INDIAN INSTITUTE OF MANAGEMENT BODH GAYA
Uruvela, Prabandh Vihar
Bodh Gaya – 824234, India

WATER CONSERVATION REPORT
FOR
IIM - BODHGAYA

1.0 INTRODUCTION

Water Conservation System is an integral component of well-balanced Water Management System. The Water Conservation is essential for the Green building measures as per GRIHA requirements and for sustainability of the proposed development of Indian Institute of Management Bodhgaya, Bihar. It shall be implemented as per the following: -

1.1 SELECT LOW FLOW/LOW FLUSH FIXTURES AS PER GRIHA REQUIREMENTS.

Water Closets	6 LPF
Kitchen faucet	4 LPM
Urinals	With automatic sensors
Showers	6 LPM
Lavatory faucets	4 LPM

1.2 RE-USE OF RECYCLED TREATED WATER IN FLUSHING & IRRIGATION SYSTEM(DUAL WATER SUPPLY SYSTEM)

Whole Flushing and irrigation water demand shall be fulfilling by STP treated water as per following.

Capacity of STP = 225 KLD

Recycled Treated Water available = 225X0.95 = 215 KLD

Flushing Water Demand = 92 KLD

Irrigation Water Demand = 120 KL

WATER SUPPLY SYSTEM – DISTRIBUTION -FLUSHING & IRRIGATION.

Flushing Water Supply – From STP (After treatment of water)

Recycled water from STP shall be stored in underground Flushing Water Storage tank and shall be supplied by fixed speed drive Hydro pneumatic pumps with level controllers to flushing overhead tanks. The minimum residual pressure at the highest fixture shall be 15 m.

Irrigation Water Supply – From STP (After treatment of water)

Recycled water from STP shall be stored in underground Irrigation Water Storage tank and shall be supplied by variable frequency drive Hydro pneumatic pumps with level controllers. Variable frequency drive hydro pneumatic pumps for irrigation having residual pressure 30 m at the last point.

1.3 RAINWATER HARVESTING & STORAGE

The complex is planned with zero discharge to the city network. Modular rainwater harvesting @ 50mm per day has been considered for planning keeping in view the soil conditions. The capacity of modular pits is based on 50 mm rail fall per day.

The runoff rainwater has been calculated as per Table 4.5.11.2 Page 47 NBC Part 9 Section 2. Viz.

i. Roof 0.9
ii. Hardscaping and roads 0.8
iii. Unpaved Ground 0.3
iv. Lawn and Parks 0.15

RAINWATER HARVESTING CALCULATION OVER ALL SITE					
S. NO.	**DESCRIPTION**	**AREA (SQ. MTR.)**	**RUNOFF COEFFICIENT**	**DESIGN HOURLY INTENSITY OF RAINFALL (MM/HR.)**	**RAINWATER HARVESTING POTENTIAL (CUM/HR.)**
1	ROOF TOP WATER	19400	0.9	50	873
2	PAVED SURFACES, ROADS AND OTHER BUILT UP AREAS	53785	0.8	50	2151
3	LAWNS, GARDEN AND OTHER GREEN SPACES	88285	0.15	50	662
	TOTAL	161470			3687
DETENTION TIME PLANNED (MIN) KEEPING IN VIEW ZERO DISCHARGE TO OUTSIDE PLOT					60.00
TOTAL VOLUME OF WATER BODY AND HARVESTING PIT REQUIRED (CUM)					3686.54
SAY					3700 CUM/HR
Provide Modular Rain water harvesting pit 6 m deep on account of nature of soil to allow charging of ground water. Size of rain water harvesting pit with filters and grease trap is 60 cum - (4 mX3 mX5 m depth), i.e. total capacity – 2000 cum. The capacity of rain water collection pond is 2000 cum water volume. Total capacity of rain water harvesting and collection is 4000 cum. **Note–The depth of rain water harvesting pit is below the invert level of drain.**					

Modular system with stainless steel filter. PVC Modules wrapped with double geo fabric 400 GSM. Stainless steel filter and grease trap will be provided.

To ensure zero discharge to city storm water networks modular rainwater harvesting 20-60 m3 with filters and suitable interceptors are be planned for 50 mm rain fall/day.

Additionally, water bodies at two locations of total capacity of 2000 cum water volume with 250 diameter bores up to 30 m depth.

The open drain for storm water in the area be provided up to water bodies with intermediate modular rainwater harvesting pits at regular intervals as per volume of storm water run-off to achieves zero discharge to city storm water network.

Rainwater Harvesting modular pits locations