

RAJIV DEVELOPMENT AUTHORITY

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Recently, in one of the housing pockets, certain cracks had developed in load bearing walls. On detailed inquiry, it has been found that there were certain deficiencies in the method of conducting soil investigations and maintaining the requisite data pertaining to the site conditions:

In this context, it is enjoined upon all engineers/Architects/Planners that the following guidelines must be strictly followed in all future housing/construction projects:-

1. The number of bore holes to be made for exploration of sub-soil should be adequate enough and generally uniformly spaced so as to represent the whole area. The bore holes should also be made at all probable trouble spots like local ditches etc.
2. The bore holes must be made after the lay out plan is finalised and the locations of the bore holes should be chosen under the specific portions where the structures are located and not in areas which will not be constructed upon.
3. The locations of bore holes must be properly indicated in a dimensioned plan with reference to permanently available reference points which should be indicated either by X and Y co-ordinates or atleast with reference to their distance from a minimum of two such points which are fixed and identifiable.
The bore logs must indicate depths below the existing ground levels with reference to Mean Sea Level. The locations and nature of Bench Mark must be shown in the site plan.

5. Proper level plans/contour plans should be invariably drawn up before any development is taken up, and it should be up-dated at each stage of development. These plans should have proper dimensions so that these could be linked with various past and future development activities, as and when required.
6. The field staff should not only rely upon the theoretical values of the safe bearing capacity assessed on the basis of soil exploration reports but should also ascertain the same before foundation concrete is laid by other methods like Plate Load Test, Static Cone Penetration Test etc.
7. Any abnormal weak spots observed in the excavated trench must be brought to the notice of EE, who can decide, if it needs, any special investigation at such locations before the foundations are laid.
8. The structural designer, before accepting the figure of the safe bearing capacity recommended by the agency carrying out the sub-soil exploration works, must study the soil report to ensure that the requirements mentioned under S.Nos. 1 to 5 above have been met with. If not, he must insist for the same before agreeing with such reports.
9. The structural drawings should invariably carry caution notes reflecting the guidelines as given at S.No.s 6 and 7 above.
10. The depth to which bore holes are made must be decided, if necessary, with the consultation of structural designer with due regard for the size and type of structure. Even if hard soil is met with at relatively shallower level, there still could be weak soil down below. Atleast two bore holes must therefore, be taken to a depth of not less than one and half times the width of the

structure.

11. The highest sub-surface water level must be ascertained either through local inquiries about the highest flood level or near by nallah, river or through bores taken along nallah/river sides when these are in spate or through observations from the existing wells or through at least one set of bore holes made during the rainy season.

12. If locations and size of ditches, low ground requiring filling, old nallah courses are known before layout is made, preferably no structures should be located in such areas, which can be left as parks, gardens, playgrounds etc. or, at best, used as roads. However, if locating buildings in areas, either already filled up or to be filled up, are unavoidable, the depth of foundations should be accordingly designed to ensure the structural soundness.

13. The soil investigation should preferably be got conducted only from one agency, until & unless there are specific reasons for not doing so.

14. As far as possible, deep services like water supply mains, sewers basements and under ground water tanks etc, should not be located close to existing buildings/structures. Whenever these are located near the existing buildings, proper precautions must be taken to ensure that excavation for the deep services/structures and dewatering operations do not affect the stability of the nearby buildings by way of slipping of soil in the foundations of the buildings, due to its getting washed away by sub-soil water or otherwise, thereby removing the lateral support to the said foundation/structure. As far as possible, such deep works should be done in dry seasons to avoid or reduce the need for dewatering by pumping.

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12. As far as possible, works involving deep excavation should be done first and those involving shallower excavation should be done later.

H.D. Sharma

(H.D. SHARMA)
ENGINEER MEMBER

- W2-V-9-0 SC
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1. OSD to VC for kind information of the latter.

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