

Large-scale site formation for a residential development at Kau Piu Lung Road, To Kwa Wan

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Kowloon City

Location of site

To Kwa Wan

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Status of site as in May 2007

Kau Pui Lung Road



North

Status of site as in May 2007

Kau Pui Lung Road

Brief outline of site formation works

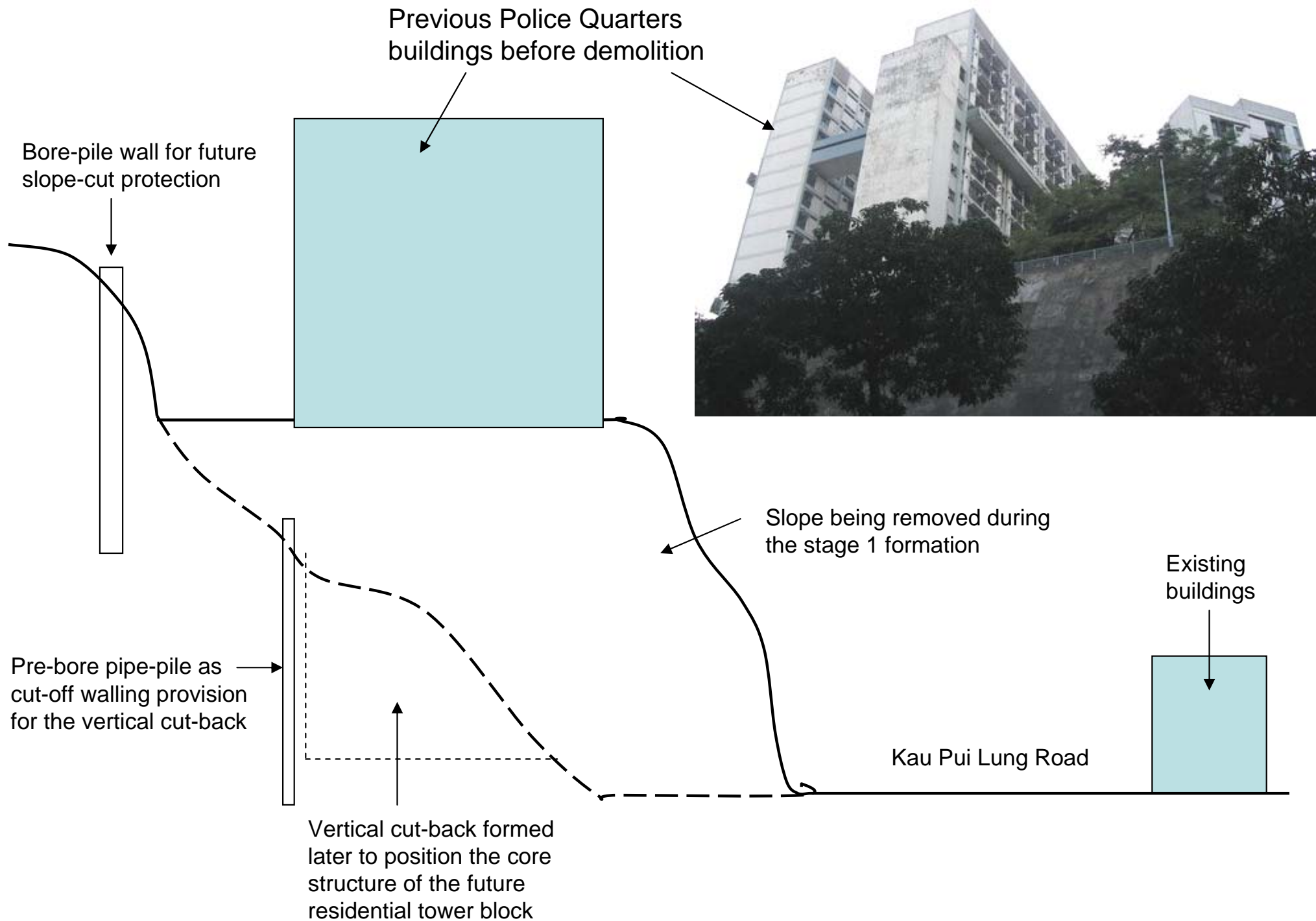
- Demolish previous Police Quarters buildings
- Stage 1 formation by preliminary setting back of the slope along Kau Pui Lung Road and Sheung Shing Street, and forming of accessway for mobilization of equipment for onward stages of site formation works.
- Stage 2 formation including the forming of a series of bore-pile or pre-bore pipe-pile walls as part of the ground support for onward slope cuttings, as well as the forming of a vertical set-back for the positioning of the core structure for the future residential tower blocks. Excavation and construction of the basement and the main podium structure was carried out at the same time.
- Stage 3 formation, to be carried out at the same time with the remaining portion of basement and podium structures. These structures were used as part of the support system to stabilize slope during the cutting process.

Special features of the site formation work

- Relatively very large quantity of excavation with more than 70% rock-base subsoil (total volume about 150,000 Cu Meter)
- Provision of a number of temporary access way in steep and difficult ground to transport heavy equipment and to facilitate slope and site formation works especially in the upper level of site.
- Forming of the vertical cut-back
- Cutting back of the slope in stages using
 - part of the completed transfer plate at podium level as the base for shoring support
 - partially completed basement structure, do
- Preservation of trees by the use of a planter box formed by pre-bore H-pile wall, about 5m high.

Stage 1 formation close to the end
as seen in February 2006





The early stage of site formation



Work platform erected for the forming of bore-piles which are used as cut-off wall for slope cutting as well as foundation for residential block seating on the terraced high-ground location





Site layout condition at the completion of stage 1 formation as seen in January 2006



Overview of the site from Kau Pui Lung Road in May 2006. At this moment, the stage 1 site formation work was basically completed



Overview of the site from
Lok Man Estate in May 2006



Overview of the site from junction of Kau Pui Lung Road and Tin Kwong Road in May 2006. The temporary access arrangement to facilitate the slope cutting and site formation work can be observed.



Provision of cut-off wall using pre-bore pipe-pile to form a vertical cut-back for the placing of the core structure for the future residential tower block



Commencement of the excavation along Kau Pui Lung Road
prepare for the construction of the podium basement



Set-up of the boring equipment for the forming of a series of bore-piles as part of the future slope retaining structure

Portion of slope to be excavated during the stage 3 formation due to its extraordinary height (vertical cut about 65m high)



Overview of site as seen in October 2006 (Stage 2 formation).

Basement slab at its formation level along Kau Pui Lung Road constructed using usual bottom-up arrangement has just been completed.



Closer look of the vertical cut-back lined with pre-bore pipe-pile for the positioning of the core structure



Overview of site from Lok Man Estate as seen in October 2006.



Closer look of the work platform as part of the access arrangement to facilitate the basement construction as well as the 2nd stage of site formation works



Another access arrangement by providing the 2nd site entrance from Tin Kwong Road to facilitate site formation works on the north-eastern corner of site. The temporary trimmed slope as seen in this photo will be cut away during the final stage of formation.



The gradual progress of the podium structure before reaching the transfer plate



Construction of the basement along Kau Pui Lung Road as viewed from the side and top of slope



Bore-pile wall retaining a portion of
slope at the highest point of site



Excavation to expose the 2m-diameter bore-pile wall and the king post for the onward erection of the shoring arrangement



Casting the first section of transfer plate as part of the advanced works to stabilize the slope on the side lined with bore-pile wall

Podium structure extending close to the bore-pile wall and finally touching the toe of the wall as the permanent support at its base





Core wall inside podium
structure seated onto the
vertical cut-back of slope
formed previously



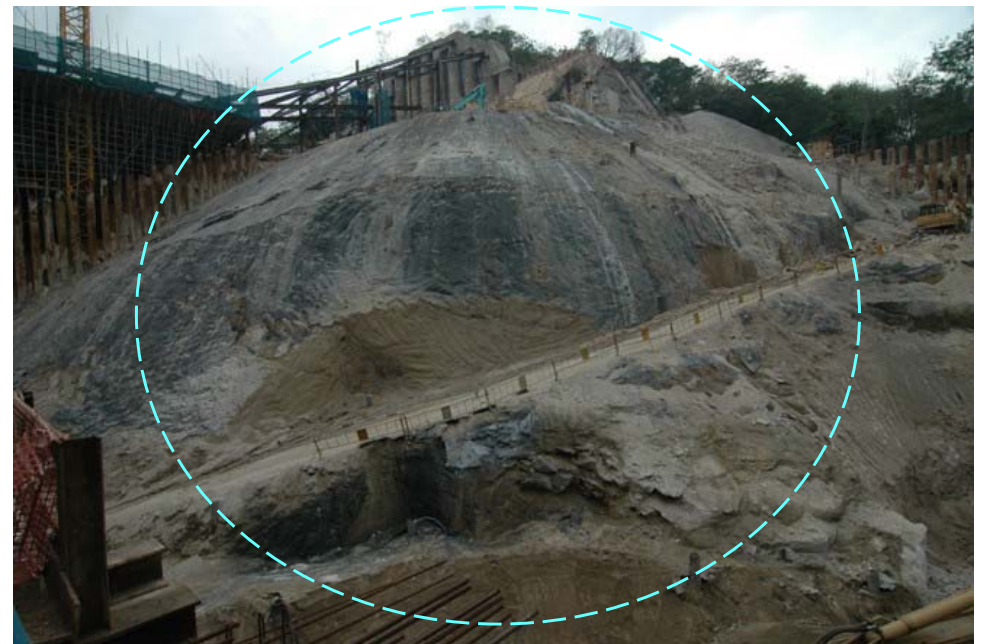
Close-up look of the bore-pile wall
at the top of slope and its shoring
support arrangement





Pre-bore pipe-pile wall installed at an earlier stage to facilitate the slope cutting during the Stage 3 formation

Portion of slope to be cut during the Stage 3 formation





Closer look of the shoring arrangement for the bore-pile wall and the commencement of the stage 3 formation



Viewing towards the north-eastern corner of site from top of slope and observe the advance of the basement and podium structure integrating with the toe of slope. The slope will be further cut-back coping with the progress of the basement.



The central part of the transfer plate situated on top of the podium completed in advance stage forming a stable anchor block to stabilize the slope on its side

Portion of transfer plate to be completed at a later stage



Transfer plate approaching the toe of bore-pile wall to form part of the permanent support for the slope



Transfer plate approaching the toe of bore-pile wall to form part of the permanent support for the slope

Stage 3 formation



Beginning stage of
Stage 3 formation by
erecting the first
section of raking shore





The advancing basement approaching the cut-off wall of slope finally forming a permanent supporting structure

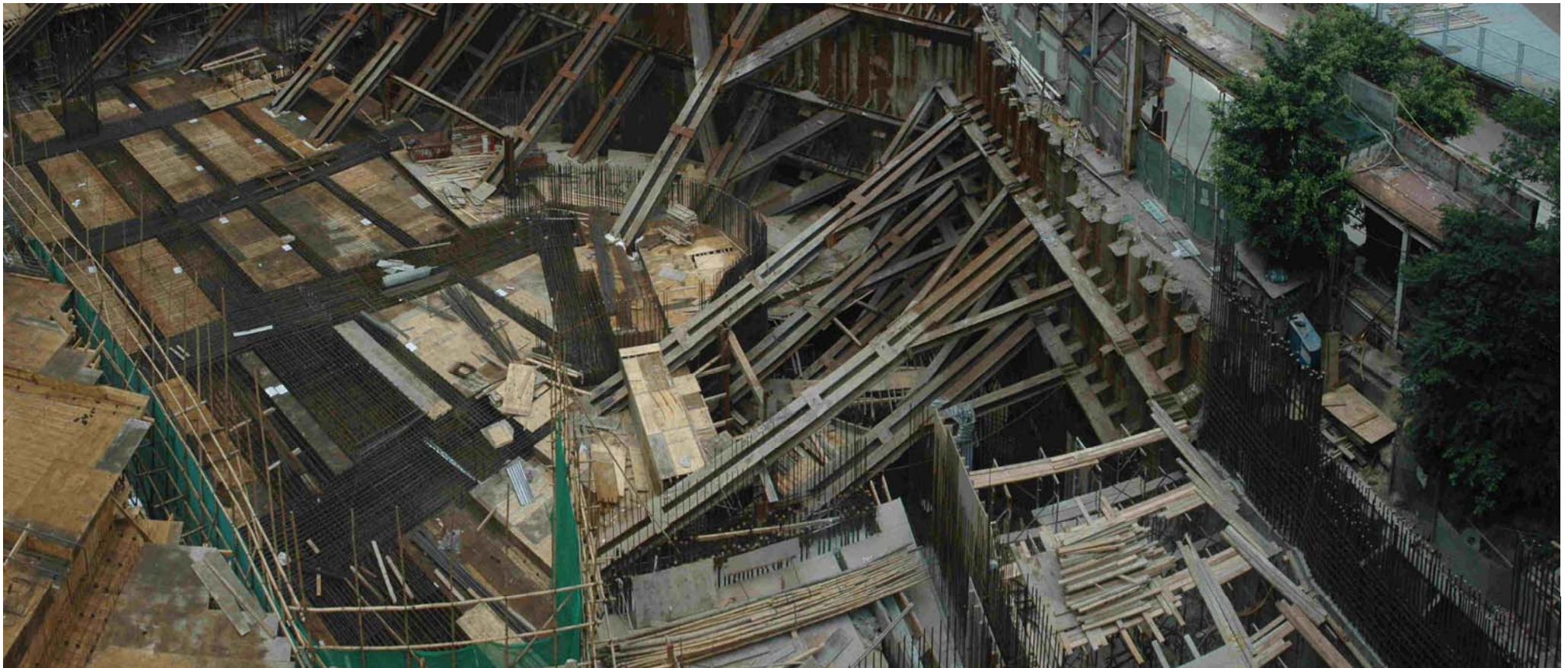


Close-up look of the complicated shoring detail



Close-up look of the complicated shoring detail

Close-up look of the complicated shoring system with the integrating detail with the approaching basement structure

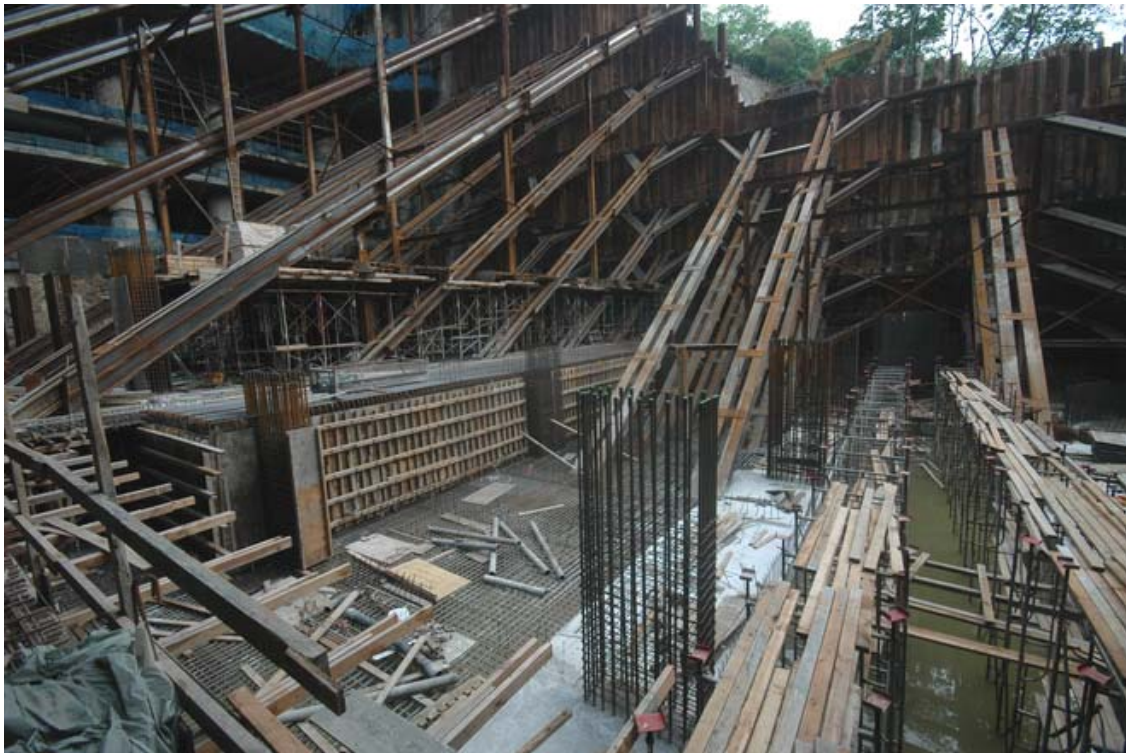




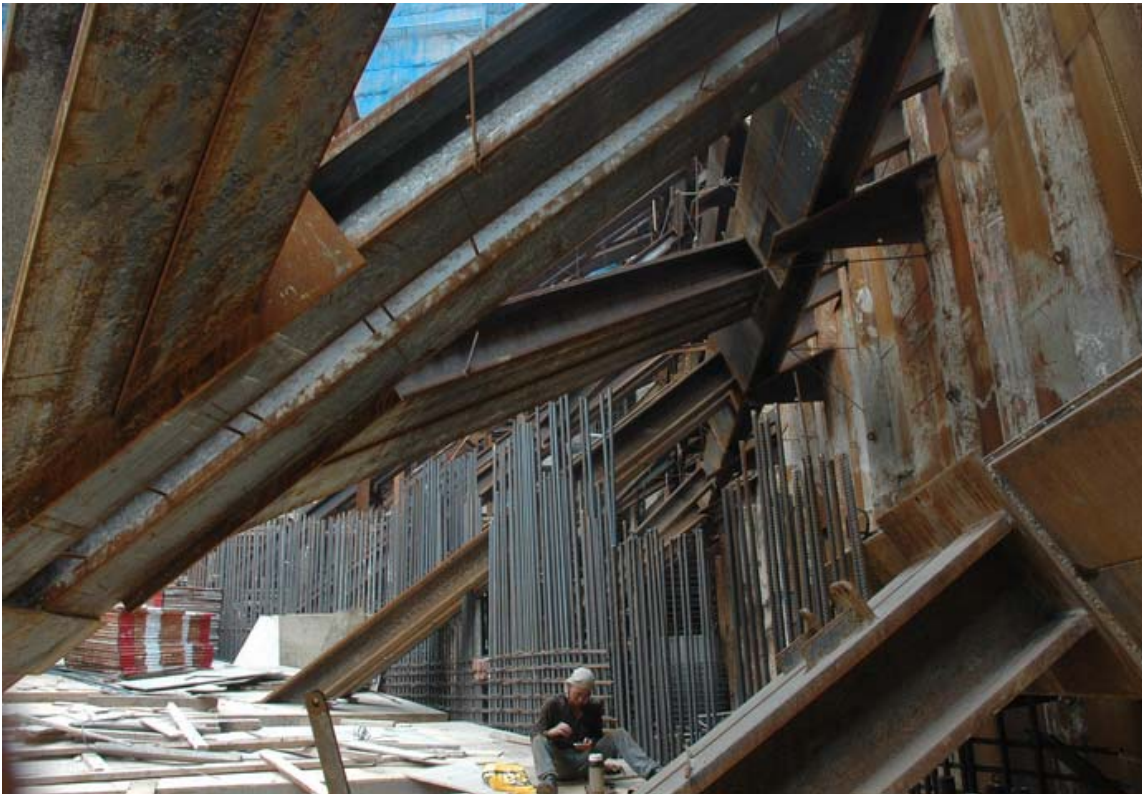
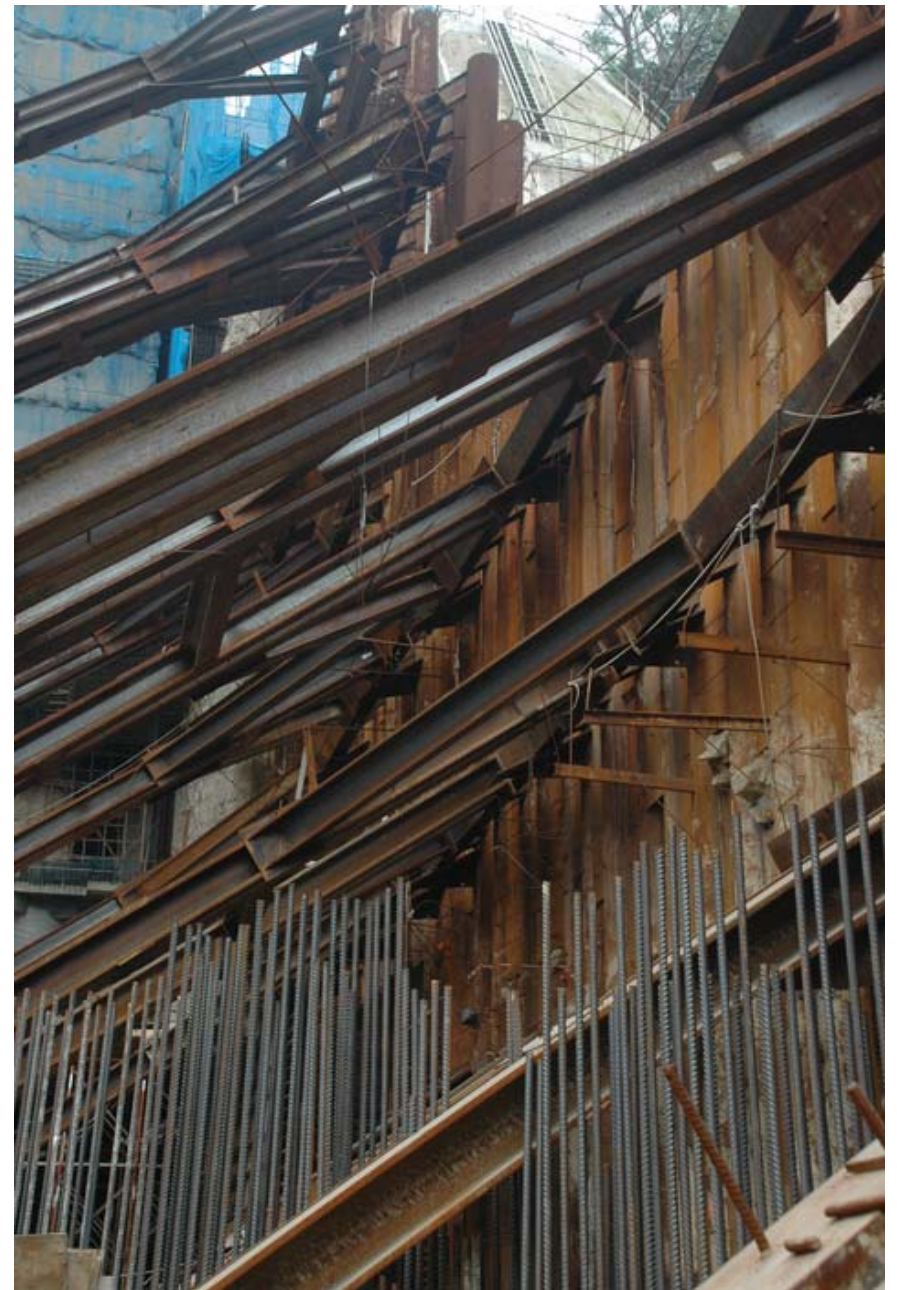
Close-up look of the complicated shoring system with the integrating detail with the approaching basement structure



Working within congested space aside the closely placed shoring members



Shoring detail



Shoring detail



Shoring detail working
together with the basement
construction process



Shoring detail working together with the basement construction process



Shoring detail working together with the basement construction process

Bore-pile wall
formed in Stage 1
formation process



Pre-bore pipe pile
wall formed in Stage
2 formation process

Shoring detail at
slope junction
between Stage
2 & 3 formation process





The partially completed basement and residential block on the other side that support the slope





Forming the permanent
RC wall in front of the
slope cut-off wall







Latest status of site
as seen in May 2008



Latest status of site
as seen in July 2008



Other features in the site formation process



Another feature for excavation near site entrance from Sheung Shing Street – commencement of Stage 3 formation





Supporting to the vertical cut along Sheung Shing Street



Construction of the vehicular ramp descending into the basement carpark



Construction of the vehicular ramp
descending into the basement carpark





Preservation of a protected tree species using soldier pile walling





The protected tree forming part of the landscape provisions near the entrance to the estate