

A Practical Guide to Natural Terrain Hazard Studies

Field Mapping



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Field Mapping

Introduction

- Purpose
- Scope
- Site Reconnaissance
- Detailed Mapping Approaches
- Difficulties and problems
- Summary

Purpose of Field Mapping

- Validate API and/or Desk Study Findings
- Collect Field Data/measurements
- Facilitate an assessment of natural terrain hazards within catchment with reasoning/justification based on direct evidence and observations of features including:
 - Landslide
 - Drainage lines
 - Depressions
 - Breaks in slope
 - Regolith
 - vegetation

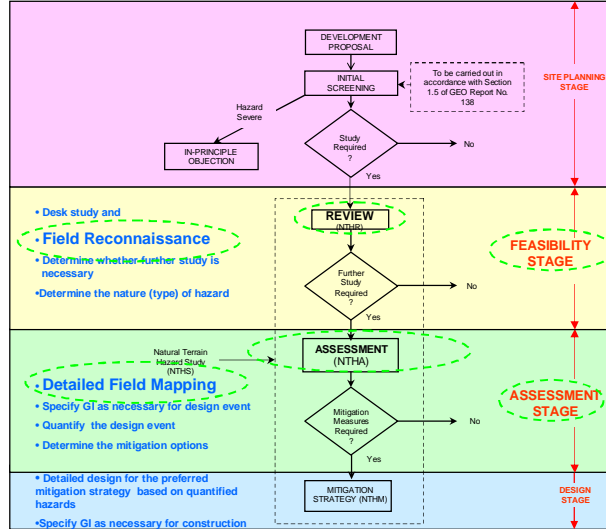
Scope of Field Mapping Work

Depends on nature of project. For typical Site/Catchment Specific NTHS (e.g. LPMit)

- Site/Catchment Specific Natural Terrain Hazard Review (NTHR)
- (Regional/Area Scale NTHS)
 - **Field Reconnaissance**
- Site/Catchment Specific Natural Terrain Hazard Assessment (NTHA)
 - **Detailed Field Mapping**

Purpose of Field Mapping

- Area or Regional NTHS
- Field Reconnaissance
- Detailed Field mapping
- Design verification mapping



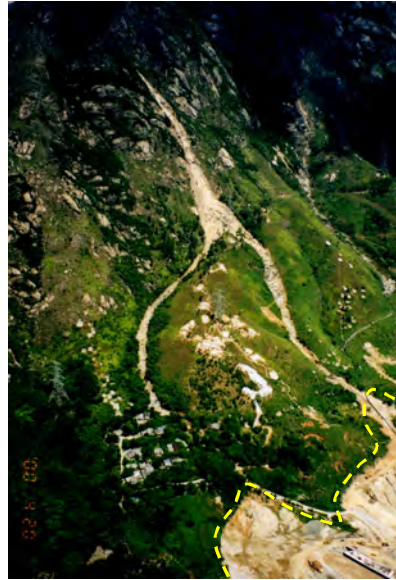
Site Reconnaissance (1)

- Overview of (whole) site and adjacent study area
- Use best available vantage point, e.g.:
 - Building
 - Access to roof
 - Ridge line
 - Spurline
 - view across catchment in profile
 - Roads and footpaths



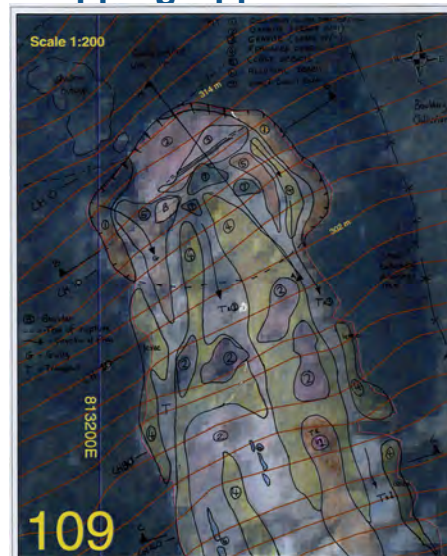
Site Reconnaissance (2)

- Traverse upslope boundary of catchment/study area.
- :look for processes that may affect the site such as thick colluvial lobes exposed in stream courses or in small cuts along the site boundary, or boulder clusters
- May give some indication to potential magnitude and frequency of landslide events



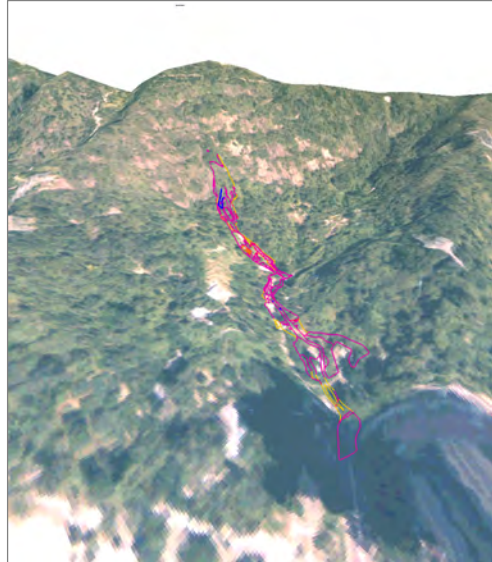
Field Mapping – Detailed Mapping Approaches

- Use of orthorectified base plans to map onto
- use at suitable scale to map/measure features directly on plan
- If air photos not available then photos taken from tall building or helicopter can sometime be orthorectified



Field Mapping – Detailed Mapping Approaches

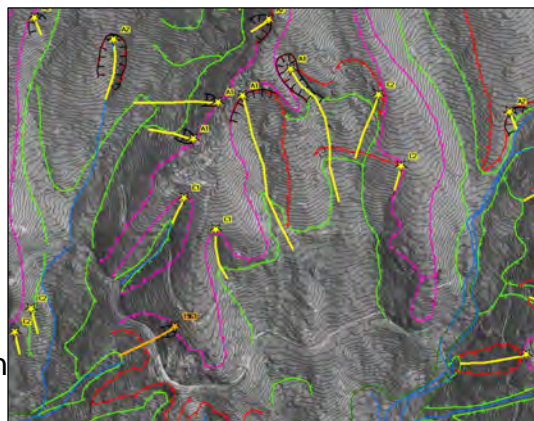
-Use of 3D plans to visualize terrain and processes, to give feel for setting whilst mapping . . . may be overlain with recent ortho photos to enhance 'reading' of terrain -



Field Mapping – Detailed Mapping Approaches

-Use of 3D plans to visualize terrain and processes, may be overlain with photos in this case 63

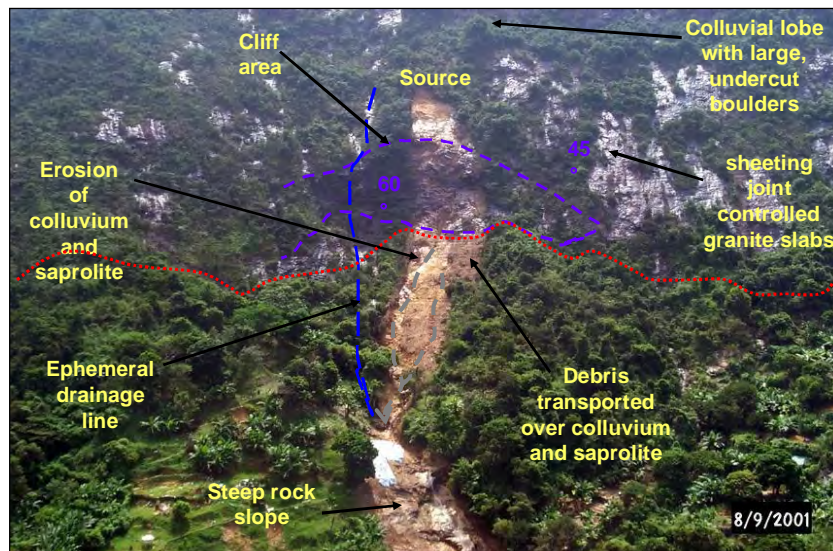
- If available use LiDAR plans which at appropriate contour resolution can give enhanced terrain perception



Field Mapping – Approaches

-Traversing hillsides and access to drainage lines

- Location from API , survey points or distinctive landforms
- Use of machete
- Limited vegetation clearance to access key features
- Use of safety ropes



Field Mapping – Detailed Mapping Approaches

-Access and location

Often terrain will be densely vegetated. Use API and desk study (or review report) to focus traverses within terrain. Some access paths may be necessary

Location may be difficult for mapping. Survey markers or GPS may help where no suitable surface features exist

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Field Mapping – Detailed Mapping Approaches

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Drainage lines

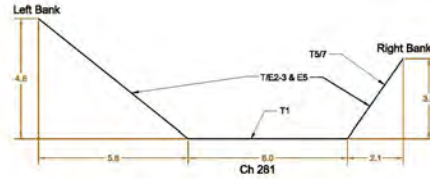
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Field Mapping – Approaches

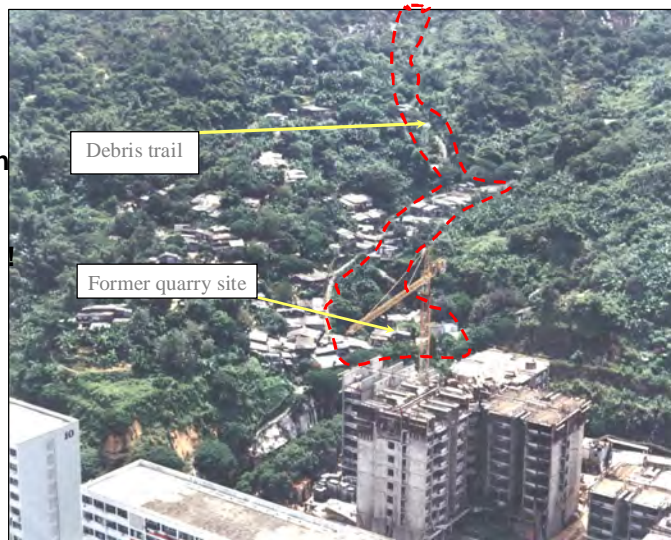
-Measurement of drainage line characteristics

- Use of survey rod
- Clinometer
- Laser distance measurer
- Reel tape
- Hip Chain

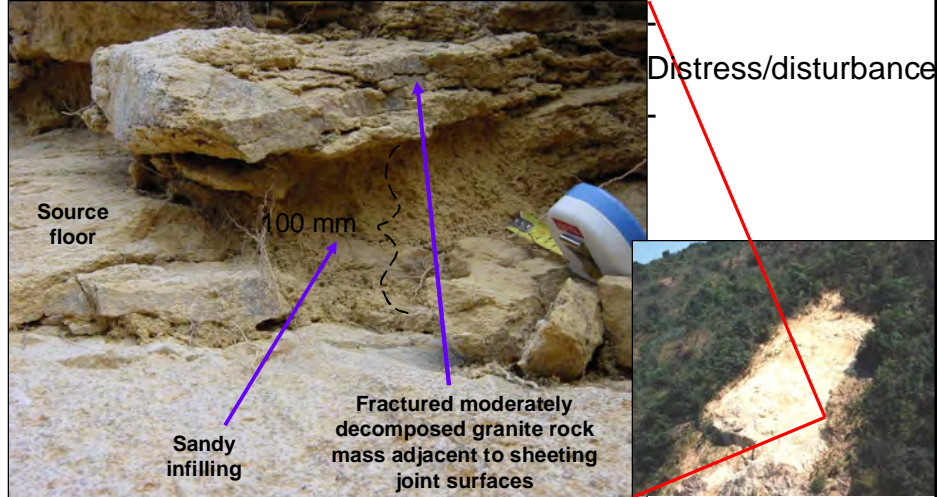


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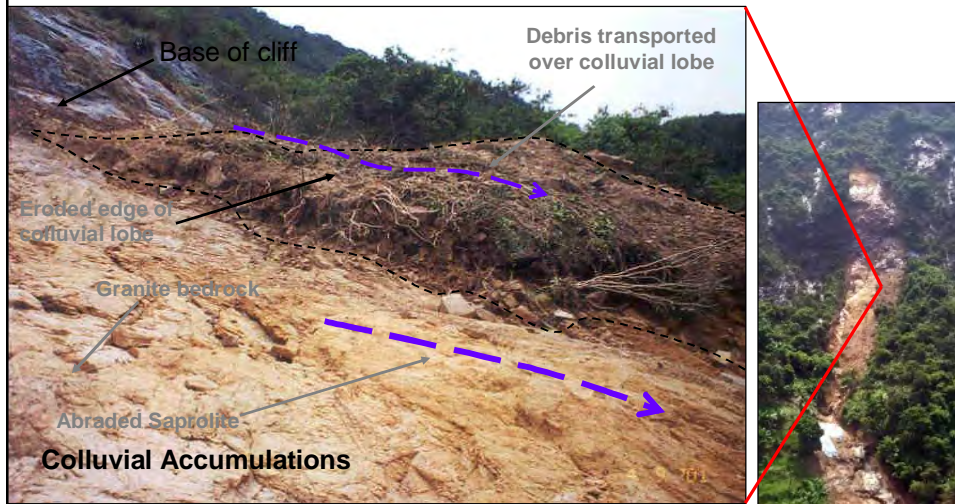
❖About 40 squatter structures within the September 1 2001 Lei Pui St debris flow path



Field Mapping – Detailed Mapping Approaches



Field Mapping – Detailed Mapping Approaches



Field Mapping Equipment

- Slope angle measurement

 - Hand held Clinometer

- Distance measurement

 - Hip Chain

 - Laser Distance Measurer

- Difficult access/dense vegetation

 - Machette

 - Walking Rope



Field Mapping – Problems & Difficulties

- Steep Terrain

- Rock outcrop steps

- Irregular drainage lines

Practical Issues

- Summer heat
clothes, water,
time of day

- Access

- Flora and fauna



Thank You