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REHABILITATION OF MALIN VILLAGE

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ABSTRACT

The paper has been written to study techniques used to make rehabilitation of malin village safer for affected people to live. A great amount of problems were faced by villagers. It is very important to take a precaution to avoid such damage by such calamity from occurring again.

I.. INTRODUCTION

A largest landslide tragedy happened on 30th July 2014 in village malin in the Ambegaon taluka of pune district in Maharashtra India. Malin village is such place which is located in totally remote area and it is 130 km away from pune city as well 40 km from local cities also. It killed about 151 people.

Fig.1 Malin Village after Lands

Government has taken responsibility of rehabilitation. It took six month for selection of site that is Aamade village. Total area about 8.5 acre has been allotted. One unit of two houses is costing 15 lakh. It is one house 1BHK area of 450 sqft. To give relief to the victims and as well their relatives on urgent basis government promoted this project as a pilot project as today also in India there are so many places where such type of landslide may occur and government can give solution to them as per property of this project. The amenities provided here are school, hospital, grampanchyat, internal roads, and proper drains. The chosen site is close to malin village and forms one of the gaoathan areas and the villagers are keen on the site.

Since site selected i.e. Aamade is a hilly terrain area and no hard strata has been found there and has variations in levels. So we are trying to study the various new technology used in such site condition for rehabilitation of malin village.

Fig2. Layout plan of rehabilitation of malin village project

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II. SITE VISIT

On 29th July 2016 we visited the rehabilitation site with our visited the rehabilitation site with our guide prof. Pramod Thorat and their we met R. J. Walse sir who is contractor of the site. There we saw new concept of retaining wall been implemented with a height of 8m to 10m , strip foundation, aluminium formwork and big storm water drainage to collect rain water in heavy rainfall.

Fig.3 Rehabilitation Malin Village

III. MIVAN TECHNOLOGY

Generally aluminium formwork used for high rise building to reduce the slab cycle and its procurement cost is high so it is not economical to use in small residential project but in this project government wants to construct in more speed. So authorities ready to invest such huge amount to procure the same and implement on site. So it was possible to construct 67 houses with 2 years. COSMOS companies aluminium formwork has been used, it is a precession engineered formwork fabricated in aluminium. It is fast. Adopted, and cost effective. It produces total quality work which requires minimum maintenance and when durability is the prime consideration. In this system, cast-in-situ concrete wall and floor slabs cast monolithically provides the structural system in one pour. These forms are strong and sturdy, fabricated with accuracy and easy to handle. They can afford large number of repetition's this system is very unique as all the components in building, including slabs, beams, walls, column, staircase, balconies and special hood are of concrete and there is no need for block work or brick work it can be used for any type of concrete systems, that is for framed structure. Involving column, beam slab elements or for box type structure involving slab walls combination.

Fig.4 Mivan formwork

3.1 Advantages

- Total system forms the complete concrete structure
- Custom design to suite project
- Unsurpassed concrete speed

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- High quality finish
- Cost effective
- Panels can be reused up to 250 times
- Erected using unskilled labour
- Earthquake resistance of resulting structure increases manifold
- Carpet area will increase

3.2 Limitation

- Visible finishing lines on concrete surface
- Require uniform planning as well as uniform elevation to be cost effective
- Modifications are not possible as all members are cast-in-situ.
- Large volume of work is necessary to be cost effective i.e. at least 200 reputations of the forms should be possible at work.
- Honeycombing is possible
- Reinforcement will be congested in the lower floor up to 4th floor thus maximum slump (200 mm) is required, so cement content will be increased.
- The formwork requires number of spacer; wall ties etc. which are placed at 2ft centre to centre these create problems such as seepage, leakage during monsoon.
- Shrinkage cracks are likely to appear
- Heat of hydration is high due to shear walls

3.3 Remedial Measures

- Number of holes will be more in the vertical wall, outer wall which is in direct contact with the rain, hole should be grouted by non-shrink compound
- It is possible to minimize the cracks by providing control strips in the structure which could be concreted after a delay of about 3 to 7 days after major concreting.
- Heat of hydration can be reduced by using fly ash.

IV. RETAINING WALL

The selected site for construction of city is totally sloping terrain and level difference in terrain is around 35m, instead of levelling of terrain, it is proposed to construct houses at different 5 levels as shown in fig4. On sloping terrain itself by constructing retaining wall to retain a soil of height 8 to 10m. The retaining wall with 8 to 10m is built with bracket on the hill side. SBC of the strata is 20 T/m^2 and internal friction is 30 degree. Filter media is provided which consist of dry rocks. Filter media has dual purpose here firstly it acts as a udl to avoid uplifting and also helps in filtration if rain water the purpose of providing bracket is balancing the load. Grade of concrete used is M15 and M20.

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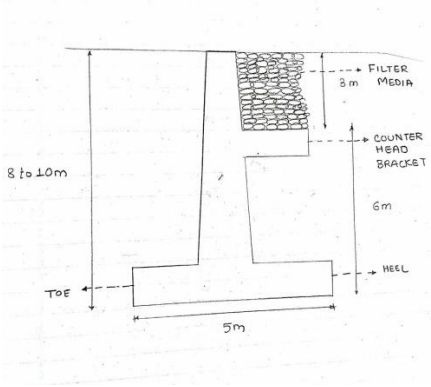

Fig5. Diagram of retaining wall

Fig.6 Counter head Retaining wall with fiter media

V. STRIP FOOTING

Since the soil strata available on site location is totally clayey and also after excavation no hard strata has been found so strip foundation has been selected and on same foundation super structure is also cast monolithically to avoid disturbance in super structure during any type of natural calamity.

Fig.7 Strip Footing

VI. CONCLUSION

To construct the township on the hilly terrain real Civil Engineering gets involved and they have innovated different types of foundation rather than regularly utilized. The houses constructed are 100 per cent R.C.C. structure to avoid destruction due to natural calamity like earthquake, flood and settlement due to natural soil strata. Using all above construction techniques the progress of rehabilitation of malin village project is as shown in Fig.8.

Fig.8 Progress of rehabilitation work of malin village

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REFERENCE

[1] As per information acquired from site visit.