Rainwater Harvesting Initiatives

To conserve rainwater and recharge groundwater, Woxsen University has implemented 38 strategically placed rainwater harvesting pits across campus. These pits are connected to a waterline that collects rainwater from building terraces. Additionally, wastewater from reverse osmosis (RO) systems and filter machines is redirected to these rainwater pits, ensuring minimal wastage.

Rainwater Harvesting Pit Details:

1. **Parking Area:**
    - Total Pits: 8
    - Total Depth: 76 ft

S.No	Name	Depth of Pit	Quantity	Total Depth
1	Pit 1	10 ft	1	10 ft
2	Pit 2	11 ft	3	33 ft
3	Pit 3	10 ft	1	10 ft
4	Pit 4	11 ft	1	11 ft
5	Pit 5	6 ft	2	12 ft

2. **Admin to Sub-station:**
    - Total Pits: 25
    - Total Depth: 302 ft

S.No	Name	Depth of Pit	Quantity	Total Depth
1	Pit 6	5 ft	2	10 ft
2	Pit 7	8 ft	1	8 ft
3	Pit 8	6 + 7 ft	1 + 1	13 ft
4	Pit 9	6 + 7 ft	1 + 1	13 ft
5	Pit 10	7 ft	2	14 ft
6	Pit 11	15 ft	2	30 ft
7	Pit 12	15 ft	2	30 ft
8	Pit 13	15 ft	2	30 ft
9	Pit 14	15 ft	2	30 ft
10	Pit 15	15 ft	2	30 ft
11	Pit 16	17 ft	2	34 ft
12	Pit 17	15 ft	2	30 ft
13	Pit 18	15 ft	2	30 ft

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3. **Hostel Area:**
    - Total Pits: 5
    - Total Depth: 33 ft

S.No	Name	Depth of Pit	Quantity	Total Depth
1	Pit 19	8 ft	2	16 ft
2	Pit 20	5 ft	2	10 ft
3	Pit 21	7 ft	1	7 ft

Grand Totals:

- Total Pits: 38
- Total Depth: 411 ft

Volume per Pit:

Average Depth per Pit : $(38\ pits)\ /\ 411 feet$ =10.82 feets per pit.

Average Volume per Pit = 135.7 cubic feets per pit.

Total Volume = 135.7 X 38 Pits = 5157.2 cubic feets.

Conversion Cubic Feet to Liters:

- **Single Pit:**

  135 cubic Feet X 28.3168 Liters / Cubic Feet = 3,823 Liters

  3,823 Liters X 0.30 (Porosity) = 1,147 Liters

- **Total 38 Pits:**

  5157.2 cubic Feets X 28.3168 Liters / Cubic Feet = 1,45,265 Liters

  1,45,265 Liters X 0.30 (Porosity) = 43,580 Liters

Swales for Residential Towers

Each residential tower (Tower-1 to 4) is equipped with swales on all four sides, designed to infiltrate rainwater and recharge groundwater. The dimensions of the swales for each tower are:

- **East & West sides**: 15 meters long, 3 meters wide, and 2 meters deep each (90 cubic meters per side).
- **North & South sides**: 85 meters long, 2 meters wide, and 2 meters deep each (340 cubic meters per side).

Total swale volume per tower:

- **Single Tower Volume:** 860 cubic meters (including all sides).
- **Total Volume for Three Towers:** 2,580 cubic meters

Conversion to Liters (considering porosity 30%):

- **Single Tower:**

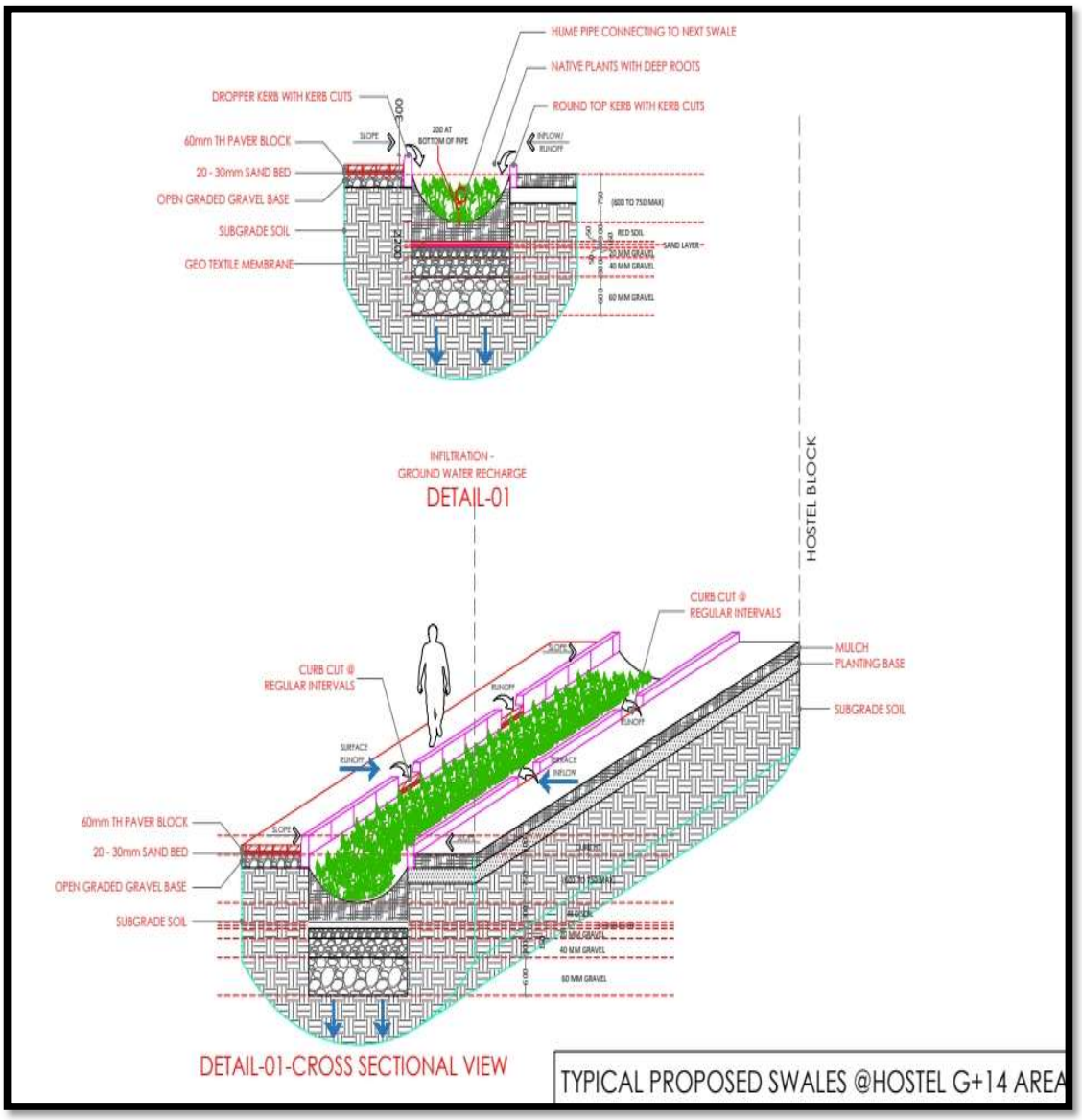
  860 cubic Meters X 1000 Liters / Cubic Meter = 8,60,000 Liters

  8,60,000 Liters X 0.30 (Porosity) = 2,58,000 Liters

- **All Four Tower :**

  3,440 cubic Meters X 1000 Liters / Cubic Meter = 34,40,000 Liters

  34,40,000 Liters X 0.30 (Porosity) = 10,32,000 Liters



Pond for Rain water Harvesting:

Woxsen University, spread over 200 acres, has implemented a sustainable water management initiative through the construction of a rainwater harvesting pond. This report outlines the key features, storage capacity, and the impact of the pond located in the slopiest area of the campus to collect rainwater efficiently.

Water Storage Capacity of the Pond:

- Area of Pond: 2767 m^2
- Depth of Pond: 25 feet=7.62 meters
- Porosity: 50% (relevant for effective water storage).

The total volume is calculated using the formula:

Volume = 2767 m^2 X 7.62 m = 21,085.54 m^3

Volume in Liters =21,085.54 m^3 X 1000 = 21,085,540 liters

Since the soil has 50% porosity, the effective storage capacity is:

- Effective Storage = Total Volume X Porosity
- Effective Storage = 21,085,540 liters X 0.5=10,542,770 liters

Final Storage Capacity:

- **Total Volume**: 21,085,540 liters
- **Effective Storage Capacity (with Porosity)**: 10,542,770 liters