

Contract No. HY/2003/19
Improvement to Tung Chung Road
Between Lung Tseng Tau and Cheung Sha

Zones E & F
Temporary Haul Road Proposal
(February 2005)

Introduction

CCECC and CRWJ Joint Venture have been awarded the Highways Department Contract No. HY/2003/19 for the Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha on Lantau Island.

Pursuant to both the Condition 2.6 (on haul road) and Condition 3.9 (on temporary works at streams) of EP-170/2003, this report describes the details and construction consequences for the formation of the haul road and the works to be carried out at the existing streams in the Northern section. Under these two conditions, it is necessary to deposit with the temporary structure across the existing streams no later than one month before the commencement of the construction works.

Zoning for the contract

Tung Chung Road can be divided by its highest point at Pak Kung Au into the northern and southern sections. The northern section is approximately 4.7km long; it starts from its lowest point at Lung Tseng Tau, and rises 300m to Pak Kung Au. The first half of the northern section will be widened along the existing alignment of the road but, from the Tai Tung Shan Reservoir the proposed alignment will be taken east of the existing road. The southern section then continues from Pak Kung Au and will be relatively shorter at 2.5km. It will be aligned completely east of the existing road, taking the newly formed Tung Chung Road to South Lantau Road at Pui O.

The whole Tung Chung Road was divided into two main sections: Northern and Southern sections. North section starts from Chainage 1000 and ends at Chainage 4686. There are total of six zones along this part of the road: Zone A to Zone F. Zone A to Zone D were classified as 'on-road' portion and Zone E to Zone F were classified as 'off-road' portion. For the on-road portion, the existing Tung Chung Road will be widened to standard traffic road width; whereas a new road will be formed in the off-road portion. The details of the division of these zones are shown in the following table and the attached drawing TCR/TW/SF/001 (A). As the features along the on road portion are assessable from the existing Tung Chung Road; no haul road is required for the construction works to be carried out. The Temporary Traffic Arrangement will cater the works for Zone A to Zone D. Therefore, only haul road with two entrances at both ends of Zones E and F will be formed for the off-road portion.

Portion	Zone	Chainage
On-road	ZONE A - D	CH 1000 to CH3100
Off-road	ZONE E	CH 3100 to CH4000
	ZONE F	CH 4000 to CH4686

Description of the layout of the haul road

The two entrances for the haul road will be constructed concurrently nearby Chainage 3200 and 4300 to provide access for the works to be carried out. The temporary drainages at the toe of the slopes next to the existing Tung Chung Road will be constructed at the same pace to provide access for the run-off due to formation of haul road.

Zone E Entrance: (Reference drawing: TCR/TW/SF/009 To 011)

The haul road will commence at the location nearby the Tai Tung Shan Service Reservoir next to the existing stream 15 as shown on the drawing TCR/TW/SF/009. Concrete blocks will be placed besides it as shown on the same drawing to prevent run-off flowing into the stream. After vegetation clearance, excavation into the woods area will begin to form the haul road for access. Works for Zone E will begin and progressing in the uphill direction. The levels of the haul road will keep changing until the design road formation level is achieved. Sub-base layer will be laid as final road surface of the haul road.

Zone F Entrance: (Reference drawing: TCR/TW/SF/012 To 013)

The haul road will commence from the open space area at the end of Zone F going in the downhill direction, the approximate location is shown on drawing TCR/TW/SF/012. The excavation into the woods area will begin to form the haul road for access. Works will be carried out in the downhill direction and it will match with the haul road form Zone E.

Diversion of existing streams

For those streams for which the existing culverts are to be extended (Stream Nos. 17 & 18), the stream will be temporarily diverted either through the site by concrete pipe/PVC pipes or into the adjacent existing drainage channels nearby to ensure that the stream water does not mix with contaminated site runoff.

For those streams for which new box culverts are to be constructed (Stream Nos. 16, 19, 20 & 21), the streams are to be dammed or diverted into existing drainage channels nearby while the culverts are under construction. The works are programmed such that these culverts are to be constructed prior to the haul road reaching the stream edge.

Protection of the existing streams

Stream without box culvert usually running underneath a bridge structure. In order not to contaminate the streams, steel decking will be constructed to span across it. The general arrangement of the steel deck bridging across the stream and the schematic sketch is shown on TCR/TW/SF/SK003. This steel deck serves two purposes: it does not only stop site run-off from both sides flowing into the streams; it also allows an access for the mobilization of the machinery for the site. The site runoff will be collected into the filter tanks for removal of contaminants before connected to the temporary pipelines or drainage channels and flowing to the Wong Lung Hang nullah. Sheetpiles will be used as U-channel to collect surface runoff from the temporary steel deck; runoff collected from this U-channel will flow into a catchpit and discharge to the nearby temporary drainage as shown on the same sketch.

Time frame

This haul road will be formed concurrently at both ends will start in early-December.

Procedures for construction of haul road and temporary drainage:

1. Set out the alignment for the haul road and the toe channels.
2. Set up the discharging point with oil interceptor and filter tank.
3. Formation of earth bund / sand bags at down slope side of the haul road to avoid spillage of run-off. Earth bund / sand bags would also direct the run-off to the discharging point. The earth bund / sand bags will be paved within three days after the completion of the individual section to prevent erosion of the exposed soil surface.
4. Construction for the toe channels.
5. Minor excavations for the proposed haul road and temporary drainage:
 - Remove topsoil material.
 - Soil materials to be trimmed down and compacted using suitable roller

- Temporary drainage ditch would be made along the toe of slope being excavated. It would enable the collection of drains and direct the drains towards the discharging point.
 - Minor crossfall towards the ditch would be maintained across the haul road to enable the collection of drains.
 - Minor excavation to be carried out layer by layer until the designed formation level of haul road is reached.
6. Surface of haul road would be paved to reduce run-off and toe channels would be constructed before large-scale excavation works commenced.

Procedures for Construction of Temporary Bridge

The sequence of the construction of a temporary bridge is as follows:

- (i) Construct haul road up to a point before the stream course or location at which bridging is required.
- (ii) Construct suitable level conditions to support the bridge at each embankment making sure habitat along the stream is not damaged.
- (iii) Crane equipment across stream course.
- (iv) Construct or launch bridge over stream course depending on which method is suitable for location.
- (v) Move on to next crossing.

Minimizing the Water Quality Impact

In accordance to Clause 14.3.5 in the EIA Report (Register No. AEIAR-061/2002), it is the contractor's responsibility to minimize the water quality impact during the formation of haul road. The issues as addressed in this clause and the corresponding actions to be taken by the contractor are summarized in the following sections.

The design of the drainage system capacity will be designed for a 1:10 year storm event. The temporary and permanent drainage systems will be constructed in sections or catchment areas. They will be completed in conjunction with the main road works to discharge the construction site runoff properly but not into the streams. A separate temporary drainage system will be provided for the control of the construction site runoff in the southern area and shall be in place prior to the main road works. The southern alignment will be divided into small catchments for the provision of the temporary drainage system in order to enhance the control of runoff. The wheels of all

vehicles leaving and entering the construction site will be washed to minimize the carry over of mud onto public roads and into the water gathering grounds. Wheel wash water will be recycled and only discharged after removal of silt by sand/silt removal traps. All plants and equipments will be in proper working order and have no leakage of fuel or oil. Any waster oils will be collected in designated tanks prior to disposal off site. Temporary bridge will also be constructed at stream course to minimize the impact on the water.

Ecological Impact and Preventive Action

In accordance to Clause 14.3.5 in the EIA Report (Register No. AEIAR-061/2002), it is the contractor's responsibility to minimize the ecological impact during the formation of haul road. The issues as addressed in this clause and the corresponding actions to be taken by the contractor are summarized in the following sections.

Temporary drainage systems together with filter tanks, oil interceptors, sedimentation tanks and discharge points will be located to collect all the site run-off and they will be diverted to Wong Lung Hang nullah for the northern section and Pui O Wan outfall and other existing streams for the southern section after treatment. These measures can prevent construction works damaging the ecology of water courses, no site run-off will flow into the Tung Chung Stream and the Cheung Sha Stream.

Transplantation of the shrub *Pavetta hongkongensis*, orchids *Acampe rigida* and *Liparis viridiflora* and tree *Artocarpus hypargyreus*; translocation of Hong Kong Newt, Lesser Spiny frog, Romer's Tree Frog from streams 15, 18, 19, 21 and between Lung Tseng Tau and Shek Mum Kap and Beijing Thick-lipped Bard in stream 15 to tributary of Tung Chung Stream will be completed before the commencement of works in the respective areas.

Special design of new culverts; culvert inlet and outlets for streams 18, 19 and 21 will be carried out by the Engineer at these specify streams. Particular attentions are focus here as the above mentioned species are living around these areas.

No works will be carried out at streams 15, 18, 19 and 21 during the period April to June which is the key breeding period for fishes, amphibians and odonates.

In order to mitigate the vegetation loss, tree felling plan has been submitted and trees have been put into 'fell', 'retained' and 'transplanted' categories. Trees should not be trimmed or removed without the prior consent by the Engineer to minimize the vegetation loss caused by the construction works.

Reinstatement of land temporarily required during construction will be carried out within 3 weeks of the areas being completed. This work to be supervised by the Engineer Representatives.