

**AMRUT 2.0 - UWSS to
Kayamkulam Municipality
(Phase-I)
March 2023**



DETAILED PROJECT REPORT



KERALA WATER AUTHORITY
PROJECT DIVISION, ALAPPUZHA.

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1.PROJECT AT A GLANCE

Name of the Scheme	: Augmentation & Modernisation of Water Supply Distribution System in Alappuzha Municipality (Phase-2)
Name of Country	: India
Name of State	: Kerala
Name of District	: Alappuzha
Name of Taluk	: Karthikappally
Longitude & Latitude	: N 9° 29' 25.2708", E 76° 19' 35.295"
Project Area	: 21.79 sq.km
Population (2011 Census)	: 68634
Population Growth Rate of District	: +5.1%
Existing Domestic Connections	: 5231 Nos.
New Domestic connection proposed	: 4400 Nos.
Non-Domestic Connections	: 197 Nos.
No. of Public Taps	: 712 Nos.

2. Introduction & General Information

2.1 Introduction

Kayamkulam municipality is located in Karthikapally taluk in Alappuzha district. The Kayamkulam Municipality has an area of 21.79 sq km and extends to the Keerikad, Kayamkulam, Krishnapuram and Pathiyoor villages. The panchayaths of Chettikkulangara, Pattiyoor panchayaths in the North, Krishnapuram Panchayath in the East, Krishnapuram and Devikulangara panchayaths in the east, Devikulangara Panchayat in the west and Kayamkulam Kayal are the boundaries of Kayamkulam. Kayamkulam town is located on the coast of the coast. The Kayamkulam municipal area is about 6 km east of the Arabian Sea. It has three soils that are sandy loam, mud soil and marshmallows. Kayamkulam city is from the west to east and slopes and plains. Kayamkulam was the original capital of the old Odanadu region. After the development of the region gradually came to be known as the capital of the region. The construction of Kayamkulam town was established in 1905 as the Town Improvement Committee. The government was nominated by seven members of the committee that was formed on that day. It was his first president. In 1907, Kayamkulam was declared Town Municipality. The municipality opened up and had three nominated members along with 12 people. In 1956, the municipal area was expanded by adding the suburbs. NH 66 passes through Kayamkulam, connecting it to the major cities Alappuzha, Kochi, Thiruvananthapuram, Thrissur, Kollam,

Palakkad and Nagercoil. The Kayamkulam-Punalur road is a major road connecting it to major city's in east Sengotai, Tenkasi, Thirunelveli via Pettah parts of the Tamil Nadu state. Kayamkulam Junction railway station is a major railway junction located 1.5 km (0.93 mi) from the town on the Kayamkulam-Punalur road.

This project is really meant for urgent civil repair works of existing 12MLD WTP at Pathiyoor, Providing clear water pump sets at WTP, Construction of 12LL OHSR at PH Section office compound including demolition of the old OHSR, pump house, etc. and Laying Distribution network of 10KM in and around the Municipal area, Laying of Conveyance main for a length of 1200mm, Providing 4400 nos. FHTCs in various wards of the Municipality.

2.2. Hydro Geology

Most of the Municipal area lies between +1.00m and +2.00m. Some area lies below the mean sea level. Terrain is flat with Sandy and Sandy clay soil. Bearing capacity of sub soil is very poor. Water table is somewhat near the top.

2.3. Climate

Kayamkulam is having a tropical humid climate. The South West Monsoon blesses the city from June to September and North east Monsoon from October to November. The remaining months are generally dry. The hottest period is being March to May. The average annual rain fall is 3000mm.

2.4. Existing Water Supply System

The UWSS to Kayamkulam Municipality is a part of existing ADB aided CWSS to Kayamkulam Municipality and Arattupuzha. The scheme has 12 MLD WTP at Pathiyoor for serving treated water to Kayamkulam Municipality & Arattupuzha Panchayath. Out of 12 MLD treated water 05 MLD is sharing to Arattupuzha Panchayath, remaining water catering to in and around the Municipal area. As per the present water supply scheme, CWSS to Kayamkulam Municipality & WSS to Arattupuzha Panchayath (Eastern side of Kayamkulam Kayal), the scheme is equipped with intake well cum pump house at Kandiyoor kadavu in Achan Kovil River and 12 MLD WTP at Pathiyoor. There are 3 OHSRs of each having a capacity of 4.54LL located at PH Section office premises, Kayamkulam (Zone-II), Kallammondu, Kayamkulam (Zone-III) & at Kottukulangara, Kayamkulam (Zone-I) for Kayamakulam Municipal area (CWSS to Kayamkulam Municipality) and other OHSRs with different capacities are feeding water to WSS to Arattupuzha Panchayath.

2.5. Need of the proposal

As the NH Widening is ongoing, the OHSR located at Kallummoodu (Under CWSS to Kayamkulam Municipality) is going to be demolished as the major part of the structure is situated in the acquired land. In order to safe guard the interest of KWA, it is high time to evolve alternate arrangements for maintaining the distribution network error free even though the tank at Kallummoodu is demolished. In this respect, a new OHSR having capacity of 12 LL is proposed through this scheme, at PH Section office premise and the existing old OHSR at PH Section Office is also kept under demolition. It is needed to lay another conveyance main from the new OHSR & for this 300mm DI line from the plant up to Bifurcation junction near Lakshmi Theatre will be extended up to new proposed OHSR at PH Section office compound for a length of around 1200.00m and the existing 200mm DI pipe from PH Section office compound will be interconnected with the 250mm DI K9 conveyance main at Bifurcation junction near Lakshmi Theatre and the existing distribution network will be interconnected with this line beneath the to be demolished tank at Kallummoodu near NH Bypass.

Presently CWSS to Kayamkulam Municipality & WSS to Arattupuzha covers 5231 water service connections catering water through the 12MLD WTP at Pathiyoor. In this proposal around 4400 nos. of FHTCs area proposed in the ratio of 100 nos. per ward for 44 nos. of total wards of Kayamkulam Municipality. For strengthening the existing distribution network to CWSS to Kayamkulam Municipality, another 10km of pipe laying is also

considered under Amrut 2.0 Scheme for Kayamkulam Municipality.

More over the stand by Clear water pump sets with each having capacities of 60HP & 75 HP respectively are not working which are need to be replaced with new pump sets including starter panel. There are urgent civil works to be done in the plant itself which is also considered in the estimate. The head & discharge of 75 HP is as follows (As per the data received from PH Section, Kayamkulam vide approved estimate nos. 2018/2477 & 2019/2496)

1ST PUMP

Head = 54m, Discharge (Q) = 252.60 m³/hr = 70.20 lps

BHP= $Q \times H / (75 \times \text{Efficiency}) = 70.20 \times 54 / (75 \times 0.70) = 72.20$ (say 75HP)

2ND PUMP

Head = 40m, Discharge (Q) = 266.00 m³/hr = 73.89 lps

BHP= $Q \times H / (75 \times \text{Efficiency}) = 73.89 \times 40 / (75 \times 0.70) = 56.297$ (say 60HP)

2.6. The Estimate

The estimate is prepared for urgent civil repair works of existing 12MLD WTP at Pathiyoor, Construction of 12LL OHSR at PH Section office compound, Laying Distribution network of 10KM in and around the Municipal area, Laying of Conveyance main for a length of 1200mm, providing 4400 nos. FHTCs in various wards of the Municipality. The total Estimate amount is Rs. 1919.60 Lakhs.



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