





### Appendix 3.8 Calculation of Odour Emission of Refuse Transfer Station and Sewage Treatment Works

#### Design Assumption for Planned Refuse Transfer Station in NDA

The design capacity of the planned refuse transfer station (RTS) in NDA would be 1,100 tonnes per day. It is noted that the design capacity of North Lantau Transfer Station is 1,200 tonnes per day ([http://www.epd.gov.hk/epd/english/environmentinhk/waste/prob\\_solutions/msw\\_nlts.html](http://www.epd.gov.hk/epd/english/environmentinhk/waste/prob_solutions/msw_nlts.html)).

The design of the planned refuse transfer station would be made reference to North Lantau Transfer Station.

The following design assumption for North Lantau Refuse Transfer Station adopted in the Siu Ho Wan OWTF EIA Report would be applied for the planned RTS for this NDA EIA Study except the odour emission rate which would be based on the North East New Territories Landfill Extension.

([http://www.epd.gov.hk/eia/register/report/eiareport/eia\\_1762009/Appendices/EIA%20Report/Appendix%203.4.pdf](http://www.epd.gov.hk/eia/register/report/eiareport/eia_1762009/Appendices/EIA%20Report/Appendix%203.4.pdf))

Description	Model Parameter	Remarks:
North Lantau RTS Building area	1744.48 m <sup>2</sup>	
Odour Emission Rate, SOER:	3.91 ou/m <sup>2</sup> /s	From the approved North East New Territories (NENT) Landfill Extension EIA Report, the average measured SOER at tipping face is 3.91 ou/m <sup>2</sup> /s for MSW
Odour emission rate:	6820.92 ou/s	Calculated
Number of stacks:	3	By observation
Odour emission rate per stack	2273.64 ou/s	Calculated
Mitigated Odour emission rate	227.36 ou/s	90% odour removal
Exit temperature:	0K	Ambient temperature
Stack height:	15m	By observation
Exit Velocity	1m/s	Same assumption in OWTF EIA Study
Diameter	1.6m	Same assumption in OWTF EIA Study

#### Design Assumption for Planned Sewage Treatment Works in NDA

The ultimate design capacity of the planned Sewage Treatment Works (STW) would be 85,500m<sup>3</sup> per day and it would be Tertiary Sewage Treatment Plant for collecting the municipal sewage. The design of STW would be made reference to the design of Shek Wu Hui STW as (i) it is Tertiary Sewage Treatment Plant and (ii) the influent of both STWs are municipal sewage.

The NENT EIA study has conducted odour impact assessment on the Shek Wu Hui STW based on the ultimate capacity of 190,000 m<sup>3</sup> per day and the odour source emission areas of the STW would be enclosed and the vented air would be treated in the deodorizing unit with 90% odour removal efficiency.

In this NDA EIA Study, the design of the planned STW would make reference to the design assumption of the Shek Wu Hui STW in the NENT EIA Report.

([http://www.epd.gov.hk/eia/register/report/eiareport/eia\\_2132013/eia/pdf/appendix/appendix\\_3-8.pdf](http://www.epd.gov.hk/eia/register/report/eiareport/eia_2132013/eia/pdf/appendix/appendix_3-8.pdf))

Design Parameter	Model Parameter	Remarks:
Total odour emission rates of the all enclosed odour emission sources areas of planned STW	28, 788.37 ou/s	About one half of the total odour emission rate of the Shek Wu Hui STW (57576.74 ou/s)
Odour Removal Efficiency of Deodorizing Unit:	95%	Max. achievable removal efficiency
Height of the Exhaust Point	10m	Similar to Shek Wu Hui STW
Exit Velocity	10m/s	Similar to Shek Wu Hui STW
Exit temperature:	298K	Similar to Shek Wu Hui STW

#### Design Assumption for Upgrading and expansion of San Wai Sewage Treatment Works

Adopt the odour emission rate and the design of deodorizing unit as mentioned in approved EIA Report of "Upgrading and expansion of San Wai Sewage Treatment Works and expansion of Ha Tsuen Pumping Station" and its Environmental Permit.

[http://www.epd.gov.hk/eia/register/report/eiareport/eia\\_0862002/EIA%20main%20report/EIA\\_toc.htm](http://www.epd.gov.hk/eia/register/report/eiareport/eia_0862002/EIA%20main%20report/EIA_toc.htm)

All the major odour sources would be contained within either building structures or enclosures. All the odour emissions from the odour sources would be ventilated to a centralised deodorization unit (**with H<sub>2</sub>S removal efficiency of up to 96%**) located at the centre of the STW. All the treated air would be emitted from the exhaust vent shaft of the deodorization unit with an exhaust height of 5m above ground and an exit velocity of 10m/s.

Emission source:

[http://www.epd.gov.hk/eia/register/report/eiareport/eia\\_0862002/EIA%20main%20report/Appendix/Appendix%203B.pdf](http://www.epd.gov.hk/eia/register/report/eiareport/eia_0862002/EIA%20main%20report/Appendix/Appendix%203B.pdf)

Locations of the DO unit:

<http://www.epd.gov.hk/eia/register/permit/latest/figure/ep4642013figure1.pdf>

Appendix 3.8 Calculation of Odour Emission of Refuse Transfer Station and Sewage Treatment Works

Project: HSKNDA

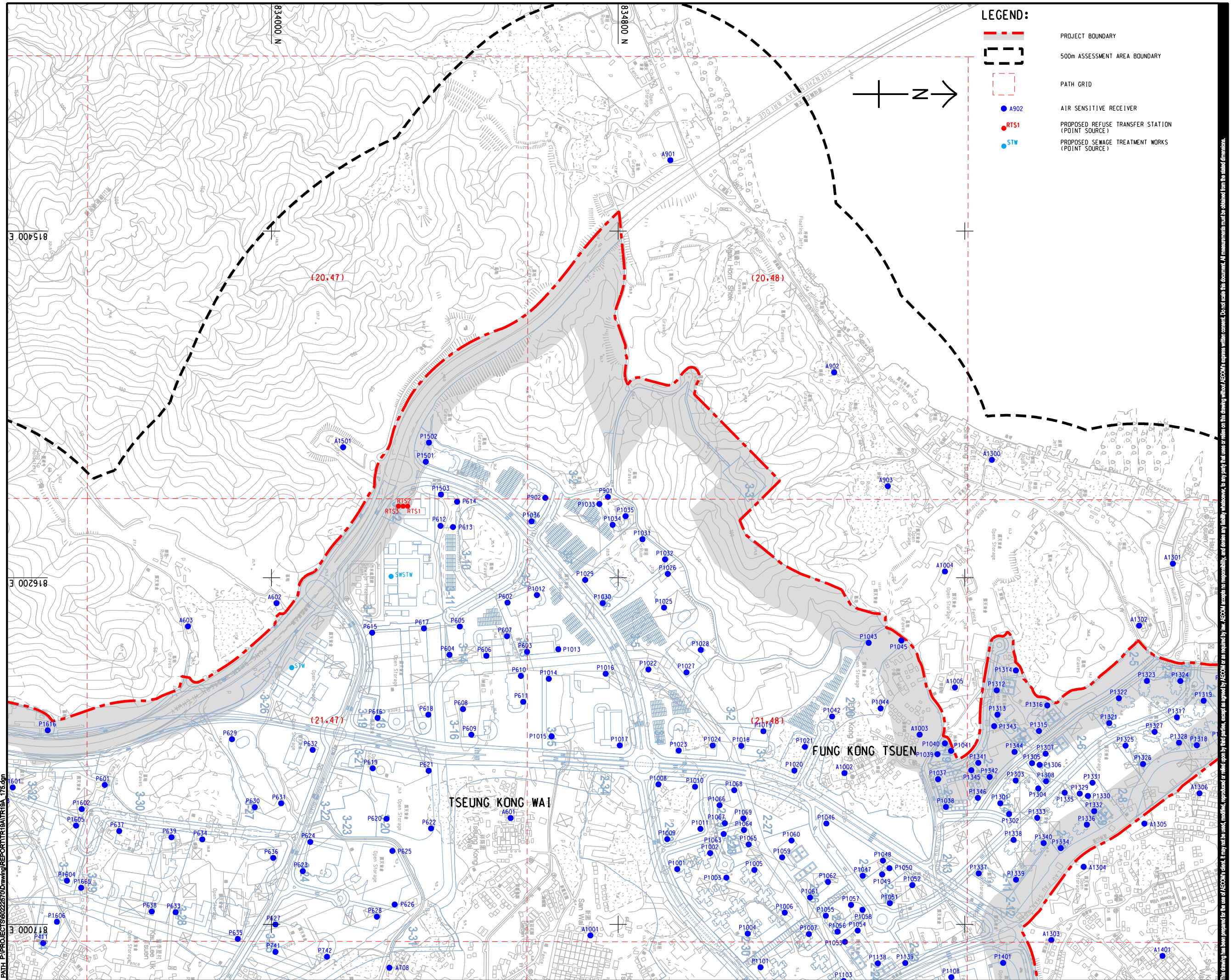
Location and Details of RTS, San Wai STW and HSK STW

Scenario: Year 2031 - Year 2039

Source ID	Source Type	Coordinates of Centriod		Dimension		Height (m)	Angle (deg / m)	Exhaust Temp. (K)	Exhaust Velocity (m/s)	Stack Diameter (m)	Emission Factors (OU/s)	
		x1	y1	x2	y2						Daytime Shift (08:00 - 16:00)	Night-time Shift (16:00 - 24:00)/ Morning Shift (24:00 - 08:00)
		(m)	(m)	(m)	(m)						OU	OU
RTS1	Point	816034.933	834314.174	0	0	15	0	0	1	1.6	2.274E+02	2.274E+02
RTS2	Point	816034.933	834303.665	0	0	15	0	0	1	1.6	2.274E+02	2.274E+02
RTS3	Point	816034.933	834292.823	0	0	15	0	0	1	1.6	2.274E+02	2.274E+02
SWSTW	Point	816197.03	834275.812	0	0	5	0	303	10	0.946	2.022E+02	2.022E+02
STW	Point	816407.607	834046.607	0	0	10	0	298	10	1	1.439E+03	1.439E+03

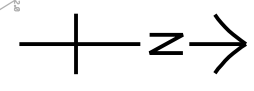


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 Approved:  
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 Designer:  
 Project Management Initials:  
 Pld File by: ZENGFY  
 PATH: P:\PROJECTS\60222570\DRAWING\REPORT\TR19A\TR19A\_175.dgn



**LEGEND:**

- PROJECT BOUNDARY
- 500m ASSESSMENT AREA BOUNDARY
- PATH GRID
- A902 AIR SENSITIVE RECEIVER
- RTS1 PROPOSED REFUSE TRANSFER STATION (POINT SOURCE)
- STW PROPOSED SEWAGE TREATMENT WORKS (POINT SOURCE)



**AECOM**

**PROJECT**  
 HUNG SHUI KIU NEW DEVELOPMENT AREA PLANNING AND ENGINEERING STUDY - INVESTIGATION

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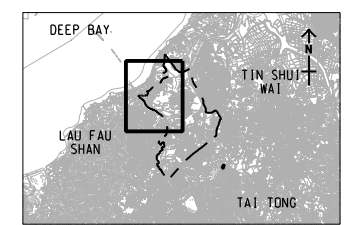
**ISSUE/REVISION**  
 修訂

IR	DATE	DESCRIPTION	CHK

**STATUS**  
 階段

**SCALE**  
 比例  
 A3 1 : 8000  
 A3 1 : 30000

**DIMENSION UNIT**  
 尺寸單位  
 METRES



**PROJECT NO.**  
 項目編號  
 60222570

**AGREEMENT NO.**  
 協議編號  
 CE2/2011 (CE)

**SHEET TITLE**  
 圖紙名稱  
 LOCATIONS OF ODOUR EMISSION SOURCE AT UPGRADE SAN WAI STW, NEW HSK STW AND PLANNED RTS

**SHEET NUMBER**  
 圖紙編號  
 60222570/TR19A/APPENDIX 3.8.1

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