AUDIT REPORT



## HARCOURT BUTLER TECHNICAL UNIVERSITY KANPUR



*Prepared by*



# JUPITER

**ENVIRO-SAFE CONSULTANTS**

**33, DEENDAYAL NAGAR, KANPUR - 2 • 0 : 7897555173**



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## AIR & NOISE QUALITY OF HBTU

The AAQ & Noise quality as monitored at the university campus was found within the prescribed norms. The universities are further taking initiatives to further improve the environmental quality & thus the human health. The university has also planned to further increase its green-cover as a measure to enhance the ambient air quality & moreover to give an aesthetic look to the university campus.

The results of Ambient Air Quality (AAQ) as monitored at east & west campus is annexed.

The air quality data reveals that the AAQ at HBTU is well below the stipulated norms. The attribution for the same can be given to the existing lush green area & moreover significant traffic restriction practices which as such a integral part of the university.

## WATER MANAGEMENT

At HBTU, Kanpur, a field survey was conducted by the audit team to find natural water bodies as well as fresh water consumption intake & its usage for varied purposes. The same are detailed as under:

### Natural Water Bodies

**1) Natural pond:** In east campus, there is a natural pond near leather technology building which is currently under renovation by Nagar Nigam Authority to improve its aesthetic look.

**2) Open wells:** At HBTU, Kanpur, there are four Nos. of open wells out of which 2 Nos. of wells are situated at East Campus and 2 Nos. of wells are situated at West Campus. Presently the wells are not in use & are used as rain water harvesting system

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3) **Natural Low lying areas:** There are several low lying areas at west campus where rainfall runoff is accumulated and is used for irrigation as well as natural course of percolation for rain water harvesting.

4) **Water Intake:** For domestic and other uses approx 695 KL water is extracted through bore wells and collected in 3 numbers of overhead tanks of 300 KL capacity each. Out of these 3 tanks, one is situated at East Campus and 2 numbers of tanks are situated at West campus. The water is abstracted through 3 Nos. of pumps of 25HP capacity each, one nos of pump is kept as standby for emergency needs. The total consumption of water for domestic and other uses is around 695KL for both the campus on full capacity utilization. The collected water is consumed by population of around 7000 people of whole campus through distribution lines.

#### Details of Overhead Tanks

S.No	Name of the tank	Capacity	Location
1	OHT-01	300 KL	East Campus
2	OHT-02	300KL	West Campus
3	OHT-03	300KL	West Campus

Out of above 03 OHT`s tanks one nos. is kept for emergency requirements.

The total population of the HBTU Campus is as under

#### Details of water requirement and waste water generation

S. No.	Purpose	Consumption rate (Ltr./D)	Usage persons/D	Total requirement (KL/D)	Waste water (Generation @ 80% D)
1	Institutional East Campus	35	3000 (Students & 350 staff)	117.25	93.8
2	Hostel East campus (8 Nos.)	125	1034	129.25	103.4





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3	Hostel West campus (7Nos.)	125	1232	154	123.2
4	Residential Staff flats (East campus)	150	365	54.75	43.8
5	Residential Staff flats (East campus)	150	1150	172.5	138
6	Labs & R & D activities	50	100	5	4
7	Green-Belt development	Say 50 KL/D	-	50	Totally consumed
8	Canteens	20	600	12	9.6
9	Security guards	35	12	0.42	0.33
	<b>Total</b>		<b>7843</b>	<b>695.17</b> <b>Say 695</b>	<b>516.13</b> <b>Say 516</b>

The exact water accounting and balancing shall be done after installation of electro-magnetic flow-meter at raw water intake point. However, on reviewing the Environmental Management system & meetings with the concerned it was revealed that the same will be implemented in a short span of time to quantify the uses and disposal from various streams for wise usage of the natural resource water.

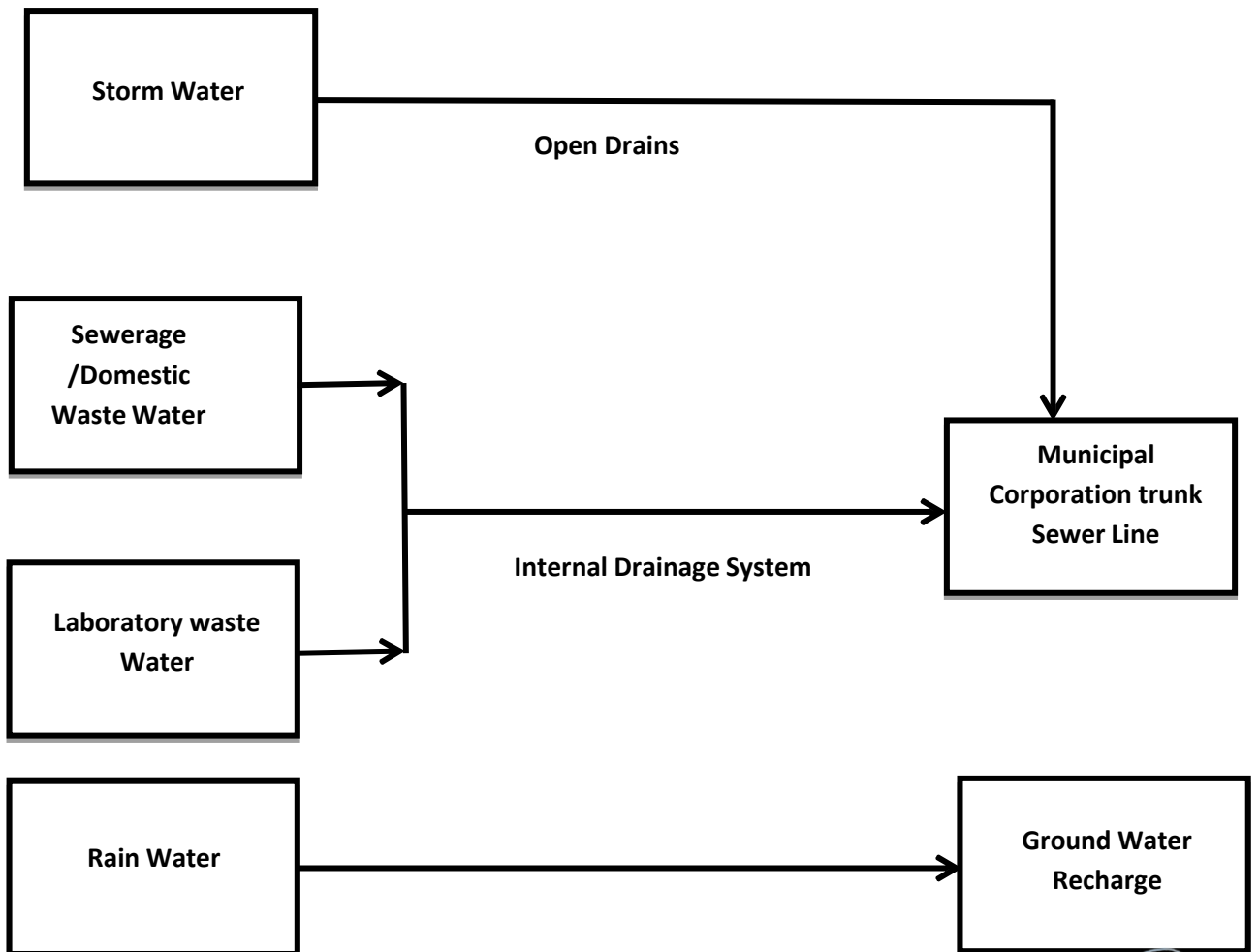
  
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## Waste water Disposal System

Domestic waste water and sewerage from east campus and west campus is finally discharged through internal drainage system which is ultimately discharged in municipal trunk sewer line. The water drainage flow chart is depicted as below :

### East Campus

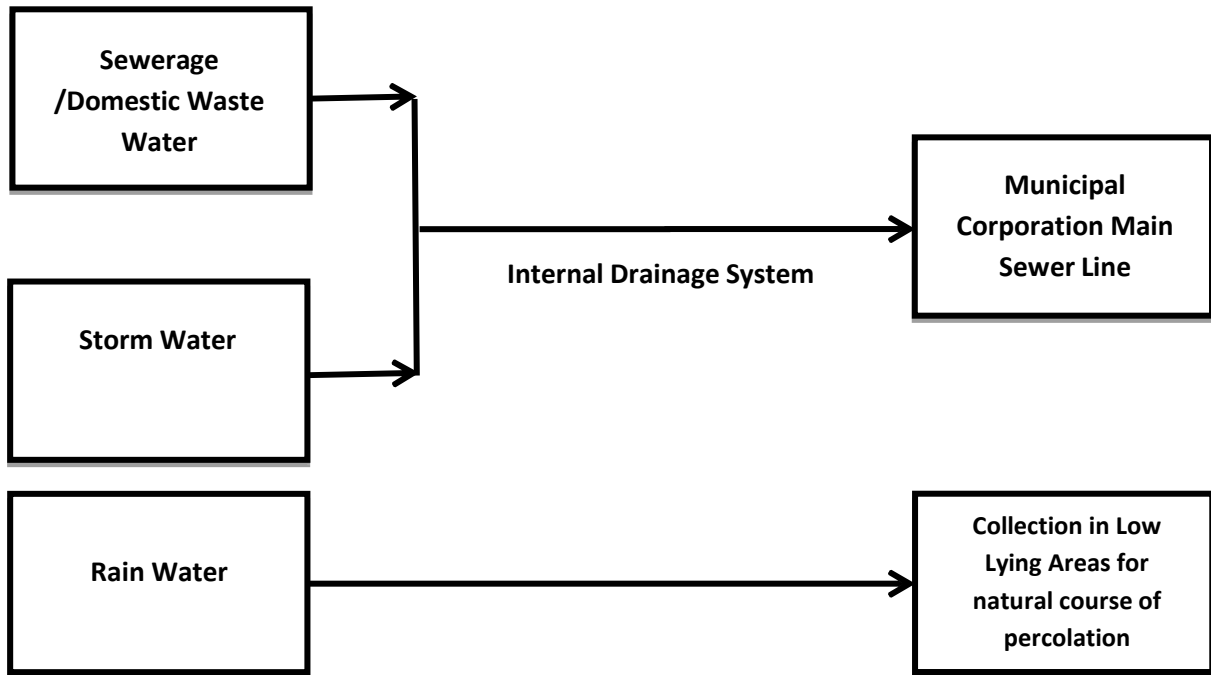


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West Campus



  
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**RAW WATER CHARACTERISTICS (WEST CAMPUS)**

S.No.	Parameter	Unit	Result	Specification/Limit (As per IS:10500:2012)	
				Desirable	Permissible
1	Color	Hazen	<5.0	5.0	15
2	pH	-	7.21	6.5-8.5	No Relaxation
3	Turbidity	NTU	<1	1.0	5.0
4	TDS	Mg/lt	246	500	2000
5	Chloride	Mg/lt	38.42	250	1000
6	Fluoride	Mg/lt	0.26	1.0	1.5
7	Total Alkalinity	Mg/lt	128	200	600
8	Total Hardness	Mg/lt	168	200	600
9	Sulphate	Mg/lt	26.34	200	400
10	Iron	Mg/lt	<0.05	0.3	No Relaxation
11	Arsenic	Mg/lt	<0.01	0.01	0.05

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