

Appendix M

Proactive Environmental

Proforma

Proactive Environmental Protection Proforma

Ref.: HMTS_201910

Ref ⁽¹⁾	Proposed Construction Method ⁽²⁾	Location / Working Period	Anticipated Impacts	Recommended Mitigation Measures
EIA Ref: 3.5.1 (Tunnel Alignment Sections)	Excavation by Drill & Blast at HMTS for the construction adit connecting Eastbound and Westbound of the Central Tunnel.	HMT Shaft towards YMT and MTK Anticipated working period to complete the temporary construction adit: 3 months	~1% additional C&D materials (13,000m ³) to be generated from the excavation of construction adit.	All excavated rocks from the construction adit shall be reused as much as possible on-site or in other approved/designated Contracts. The impact of surplus C&D materials to the public fills is very minimal.

Notes:

(1) EIA Ref/EM&A Log Ref/Design Document Ref

(2) Details of equipment, vehicles, plants, processes, technologies for the option of construction method

Reviewed by Environmental Team Leader: Yokung (David HUNG)

Date: 4 November 2019

Approved by Independent Checker (Environment): Mandy TO (Mandy TO)

Date: 4 NOV 2019



Proactive Environmental Protection Proforma for Alternative Construction Method – *Construction Adit at Ho Man Tin Access Shaft*

Introduction

Bouygues Travaux Publics (BYTP) was commissioned by the Highway Department as the Main Contractor of the Contract HY/2018/08. Fugro Technical Services Ltd is appointed by BYTP as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during the construction phase of the Project.

The Environmental Impact Assessment (EIA) Report for Central Kowloon Route (CKR) (Register No.: AEIAR-171/2013) was approved on 11 July 2013. An Environmental Permit (EP) for the CKR was granted on 9 Aug 2013 (EP No.: EP-457/2013) and the latest Variation of EP (VEP) (EP No.: EP-457/2013/C) was subsequently issued by the EPD on 16 January 2017.

At times during the construction phase the Contractor may submit method statements for various aspects of construction. This state of affairs would only apply to those construction methods that the EIA has not imposed conditions while for construction methods that have been assessed in the EIA, the Contractor is bound to follow the requirements and recommendations in the EIA study. The Contractor's options for alternative construction methods may introduce adverse environmental impacts into the Project. It is the responsibility of the Contractor and ET, in accordance with established standards, guidelines and EIA study recommendations and requirements, to review and determine the adequacy of the environmental protection and pollution control measures in the Contractor's proposal in order to ensure no unacceptable impacts would result. To achieve this end, the ET shall provide a copy of the Proactive Environmental Proforma to the IEC for approval. The IEC should audit the review of the construction method and endorse the proposal on the basis of no adverse environmental impacts.

Original Scheme for Construction of Central Tunnels

Excavations of Central Tunnel will be started from the Ho Man Tin (HMT) shaft by Drill and Blast method. Initially, there are four tube tunnels (Eastbound and Westbound), two will be excavated toward West to Yau Ma Tei (YMT) and the same will be excavated toward East to Ma Tau Kok (MTK).

The drill and blast excavation will be performed by repeating the same sequence of works for consecutive profiles until the breakthrough of the Westbound and Eastbound tunnels. One drill and blast cycle mainly involves the following steps:

1. Drilling
2. Charging
3. Blasting
4. Mucking Out
5. Scaling and mucking out the scaled spoils
6. Profile survey
7. Shotcreting & grouting (if necessary)
8. Mapping & Probing



Proposed Scheme for Temporary Adit (Construction Adit)

BYTP will propose to build a temporary construction adit (short bypass tunnel) by Drill and Blast method at the HMT shaft bottom connecting to the Eastbound and Westbound of the Central Tunnel. The reason for the proposal is to alleviate the foreseeable traffic congestion inside the Central Tunnel during the construction phase. A layout plan is attached showing the alignment of Central Tunnel and the temporary construction adit.

The construction adit will be blasted from the HMT shaft bottom to allow early access to the Eastbound and Westbound of the tunnel and followed by the construction of Central Tunnel towards YMT and MTK.

The construction adit shall be backfilled with suitable materials after the completion of excavation works for the Central Tunnel. In other words, the conforming design of the CKR Central Tunnel shall remain unchanged. The temporary construction adit will be blasted according to the requirements stipulated in the CKR EIA report and within the assessment zone of the blasting permit governed by Mines Department.

Environmental Impact Associated with the Proposed Scheme and Recommended Mitigation Measures

1. Airborne Construction Noise Impact

PME arrangements for the construction of Central Tunnel and the construction adit are the same, with the noise enclosure covering the shaft. In this case, no additional noise impact arising from the proposed scheme for construction adit is anticipated.

According to the EM&A programme, noise monitoring shall be conducted at the identified NSR (M-N3) by the Environmental Team on a regular basis. The monitored results will be reported in the monthly EM&A report accordingly.

2. Groundborne Construction Noise Impact

All blasting activities will be carried out according to the time table agreed among AMMJV, Mines Division and BYTP before the commencement of blasting operation.

Given that the duration of each blast will be short and the blasting operations will be carried out outside sensitive hours, no adverse groundborne construction noise impact is anticipated.

3. Waste Management

It is estimated that additional 13,000m³ C&D materials (Grade II granitic rocks) will be excavated from the construction adit. The quantities of other types of waste will be minimal. The quantity of excavated materials is considered insignificant comparing the construction adit to the 2.8km Central Tunnel (estimated 1,100,100 m³).

According to the Contract requirement, all excavated granitic rocks shall be reused as much as possible in other approved/designated Contracts. The impact of surplus C&D materials to the existing public fills is very minimal.



Provided that all the C&D materials and wastes are handled, transported and disposed of using the methods and good site practices recommended in the EIA report, adverse environmental impacts associated with the handling, transportation and disposal of surplus C&D materials and other general waste are not anticipated.

4. Water Quality

The main water quality concern in the EIA in connection with tunneling and excavation works relates to the suspended solid (SS) levels in effluent discharge. The discharge quality shall be regulated by the WPCO discharge license.

With the implementation of the mitigation measures recommended in the approved EIA report, no additional water quality impact is anticipated with the drill and blast work activities for the construction adit.

5. Air Quality Impact

All construction dust, fumes and smoke associated with the drill and blast activities inside the shaft will be confined by a blast cover (a full noise enclosure above the shaft).

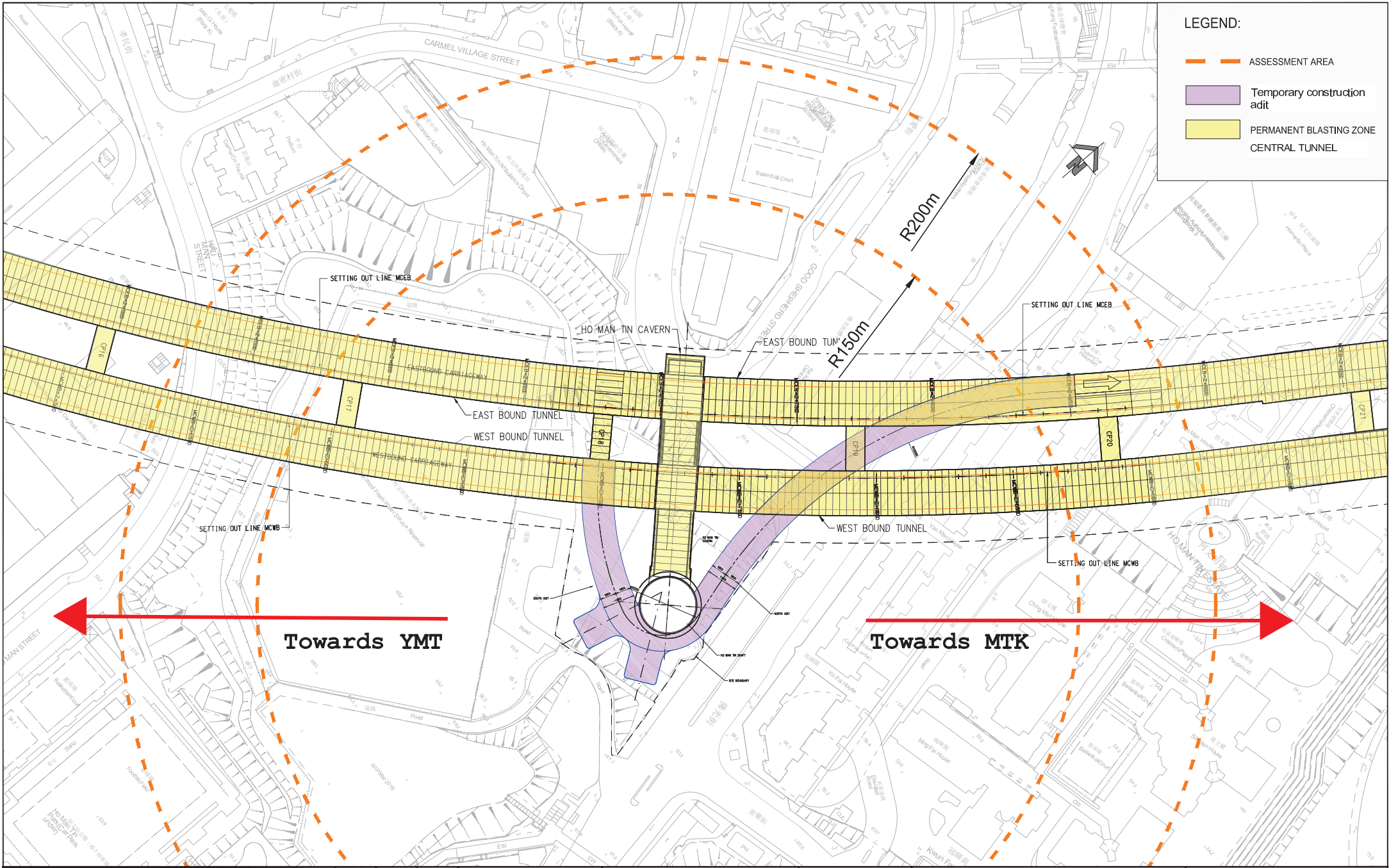
Provided that the ventilation with sprinkler system are provided to mitigate fumes and dust, no additional air quality impact arising from the proposed works is anticipated. According to the EM&A programme, air monitoring shall be conducted at the identified NSR (M-A3) by the Environmental Team on a regular basis. The monitored results will be reported in the monthly EM&A report accordingly.

Conclusion

A review has been conducted to assess the potential environmental impacts associated with the adoption of the same construction methodology in the EIA, i.e. Drill and Blast method, for the construction of temporary adit. The review concluded that minimal environmental impacts are anticipated when comparing the proposed scheme with the original scheme in the EIA report.

With the use of construction adit to alleviate traffic condition during the construction phase of the Central Tunnel, it is anticipated that the overall construction period will be shortened and thus reduce the potential environmental impact to the nearby NSRs.

[END]



LEGEND:

- ASSESSMENT AREA
- Temporary construction adit
- PERMANENT BLASTING ZONE


CENTRAL TUNNEL

Towards YMT

Towards MTK

A1	FIRST ISSUE	11/07/2019	LLAM	AWC	AWC	
REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	IN-CHARGE

MAIN CONTRACTOR



CLIENT



THE SUPERVISOR



PROJECT

Contract No. HY2018/08
Central Kowloon Route - Central Tunnel

DRAWING TITLE

HO MAN TIN SHAFT
LAYOUT PLAN
AREA FOR PERMIT OF USE
CATEGORY 1 DANGEROUS GOODS

DRAWING NO.

HKCKR/BTP/MDG/HMT/OMS/000041

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