

## Case study on Land Reclamation- Mumbra,India

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**Abstract** – This paper proposes about Land reclamation which is the idea of getting new land by filling process. It is usually done in coastal areas to enhance human resources. It is also done in areas like rivers, oceans and lakes. Usually, there is a natural process which fills such areas with sand, dirt and other materials. Land reclamation uses the same process of land filling, which is sped up. In some of the cases, this is done using dikes. In this case of land reclaimed near mumbra station for new track construction which is located 400m away from mumbra railway station in Thane district and the nearby region of track has Cody or raw water which is constructed by INDIAN RAILWAYS( Mumbai urban transport project-MUTP) under D THAKKAR construction pvt ltd. So to overcome this condition, as solution adopted for new construction is land reclamation or land filling. The objective of this project between Thane-Diva is expected to segregate the mail/express with the suburban traffic between LTT and Kalyan and increase the frequency of trains along central railway. In this project with the help of various senior engineers, site engineers and other officers we gathered all information(from the date of initiation) of reclaimed land by railway corporations. The major effort of this investigation is to know the various methods and tests carried out for land filling with its need for improving techniques.

**Keywords-** Land reclamation, Raw water, Filling, Investigation, Segregate, Cody

### 1. INTRODUCTION

Reclamation, term sometimes referred to as land reclamation, additionally referred to as land fill, is that the method of making new or imitation land from riverbeds, lake beds, or oceans. The freshly created or rescued land is thought as land fill or reclamation ground. This will be achieved with range of many sorts of ways. The straightforward filling of enormous amounts of massive rocks additionally serious and cement thereby filling with dirt and clay till the specified height is achieved that is taken into account as the most best ways of filling. This method referred to as [is named] is termed} "infilling" and therefore the material to fill the house for brand new land is usually called "infill". The government of India has planned for the additional tracks between CST to KALYAN. The laying of 5<sup>th</sup> and 6<sup>th</sup> line tracks between Thane and Diva required a land near mumbra railway station so they decided to reclaim land by land filling and carried the

work forward. The cost of laying Thane-Diva fifth and sixth line under Mumbai Urban Transport Project (MUTP-II) has increased by 53%. The estimated cost of the project was Rs 287 crore, which is now expected to cost Rs 440 crore. As per the news article RTI activist Ajay nuclear physicist, brought the data from Mumbai city Railway Vikas Corporation (MRVC) concerning this project aforementioned that, "The value has inflated attributable to delay in execution of the project."

MRVC central info officer SK Mishra had replied to nuclear physicist that price was calculable to be Rs 440 large integer which of them Rs 254 has already been spent on Project. The work on 9.9 kilometer line has entered the last leg and is predicted to complete by March 2019. While fifth and sixth line already exists between LTT-Thane and Diva-Kalyan, the fifth and sixth line between Thane-Diva is predicted to segregate the mail/express with the residential area traffic between LTT and Kalyan. The sooner point was DEC 2017. Delay and price overrun has been reason behind major concern. Even controller and Auditor (CAG) had raised concern on this in its report tabled in parliament in July 2016. Once Thane-Diva fifth and sixth line is complete, central railways has the potential to introduce one hundred a lot of services within the over-crowded belt between Thane and Kalyan, provided the regime helps in elimination of level-crossing gates conjointly.

In [2] has investigated in the selection of lands for reclamation, the Directorate is heavily dependent on the visual salinity survey (*Thur Girdawarr*) carried out every year by the Irrigation Department's field staff. This visual survey appears to be a quick and cost-effective method of assessing surface salinity, but its exclusive use as the criterion for selection of affected land is a questionable approach. According to original departmental procedure, reclamation activities were confined to only two of the five classes of soil identified by the visual salinity survey, but the current practice of including all the categories of salt-affected soils in reclamation operations has created the choice method additional subjective.

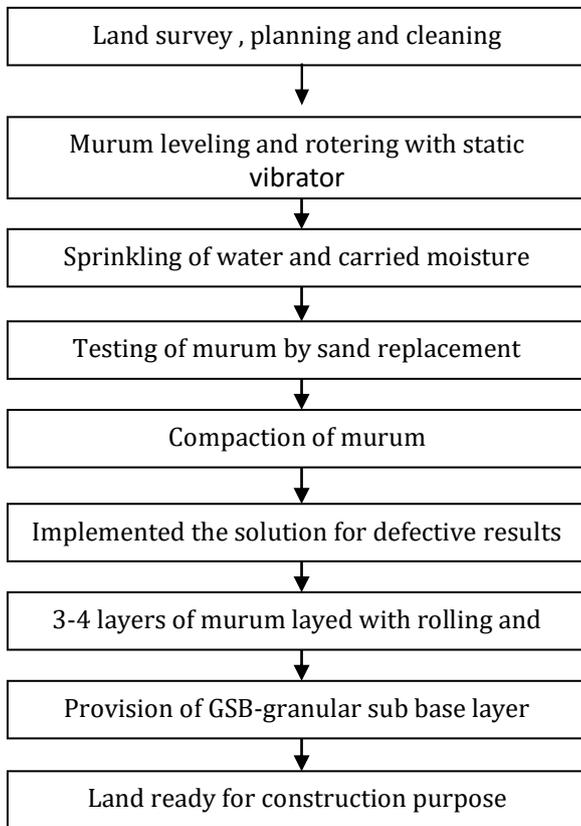
In [4] Land-scarce Singapore has no choice but to carry out massive reclamation to cope with its population growth and economic development. The ability for Singapore to continue to carry out its reclamation to

enlarge its territory is tied to its survival as a competitive economy.

## 2. MEHODOLOGY

The methodology employed in this study was to observe and monitor, in the field, the prevailing actual processes and practices of land reclaimed near Mumbra railway station, Maharashtra, India, in addition to the collection of theoretical and performance-related information from a review of various reports and research papers collected from site. For monitoring activities of this study, Land survey with other types of surveys with its planning was carried out considering its importance in terms of the normal reclamation operations.

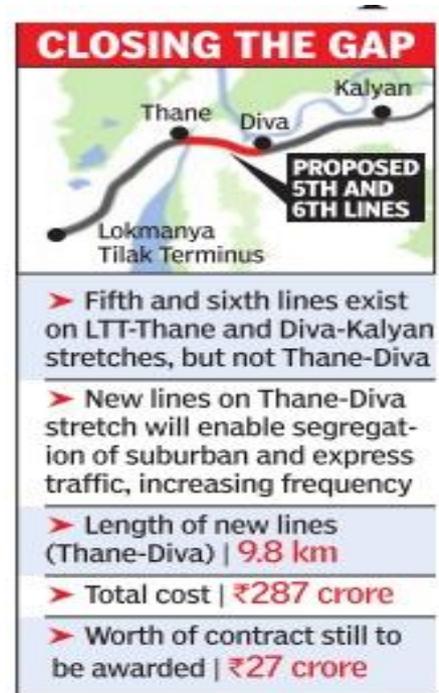
### 2.1 FLOWCHART



### 2.2 CASE STUDY

We firstly studied and collected all the information related to land reclamation. Gave a visit to actual site and surveyed as necessary. Planned a suitable data and further cleaned region. With the help of some source murum leveling was done with rotering by static vibrator. According to requirement water is sprinkled and after some specific time moisture content test is carried out.

Testing of murum by sand replacement method for its problem statement if found. Process of compaction on murum. Implemented the solution for defective results. Generally 3-4 layers of murum layed with rolling and proper leveling. After completion of rolling Granular Sub Base layer is provided. At last adjustments are made as desired or necessary. Now reclaimed land is ready for construction purpose for laying of new railway tracks.



**CLOSING THE GAP**

Map showing the proposed 5th and 6th lines between Thane, Diva, and Kalyan, with Lokmanya Tilak Terminus also indicated.

- > Fifth and sixth lines exist on LTT-Thane and Diva-Kalyan stretches, but not Thane-Diva
- > New lines on Thane-Diva stretch will enable segregation of suburban and express traffic, increasing frequency
- > Length of new lines (Thane-Diva) | 9.8 km
- > Total cost | ₹287 crore
- > Worth of contract still to be awarded | ₹27 crore



### 2.3 Lists of Tests:-

Several tests were carried out on site for soil and earthy details, following are the lists of main tests performed-

- i. Moisture content test
- ii. Cone penetration test
- iii. Seismic cone test
- iv. Compaction test
- v. Sand replacement method
- vi. Slope stability analysis(for laying of tracks)
- vii. Core cutter method , etc.

Along with different surveys such as Reconnaissance survey, preliminary survey & Final location survey.

### 3. Conclusion

Due to this reclamation, Indian railways has enhanced its rail transport by adding 5<sup>th</sup> and 6<sup>th</sup> line between thane and diva with facility of public transport. The main aim of this project is to increase the frequency of Trains thereby freeing up of two lines entirely, so commuters can look forward to fewer or zero delays, and speedier journeys. In the other way it has provided more jobs for citizens and reducing unemployment rate.

### REFERENCES

- [1] 'Pillai,V.R,Panikar,P.G.K.'(1965) "Land reclamation in kerala".
- [2] 'D.J. Bandaragoda and Saeed ul Rehman' (1994) "Institutional Perspectives of land reclamation operations in Punjab"
- [3] 'Raj C Murthya, Y.R.Rao, Arun.B.Inamdar' (2001) "Integrated coastal management of Mumbai metropolitan region"
- [4] 'Kog Yue-Choong' (2006) "Environmental management and Conflict in Southeast Asia-land Reclamation And its Political Impact"
- [5] 'Hanne Kirstine Adriansen' (2007) "Land reclamation In Egypt"