



**GUIDELINE
FOR
EXCAVATION DURING
BUILDING CONSTRUCTION**

COMPLIANCE AND ENFORCEMENT DIVISION

THIMPHU THROMDE



TT/CoED/25/2022-2023/1465

01.07.2022

GUIDELINES TO MITIGATE EXCESSIVE EXCAVATION

This guideline is developed in line with the deliberation and decision of the fifth management meeting held on 29/10/2021 at the conference hall of Thimphu Thromde.

Background and Rationale

Ninety five percent of Thimphu thromde lies on sloping terrains, with less than five percent accounting for flat areas. The challenging landscape makes it difficult to construct without excavations. Amidst rapid development with more than a thousand construction in less than five years, immense pressure is mounted on the natural environment.

However necessary, excavation is very destructive to the natural environment. Due to the inherent destructive nature of excavation to the natural environment, there is an imminent need for regulations to be set forth to mitigate and curtail excessive excavation.

Objective

The objective of this guideline is to understand the impact of excavation on the environment and how we can incorporate better measures to mitigate, minimize, regulate and monitor excavation during construction. In particular, it is aimed to:

1. Gain clarity and understanding on site context at the time of designing and approval
2. Strengthen existing approval and monitoring system with regard to excavation works.

Limitations

Some of the constraints faced during approval and implementation of building construction are;

1. Limited design and planning guidelines/ regulation on excavation. Requirements such as topographic survey are not mandated by law. This has an impact on the accuracy and

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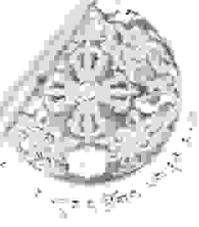


precision of excavation. Majority of design and drawings submitted to Thromde are based upon the assumption that the proposed area is flat.

2. Inadequate information available at the time of drawing approval, leading to misrepresentation of site conditions.
3. Excessive excavation at site destabilizing the area and structures around.

Resolution and mitigation measures

1. Mandatory topographical survey should be carried out for excavations with more than 2 meters. This will give clarity on the extent of excavation and lead to precise and accurate excavation plans. Survey to be carried out by professional surveyors. This service can be availed from Thimphu Thromde or accredited private surveyors at the expense of the client.
2. Excavations more than two meters should be accompanied with remedial measures such as retaining walls, shoring, bracing, etc when submitting drawings of the proposed plan in the area.
3. Excavation with more than 4 meters height for plots on the slopes should be avoided and innovative solutions like split designs should be adopted. In case such excavations are unavoidable, technical proposals with measures to mitigate the risk of landslides, damages to public/private infrastructures must be submitted.
4. It is recommended that excavation be carried out only within the plinth area and not till the edge of the plot.
5. After the topographical survey results are analyzed, the designer must submit building plans overlayed on topographic map and complete sectional drawing of the entire length and width of the plot along with the structure.
6. Massive excavation will only be allowed in the dry season, especially avoiding the monsoon months of June, July and August.
7. A site engineer must be deployed at site to instruct/supervise during the excavation and reduce any associated risks.



8. The slope stabilization structures/measures should be implemented first at the site before the main structures.

Responsibility and Accountability

1. The excavating party resumes all responsibility for any damages caused to the neighboring plots and public properties such as road, drainage, retaining walls, etc, as a result of the excavation.
2. The excavating party shall bear responsibility of restoring the damages to its original conditions and ensure the stability of the area.

Additional applicable rules and regulation

1. Land Act of Bhutan 2007
2. Development Control Regulation 2016 (Section 5, Site slope and plot coverage)
3. National Environment Protection Act of Bhutan 2007
4. Environment Assessment Act 2000
5. Forest and Nature Conservation Act of Bhutan 1995

The above guidelines have been endorsed during the 5th Management meeting and will come into immediate effect upon announcement on the media and Thromde website.

Thrompon

Thimphu Thromde