Drainage Services Department Contract No. CM 4/2017 Independent Environmental Checker for Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert

Monthly Environmental Audit Report No.41 (May 2021)

Month Environmental Audit Report

First version | May 2021

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 258952

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Page

Contents

INTR	ODUCTION
1.1	Background
1.2	Scope of the Assignment
Proje	ct Organization
2.1	Project Organization and Management Structure
2.2	Construction Activities in the Reporting Period
Conc	ise Overview of Assignment Progress
Statu	s on Implementation of Environmental Mitigation Measure
Majo	r Accomplishment
Majo 5.1	r Accomplishment Deliverables
Ŭ	•
5.1	Deliverables

Figures

Figuro 1	Project Location
Figure 1	Project Location

Appendices

- Appendix A Project Organization and Contacts of Key Personnel
- Appendix B IEC Site Audit Checklist

1 INTRODUCTION

1.1 Background

The existing Cherry Street Box Culvert (CSBC) is a reinforced concrete 8-cell stormwater box culvert; each cell is 4.8 m wide and 3.5 m high. The CSBC collects run-off from three upstream box culverts underneath Palm Street, Cheung Wong Road and a section of West Kowloon Corridor West and ultimately discharges into the New Yau Ma Tei Typhoon Shelter (NYMTTS).

At present, the water quality at NYMTTS and the odour associated with it remains unsatisfactory. It is believed that polluted flow, including those from the expedient connections, cross-connections between the foul water sewerage and the stormwater drainage system in the area found their way into the CSBC and in turn discharges into NYMTTS. Measures have to be taken to improve the present conditions at the CSBC.

In 2010, Environmental Protection Department (EPD) completed a West Kowloon and Tsuen Wan Sewerage Master Plans Study Review and recommended to construct a dry weather flow interceptor (DWFI) at the outfall of the CSBC. Upon commissioning of the DWFI system, the intercepted flow would be discharged to the existing sewerage system via proposed discharge sewerage.

The proposed DWFI system will comprise construction of a DWFI at the CSBC to intercept the dry weather flow (DWF) inside the box culvert and construction of a sewage pumping station to pump the intercepted DWF to the existing sewerage network via proposed twin rising mains.

The Project titled "Construction of dry weather flow interceptor at Cherry Street box culvert" mainly comprises the construction of (i) an underground DWFI with automatic penstocks at CSBC; (ii) a pumping station; (iii) an underground stormwater bypass box culvert; and (iv) about 270 metres of underground twin rising main from the pumping station in (ii) above to an existing sewer at Lin Cheung Road. The Project will be implemented under PWP Item No. 4380DS. The Project location is shown in **Figure 1**.

The Project is classified as a designated project under item F.3(b) (i), Part 1 of the Schedule 2 of the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO), since the proposed sewage pumping station has an installed capacity (average dry weather flow) of more than 2,000m³ per day and its boundary is less than 150 m from an existing residential area.

A project profile (Register No. PP-527/2015) ("Project Profile") entitled "Proposed Sewage Pumping Station and Dry Weather Flow Interceptor at Cherry Street Box Culvert" was submitted to Environmental Protection Department (EPD) under Application No. DIR241/2015. Permission to apply directly for environmental permit was granted by EPD in September 2015. An Environmental Permit (EP- 523/2016) ("EP") to construct and operate the Designated Project was issued to Drainage Services Department (DSD) on 23 December 2016.

According to the EP, DSD shall employ an Independent Environmental Checker ("IEC") to audit the implementation of all mitigation measures recommended in the Project Profile and required under the EP, and certify in writing in the monthly audit report full implementation of the mitigation measures during the construction phase of the Project

Arup was commissioned by DSD as the IEC in accordance with the conditions stipulated in the EP (EP-523/2016) for a period of 64 months from 8 January 2018.

1.2 Scope of the Assignment

Scope of work of this Assignment includes:

- (i) Provide the continual services of an IEC as stipulated in the Project Profile and the EP and reporting the findings to the Employer and the Engineer. The role of the IEC shall be independent from the Contractors;
- (ii) Conduct monthly site audits on the implementation of all mitigation measures recommended in the Project Profile and the EP and reporting the findings to the Employer and the Engineer;
- (iii) Advise the Engineer and the Employer on environmental issues related to the implementation of environmental mitigation measures under Contract No. DC/2017/01;
- (iv) Provide comments on the environmental aspects of the works programme, method statements and other relevant submissions by the Contractors;
- (v) Attend the monthly Site Safety and Environmental Management Committee (SSEMC) meetings;
- (vi) Report the findings of the site inspection and other environmental performance reviews to the Engineer and the Employer; and
- (vii) Submit monthly audit reports to EPD and confirming in writing in the report full implementation of the mitigation measures as recommended in the Project Profile and EP during and upon completion of the construction works under Contract No. DC/2017/01.

2 **Project Organization**

2.1 **Project Organization and Management Structure**

The project organization and contacts of key personnel of the Project are shown in **Appendix A**.

3 Concise Overview of Assignment Period

3.1 Construction Activities in the Reporting Period

The construction activities carried out by the Contractor during the reporting period included the following:

- Internal finishing works in sewage pumping station was completed.
- External finishing works in sewage pumping station was in progress.
- Laying of DN1000mm incoming pipe of sewage pumping station was in progress.
- Installation of E&M equipment in sewage pumping station and Maintenance Corridor was in progress.
- Construction of civil requirement works in Cell 6 and 7 of DWFI was in progress.
- Installation of stoplog frame in Cell 5 outside Olympian City 2 was completed.
- Installation of multi-part covers at expanded desilting access of Cell 3, 4 and 8 outside Olympian City 2 was in progress.
- Construction of the expanded desilting shafts of Cell 1 and 2 outside Olympian City 2 was in progress.
- Desilting by the self-procured robot in Cell 3 outside Olympian City 2 was in progress.
- Desilting by Waylung in Cell 6 outside Olympian City 2 using bucket & load method was in progress.
- Desilting by Builderprise's diving teams in Cell 7 and 8 outside Olympian City 2 using air-lifting method was in progress.

The environmental performance was considered acceptable during the assignment period from 1 May 2021 to 31 May 2021.

4 Status on Implementation of Environmental Mitigation Measures

The potential environmental impacts and proposed mitigation measures to be incorporated into the design and construction of the Project are summarised in **Table 4.1** below.

Table	4.1	Summary	of	potential	environmental	impacts	and	proposed
enviror	nment	al mitigation	n me	asures				

Mitigation Measures	Implementation Agent	Status					
Dust nuisance							
1. Adopt dust control and suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation.	Implemented						
2. Water spraying on exposed area and during excavation.	Water spraying on exposed area and						
3. Provide wheel-washing facilities.		Implemented					
4. Cover stockpile of dusty materials by impervious sheets.		Implemented					
5. Provide hoarding of not less than 2.4m high from ground level along the site boundary adjoining Hoi Fai Road.	Contractor (Construction Phase)	Implemented					
6. Cover dusty load on trucks before they leave the construction site.		Implemented					
7. Avoid concurrent excavation activities for construction of underground DWFI, underground emergency stormwater bypass culvert and CSBCSPS.	void concurrent excavation activities c construction of underground DWFI, derground emergency stormwater						
8. Minimize area involving dusty construction activities by arrangement of construction activities and methods.		Implemented					
Odour							
1. Locate the inlet chamber, screen chamber, valve chamber and wet well of the sewage pumping station underground and enclose them by a reinforced concrete structure.	Contractor (Construction Phase)	Implemented					
 Install and properly maintain a deodorizer with a forced ventilation system and an odour removal efficiency of at least 99.5%. 	DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months					

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Mitigation Measures	Implementation Agent	Status			
Water Quality	8				
1. Control construction surface run-off according to ProPECC PN1/94, EPD's Practice Note for Professional Persons, Construction Site Drainage.		Implemented			
2. All chemical tanks and storage areas will be provided with locks and placed on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank.	Contractor (Construction Phase)	Implemented			
3. Install and properly maintain a standby pump and dual power supply.	Contractor (Construction	Implemented			
4. Provide a telemetry system to transmit signals showing irregularity or operational problem of the sewage pumping station and the dry weather flow interceptor to the Stonecutters Island Sewage Treatment Works.	Phase) DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months			
Noise					
1. Adoption of standard control measures such as adopting quiet mechanical equipment, temporary noise barriers and good site practices etc.		Implemented			
2. Construction Noise Permit is required for construction work during restricted hours as defined under the Noise Control Ordinance.	construction work during restricted hoursas defined under the Noise ControlOrdinance.Contractor				
3. Locate the pumps and screening facilities of the sewage pumping station underground and enclose them by a reinforced concrete structure.	sewage pumping station and and enclose them by a				
4. Install all outlets of the extraction fans with acoustic louvers.		Implemented			

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Mitigation Measures	Implementation Agent	Status
Waste Management		
1. Standard waste management measures and good site practices in waste handling, disposal and transportation will be implemented.		Implemented
2. The Contractor will be required to sort all C&D materials and general refuse into different categories for reuse on site, recycling and disposal at designated public fill reception facilities or landfills. Disposal of C&D materials will be managed through the trip-ticket system as stipulated in DEVB TC(W) No. 6/2010.	Contractor (Construction	Implemented
 All chemical wastes due to maintenance of equipment will be handled, stored and disposed of in accordance with the requirements of the Waste Disposal (Chemical Waste) (Chemical) Regulation. 	Phase)	Implemented
4. General refuse will be stored and disposed of separately from general construction waste and chemical waste. The storage bins for general refuse will be provided with lids, which should be kept closed to avoid odour nuisance and windblown litter. General refuse will be removed regularly and disposed of to landfills.		Implemented
Landscape and Visual		·
1. Erect site hoarding with decorative features that are compatible with the surrounding environment;		Implemented
2. Maintain site cleanliness and tidiness;	Contractor	Implemented
3. Properly manage construction waste in the works area;	(Construction Phase)	Implemented
 Reinstate all temporary works areas to its original conditions upon completion of works. 	DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months

Mitigation Measures	Implementation Agent	Status
5. Implement and properly maintain the landscape and visual mitigation measures (e.g. rooftop greening, grasscrete, paving lock, vertical greening, permanent shrub planter, removable shrub planter, bench with shelter, and removable planter with trees) as shown in Figure 2 of the EP.		N/A for the reporting month and shall be implemented in the later months

5 Major Accomplishment

5.1 Deliverables

Deliverables completed in the reporting period are summarised in Table 5.1.

 Table 5.1 Completed deliverables

Description	Submitted by IEC
Monthly Environmental Audit Report No. 40	11 May 2021
(April 2021)	

Planned deliverables to be completed in the coming reporting period is summarised in **Table 5.2**.

Table 5.2 Planned deliverables

Description	Planned Submission Date	Status
Monthly Environmental Audit Report No. 41 (May 2021)	10 June 2021	On schedule

5.2 Meetings

No meeting was held in the reporting month.

5.3 Summary of Work Done

Upon commencement of the Assignment, accumulated numbers of IEC monthly environmental audit report submission and various kinds of meetings are summarized in **Table 5.3**.

Table 5.3 Summary of work done

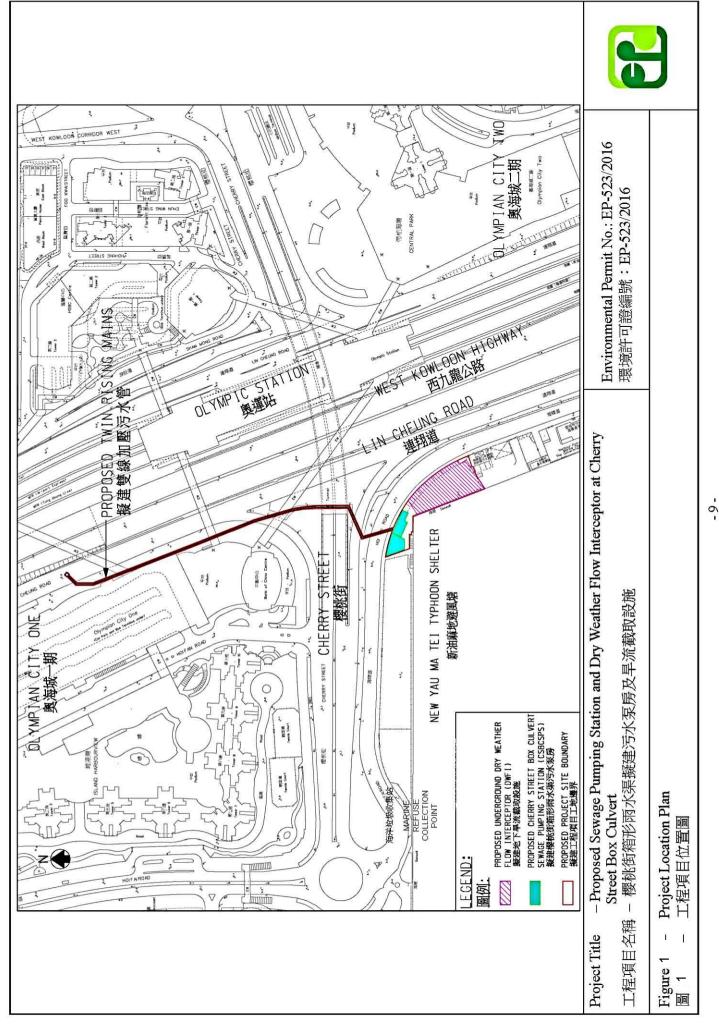
Work	Number			
Reports				
IEC Monthly Environmental Audit Report	41			
Meeting				
IEC monthly site inspection with DSD, Engineer Representative and Contractor	37			
Project related meeting with DSD and EPD	1			

5.4 IEC Site Audit

IEC site audit was conducted on 28 May 2021 with the presence of DSD, Resident Site Engineer, Contractor and IEC. No major site defect was observed in the reporting month. The IEC site audit checklist is given in Appendix B.

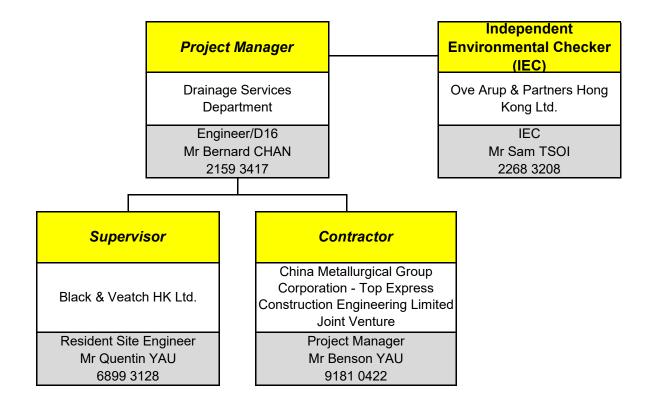
Figure 1

Project Location



Appendix A

Project Organization and Contacts of Key Personnel



— Contractual Relationship

Appendix B

IEC Site Audit Checklist

Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert Independent Environmental Checker Environmental Site Inspection Checklist

		Construction of dry weather flow interceptor at Cherry Street Box Culvert CM 4/2017 IEC's Rep. : Hilton Tam Cilent's Rep. : Engineer's Rep. : Contractor's Rep. : W. H. Law Weather				IEC Client Contractor Engineer Inspection Date Time Period	Draina China Top E> Black &	ge Servi Metallurg press C & Veatch	HK Ltd.	rtment p Corpo n Engin	oration - eering Limited JV
	Humidity	∐§únny ∐High ⊡¢aim	Tine Moderate	Dvercast Low Breeze	\$torm \$trong	R ain	Drizzle Tempe	⊡H rature	azy		33 ℃
No. 1 2 3 4 5 6 7	Part II Is drainage sy Is drainage sy Are there dyke Are there perin runoff from ou Are sediment of Are there temp watercourse?	Water Qualit stem adequa stem well m stem adequa es to surrour meter chann tside the site control meas porary ditche	y and Draina ate? aintained? ately designe dareas of ei els at site bo e so that it wi sures inspect es for runoff o	ge d for storm fl arthworks for undaries to ii l not wash au lot wash au ed & maintai lischarge into	low? flood protect ntercept stor cross the site ned after rai o appropriate	m è? ny storms? è		Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves	Rdr Obs		Photos / Remarks
8 9a 9b 10 11	Do permanent Is site runoff p Is groundwate	porary ditches with silt retention and removal facilities? drainage channels have: sedimentation basin? traps and baffles? rohitated from entering the river channel? r from tunnels or surface runoff collected and discharged								Obs I	
12 13a 13b 13c 14 15 16	via sedimentat Are there sedim Are the sedimo Are there neut Is the discharg Is the discharg	mentation ta entation tank ralisation tar ge diverted to ge from neuti	nks for settlin ss: construct with ade free from nks for concre o and treated	ed of pre-form quate capacity silt and sedin ete batching/ in neutralisa	ned individual /? nent? mixing disch tion tanks?	cells? arge?					
17 18 19 20	tanks before d Are there oil in Are oil and gre Is there any by Are vehicles a leaving the site	terceptors in ase remove pass for oil nd plant clea	d regularly (a to prevent flu	at least week shing during	periods of h	eavy rain?					
21 22a 22b 22c 22d 22e 23 24 25	Is a wheel was Is the wheel was Is exposed ear Are exposed s	thing bay pro ashing bay v th stabilized lope surface	vith: adequ adequ paved access wheel after comple s covered (b	ate design? ate settling & access road I s road sufficiel wash bay? etion of earthy y tarpaulin on	eading to exit ntly backfill to works?	? ward		वहा वहाव			
25 26 27 28 29 30	Are open stock Are manholes Are accessed Are toilets com Are debris and Is wastewater	covered and roads protect nected to fou rubbish on	l sealed? ted by crush il sewer or cl site collected	ed stones or nemical toilet and dispose	s provided? d of properly	1?					

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Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert Independent Environmental Checker Environmental Site Inspection Checklist

No.	Part III Air Quality	N/A, N/O Yes Rdr Obs N/C Photos / Remarks
1	Are vehicles in the site travelling within speed limit of 10 km/h?	
2	Are site vehicle movement confined to designated haul roads?	
3	Is the public road around the site entrance kept clean and free from dust?	
4	Are areas of site with regular traffic movement have hard surface?	
5	Are the haul roads watered regularly to avoid dust disturbance?	
6	Are unpaved areas watered regularly to avoid dust disturbance?	
7	Does the water spraying truck work effectively?	
8	Is working area of excavation or earth moving operation sprayed with	
	water to maintain the entire surface wet?	/
9	Are the dusty materials sprayed with water during transfer operation?	
10	Do the site vehicles use the wheel wash at the site exits?	
11	Does the wheel wash work effectively?	
12	Are hoarding not less than 2.4m tall provided beside roads or areas with public access?	
13	Are incombustible screens not less than 1.8m tall provided in the public area	
	affected by exhaust fumes or smoke emission?	
14	Is dark smoke emission avoided?	
15	Are dusty materials properly covered?	
16	Are the bags of cement (more than 20) covered entirely?	
17	Are the excavated materials dropped at minimum practical height?	
18	Are conveyor belts fitted with windboards, transfer points and hoppers enclosed?	
19	Are bulk fine grained materials stored in closed silos fitted with high level alarm indicator?	
20	Are air vents on cements silos fitted with fabric filters?	
21	Are weigh hoppers vented to suitable filters?	
22	Are there enclosures around the main dust-generating activities?	
23	Are completed earthworks sealed and hydroseeded and planted as soon	
	as practicable?	1
24	Is open burning avoided?	
25	Are vehicles and equipment switched off while not in use?	
26	Are all trucks loaded to a level within the side and tail boards?	
27	Are materials transported by dump trucks with mechanical cover?	
28	Do the truck covers work effectively?	
29	Does ULSD used in the construction activities?	
30	Observable dust sources	Dyehicle/equipment movements Tothers Construction
	loading/unloading of materials	Construction
No.	Part IV Construction Noise Impact	N/A N/O Yes, Rdr Obs N/C Photos / Remarks
1a	Are the construction works scheduled to minimize airborne noise nuisance?	
1b	groundborne noise nuisance?	
2a	Are the works or equipment sited to minimize airbrone noise nuisance?	
2b	groundbrone noise nuisance?	
3	Are all plant and equipment well maintained and in good operating condition?	
4	Are idling equipment throttled down or turned off?	
5	Are powered mechanical equipment covered or shielded by appropriate acoustic materials?	
6	Are silenced equipment used where practicable?	
7	Are noise enclosure, noise barrier, or portable noise barrier used where necessary?	
8	Do hand-held breakers (larger than or equal to 10kg) have valid noise labels?	
9	Do Quality Powered Mechanical Equipments (QPME) have valid noise labels?	
10	Do air compressors have valid noise labels?	
11	Do compressors operate with doors closed?	
12	Are Construction Noise Permits available for inspection?	
13	Major noise source(s)	Construction activities inside of site
	Construction activities outside of site	Others

Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert Independent Environmental Checker Environmental Site Inspection Checklist



No. 1a 1b 1c 2a 2b 2c 2d 2e 3a 3b 3c 3d 3e 4a 4b 4c 5a 5b 5c 6	Part V Waste Management and Contamination General refuse: Is accumulation avoided? Is receptacles (e.g. rubbish bins) available? Is there regular and proper disposal? Construction waste: Is there avoidance or minimization of construction waste generation (e.g. use of steel formwork)? Is there on site segregation as far as practicable for reuse and recycle? Is construction waste reused where practicable? Is construction waste or ublic landfill? Are trip tickets available for inspection? Chemical waste/waste oil: Is there designated storage area? Is chemical waste/waste oil: Is there proper disposal? Are trip tickets available for inspection? Is chemical waste/waste oil stored properly? Is there proper disposal? Are trip tickets available for inspection? Excavated material: Does excavated material appear uncontaminated (colour, odour)? If contamination is suspected, is appropriate procedure followed? Are trip tickets available for inspection? Chemical/fuel: Is chemical/fuel stored in bunded area? Is bund capacity adequate (>110% of the largest tank)? Are storage areas provided with locks and located on sealed area?	N/A N/O Yes Rdr Obs N/C D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D D	Photos / Remarks
7	materials available for inspection? Is foam, oil, grease or other objectionable matters in water of nearby drains or sewer avoided?		
No. 1 2 3 4 4a 4b 5 6 7	Part VI Landscape & Visual Impact and Ecology Is stripped top soil stored for re-use? Are retained trees protected from damage? Are compensatory trees planted and properly maintained? For trees identified for transplant in EP: sufficient buffer zone allowed prior to transplant? properly maintained following transplant? Is night-time lighting controlled to minimise glare to sensitive receivers? Is the screen hoarding compatible with the surrounding setting? Do the site clearance and tree felling works at the existing ardeid night roost only be carried out at wintering season (November to March inclusive)?	N/A N/O Yes Rdr Obs N/C	
No. 1	Part VII Others Is a copy of the relevant permits/licences/registrations displayed on the Project site at all vehicular site entrances/exits or at a convenient location for public information all times?	N/A N/O Yes Rdr Obs N/C	

Part VIII Follow-up for the Pervious Site Audit

Notes: N/A - Not Applicable; N/O - Not Observed; Yes - Compliance; Rdr - Reminder; Obs - Observation; and N/C - Non Compliance

Part IX Remarks

ObsI · Following previous inspection, silt curtain flocet stays above sea level, however, the silt curtain screen was poorly adjusted or dowaged, in result leakage of contamination into sea. Contractor should rectify the issue Turne drately.

Part X Signatures

IEC's Representative 1.hr (Name: TAPI) Hilton

Engineer's Representative

(Name: P-k kons

Client's Representative - and (Name: Jason, CHEWNET

Contractor's Representative

) (Name: LAM W-H+

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