

## Case Study

### Expressway Wastewater Treatment (Zhenping Service Station of Heding Expressway Project)

The raw water of this project is the domestic wastewater and toilet flushing sewage generated in the service station of Zhenping Expressway in Henan Province. The sewage treatment capacity is 100m<sup>3</sup> / d, and the treated effluent meets the grade A requirement in the discharge standard of pollutants for urban sewage treatment plants (GB18918-2002).

Characteristics of the sewage treated in this project: It will be bound to seriously affect the surrounding environment if there is no effective treatment that the sewage is high of organic substances, bacteria, etc. The raw water is complex with high ammonia nitrogen containing and mostly in "low load" operation but its volume fluctuates greatly during holidays due to its location on the service station.

#### 1. Outline of the Facility

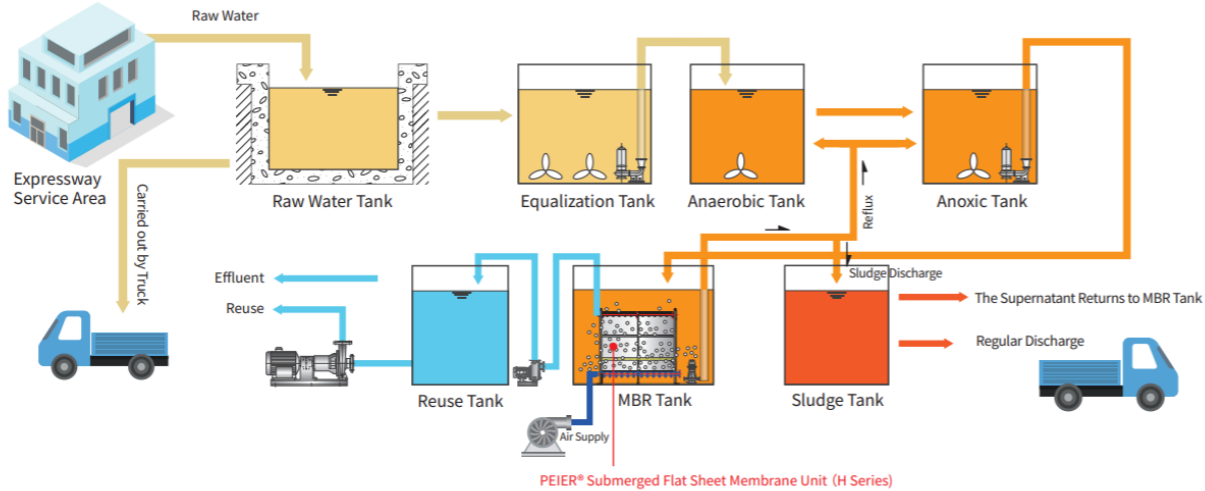


|                    |                                |
|--------------------|--------------------------------|
| Location           | Henan Zhenping Service Station |
| Type of Wastewater | Domestic Wastewater            |
| Flow               | 100m <sup>3</sup> /D           |
| Commissioned       | Since June,2019 ( Peier MBR)   |

#### 2. MBR Process Flow Sheet

The process flow sheet is as below:

### Process Flow Chart of Wastewater Treatment (Zhenping Service Station of Heding Expressway Project)



### 3. Design Parameter and Actual Data

| Type                          | Parameter                | Influent | Design | Actual | Capacity m <sup>3</sup> /D |
|-------------------------------|--------------------------|----------|--------|--------|----------------------------|
| Wastewater of Service Station | COD <sub>Cr</sub> (mg/L) | ≤400     | ≤50    | 37     | ≤100                       |
|                               | BOD <sub>5</sub> (mg/L)  | ≤250     | ≤10    | 7      |                            |
|                               | SS (mg/L)                | ≤250     | ≤10    | 2.5    |                            |
|                               | Ammonia Nitrogen (mg/L)  | ≤50      | ≤5     | 3      |                            |
|                               | pH                       | 6~9      | 6~9    | 7~9    |                            |
|                               | TP                       | ≤6       | ≤0.5   | 0.2    |                            |
|                               | TN                       | ≤60      | ≤15    | 7      |                            |

"Design" values of effluent are regulatory limits. "Actual" values are average values.

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