Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B1 : Preliminary Construction Programme

No.	Activity Description	2012												2013							
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
I	**Existing Buildings** [1]																				
1	Phase 1 & Site Wide Structure	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y										
II	**New Building** [2]																				
2	Foundation	Y	Y	Y	Y	Y	Y	Y													
3	Excavation and Lateral Support (ELS)								Y	Y	Y	Y	Y	Y							
4	Basement / Superstructure Construction														Y	Y	Y	Y	Y	Y	Y

Notes:

[1] Phases 2 to 4 are A&A works for existing buildings mainly under indoor environment with minimal noise impact and therefore is not included in the construction noise impact assessment.

[2] Noise impact from curtain wall installation and fitting out works for the new buildings are expected to be minimal and therefore is not included in the construction noise impact assessment.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B2-1 : Construction Plant Inventory - Unmitigated

No.	Activities	Plant	TM / EPD[1] / BS 5228 ref.	No. of PME	On-time %	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[2]
I)	**Existing Buildings**							
1	**Phase 1 & Site Wide Structure**		**Sub-total SWL for Phase 1 & Site Wide Structure = 121**					
	Demolition							
		Breaker, hand-held, mass < 10kg	CNP 023	4	50%	108	111	**121**
		Breaker, excavator mounted (pneumatic)	CNP 027	1	75%	122	121	
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	CNP 068	2	50%	105	105	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%	95	95	
	Excavation and Lateral Support (ELS)							
		Excavator/loader, wheeled/tracked	CNP 081	2	75%	112	114	**118**
		Drill rig, rotary type (diesel)	EPD/PME/12	2	75%	110	112	
		Air Compressor, air flow > 30m3/min	CNP 003	2	75%	104	106	
		Water pump (electric)	CNP 281	3	50%	88	90	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%	95	95	
		Compactor, vibratory	CNP 050	2	50%	105	105	
		Crane, mobile/barge mounted (diesel)	CNP 048	2	50%	112	112	
		Grout mixer	EPD/PME/14	1	75%	90	89	
		Grout pump	EPD/PME/15	1	75%	105	104	
II)	**New Building**							
2	**Foundation**				**Sub-total SWL for Foundation = 120**			
	Piling							
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%	95	95	**116**
		Drill rig, rotary type (diesel)	EPD/PME/12	2	75%	110	112	
		Air Compressor, air flow > 30m3/min	CNP 003	2	75%	104	106	
		Grout mixer	EPD/PME/14	1	75%	90	89	
		Grout pump	EPD/PME/15	1	75%	105	104	
		Crane, mobile/barge mounted (diesel)	CNP 048	2	50%	112	112	
		Crane, tower (electric)	CNP 049	1	75%	95	94	
	CAP							
		Excavator/loader, wheeled/tracked	CNP 081	2	75%	112	114	**120**
		Saw, circular, wood	CNP 201	2	50%	108	108	
		Bar bender and cutter (electric)	CNP 021	2	75%	90	92	
		Breaker, hand-held, mass > 20kg and < 35kg	CNP 025	1	50%	111	108	
		Concrete lorry mixer	CNP 044	2	50%	109	109	
		Concrete pump, stationary/lorry mounted	CNP 047	2	50%	109	109	
		Poker, vibratory, hand-held	CNP 170	4	50%	113	116	
		Compactor, vibratory	CNP 050	2	40%	105	104	
		Water pump (electric)	CNP 281	2	50%	88	88	
		Air Compressor, air flow > 30m3/min	CNP 003	1	75%	104	103	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%	95	95	
		Crane, tower (electric)	CNP 049	1	75%	95	94	
		Crane, mobile/barge mounted (diesel)	CNP 048	1	50%	112	109	
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	CNP 068	1	50%	105	102	

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B2-1 : Construction Plant Inventory - Unmitigated

No.	Activities	Plant	TM / EPD[1] / BS 5228 ref.	No. of PME	On-time %	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[2]
3	**Excavation and Lateral Support (ELS)**					**Sub-total SWL for ELS =**		**118**
		Excavator/loader, wheeled/tracked	CNP 081	2	75%	112	114	**118**
		Drill rig, rotary type (diesel)	EPD/PME/12	2	75%	110	112	
		Air Compressor, air flow > 30m3/min	CNP 003	2	75%	104	106	
		Water pump (electric)	CNP 281	3	50%	88	90	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%	95	95	
		Compactor, vibratory	CNP 050	2	50%	105	105	
		Crane, mobile/barge mounted (diesel)	CNP 048	2	50%	112	112	
		Grout mixer	EPD/PME/14	1	75%	90	89	
		Grout pump	EPD/PME/15	1	75%	105	104	
4	**Basement / Superstructure Construction**					**Sub-total SWL for Basement / Superstructure Works =**		**120**
		Excavator/loader, wheeled/tracked	CNP 081	2	75%	112	114	**120**
		Saw, circular, wood	CNP 201	2	50%	108	108	
		Bar bender and cutter (electric)	CNP 021	2	75%	90	92	
		Breaker, hand-held, mass > 20kg and < 35kg	CNP 025	1	50%	111	108	
		Concrete lorry mixer	CNP 044	2	50%	109	109	
		Concrete pump, stationary/lorry mounted	CNP 047	2	50%	109	109	
		Poker, vibratory, hand-held	CNP 170	4	50%	113	116	
		Compactor, vibratory	CNP 050	2	40%	105	104	
		Water pump (electric)	CNP 281	2	50%	88	88	
		Air Compressor, air flow > 30m3/min	CNP 003	1	75%	104	103	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%	95	95	
		Crane, tower (electric)	CNP 049	1	75%	95	94	
		Crane, mobile/barge mounted (diesel)	CNP 048	1	50%	112	109	
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	CNP 068	1	50%	105	102	

Notes:

[1] SWLs of EPD/PME items refer to the document prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf)

BS - British Standard BS 5228:2009, Part 1 Noise and Vibration Control on Construction and Open Sites

[2] The figures are rounded-up to a whole number.

Annex B2-2 : Summary of Predicted Noise Levels during Daytime Period - Unmitigated

	NSR Location	EIAO-TM Noise Criteria, dB(A)	Predicted Construction Noise Level (dB(A))																				Max. CNL, dB(A)
			2012												2013								
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
N1	Amber Lodge	75	**86**	**86**	**86**	**86**	**86**	**86**	**86**	**85**	**85**	**85**	**79**	**79**	**79**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**86**
N2	Ho Fook Building	75	**87**	**87**	**87**	**87**	**87**	**87**	**87**	**86**	**86**	**86**	**80**	**80**	**80**	**82**	**82**	**82**	**82**	**82**	**82**	**82**	**87**
N3	Old Bailey Street Police Married Quarters	75	**86**	**86**	**86**	**86**	**86**	**86**	**86**	**85**	**85**	**85**	**81**	**81**	**81**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**86**
N4	Cambridge Villa	75	**87**	**87**	**87**	**87**	**87**	**87**	**87**	**86**	**86**	**86**	**84**	**84**	**84**	**86**	**86**	**86**	**86**	**86**	**86**	**86**	**87**
N5	Chancery House	75	**89**	**89**	**89**	**89**	**89**	**89**	**89**	**87**	**87**	**87**	**86**	**86**	**86**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**89**
N6	Chancery Mansion	75	**89**	**89**	**89**	**89**	**89**	**89**	**89**	**87**	**87**	**87**	**86**	**86**	**86**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**89**

Note:

[1] **Bold** value indicates exceedance of noise criteria of 75 dB(A) for residential premises.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B2-3a Construction Airborne Noise Impact Assessment - Unmitigated

NSR: N1 Amber Lodge

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	121	44	-41	3	84	84	84	84	84	84	84	84	84	84											
II	**New Building**																									
2	Foundation	120	50	-42	3	81	81	81	81	81	81	81														
3	Excavation and Lateral Support (ELS)	118	50	-42	3								79	79	79	79	79	79								
4	Basement / Superstructure Construction	120	50	-42	3														81	81	81	81	81	81	81	
	Predicted Noise Level during Daytime Period, dB(A)					86	86	86	86	86	86	86	85	85	85	79	79	79	81	81	81	81	81	81	81	86

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B2-3b Construction Airborne Noise Impact Assessment - Unmitigated

NSR: N2 Ho Fook Building

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	121	38	-40	3	85	85	85	85	85	85	85	85	85	85											
II	**New Building**																									
2	Foundation	120	46	-41	3	82	82	82	82	82	82	82														
3	Excavation and Lateral Support (ELS)	118	46	-41	3								80	80	80	80	80	80								
4	Basement / Superstructure Construction	120	46	-41	3														82	82	82	82	82	82	82	
	Predicted Noise Level during Daytime Period, dB(A)					87	87	87	87	87	87	87	86	86	86	80	80	80	82	82	82	82	82	82	82	87

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B2-3c Construction Airborne Noise Impact Assessment - Unmitigated

NSR: N3 Old Bailey Street Police Married Quarters

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	121	52	-42	3	82	82	82	82	82	82	82	82	82	82											
II	**New Building**																									
2	Foundation	120	40	-40	3	83	83	83	83	83	83	83														
3	Excavation and Lateral Support (ELS)	118	40	-40	3								81	81	81	81	81	81								
4	Basement / Superstructure Construction	120	40	-40	3														83	83	83	83	83	83	83	
Predicted Noise Level during Daytime Period, dB(A)						86	86	86	86	86	86	86	85	85	85	81	81	81	83	83	83	83	83	83	83	86

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B2-3d Construction Airborne Noise Impact Assessment - Unmitigated

NSR: N4 Cambridge Villa

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	121	57	-43	3	81	81	81	81	81	81	81	81	81	81											
II	**New Building**																									
2	Foundation	120	30	-37	3	86	86	86	86	86	86	86														
3	Excavation and Lateral Support (ELS)	118	30	-37	3								84	84	84	84	84	84								
4	Basement / Superstructure Construction	120	30	-37	3														86	86	86	86	86	86	86	
	Predicted Noise Level during Daytime Period, dB(A)					87	87	87	87	87	87	87	86	86	86	84	84	84	86	86	86	86	86	86	86	87

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B2-3e Construction Airborne Noise Impact Assessment - Unmitigated

NSR: N5 Chancery House

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	121	57	-43	3	81	81	81	81	81	81	81	81	81	81											
II	**New Building**																									
2	Foundation	120	23	-35	3	88	88	88	88	88	88	88														
3	Excavation and Lateral Support (ELS)	118	23	-35	3								86	86	86	86	86	86								
4	Basement / Superstructure Construction	120	23	-35	3														88	88	88	88	88	88	88	
	Predicted Noise Level during Daytime Period, dB(A)					89	89	89	89	89	89	89	87	87	87	86	86	86	88	88	88	88	88	88	88	89

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B2-3f Construction Airborne Noise Impact Assessment - Unmitigated

NSR: N6 Chancery House

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	121	57	-43	3	81	81	81	81	81	81	81	81	81	81											
II	**New Building**																									
2	Foundation	120	23	-35	3	88	88	88	88	88	88	88														
3	Excavation and Lateral Support (ELS)	118	23	-35	3								86	86	86	86	86	86								
4	Basement / Superstructure Construction	120	23	-35	3														88	88	88	88	88	88	88	
	Predicted Noise Level during Daytime Period, dB(A)					89	89	89	89	89	89	89	87	87	87	86	86	86	88	88	88	88	88	88	88	89

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-1 : Summary of Predicted Fixed Plant Noise Levels due to the Operation of the Proposed Development (During Day-time & Evening Time Periods)

NSRs		Predicted Fixed Plant Noise Level (dB(A))	Predicted PA Noise Level (dB(A))	Cumulative Predicted Noise Level (dB(A))	Noise Criteria (dB(A))
		Day-time & Evening Time Periods	Day-time & Evening Time Periods	Day-time & Evening Time Periods	Day-time & Evening Time Periods
N1	Amber Lodge	42	53	53	59
N2	Ho Fook Building	48	50	52	59
N3	Old Bailey Street Police Married Quarters	49	55	56	59
N4	Cambridge Villa	45	52	53	54
N5	Chancery House	49	53	54	54
N6	Chancery Mansion	50	51	54	54

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-2a Operational Noise Impact Assessment - Fixed Plant (During Day-time & Evening Time Periods)

NSR: N1 Amber Lodge

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	3	148.0	5	-51.4	3	0	28
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	3	148.0	5	-51.4	3	0	28
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	3	155.5	5	-51.8	3	0	36
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	3	164.0	5	-52.3	3	-10	20
5	Genset	G/F plant room of Old Bailey Wing	84	1	107.0	0	-48.6	3	-10	28
6	Transformer	West louvre of transformer room of Ablution Block	75	2	90.0	3	-47.1	3	-10	24
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	90.0	6	-47.1	3	-10	27
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	38.0	0	-39.6	3	-10	38
9		East louvre of Police Headquarters at lower courtyard	85	1	66.0	0	-44.4	3	-10	34
								Predicted Façade Noise Level (dB(A)) =		**42**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage.
The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

Annex B3-2a Operational Noise Impact Assessment - PA system

No.	Item	Location	Max. Allowable SPL, dB(A) [3]	Quantity	Minimum Distance from site boundary to NSR (d2),m [4]	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$)
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A)	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	PA system	Lower courtyard	91	1	41.0	0	-40.2	3	-10	44
2			91	1	61.0	0	-43.7	3	-10	40
3			91	1	66.0	0	-44.4	3	0	50
4			91	1	81.0	0	-46.2	3	0	48
5	PA system	Upper courtyard	86	1	122.0	0	-49.7	3	-10	29
6			86	1	138.0	0	-50.8	3	0	38
						Predicted Façade Noise Level (dB(A)) =				**53**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance correction for SWL = -10*log(2π(d2)^2)

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door

[4] Detailed design of the PA system is not yet available at this stage. The speaker clusters are expected to be operated during some special occasions during daytime and evening time periods only (until 23:00 hours).

The maximum allowable SWLs of the PA system were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable SWLs:

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-2b Operational Noise Impact Assessment - Fixed Plant (During Day-time & Evening Time Periods)

NSR: N2 Ho Fook Building

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	3	107.0	5	-48.6	3	-10	21
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	3	107.0	5	-48.6	3	-10	21
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	3	120.0	5	-49.6	3	-10	28
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	3	131.0	5	-50.3	3	-10	22
5	Genset	G/F plant room of Old Bailey Wing	84	1	40.5	0	-40.1	3	-10	37
6	Transformer	West louvre of transformer room of Ablution Block	75	2	22.0	3	-34.8	3	0	46
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	31.0	6	-37.8	3	-10	36
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	33.0	0	-38.4	3	-10	40
9		East louvre of Police Headquarters at lower courtyard	85	1	83.0	0	-46.4	3	-10	32
									Predicted Façade Noise Level (dB(A)) =	**48**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage.
The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

Annex B3-2b Operational Noise Impact Assessment - PA system

No.	Item	Location	Max. Allowable SPL, dB(A) [3]	Quantity	Minimum Distance from site boundary to NSR (d2),m [4]	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$)
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A)	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	PA system	Lower courtyard	91	1	43.0	0	-40.7	3	-10	43
2			91	1	71.0	0	-45.0	3	-10	39
3			91	1	32.5	0	-38.2	3	-10	46
4			91	1	67.5	0	-44.6	3	-10	39
5	PA system	Upper courtyard	86	1	66.5	0	-44.4	3	-10	35
6			86	1	93.0	0	-47.4	3	0	42
						Predicted Façade Noise Level (dB(A)) =				**50**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance correction for SWL = -10*log(2π(d2)^2)

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door

[4] Detailed design of the PA system is not yet available at this stage. The speaker clusters are expected to be operated during some special occasions during daytime and evening time periods only (until 23:00 hours).

The maximum allowable SWLs of the PA system were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable SWLs:

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-2c Operational Noise Impact Assessment - Fixed Plant (During Day-time & Evening Time Periods)

NSR: N3 Old Bailey Street Police Married Quarters

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	3	97.0	5	-47.7	3	0	32
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	3	97.0	5	-47.7	3	0	32
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	3	111.0	5	-48.9	3	0	39
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	3	124.0	5	-49.9	3	-10	23
5	Genset	G/F plant room of Old Bailey Wing	84	1	27.5	0	-36.8	3	-10	40
6	Transformer	West louvre of transformer room of Ablution Block	75	2	20.0	3	-34.0	3	0	47
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	31.0	6	-37.8	3	-10	36
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	69.0	0	-44.8	3	-10	33
9		East louvre of Police Headquarters at lower courtyard	85	1	109.5	0	-48.8	3	-10	29
									Predicted Façade Noise Level (dB(A)) =	**49**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage.
The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

Annex B3-2c Operational Noise Impact Assessment - PA system

No.	Item	Location	Max. Allowable SPL, dB(A) [3]	Quantity	Minimum Distance from site boundary to NSR (d2),m [4]	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$)
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A)	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	PA system	Lower courtyard	91	1	76.0	0	-45.6	3	0	48
2			91	1	97.0	0	-47.7	3	0	46
3			91	1	55.0	0	-42.8	3	0	51
4			91	1	84.5	0	-46.5	3	0	47
5	PA system	Upper courtyard	86	1	50.0	0	-42.0	3	-10	37
6			86	1	88.0	0	-46.9	3	0	42
						Predicted Façade Noise Level (dB(A)) =				**55**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance correction for SWL = -10*log($2\pi(d2)^2$)

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door

[4] Detailed design of the PA system is not yet available at this stage. The speaker clusters are expected to be operated during some special occasions during daytime and evening time periods only (until 23:00 hours).

The maximum allowable SWLs of the PA system were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable SWLs:

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-2d Operational Noise Impact Assessment - Fixed Plant (During Day-time & Evening Time Periods)

NSR: N4 Cambridge Villa

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	3	64.0	5	-44.1	3	0	36
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	3	64.0	5	-44.1	3	0	36
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	3	77.0	5	-45.7	3	0	42
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	3	90.0	5	-47.1	3	-10	26
5	Genset	G/F plant room of Old Bailey Wing	84	1	43.0	0	-40.7	3	-10	36
6	Transformer	West louvre of transformer room of Ablution Block	75	2	64.0	3	-44.1	3	-10	27
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	60.5	6	-43.6	3	-10	30
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	112.0	0	-49.0	3	-10	29
9		East louvre of Police Headquarters at lower courtyard	85	1	129.0	0	-50.2	3	-10	28
									Predicted Façade Noise Level (dB(A)) =	**45**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage.
The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

Annex B3-2d Operational Noise Impact Assessment - PA system

No.	Item	Location	Max. Allowable SPL, dB(A) [3]	Quantity	Minimum Distance from site boundary to NSR (d2),m [4]	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$)
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A)	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	PA system	Lower courtyard	91	1	112.0	0	-49.0	3	-10	35
2			91	1	118.0	0	-49.4	3	-10	35
3			91	1	84.5	0	-46.5	3	-10	37
4			91	1	96.0	0	-47.6	3	-10	36
5	PA system	Upper courtyard	86	1	34.0	0	-38.6	3	0	50
6			86	1	60.0	0	-43.5	3	0	45
						Predicted Façade Noise Level (dB(A)) =				**52**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance correction for SWL = -10*log(2π(d2)^2)

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door

[4] Detailed design of the PA system is not yet available at this stage. The speaker clusters are expected to be operated during some special occasions during daytime and evening time periods only (until 23:00 hours).

The maximum allowable SWLs of the PA system were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable SWLs:

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-2e Operational Noise Impact Assessment - Fixed Plant (During Day-time & Evening Time Periods)

NSR: N5 Chancery House

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	3	33.0	5	-38.4	3	0	41
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	3	33.0	5	-38.4	3	0	41
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	3	42.5	5	-40.5	3	0	47
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	3	54.0	5	-42.6	3	-10	30
5	Genset	G/F plant room of Old Bailey Wing	84	1	67.0	0	-44.5	3	-10	32
6	Transformer	West louvre of transformer room of Ablution Block	75	2	90.0	3	-47.1	3	-10	24
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	80.5	6	-46.1	3	-10	28
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	126.0	0	-50.0	3	-10	28
9		East louvre of Police Headquarters at lower courtyard	85	1	125.5	0	-50.0	3	-10	28
									Predicted Façade Noise Level (dB(A)) =	**49**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage.
The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

Annex B3-2e Operational Noise Impact Assessment - PA system

No.	Item	Location	Max. Allowable SPL, dB(A) [3]	Quantity	Minimum Distance from site boundary to NSR (d2),m [4]	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$)
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A)	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	PA system	Lower courtyard	91	1	123.0	0	-49.8	3	-10	34
2			91	1	118.0	0	-49.4	3	-10	35
3			91	1	91.0	0	-47.2	3	-10	37
4			91	1	93.0	0	-47.4	3	-10	37
5	PA system	Upper courtyard	86	1	44.5	0	-40.9	3	0	48
6			86	1	33.0	0	-38.4	3	0	51
						Predicted Façade Noise Level (dB(A)) =				**53**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance correction for SWL = -10*log(2π(d2)^2)

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door

[4] Detailed design of the PA system is not yet available at this stage. The speaker clusters are expected to be operated during some special occasions during daytime and evening time periods only (until 23:00 hours).

The maximum allowable SWLs of the PA system were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable SWLs:

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-2f Operational Noise Impact Assessment - Fixed Plant (During Day-time & Evening Time Periods)

NSR: N6 Chancery House

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	3	33.0	5	-38.4	3	0	41
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	3	33.0	5	-38.4	3	0	41
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	3	35.0	5	-38.9	3	0	49
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	3	40.0	5	-40.0	3	-10	33
5	Genset	G/F plant room of Old Bailey Wing	84	1	86.0	0	-46.7	3	-10	30
6	Transformer	West louvre of transformer room of Ablution Block	75	2	109.0	3	-48.7	3	-10	22
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	95.0	6	-47.5	3	-10	26
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	143.0	0	-51.1	3	-10	27
9		East louvre of Police Headquarters at lower courtyard	85	1	134.0	0	-50.5	3	-10	27
									Predicted Façade Noise Level (dB(A)) =	**50**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage.
The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

Annex B3-2f Operational Noise Impact Assessment - PA system

No.	Item	Location	Max. Allowable SPL, dB(A) [3]	Quantity	Minimum Distance from site boundary to NSR (d2),m [4]	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$)
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A)	
Day-time & Evening Time Periods (between 0700 to 2300 hours)										
1	PA system	Lower courtyard	91	1	135.0	0	-50.6	3	-10	33
2			91	1	126.0	0	-50.0	3	-10	34
3			91	1	111.0	0	-48.9	3	-10	35
4			91	1	100.0	0	-48.0	3	-10	36
5	PA system	Upper courtyard	86	1	62.0	0	-43.8	3	0	45
6			86	1	40.0	0	-40.0	3	0	49
						Predicted Façade Noise Level (dB(A)) =				**51**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance correction for SWL = -10*log($2\pi(d2)^2$)

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door

[4] Detailed design of the PA system is not yet available at this stage. The speaker clusters are expected to be operated during some special occasions during daytime and evening time periods only (until 23:00 hours).

The maximum allowable SWLs of the PA system were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable SWLs:

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-3 : Summary of Predicted Fixed Plant Noise Levels due to the Operation of the Proposed Development (During Night-time Period)

NSRs		Predicted Fixed Plant Noise Level (dB(A))	Noise Criteria (dB(A))
		Night-time Period	Night-time Period
N1	Amber Lodge	42	50
N2	Ho Fook Building	48	50
N3	Old Bailey Street Police Married Quarters	48	50
N4	Cambridge Villa	43	49
N5	Chancery House	48	49
N6	Chancery Mansion	49	49

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-4a Operational Noise Impact Assessment - Fixed Plant (During Night-time Period)

NSR: N1 Amber Lodge

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Night-time Periods (between 2300 to 0700 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	2	148.0	3	-51.4	3	0	27
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	2	148.0	3	-51.4	3	0	27
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	2	155.5	3	-51.8	3	0	34
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	2	164.0	3	-52.3	3	-10	19
5	Genset [6]	G/F plant room of Old Bailey Wing	-	-	-	-	-	-	-	-
6	Transformer	West louvre of transformer room of Ablution Block	75	2	90.0	3	-47.1	3	-10	24
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	90.0	6	-47.1	3	-10	27
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	38.0	0	-39.6	3	-10	38
9		East louvre of Police Headquarters at lower courtyard	85	1	66.0	0	-44.4	3	-10	34
									Predicted Façade Noise Level (dB(A)) =	**41**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage. Only 2 cooling towers, associated chillers, condensed water pumps and chilled water pumps are expected to be operated during the night-time period between 2300 and 0700 hours. Transformer and fan are expected to be operated for 24 hours daily.

The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

[6] Genset will be only operated during the day-time and evening time period.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-4b Operational Noise Impact Assessment - Fixed Plant (During Night-time Period)

NSR: N2 Ho Fook Building

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Night-time Periods (between 2300 to 0700 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	2	107.0	3	-48.6	3	-10	19
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	2	107.0	3	-48.6	3	-10	19
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	2	120.0	3	-49.6	3	-10	26
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	2	131.0	3	-50.3	3	-10	21
5	Genset [6]	G/F plant room of Old Bailey Wing	-	-	-	-	-	-	-	-
6	Transformer	West louvre of transformer room of Ablution Block	75	2	22.0	3	-34.8	3	0	46
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	31.0	6	-37.8	3	-10	36
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	33.0	0	-38.4	3	-10	40
9		East louvre of Police Headquarters at lower courtyard	85	1	83.0	0	-46.4	3	-10	32
									Predicted Façade Noise Level (dB(A)) =	**48**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage. Only 2 cooling towers, associated chillers, condensed water pumps and chilled water pumps are expected to be operated during the night-time period between 2300 and 0700 hours. Transformer and fan are expected to be operated for 24 hours daily.

The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

[6] Genset will be only operated during the day-time and evening time period.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-4c Operational Noise Impact Assessment - Fixed Plant (During Night-time Period)

NSR: N3 Old Bailey Street Police Married Quarters

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Night-time Periods (between 2300 to 0700 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	2	97.0	3	-47.7	3	0	30
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	2	97.0	3	-47.7	3	0	30
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	2	111.0	3	-48.9	3	0	37
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	2	124.0	3	-49.9	3	-10	21
5	Genset [6]	G/F plant room of Old Bailey Wing	-	-	-	-	-	-	-	-
6	Transformer	West louvre of transformer room of Ablution Block	75	2	20.0	3	-34.0	3	0	47
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	31.0	6	-37.8	3	-10	36
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	69.0	0	-44.8	3	-10	33
9		East louvre of Police Headquarters at lower courtyard	85	1	109.5	0	-48.8	3	-10	29
								Predicted Façade Noise Level (dB(A)) =		**48**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage. Only 2 cooling towers, associated chillers, condensed water pumps and chilled water pumps are expected to be operated during the night-time period between 2300 and 0700 hours. Transformer and fan are expected to be operated for 24 hours daily.

The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

[6] Genset will be only operated during the day-time and evening time period.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-4d Operational Noise Impact Assessment - Fixed Plant (During Night-time Period)

NSR: N4 Cambridge Villa

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Night-time Periods (between 2300 to 0700 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	2	64.0	3	-44.1	3	0	34
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	2	64.0	3	-44.1	3	0	34
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	2	77.0	3	-45.7	3	0	40
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	2	90.0	3	-47.1	3	-10	24
5	Genset [6]	G/F plant room of Old Bailey Wing	-	-	-	-	-	-	-	-
6	Transformer	West louvre of transformer room of Ablution Block	75	2	64.0	3	-44.1	3	-10	27
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	60.5	6	-43.6	3	-10	30
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	112.0	0	-49.0	3	-10	29
9		East louvre of Police Headquarters at lower courtyard	85	1	129.0	0	-50.2	3	-10	28
									Predicted Façade Noise Level (dB(A)) =	**43**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage. Only 2 cooling towers, associated chillers, condensed water pumps and chilled water pumps are expected to be operated during the night-time period between 2300 and 0700 hours. Transformer and fan are expected to be operated for 24 hours daily.

The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

[6] Genset will be only operated during the day-time and evening time period.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-4e Operational Noise Impact Assessment - Fixed Plant (During Night-time Period)

NSR: N5 Chancery House

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Night-time Periods (between 2300 to 0700 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	2	33.0	3	-38.4	3	0	40
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	2	33.0	3	-38.4	3	0	40
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	2	42.5	3	-40.5	3	0	45
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	2	54.0	3	-42.6	3	-10	28
5	Genset [6]	G/F plant room of Old Bailey Wing	-	-	-	-	-	-	-	-
6	Transformer	West louvre of transformer room of Ablution Block	75	2	90.0	3	-47.1	3	-10	24
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	80.5	6	-46.1	3	-10	28
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	126.0	0	-50.0	3	-10	28
9		East louvre of Police Headquarters at lower courtyard	85	1	125.5	0	-50.0	3	-10	28
								Predicted Façade Noise Level (dB(A)) =		**48**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage. Only 2 cooling towers, associated chillers, condensed water pumps and chilled water pumps are expected to be operated during the night-time period between 2300 and 0700 hours. Transformer and fan are expected to be operated for 24 hours daily.

The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

[6] Genset will be only operated during the day-time and evening time period.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B3-4f Operational Noise Impact Assessment - Fixed Plant (During Night-time Period)

NSR: N6 Chancery House

No.	Item	Location	Max. Allowable SWL, dB(A) [5]	Quantity	Distance from source to NSR (d2),m	Corrections For				Predicted Noise Level (dB(A) $L_{eq, 30min}$) [4]
						Quantity dB(A) [1]	Distance dB(A) [2]	Façade dB(A)	Barrier dB(A) [3]	
Night-time Periods (between 2300 to 0700 hours)										
1	Chilled Water Pumps	West louvre of chilled water pump room on the roof of Arbuthnot Wing	72	2	33.0	3	-38.4	3	0	40
2	Condenser Water Pump	West louvre of condenser water pump room on the roof of Arbuthnot Wing	72	2	33.0	3	-38.4	3	0	40
3	Cooling Tower	Cooling towers on the roof of Arbuthnot Wing	80	2	35.0	3	-38.9	3	0	47
4	Chiller	East louvre of chiller room on the roof of Arbuthnot Wing	75	2	40.0	3	-40.0	3	-10	31
5	Genset [6]	G/F plant room of Old Bailey Wing	-	-	-	-	-	-	-	-
6	Transformer	West louvre of transformer room of Ablution Block	75	2	109.0	3	-48.7	3	-10	22
7		South louvre of exhaust air duct for transformer room of Ablution Block	75	4	95.0	6	-47.5	3	-10	26
8	Fan	West louvre of Police Headquarters at lower courtyard	85	1	143.0	0	-51.1	3	-10	27
9		East louvre of Police Headquarters at lower courtyard	85	1	134.0	0	-50.5	3	-10	27
									Predicted Façade Noise Level (dB(A)) =	**49**

Notes:

[1] Correction for quantity = 10*log(Quantity)

[2] Distance attenuation for SWL = $-10*\log(2\pi(d2)^2)$

[3] Reference was made from IND-TM, a negative correction of 10dB(A) will be applied for noise source totally screened by barrier or building such that none will be visible when viewed from any window, door or other opening of the NSR.

[4] Detailed design of the plant rooms is not yet available at this stage. Only 2 cooling towers, associated chillers, condensed water pumps and chilled water pumps are expected to be operated during the night-time period between 2300 and 0700 hours. Transformer and fan are expected to be operated for 24 hours daily.

The maximum allowable SWLs of the plant room louvers/equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the maximum allowable

SPL = Max SWL – DC + FC - BC

where

SPL	Sound Pressure Level, in dB(A)
Max. SWL	Maximum Allowable Sound Power Level, in dB(A)
DC	Distance Attenuation, in dB(A)
FC	Facade Correction, in dB(A) (i.e. 3 dB(A))
BC	Barrier Correction, in dB(A)

[5] The sound power level (SWL) of the equipment shall not exceed the specified Maximum Allowable SWL in order to archive the noise criteria. Acoustic treatment, such as intake & discharge silencers, acoustic enclosure, acoustic louver and discharge cowl will be installed as appropriate to achieve the required SWL.

[6] Genset will be only operated during the day-time and evening time period.

Key

- Representative Noise Sensitive Receiver
- Project Site
- Louvres of Plant Rooms
- PA System
- Cooling Towers

NSR	Description
N1	Amber Lodge
N2	Ho Fook Building
N3	Old Bailey Street Police Married Quarters
N4	Cambridge Villa
N5	Chancery House
N6	Chancery Mansion

Building Index	
01	Police Headquarters
02	Armoury
03	Barrack Block
04	Married Inspector's Quarters and Deputy Superin Tendents House
06	Married Sergeants' Quarters
07	Single Inspectors' Quarters
08	Ablutions Block
09	Central Magistracy
10	Superintendent's House
11	A Hall
12	B Hall
13	C Hall
14	D Hall
15	E Hall
17	F Hall
19	Bauhinia House
OBW	Old Bailey Wing
AW	Arbuthnot Wing

Figure B3-1

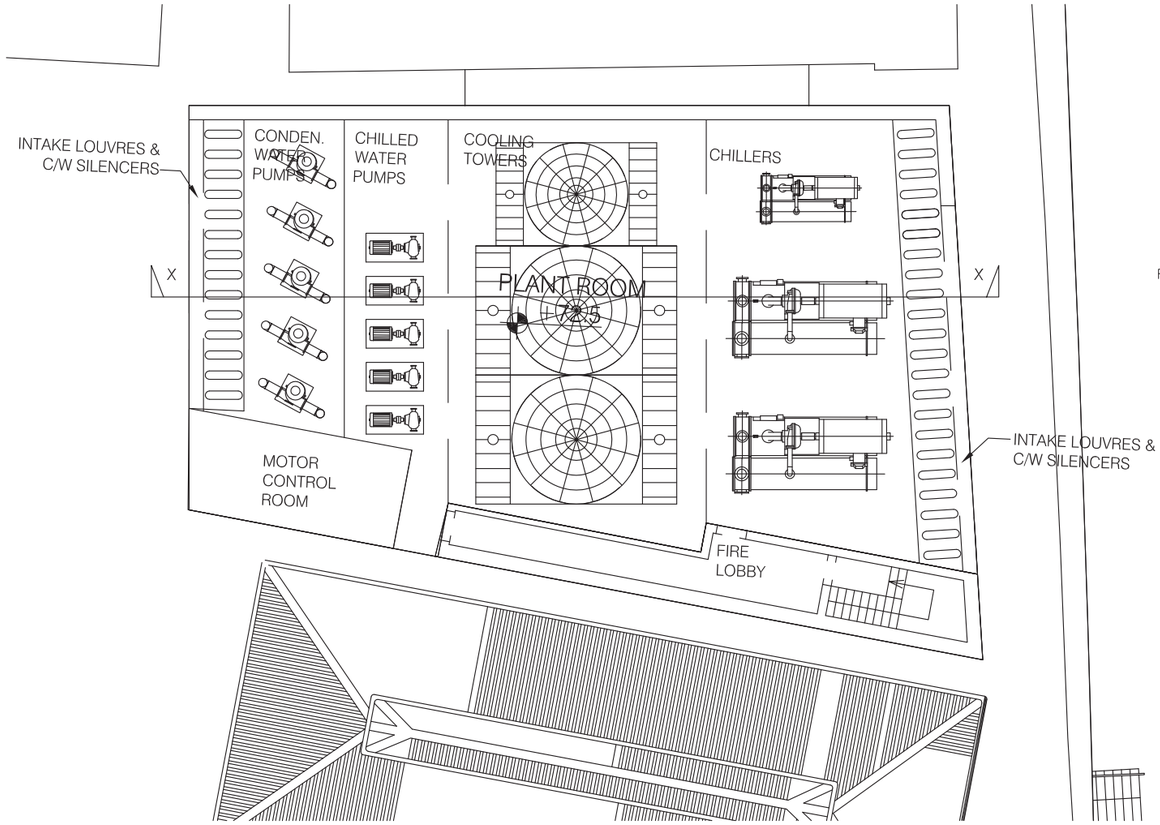
Locations of Fixed Plant Noise Sources

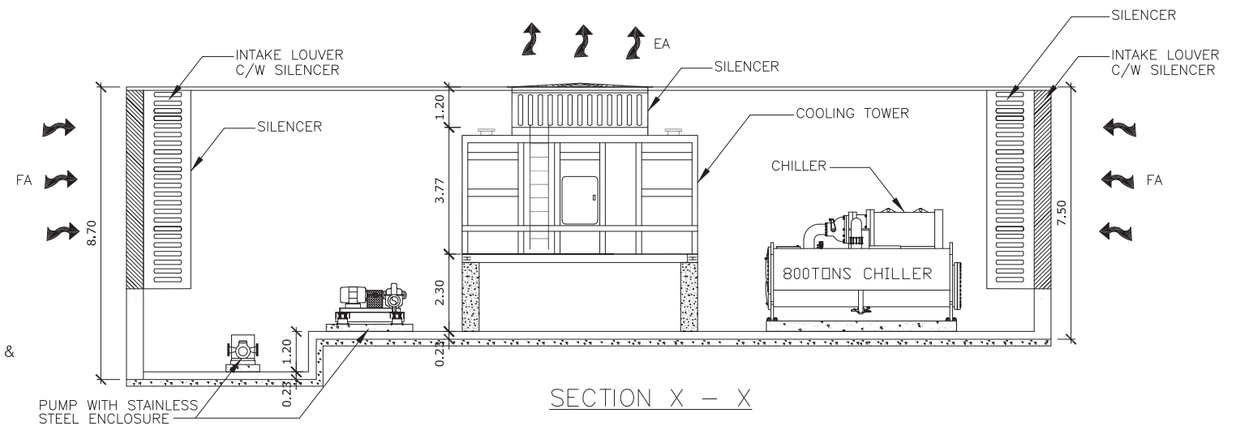
File: 0095646_fixed plant noise sources.mxd
Date: 19/11/210

Environmental Resources Management

ERM

賽馬會文物保育有限公司
The Jockey Club CPS Limited





SECTION X – X

Figure B3-2

Roof Layout Plan of Arbuttnot Wing

FILE: 0095646I
DATE: 19/11/2010

Environmental Resources Management

ERM

賽馬會文物保育有限公司
The Jockey Club CPS Limited

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B4-1 : Construction Plant Inventory - Mitigated

No.	Activities	Plant	TM / EPD[1] / BS 5228 ref.	No. of PME	On-time %	Type of Noise Control (Barrier/Enclosure)[3]	Noise reduction, dB(A)	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[2]	Groups[4]	
I)	**Existing Buildings**											
1	**Phase 1 & Site Wide Structure**						**Sub-total SWL for Phase 1 & Site Wide Structure = 107**					
	Demolition											
		Breaker, hand-held, mass < 10kg	CNP 023	4	50%	Noise Barrier	-5	108	106	**107**	**A**	**107**
		Hydraulic breaker, excavator mounted	BS D8 12	1	75%	Noise Barrier	-5	106	100		**A**	
		Dump truck	BS D9 39	2	50%			103	103		**B**	**103**
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%			95	95		**A**	
	Excavation and Lateral Support (ELS)											
		Tracked Excavator/loader	BS D3 97	2	75%	Noise Barrier	-5	105	102	**106**	**A**	**106**
		Drill rig, rotary type (diesel)	EPD/PME/12	2	75%	Noise Insulation Sheet	-10	110	102		**A**	
		Air Compressor, air flow > 30m3/min	CNP 003	2	75%	Enclosure	-10	104	96		**A**	
		Water pump (electric)	CNP 281	3	50%			88	90		**A**	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%			95	95		**A**	
		Compactor, vibratory	CNP 050	2	50%			105	105		**B**	**105**
		Mobile crane (62kW)	BS D7 114	2	50%			101	101		**C**	**102**
		Grout mixer	EPD/PME/14	1	75%	Noise Barrier	-10	90	79		**C**	
		Grout pump	EPD/PME/15	1	75%	Noise Barrier	-10	105	94		**C**	
II)	**New Building**											
2	**Foundation**						**Sub-total SWL for Foundation = 106**					
	Piling											
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%			95	95	**103**	**A**	**103**
		Drill rig, rotary type (diesel)	EPD/PME/12	2	75%	Noise Insulation Sheet	-10	110	102		**A**	
		Air Compressor, air flow > 30m3/min	CNP 003	2	75%	Enclosure	-10	104	96		**A**	
		Grout mixer	EPD/PME/14	1	75%	Noise Barrier	-10	90	79		**B**	**94**
		Grout pump	EPD/PME/15	1	75%	Noise Barrier	-10	105	94		**B**	
		Mobile crane (62kW)	BS D7 114	2	50%			101	101		**C**	**102**
		Crane, tower (electric)	CNP 049	1	75%			95	94		**C**	
	CAP											
		Tracked Excavator/loader	BS D3 97	2	75%	Noise Barrier	-5	105	102	**106**	**A**	**106**
		Saw, circular, wood	CNP 201	2	50%	Noise Barrier	-10	108	98		**A**	
		Bar bender and cutter (electric)	CNP 021	2	75%	Noise Barrier	-10	90	82		**A**	
		Breaker, hand-held, mass > 20kg and < 35kg	CNP 025	1	50%	Noise Barrier	-5	111	103		**A**	
		Concrete lorry mixer	CNP 044	2	50%	Noise Barrier	-5	109	104		**B**	**106**
		Concrete pump, stationary/lorry mounted	BS D6 36	2	50%	Noise Barrier	-5	106	101		**B**	
		Poker, vibratory, hand-held	BS D6 40	4	50%	Noise Barrier	-5	98	96		**B**	
		Compactor, vibratory	CNP 050	2	40%			105	104		**C**	**105**
		Water pump (electric)	CNP 281	2	50%			88	88		**C**	
		Air Compressor, air flow > 30m3/min	CNP 003	1	75%	Enclosure	-10	104	93		**C**	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%			95	95		**C**	
		Crane, tower (electric)	CNP 049	1	75%			95	94		**D**	**103**
		Mobile crane (62kW)	BS D7 114	1	50%			101	98		**D**	
		Dump truck	BS D9 39	1	50%			103	100		**D**	
3	**Excavation and Lateral Support (ELS)**						**Sub-total SWL for ELS = 106**					
		Tracked Excavator/loader	BS D3 97	2	75%	Noise Barrier	-5	105	102	**106**	**A**	**106**
		Drill rig, rotary type (diesel)	EPD/PME/12	2	75%	Noise Insulation Sheet	-10	110	102		**A**	
		Air Compressor, air flow > 30m3/min	CNP 003	2	75%	Enclosure	-10	104	96		**A**	
		Water pump (electric)	CNP 281	3	50%			88	90		**A**	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%			95	95		**A**	
		Compactor, vibratory	CNP 050	2	50%			105	105		**B**	**105**
		Mobile crane (62kW)	BS D7 114	2	50%			101	101		**C**	**102**
		Grout mixer	EPD/PME/14	1	75%	Noise Barrier	-10	90	79		**C**	
		Grout pump	EPD/PME/15	1	75%	Noise Barrier	-10	105	94		**C**	
4	**Basement / Superstructure Construction**						**Sub-total SWL for Basement / Superstructure Works = 106**					
		Tracked Excavator/loader	BS D3 97	2	75%	Noise Barrier	-5	105	102	**106**	**A**	**106**
		Saw, circular, wood	CNP 201	2	50%	Noise Barrier	-10	108	98		**A**	
		Bar bender and cutter (electric)	CNP 021	2	75%	Noise Barrier	-10	90	82		**A**	
		Breaker, hand-held, mass > 20kg and < 35kg	CNP 025	1	50%	Noise Barrier	-5	111	103		**A**	
		Concrete lorry mixer	CNP 044	2	50%	Noise Barrier	-5	109	104		**B**	**106**
		Concrete pump, stationary/lorry mounted	BS D6 36	2	50%	Noise Barrier	-5	106	101		**B**	

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B4-1 : Construction Plant Inventory - Mitigated

No.	Activities	Plant	TM / EPD[1] / BS 5228 ref.	No. of PME	On-time %	Type of Noise Control (Barrier/Enclosure)[3]	Noise reduction, dB(A)	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[2]	Groups[4]	
		Poker, vibratory, hand-held	BS D6 40	4	50%	Noise Barrier	-5	98	96		**B**	
		Compactor, vibratory	CNP 050	2	40%			105	104		**C**	**105**
		Water pump (electric)	CNP 281	2	50%			88	88		**C**	
		Air Compressor, air flow > 30m3/min	CNP 003	1	75%	Enclosure	-10	104	93		**C**	
		Generator, super silenced, 70dB(A) at 7m	CNP 103	1	100%			95	95		**C**	
		Crane, tower (electric)	CNP 049	1	75%			95	94		**D**	**103**
		Mobile crane (62kW)	BS D7 114	1	50%			101	98		**D**	
		Dump truck	BS D9 39	1	50%			103	100		**D**	

Notes:

[1] SWLs of EPD/PME items refer to the document prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf)

BS - British Standard BS 5228:2009, Part 1 Noise and Vibration Control on Construction and Open Sites

[2] The figures are rounded-up to a whole number.

[3] Noise barrier for mobile PME -5dB(A)

Noise barrier for stationary PME -10dB(A)

Noise encloure -10dB(A)

Noise Insulation Sheet -10dB(A)

[4] Either Group A, B, C or D will be undertaken at any one time.

Annex B4-2 : Summary of Predicted Noise Levels during Daytime Period - Mitigated

	NSR Location	EIAO-TM Noise Criteria, dB(A)	Predicted Construction Noise Level (dB(A))																				Max. CNL, dB(A)
			2012												2013								
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
N1	Amber Lodge	75	71	71	71	71	71	71	71	71	71	71	67	67	67	67	67	67	67	67	67	67	71
N2	Ho Fook Building	75	72	72	72	72	72	72	72	72	72	72	67	67	67	68	68	68	68	68	68	68	72
N3	Old Bailey Street Police Married Quarters	75	72	72	72	72	72	72	72	71	71	71	69	69	69	69	69	69	69	69	69	69	72
N4	Cambridge Villa	75	73	73	73	73	73	73	73	73	73	73	71	71	71	72	72	72	72	72	72	72	73
N5	Chancery House	75	75	75	75	75	75	75	75	74	74	74	73	73	73	74	74	74	74	74	74	74	75
N6	Chancery Mansion	75	75	75	75	75	75	75	75	74	74	74	73	73	73	74	74	74	74	74	74	74	75

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B4-3a Construction Airborne Noise Impact Assessment - Mitigated

NSR: N1 Amber Lodge

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	107	44	-41	3	69	69	69	69	69	69	69	69	69	69											
II	**New Building**																									
2	Foundation	106	50	-42	3	67	67	67	67	67	67	67														
3	Excavation and Lateral Support (ELS)	106	50	-42	3								67	67	67	67	67	67								
4	Basement / Superstructure Construction	106	50	-42	3														67	67	67	67	67	67	67	
Predicted Noise Level during Daytime Period, dB(A)						71	71	71	71	71	71	71	71	71	71	67	67	67	67	67	67	67	67	67	67	71

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B4-3b Construction Airborne Noise Impact Assessment - Mitigated

NSR: N2 Ho Fook Building

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	107	38	-40	3	71	71	71	71	71	71	71	71	71	71											
II	**New Building**																									
2	Foundation	106	46	-41	3	68	68	68	68	68	68	68														
3	Excavation and Lateral Support (ELS)	106	46	-41	3								67	67	67	67	67	67								
4	Basement / Superstructure Construction	106	46	-41	3														68	68	68	68	68	68	68	
	Predicted Noise Level during Daytime Period, dB(A)					72	72	72	72	72	72	72	72	72	72	67	67	67	68	68	68	68	68	68	68	72

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B4-3c Construction Airborne Noise Impact Assessment - Mitigated

NSR: N3 Old Bailey Street Police Married Quarters

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	107	52	-42	3	68	68	68	68	68	68	68	68	68	68											
II	**New Building**																									
2	Foundation	106	40	-40	3	69	69	69	69	69	69	69														
3	Excavation and Lateral Support (ELS)	106	40	-40	3								69	69	69	69	69	69								
4	Basement / Superstructure Construction	106	40	-40	3														69	69	69	69	69	69	69	
	Predicted Noise Level during Daytime Period, dB(A)					72	72	72	72	72	72	72	71	71	71	69	69	69	69	69	69	69	69	69	69	72

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B4-3d Construction Airborne Noise Impact Assessment - Mitigated

NSR: N4 Cambridge Villa

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	107	57	-43	3	67	67	67	67	67	67	67	67	67	67											
II	**New Building**																									
2	Foundation	106	30	-37	3	72	72	72	72	72	72	72														
3	Excavation and Lateral Support (ELS)	106	30	-37	3								71	71	71	71	71	71								
4	Basement / Superstructure Construction	106	30	-37	3														72	72	72	72	72	72	72	
Predicted Noise Level during Daytime Period, dB(A)						73	73	73	73	73	73	73	73	73	73	71	71	71	72	72	72	72	72	72	72	73

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B4-3e Construction Airborne Noise Impact Assessment - Mitigated

NSR: N5 Chancery House

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	107	57	-43	3	67	67	67	67	67	67	67	67	67	67											
II	**New Building**																									
2	Foundation	106	23	-35	3	74	74	74	74	74	74	74														
3	Excavation and Lateral Support (ELS)	106	23	-35	3								73	73	73	73	73	73								
4	Basement / Superstructure Construction	106	23	-35	3														74	74	74	74	74	74	74	
	Predicted Noise Level during Daytime Period, dB(A)					75	75	75	75	75	75	75	74	74	74	73	73	73	74	74	74	74	74	74	74	75

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

Conservation and Revitalization of the Central Police Station Compound (CPS)

Annex B4-3f Construction Airborne Noise Impact Assessment - Mitigated

NSR: N6 Chancery House

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. for distance dB(A)[1][2]	Corr. for façade dB(A)	Predicted Construction Noise Level (dB(A)) 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Max. CNL dB(A)
I	**Existing Buildings**																									
1	Phase 1 & Site Wide Structure	107	57	-43	3	67	67	67	67	67	67	67	67	67	67											
II	**New Building**																									
2	Foundation	106	23	-35	3	74	74	74	74	74	74	74														
3	Excavation and Lateral Support (ELS)	106	23	-35	3								73	73	73	73	73	73								
4	Basement / Superstructure Construction	106	23	-35	3														74	74	74	74	74	74	74	
	Predicted Noise Level during Daytime Period, dB(A)					75	75	75	75	75	75	75	74	74	74	73	73	73	74	74	74	74	74	74	74	75

Notes:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.