Guidelines on Preconstruction Survey

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Building Engineering Group
Building and Construction Authority

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1. Introduction

Introduction

- The Building Control Regulations requires that where any demolition of any building, or any piling or foundation works, any tunnelling works, or any site formation works (including excavation works) are to be constructed or carried out, the builder shall, before commencing such works, carry out a pre-construction survey to establish the condition of existing buildings and structures adjacent or in otherwise close proximity to the building works.

- In recent years, feedbacks on damage arising from project developments received by BCA showed that some cases extend beyond the zone of preconstruction survey adopted by builders.

Introduction (cont'd)

- This guideline outlines the minimum zones of preconstruction survey to be conducted for project developments involving demolition, piling and excavation works.

- QP should review the survey report and identify any pre-existing structural defect for all the buildings being surveyed. As part of the impact assessment report required under Regulation 33, the QP shall specify on plan the necessary preventive and protective measures to be taken to prevent damage to the adjacent buildings arising from the works.

2. Demolition Works

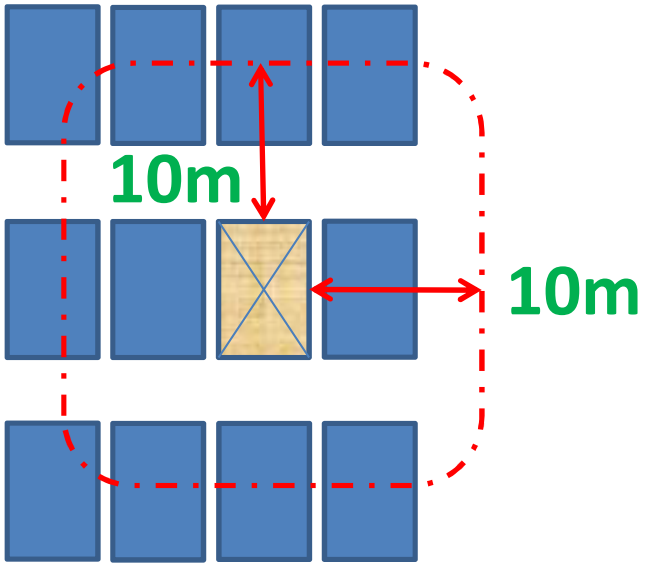
Table 1. Guidelines for Demolition Works

Type of Development	Guidelines for Demolition Works
	Minimum zone of pre-construction survey (from the edge of building to be demolished)
Demolition for landed development	10 m
Demolition for building up to 5 storey height	35 m
Demolition for building more than 5 storey height	50 m

Demolition for Landed Development

A1. **Demolition works** (demolition of substructure below ground water level, if any, will be classified under ERSS works)

- **Preconstruction survey: for a zone of not less than 10 m from the edge of building to be demolished.**

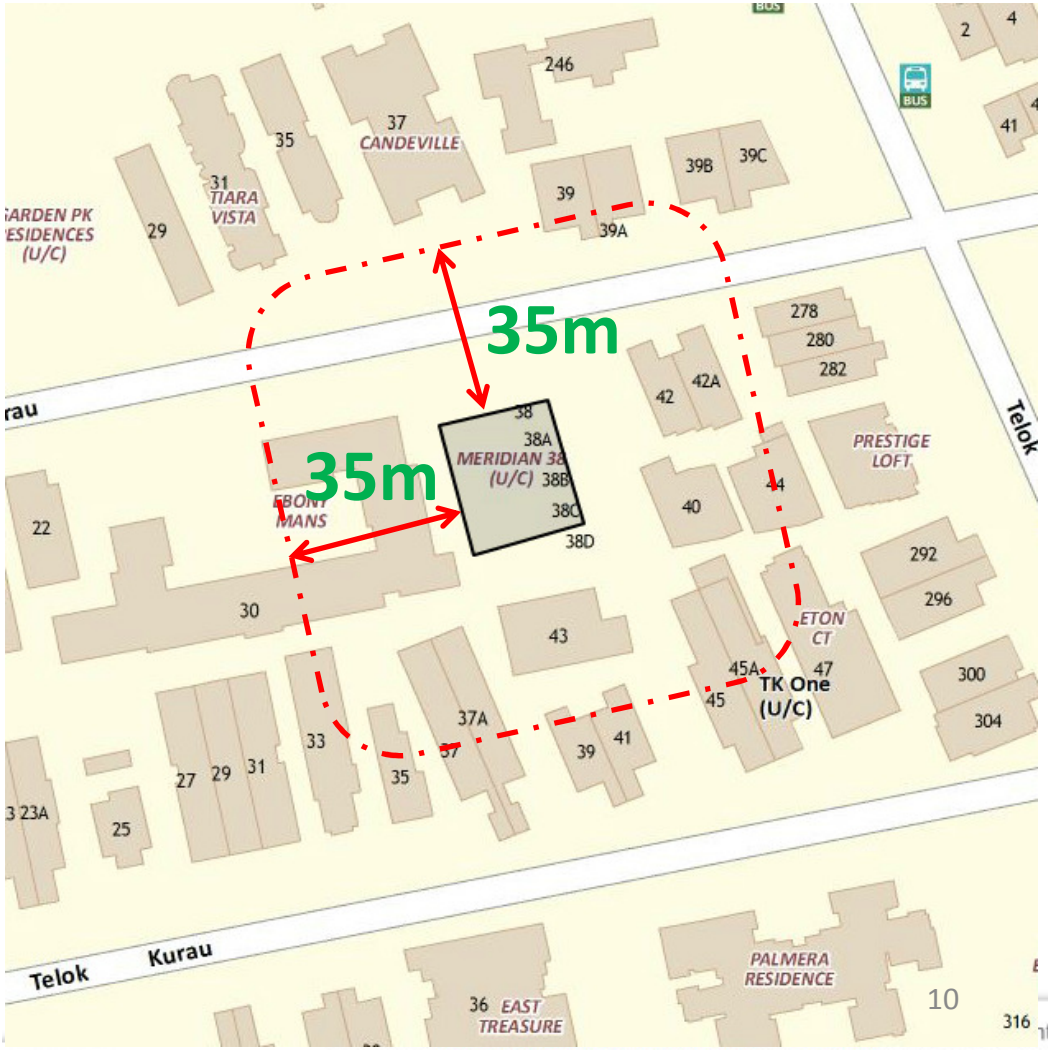


All soil types

Demolition for Building up to 5 Storey Height

A2. **Demolition works** (demolition of substructure below ground water level, if any, will be classified under ERSS works)

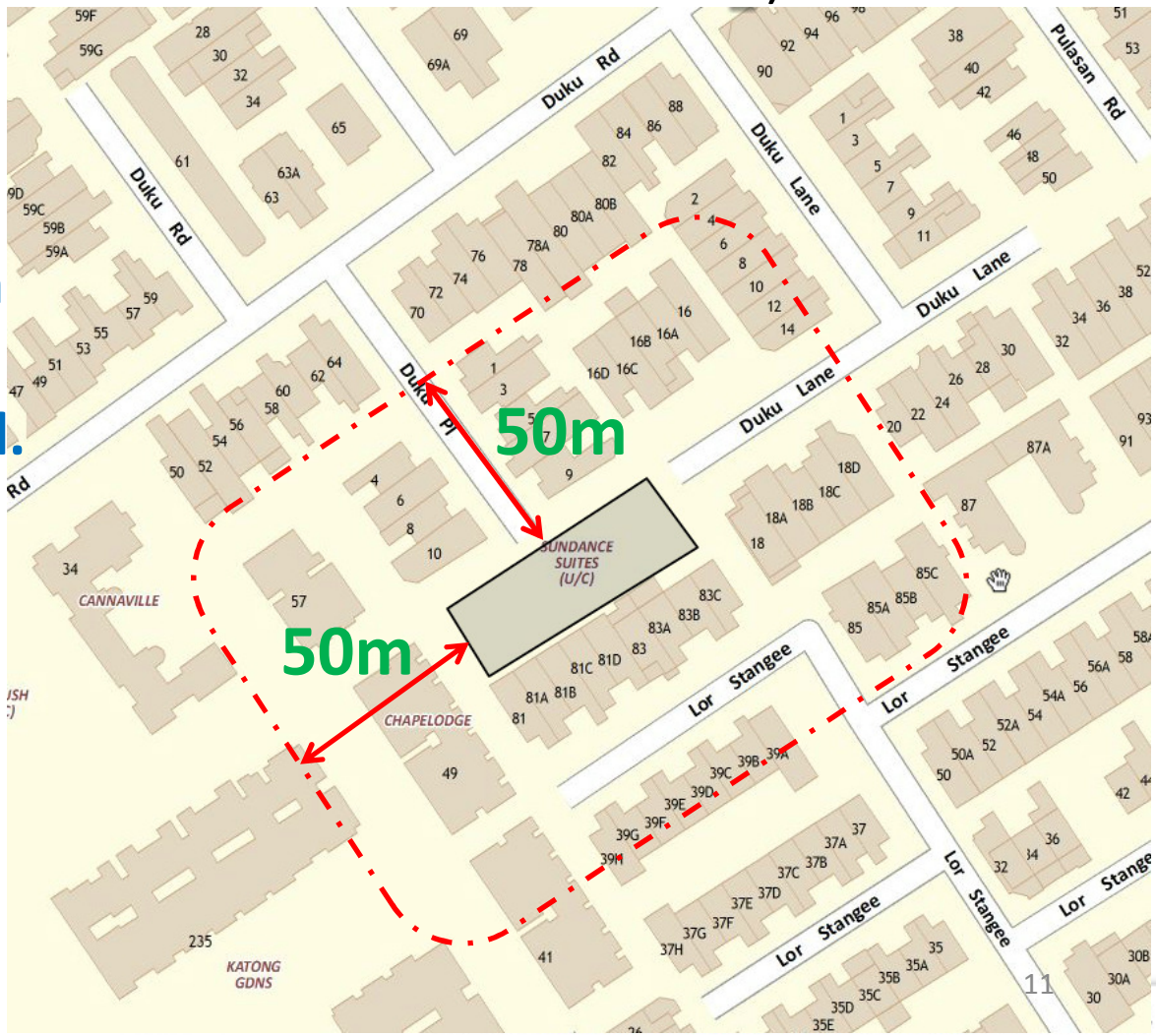
- **Preconstruction survey: for a zone of not less than 35 m from the edge of building to be demolished.**



Demolition for Building more than 5 Storey Height

A3. **Demolition works** (demolition of substructure below ground water level, if any, will be classified under ERSS works)

- **Preconstruction survey: for a zone of not less than 50 m from the edge of building to be demolished.**



3. Piling Works

Table 2. Guidelines for Piling Works – Landed Development

Type of Piles	Guidelines for Piling Works for Landed Development
	Minimum zone of pre-construction survey
Non-displacement piles and small displacement piles such as micro bored pile, steel H-piles	10 m
Displacement piles such as RC piles, jacked-in steel pipe piles (closed ended)	20 m

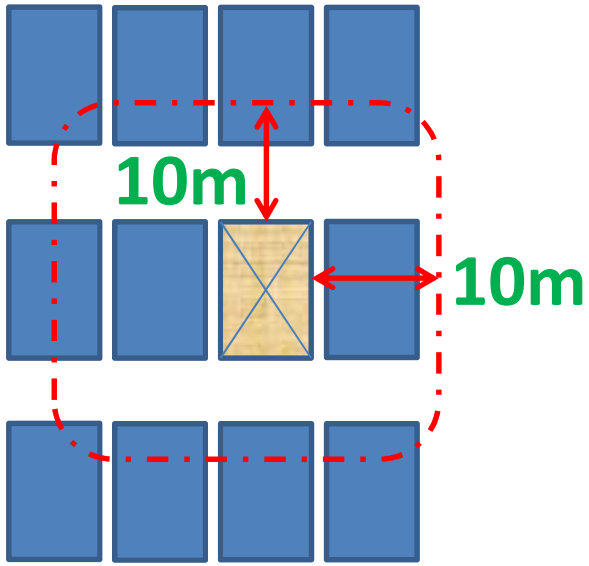
Table 3. Guidelines for Piling Works – Non-Landed Development

Type of Piles	Guidelines for Piling Works for Non-Landed Development
	Minimum zone of pre-construction survey
Non-displacement piles and small displacement piles such as bored pile, steel H-piles	40 m
Displacement piles such as RC piles, spun piles, jacked-in steel pipe piles (closed ended)	60 m

Piling Works for Landed Development

B1. **Piling works**: Non-displacement piles and small displacement piles such as bored micro piles, steel H-piles

- **Preconstruction survey: for a zone of not less than 10m from project site boundary**



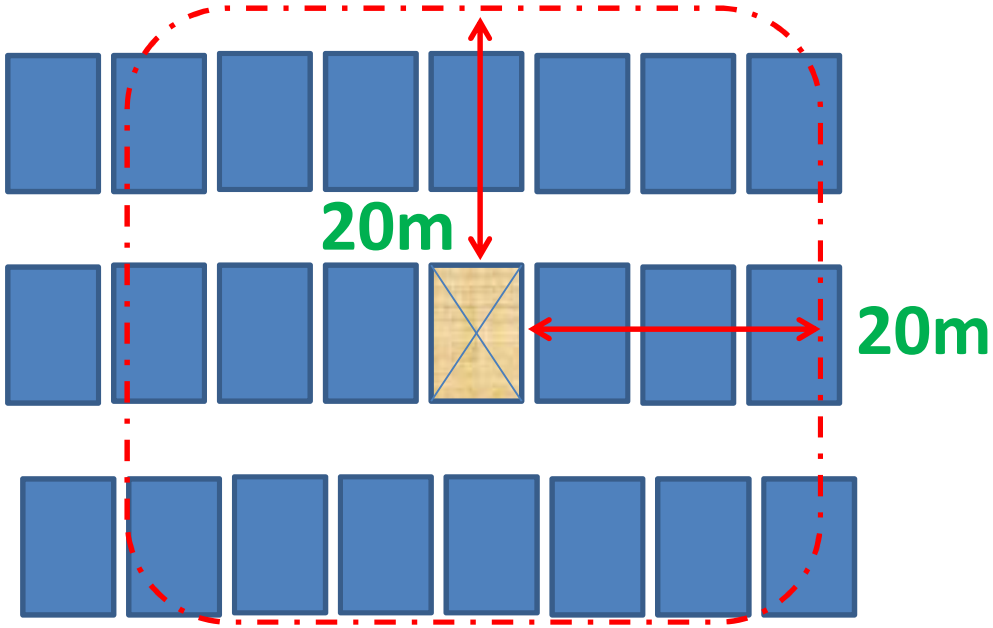
All soil types

Piling Works for Landed Development

B2. **Piling works**: Displacement piles such as RC piles, jacked-in steel pipe piles (close ended)

Preconstruction survey:

- **All types of soils: for a zone of not less than 20m from project site boundary**



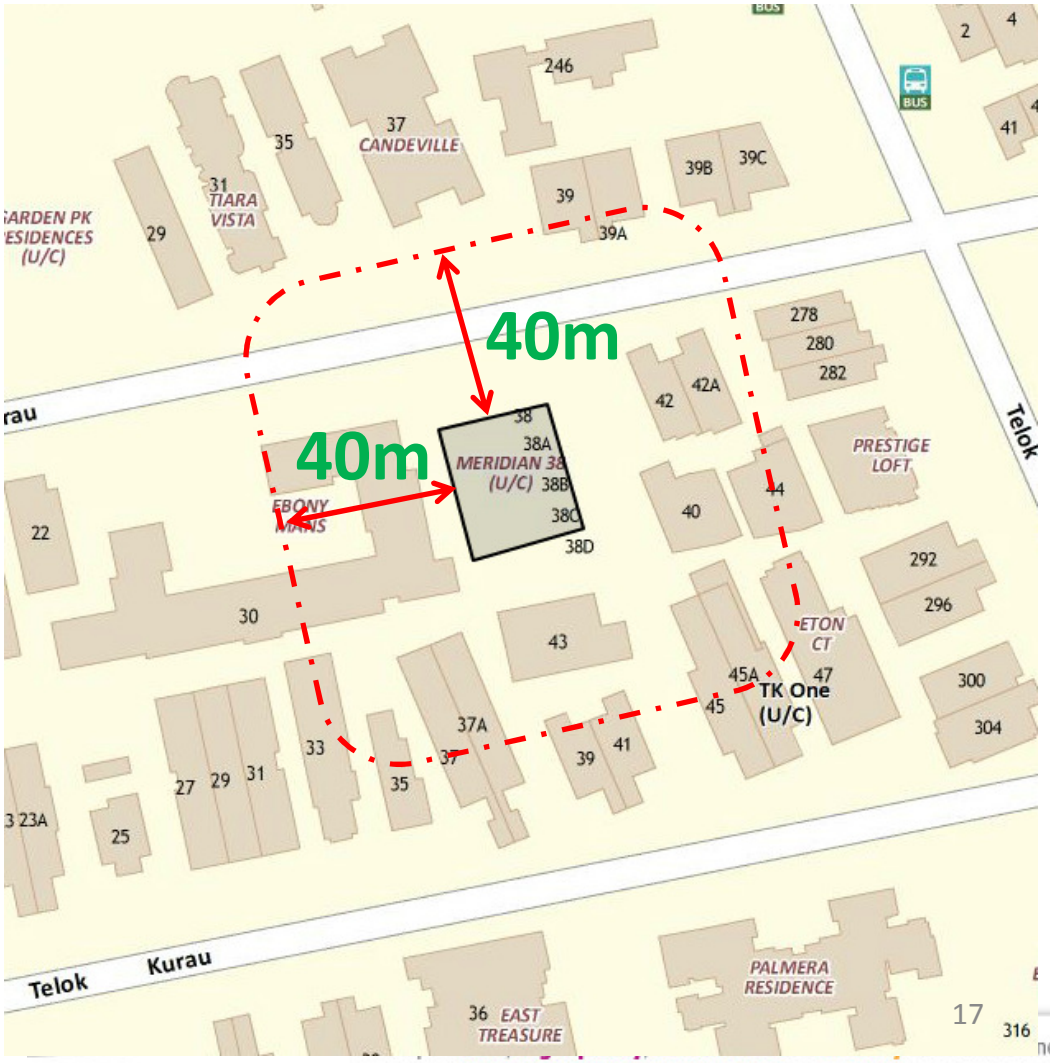
All soil types

Piling Works for Non-Landed Development

B3. **Piling works**: Non-displacement piles and small displacement piles such as micro bored pile, jacked-in steel H-piles

Preconstruction survey:

- **All types of soils: for a zone of survey of not less than 40 m from project site boundary**

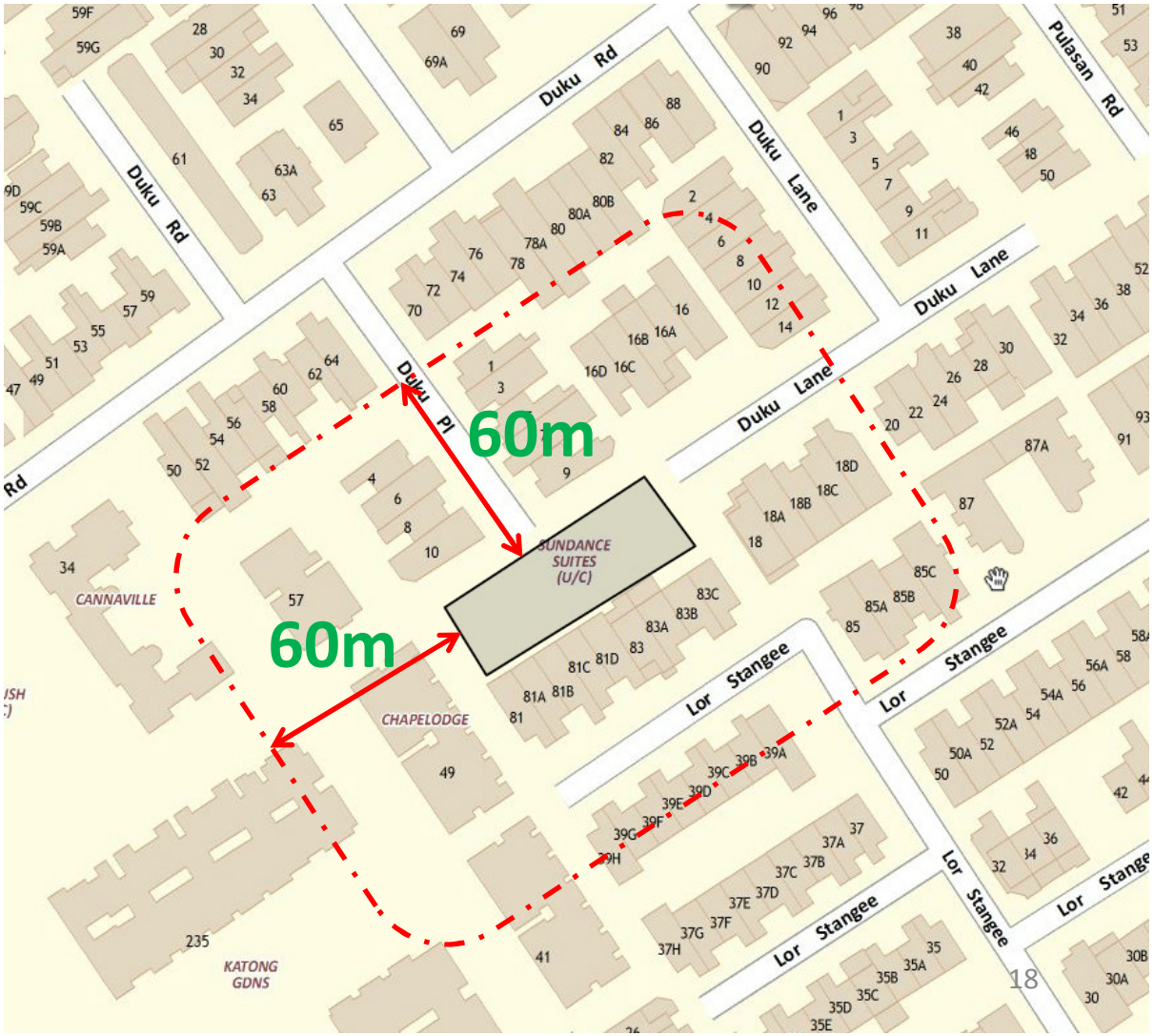


Piling Works for Non-Landed Development

B4. **Piling works**: Displacement piles such as RC piles, jacked-in steel pipe piles (close ended)

Preconstruction survey:

- **All types of soils: for a zone of survey of not less than 60m from project site boundary**



4. Excavation Works

Table 4. Guidelines for Excavation

Type of Development	Guidelines for ERSS Works	
	Minimum zone of pre-construction survey^	
Landed development	15 m	
Type of Development	**Types of Soils**	**Minimum zone of pre-construction survey^**
Non-Landed development with basement or underground space	Good soils♦	30 m or 3H*
	Soft soils† (e.g. marine clay) without fluvial sand/peat/peaty clay	60 m or 6H*
	Soft soils† with fluvial sand/peat/peaty clay	90 m or 9H*

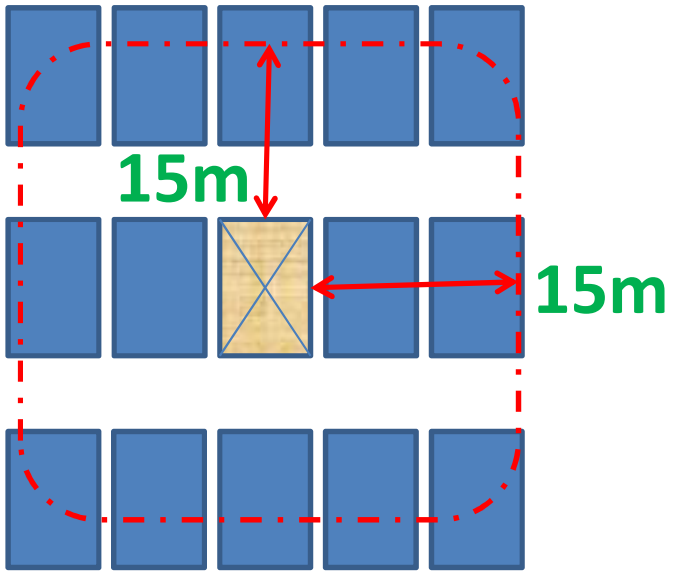
Note:

1. Maximum excavation depth include localise pits;
2. ^For cases with two values, the larger of the two values should be adopted.
3. ♦Good soils refer to medium dense to very dense sand and gravel, and firm to hard silt and clay.
4. †Soft soils refer to very loose to loose sand and gravel, and very soft to soft silt and clay.
5. * H is defined as the maximum excavation depth.

ERSS Works for Landed Development

C1. **Excavation works** for landed development

- **Preconstruction survey: for a zone of not less than 15m from project site boundary**

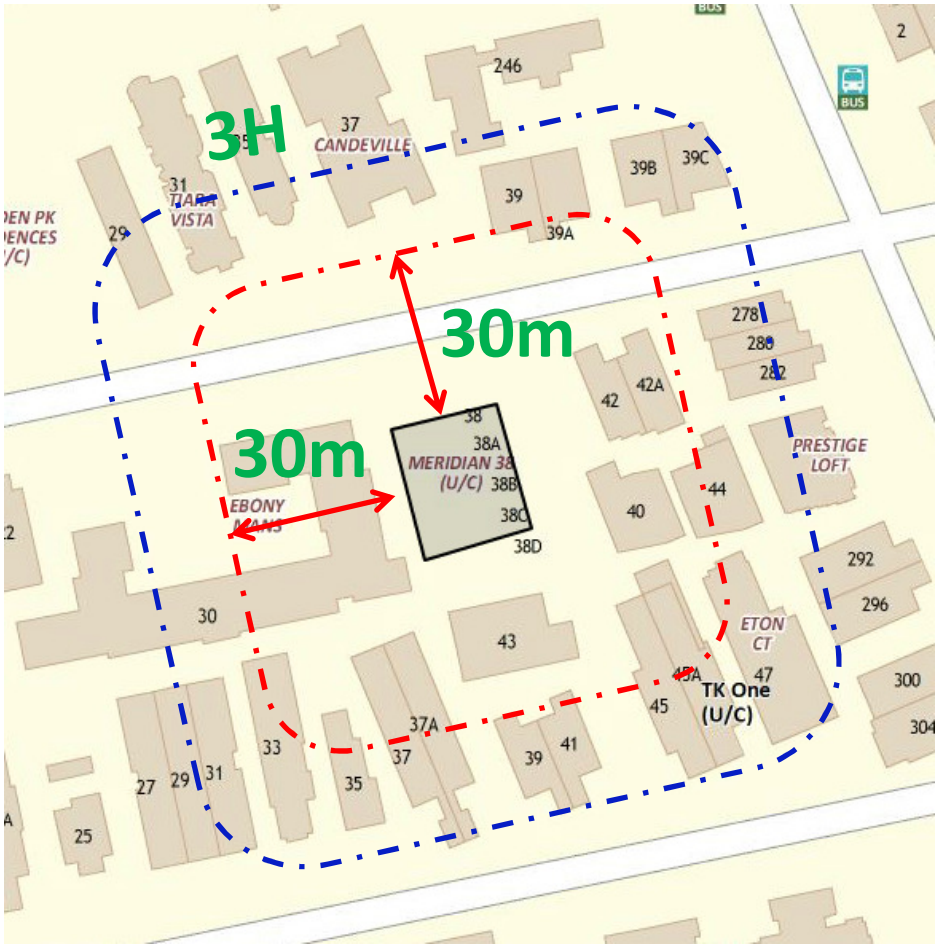


All soil types

Development with Basement or Underground Space

C2. **Excavation works** in good soil conditions

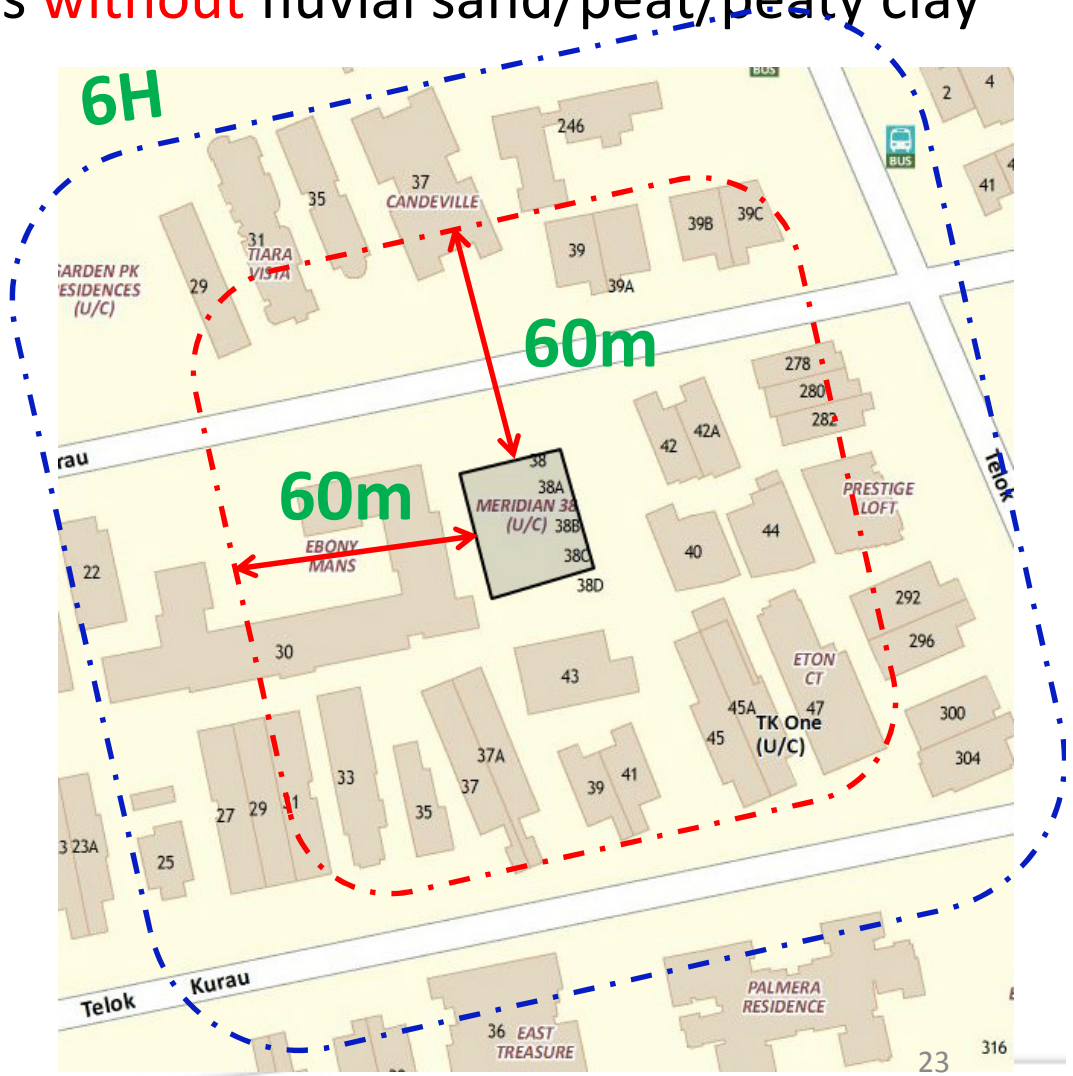
- **In good soil conditions: for a zone of not less than 30 m from project site boundary or 3 times the maximum excavation depth (H), whichever is the larger of the 2 values**



Development with Basement or Underground Space

C4. **Excavation works** in soft soils without fluvial sand/peat/peaty clay

- **In Soft soils without Fluvial sand/peat/peaty clay: for a zone of not less than 60 m from project site boundary or 6 times the maximum excavation depth (H), whichever is the larger of the 2 values**



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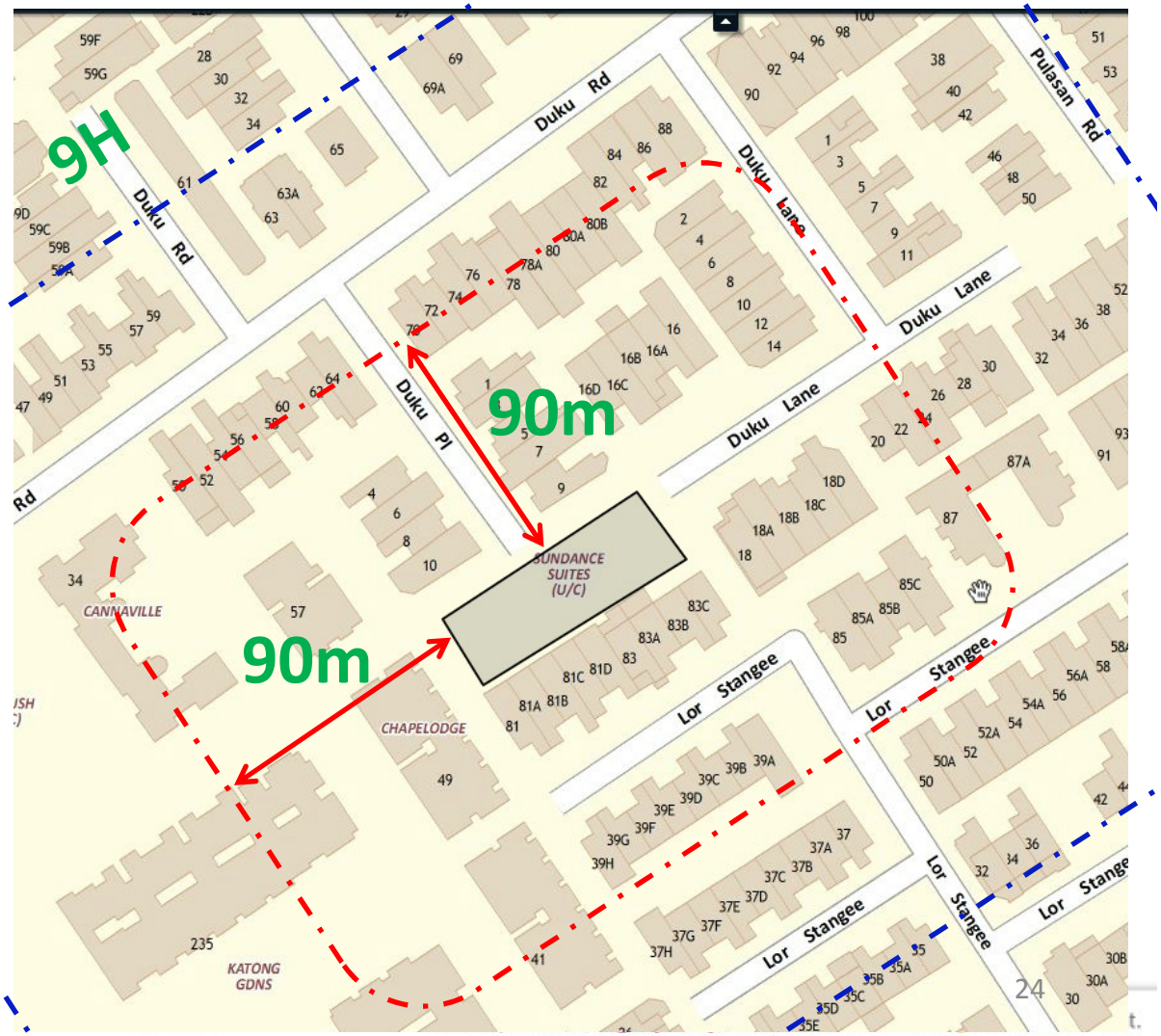
Development with Basement or Underground Space

C5. **Excavation works** in soft soils with fluvial sand/peat/peaty clay

- **In Soft soils with Fluvial sand/peat/peaty clay:**
  for a zone of not less than 90 m from project site boundary or 9 times the maximum excavation depth (H), whichever is the larger of the 2 values



5. What Should Builder Do if Entry for Preconstruction Survey is Not Possible

What Should Builder Do if Entry for Preconstruction Survey is Not Possible?

- Builder to survey the exterior face of the property.

- The following records should be kept:
  - attempts to contact relevant owners for permission to conduct preconstruction survey (e.g. records of registered mail); or
  - refusal by owner to allow access to conduct survey.

6. Areas of Responsibility When There Are More Than One Builder In The Project

Areas of Responsibility When There Are More Than One Builder In The Project

Scenario 1 : Main project QP and Main Builder appointed for all 3 types of works

- Main builder to conduct pre-con survey covering the largest of the minimum zones for the proposed three types of works

Scenario 2 : Main project QP appointed; Different QP and Builder for demolition, piling and excavation works.

- Main project QP to instruct the first appointed builder for the site to carry out pre-con survey covering the largest of the minimum zones for the proposed three types of works.
- Each builder to distribute report to owners of the surrounding properties according to their respective zone of pre-con for their works.

Note: Main project QP refers to developer appointed QP for main building works

Areas of Responsibility When There Are More Than One Builder In The Project

- In the event that there are any damage to properties within the respective builder's scope of works, developer and Main project QP should facilitate and agree on the rectification works before the next type of works commence.

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