MONITORING FORM

If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

1. Responses/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period
ex.) Responses/Actions to Comments and Guidance from Government Authorities	July-September 2022

2. Mitigation Measures

The summary of the Environmental Monitoring is shown below.

[Construction Phase]

Item	Parameter	Frequency and Duration	Locations(At least)
Air	PM_{10}	2×24hours	15 locations
		Twice/month	
		For five years	
	PM2.5	2×24hours	15 locations
		Twice/month	
		For five years	
	SOx	2×24hours	15 locations
		Twice/month	
		For five years	
	NOx	2×24hours	15 locations
		Twice/month	
		For five years	
Water	Groundwaterquality	Once/6months	10 locations
		For five years	
Noise	Noise Level	2×24hours	15 locations
	(Leq and Lmax)	Twice/month	
		Once/week	
		For five years	
Vibration	Vibration	24hours	8 locations
	(ppV)	Once/week	
		For five years	
Soil	Heavy Metal	Once/6moths	10 Locations
		For five years	
Ecology	Felled and planted	Once a year till all trees	All the trees felled and
	trees	that were to be planted	newly planted trees
		by Delhi Government on	
		behalf of DMRC, are	
		planted	

[Operation Phase]

Item	Parameter	Frequency and Duration	Locations
Air	PM_{10}	2×24hours	8 locations
		Once/month	
		For 5 years	
	PM2.5	24 hours	8 locations
		Once/month	
		For 5 years	
	SOX	24 hours	8 locations
		Once/month	
		For 5 years	
	NOX	24 hours	8 locations
		Once/month	
		For 5 years	
Water		Once/4months	5locations(Depot)
		For 5 years	
Noise	Noise Level	24hours	8 locations
	(Leq)	Once/year	(Sensitive Receptors
		For 5 years	along the elevated
			section)
Vibration	Vibration level	24hours	18 locations
	Vrms	Once/year	(Sensitive Receptors
		For 5 years	along the elevated
			and underground
			section)

2.1 During Construction

When a measured value exceeds the standards, the value is written in bold letters. Air Quality (Ambient Air Quality)

Date:July 2022 Location:DC-02 (Yamuna Vihar to Bhajanpura)(Elevated)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³	RMC Plant-91.25 Jagatpur Village-102 Jharoda-97.75 Burari-9850 Yamuna Vihar-101.75 Bhajanpura -91 Khajuri Khas- 93	103 112 104 114 109 95 96	100 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Date: July 2022Location: DC-01 (Keshopur to Pitampura) (Elevated)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	PC Yard Mundka-129.73 West Enclave- 242.45 Pushpanjali-164.6 Madhuban Chowk- 149.9 North Pitampura-261.16 5 Deepali Chowk- 176.39	136.93 263.48 178.37 155 270.26	100 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Date: August 2022Location: DC-04 (Sangam Vihar to Saket G Block (Elevated)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
		Khanpur-154.05	180.65			
	μg/m³	Sangam Vihar-174.37	197.73	100 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil
PM_{10}		Casting Yard-105.19	126.58			construction stage or even later, if
		Ambedkar	188.04			directed by DMRC
		Nagar-168.535	145.32			

Date: September 2022 Tughlakabad)(UG)

Location:DC-07 (Sangam Vihar to

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM _{2.5}	μg/	Tughlakabad-80.42 5 Tughlakabad Railway Colony-81.35 AnandmayeeMarg-83.475	104.7 106 126.58 98.5	60 (24hours)	Standards	2×24hours Twice/month During entire civil construction
1112.0	m ³	Air Force Station-69.3 Batching Plant Sarita Vihar-101.85 Casting Yard Mundka-61.625	81.4 107 67.8	(CPCB)		stage or even later, if directed by DMRC

Date:September 2022 Tughlakabad)(UG) Location:DC-07 (Sangam Vihar to

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
SO_2	μg/ m³	Tughlakabad-26.52 5 Tughlakabad Railway Colony-25.675 Anandmayee Marg-28.325	29.7 28.2 29.4	80 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC
		Air Force Station-	26.6			DMIC

			Attachment 2
23.875			
Batching Plant Sarita Vihar-28.875	31.6		
Casting Yard Mundka-28.2	31.4		

Date: September 2022 Tughlakabad)(UG) Location:DC-07 (Sangam Vihar to

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
NOx	μg/ m³	Tughlakabad-42.75 Tughlakabad Railway Colony-40.45 Anandmayee Marg-42.225 Air Force Station-41.7 Batching Plant Sarita Vihar-41.35 Casting Yard Mundka-41.3	45.2 42 43.1 44.1 42.7	80 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Date: July 2022 Tughlakabad)(UG) $Location: DC\text{-}07 \ (Sangam \ Vihar \ to$

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM _{2.5}	μg/ m³	Tughlakabad-59.3 Tughlakabad Railway Colony- 49.95 Anandmayee	86.2 68.4 59.6	60 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by

			Attachment 2
Marg-42.15			DMRC
	80.2		
Air Force			
Station-52.7			

Date:July 2022 Tughlakabad)(UG) Location:DC-07 (Sangam Vihar to

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
SO_2	μg/ m³	Tughlakabad-11.6 Tughlakabad Railway Colony-12.125 Anandmayee Marg-11.875 Air force station-11.4	12.6 12.7 13.5	80 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Date: July 2022 Tughlakabad)(UG) Location: DC-07 (Sangam Vihar to

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
NOx	μg/	Tughlakabad-34.32 5 TughlakabadRailw ay Colony-29.4	49.7 38.7	80 (24hours)	-	2×24hours Twice/month During entire civil construction
m ³	m	Anandmayee Marg-41.075 Air Force Station-33.1	48.7	(CPCB)		stage or even later, if directed by DMRC

Ground Water Quality (Drinking Water Quality: IS 10500:1991)

Date:August 2022 Location:DC-06(Krishna Park station)

Attachment	2
Remarks	

Item	<u>Unit</u>	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internatio nal Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max		<1	-	5(25)	-	20 locations Once/6
Odour	-	Agreeabl e	-	Unobjection able	-	months
Taste	-	-	-	Agreeable	-	During
Turbidity,NTU ,Max	-		-	5(10)	-	entire civil constructio
pH Value	-	7.12	-	6.5-8.5	-	n stage or
Total Hardness (as CaCO ₃), Max	mg/l	212.3	-	300(600)	-	even later, if directed by DMRC
Iron(as Fe) ,max	mg/l	0.24	-	0.3(1.0)	-	
Chloride(as Cl), Max	mg/l	78.5	-	250(1000)	-	
Residual free Chlorine, Min	mg/l		-	0.2	-	
Fluoride(as F), Max	mg/l	-	-	1.0(1.5)	-	
Dissolved solids, Max	mg/l	614	-	500(2000)	-	
Calcium(as Ca), Max	mg/l	48.4	-	75(200)	-	
Magnesium(as Mg), Max	mg/l	22.2	-	30(100)	-	
Copper(as Cu), Max	mg/l		-	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	-	-	0.1(0.3)	-	
Sulphate(as SO ₄), Max	mg/l	56.12	-	200(400)	-	
Nitrate(as NO ₂), Max	mg/l	-	-	45(100)	-	
Phenolic compounds (as C ₆ H ₅ OH),Max	mg/l	-	-	0.001(0.002)	-	
Mercury(as Hg), Max	mg/l	-	-	0.001	-	
Cadmium(as	mg/l	-	-	0.01	-	

Attachment

			1	1	,	Attachment 2
Cd),						
Max						
Selenium(as		-	-			
Se),	mg/l			0.01	-	
Max						
Arsenic(as		-	-			
As),	mg/l			0.05	-	
Max						
Cyanide(as		-	-			
CN),	mg/l			0.05	-	
Max						
Lead(as Pb),	mg/l	-	-	0.05		
Max	111g/1			0.0อ		
Zinc(as Zn),	mg/l	-	-	5(15)		
Max	mg/1			9(19)		
Anionic		-	-			
Detergents	m ~/1			0.2(1.0)	_	
(as	mg/l			0.2(1.0)	_	
MBAS),Max						
Chromium	m a/1	-	-	0.05	_	
(as Cr6+),Max	mg/l			0.00		
Polynuclear		-	-			
aromatic	/1					
hydrocarbons(mg/l			_	_	
as PAH),Max						
Mineral Oil	mg/l	-	-	0.01	-	
Pesticides,		-	-	Abcomt		
Max	mg/l			Absent		
Radioactive		-	-			
Materials,						
Max	Bq/l			-(0.1)	-	
a) Alpha	-					
emitters						
Radioactive		-	-			
Materials,						
Max	Pci/l			-(1)	-	
b) Beta						
emitters						
Alkalinity,	п	11.4	-	200(200)		
Max	mg/l			200(600)	-	
Aluminum(as		-	-			
Al),	/1			0.00(0.0)		
Max	mg/l			0.03(0.2)	-	
Boron,Max	/1	-	-	1(7)		
	mg/l			1(5)		

				Γ		Remarks
Item	<u>Unit</u>	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	(Measurem ent Point, Frequency, Method, etc.)
Color, Hazen units, Max		-	-	5(25)	-	20 locations Once/6
Odour	-	-	-	Unobjection able	-	months
Taste	-	-	-	Agreeable	-	During
Turbidity,NTU ,Max	-	-	-	5(10)	-	entire civil constructio
pH Value	-	-	-	6.5-8.5	-	n stage or
Total Hardness (as CaCO ₃), Max	mg/l	-	-	300(600)	-	even later, if directed by DMRC
Iron(as Fe) ,max	mg/l	-	-	0.3(1.0)	-	
Chloride(as Cl), Max	mg/l	-	-	250(1000)	-	
Residual free Chlorine, Min	mg/l	-	-	0.2	-	
Fluoride(as F), Max	mg/l	-	-	1.0(1.5)	-	
Dissolved solids, Max	mg/l	-	-	500(2000)	-	
Calcium(as Ca), Max	mg/l	-	-	75(200)	-	
Magnesium(as Mg), Max	mg/l	-	-	30(100)	-	
Copper(as Cu), Max	mg/l	-	-	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	-	-	0.1(0.3)	-	
Sulphate(as SO ₄), Max	mg/l	-	-	200(400)	-	
Nitrate(as NO ₂), Max	mg/l	-	-	45(100)	-	
Phenolic compounds (as C ₆ H ₅ OH),Max	mg/l	-	-	0.001(0.002)	-	
Mercury(as	mg/l	-	-	0.001	-	

						Attachment 2
Hg),						
Max						
Cadmium(as		-	-			
Cd),	mg/l			0.01	-	
Max						
Selenium(as		-	-			
Se),	mg/l			0.01	-	
Max						
Arsenic(as		-	-			
As),	mg/l			0.05	-	
Max						
Cyanide(as		-	-			
CN),	mg/l			0.05	-	
Max						
Lead(as Pb),	Л	-	-	0.05		
Max	mg/l			0.05	_	
Zinc(as Zn),		-	-	F(1 F)		
Max	mg/l			5(15)	-	
Anionic		-	-			
Detergents						
(as	mg/l			0.2(1.0)	-	
MBAS),Max						
Chromium		-	_			
(as Cr6+),Max	mg/l			0.05	-	
Polynuclear		_	_			
aromatic						
hydrocarbons(mg/l			-	-	
as PAH),Max						
Mineral Oil	mg/l	_	_	0.01	_	
	mg/1		_	0.01		
Pesticides,	mg/l		_	Absent	-	
Max						
Radioactive		-	-			
Materials,	D /			(0.1)		
Max	Bq/l			-(0.1)	_	
c) Alpha						
emitters	-	_				
Radioactive		-	_			
Materials,	D . a			(1)		
Max	Pci/l			-(1)	-	
d) Beta						
emitters						
Alkalinity,	mg/l	-	-	200(600)	-	
Max	8' 1					
Aluminum(as		-	-	()		
Al),	mg/l			0.03(0.2)	-	
Max						
Boron,Max	mg/l	-	-	1(5)	-	

Item	<u>Unit</u>	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max		-	-	5(25)	-	20 locations Once/6
Odour	-	-	-	Unobjection able	-	months
Taste	-	-	-	Agreeable	-	During
Turbidity,NTU ,Max	-	-	-	5(10)	-	entire civil constructio
pH Value	-	-	-	6.5-8.5	-	n stage or
Total Hardness (as CaCO ₃), Max	mg/l	-	-	300(600)	-	even later, if directed by DMRC
Iron(as Fe) ,max	mg/l	-	-	0.3(1.0)	-	
Chloride(as Cl), Max	mg/l	-	-	250(1000)	-	
Residual free Chlorine, Min	mg/l	-	-	0.2	-	
Fluoride(as F), Max	mg/l	-	-	1.0(1.5)	-	
Dissolved solids, Max	mg/l	-	-	500(2000)	-	
Calcium(as Ca), Max	mg/l	-	-	75(200)	-	
Magnesium(as Mg), Max	mg/l	-	-	30(100)	-	
Copper(as Cu), Max	mg/l	-	-	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	-	-	0.1(0.3)	-	
Sulphate(as SO ₄), Max	mg/l	-	-	200(400)	-	
Nitrate(as NO ₂), Max	mg/l	-	-	45(100)	-	
Phenolic compounds (as C ₆ H ₅ OH),Max	mg/l	-	-	0.001(0.002)	-	
Mercury(as	mg/l	-	-	0.001	-	

						Attachment 2
Hg),						
Max						
Cadmium(as		-	-			
Cd),	mg/l			0.01	-	
Max						
Selenium(as		-	-			
Se),	mg/l			0.01	-	
Max						
Arsenic (as		-	-			
As),	mg/l			0.05	-	
Max						
Cyanide(as		-	-			
CN),	mg/l			0.05	-	
Max	O					
Lead(as Pb),	п	-	-	0.07		
Max	mg/l			0.05	-	
Zinc(as Zn),	п	-	-	-(1 -)		
Max	mg/l			5(15)	-	
Anionic		-	-			
Detergents	п			0.0(1.0)		
(as	mg/l			0.2(1.0)	-	
MBAS),Max						
Chromium	п	-	-	0.07		
(as Cr6+),Max	mg/l			0.05	-	
Polynuclear		-	-			
aromatic	п					
hydrocarbons(mg/l			-	-	
as PAH),Max						
Mineral Oil	mg/l	-	-	0.01	-	
Pesticides,		-	-	A1 .		
Max	mg/l			Absent	-	
Radioactive		-	-			
Materials,						
Max	Bq/l			-(0.1)	-	
e) Alpha	•					
emitters						
Radioactive		-	-			
Materials,						
Max	Pci/l			-(1)	-	
f) Beta						
emitters						
Alkalinity,	/1	-	-	200(200)		
Max	mg/l			200(600)	_	
Aluminum(as		-	-			
Al),	mg/l			0.03(0.2)	-	
Max						
Boron,Max	mg/l	-	-	1(5)	-	

ltem	<u>Unit</u>	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max		-	-	5(25)	-	20 locations Once/6
Odour	-	-	-	Unobjection able	-	months
Taste	-	-	-	Agreeable	-	During
Turbidity,NTU ,Max	-	-	-	5(10)	-	entire civil constructio
pH Value	-	-	-	6.5-8.5	-	n stage or
Total Hardness (as CaCO ₃), Max	mg/l	-	-	300(600)	-	even later, if directed by DMRC
Iron(as Fe) ,max	mg/l	-	-	0.3(1.0)	-	
Chloride(as Cl), Max	mg/l	-	-	250(1000)	-	
Residual free Chlorine, Min	mg/l	-	-	0.2	-	
Fluoride(as F), Max	mg/l	-	-	1.0(1.5)	-	
Dissolved solids, Max	mg/l	-	-	500(2000)	-	
Calcium(as Ca), Max	mg/l	-	-	75(200)	-	
Magnesium(as Mg), Max	mg/l	-	-	30(100)	-	
Copper(as Cu), Max	mg/l	-	-	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	-	-	0.1(0.3)	-	
Sulphate(as SO ₄), Max	mg/l	-	-	200(400)	-	
Nitrate(as NO ₂), Max	mg/l	-	-	45(100)	-	
Phenolic compounds (as C ₆ H ₅ OH),Max	mg/l	-	-	0.001(0.002)	-	
Mercury(as	mg/l	-	-	0.001	-	

						Attachment 2
Hg),						
Max						
Cadmium(as		-	-			
Cd),	mg/l			0.01	-	
Max						
Selenium(as		-	-			
Se),	mg/l			0.01	-	
Max						
Arsenic (as		-	-			
As),	mg/l			0.05	-	
Max						
Cyanide(as		-	-			
CN),	mg/l			0.05	-	
Max						
Lead(as Pb),		-	-			
Max	mg/l			0.05	-	
Zinc(as Zn),		-	-	, ,		
Max	mg/l			5(15)	-	
Anionic		_	-			
Detergents						
(as	mg/l			0.2(1.0)	-	
MBAS),Max						
Chromium		-	_			
(as Cr6+),Max	mg/l			0.05	-	
Polynuclear		_	_			
aromatic						
hydrocarbons(mg/l			-	-	
as PAH),Max						
Mineral Oil	mg/l	-	_	0.01	-	
Pesticides,	mg/1	_	_			
Max	mg/l			Absent	-	
Radioactive		-	_			
			_			
Materials, Max	D ~ /1			-(0.1)	_	
g) Alpha	Bq/l			-(0.1)	_	
emitters						
Radioactive		_	_			
Materials, Max	Pci/l			-(1)	_	
h) Beta	F C1/1			(1)		
emitters		_	_			
Alkalinity,	mg/l	_	_	200(600)	-	
Max		-	_			
Aluminum(as	/1	-	_	0.00(0.0)		
Al),	mg/l			0.03(0.2)	-	
Max	л			1(=)		
Boron,Max	mg/l	-	-	1(5)	-	

Noise / Vibration

Date: April 2022 Bhajanpura)(Elevated) Location: DC-02 (Yamuna Vihar to

Attachment 2 Remarks Measured Value Measu Country's Occupancy (Measure-Standards Item Unit (L_{eq}) \mathbf{red} ment Point, Value (Environmental Frequency, (L_{Max}) Management Method, etc.) Manual by DMRC) Khajuri Khas 78.4 Noise National 30locations level Leq (d)-73.9 **Standar**ds 24hours/time dB(A) Leq (n)-57.3 AreaLeg(d)Leg(n) (Leq) Once/week Lmin-46.8 Resi and 55 Lmax 45 During Comm 65 entire civil Bhajanpura: 55 construction Indstl stage or even Leq (d)-77.4 82.1 75 Leg (n)-64.8 70 later, if Lmin-50.7 Silence 50 directed by 40 DMRC Yamuna Vihar: DMRC Env Leq (d)-71.5 77.9 <u>Manual</u> Leq (n)-63.9 (when pre Lmin-51.6 construction levels are not Yamuna Bed: known) Leq (d)-71.3 79.5 Resi Leg (n)-66.4 Lmax Lmin-53.6 Daytime: 75 Nighttime: Sonia Vihar: 65 Leq (d)-75.7 80.3 Comm & and Leg (n)-62.5 Indstl Commerci Lmin-50.9 At all time: ลโ 85 /residence 82.6 Casting Yard: Leq (d)-76.9 Leq (n)-60.7 Lmin-48.1 Jagatpur : 80.7 Leq (d)-76.1 Leq (n)-59.7 Lmin-52.2 Soorghat: 72.3 Leq (d)-68.2 Leq (n)-60.6 Lmin-49.7 Jharoda: 75.6 Leq (d)-71.3 Leq (n)-63.2 Lmin-50.6

81.3

Burari:

					Attachment 2
		Leq (d)- 76.7 Leq (n)-64.7 Lmin-52.3			
Vibratio	RMS	-	 Structures		10locations
n level	(mm/s)		in good		24hours/time
			condition:25		Once/week
			in fair		During
			condition:12		entire civil
			in poor		construction
			condition:5	-	stage or even
			Water supply		later, if
			Structures:5		directed by
			Heritage		DMRC
			structure/		
			Bridge		
			structures:5		

Date: May 2022 Location: DC-01 (Keshopur to Pitampura) (Elevated)

Item	Unit	Measured Value $(\mathrm{L}_{\mathrm{eq}})$	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measurement Point, Frequency , Method, etc.)
Noise		Mundka Casting		National		30location
level		Yard-	89	<u>Standards</u>		s
(Leq)	dB(A	Leq (d)-66.45		AreaLeq(d)Leq(n)		24hours/ti
and)	Leq (n)-60.78		Resi 55		me
Lmax		Lmin-39		45		Once/week
				Comm 65		
		MadhubanChowk-		55		During
		Leq (d)-74.34	94.6	Indstl 75		entire civil
		Leq (n)-64.32		70		constructi
		Lmin-54.7		Silence 50		on stage
				40		or even
		North		DMRC Env		later, if directed
		Pitampura-Leq		Manual		by DMRC
		(d)-72.41	96.9	(when pre		by DMIKC
		Leq (n)-68.98	30.3	construction levels		
		Lmin-57.6		are not known)		
		Emm 07.0		Resi		
				Lmax	Commerci	
			93.7	Daytime:	al /	
		West Enclave-		75	residence	
		Leq (d)-68.99		Nighttime:		
		Leq (n)-64.37		65		
		Lmin-50		Comm & and Indstl		
				At all time:		
			108.9	85		
		Puspanjali-				

					Atta	achment 2
		Leq (d)-74.05 Leq (n)-74.69 Lmin-46.1 Deepali Chowk - Leq (d)-66.84 Leq (n)-67.69 Lmin-53.4	89.8			
Vibratio n level	RMS (mm/s	-	-	Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5	-	10location s 24hours/ti me Once/week During entire civil constructi on stage or even later, if directed by DMRC

Date:August 2022Location:DC-04 (Sangam Vihar to Saket G block)(Elevated)

Item	Unit	Measured Value (L _{eq})	Meas ured Value(L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Khanpur- Leq (d)-71.12 Leq (n)-69.99 Lmin-57 Sangam Vihar- Leq (d)-75.51 Leq (n)-64.82 Lmin-38.4 Casting Yard- Leq (d)-67.57 Leq (n)-57.4 Lmin-39 Ambedkar Nagar- Leq (d)-73.32 Leq (n)-67.50	96.4 97.3 95.4 96.8	National Standards AreaLeq(d)Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40 DMRC Env Manual (when pre construction levels are not known) Resi Lmax Daytime:	Commerci al / residence	30locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC
		Lmin-61.3		75		

					Attachment 2
		Saket G Block- Leq (d)-67.13 Leq (n)-64.87 Lmin-46.0	94.2	Nighttime: 65 Comm & and Indstl At all time: 85	
Vibratio n level	RMS (mm/s)	-	-	Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5	10locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC

Date:July 2022Location:DC-01 (Keshopur to Pitampura) (Elevated)

Item	Unit	Measured Value (L _{eq})	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Mundka Casting Yard- Leq (d)-63.58 Leq (n)-57.71 Lmin-46.9 Madhuban Chowk- Leq (d)-71.76 Leq (n)-61.9 Lmin-45.6	92.5 94.2	National Standards AreaLeq(d)Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40		30locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC
		North Pitampura- Leq (d)-73.01 Leq (n)-69.88 Lmin-64.8 Paschim Vihar- Leq (d)-66.94 Leq (n)-61.72 Lmin-48.4	93.2 87.6	DMRC Env Manual (when pre construction levels are not known) Resi Lmax Daytime: 75 Nighttime: 65 Comm & and	Commerci al / residence	
		West Enclave	95.9	Indstl At all time: 85		

					Attachment 2
		Leq (d)-69.56 Leq (n)-64.85 Lmin-49.2			
		Deepali Chowk- Leq (d)-73.80 Leq (n)-65.84 Lmin-52.5	93.9		
Vibratio	RMS			Structures	10locations
n level	(mm/s)			in good	24hours/time
				condition:25	Once/week
				in fair	
				condition:12	During
				in poor	entire civil
				condition:5 -	construction
				Water supply	stage or even
				Structures:5	later, if
				Heritage	directed by
				structure/	DMRC
				Bridge	
				structures:5	

Date:July2022 Location: DC-02 (Maujpur to Majlis Park) (Elevated)

Item	Unit	$\begin{array}{c} \textbf{Measured Value} \\ \textbf{(L}_{eq}) \end{array}$	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Jharoda Leq (d)-64.8 Leq (n)-56.1 Lmin-45.6 Burari-	77.5	National Standards AreaLeq(d)Leq(n) Resi 55 45 Comm 65		30locations 24hours/time Once/week During entire civil
		Leq (d)-68.3 Leq (n)-65.4 Lmin-55.2	81.4	55 Indstl 75 70 Silence 50 40	Commerci	construction stage or even later, if directed by DMRC
		Jagatpur- Leq (d)-70.5 Leq (n)-62.5 Lmin-50.9	80.2	DMRC Env Manual (when pre construction levels are not known)	residence	
		Soorghat- Leq (d)-69.7 Leq (n)-61.6 Lmin-53.7	80.9	Resi Lmax Daytime: 75 Nighttime:		

						Attachment 2
		Yamuna Bed- Leq (d)-67.2 Leq (n)-63.2 Lmin-54.4	82.6	Comm & and Indstl At all time:		
		Khajuri Khas- Leq (d)-72.2 Leq (n)-64.7 Lmin-53.2	81.6			
		Bhajanpura- Leq (d)-71.5 Leq (n)-61.4 Lmin-49.3	78.9			
		Yamuna Vihar- Leq (d)-70.9 Leq (n)-59.2 Lmin-51.9	82.3			
		Sonia Vihar- Leq (d)-68.6 Leq (n)-60.3 Lmin-53.4	82.7			
		Casting Yard- Leq (d)-71.3 Leq (n)-65.6 Lmin-54.6	83.1			
Vibratio n level	RMS (mm/s)			Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5	-	10locations 24hours/time Once/week During entire civil construction stage or even later, if
				Heritage structure/ Bridge structures:5		directed by DMRC

Excavated soil (Leaching test)

Item	<u>Unit</u>	Measure d Value (Mean)	Measure d Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measuremen t Point, Frequency, Method, etc.)
Mercury(as Hg)	mg/l	0.005	-	-	0.0005	In each Underground
Cadmium(as Cd)	mg/l	0.02	-	-	0.01	Construction Contract
Arsenic(as As)	mg/l	0.1	-	•	0.01	Once/6month s
Cyanide(as CN)	mg/l	0.01	-	-	Not detected	During entire civil construction stage
Lead(as Pb)	mg/l	0.05	-	-	0.01	
Chromium(as Cr6+)	mg/l	0.02	-	-	0.05	Samples should be taken from the underground lowest point. -Report submitted in last quarter report of July to September 2020

Item	<u>Unit</u>	Measure d Value (Mean)	Measure d Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measuremen t Point, Frequency, Method, etc.)
Mercury(as Hg)	mg/l		-	-	0.0005	In each Underground
Cadmium(as Cd)	mg/l	-	-	-	0.01	Construction
Arsenic(as As)	mg/l	-	-	-	0.01	Contract Once/6month
Cyanide(as CN)	mg/l	1	-	-	Not detected	s During entire
Lead(as Pb)	mg/l	-	-	-	0.01	civil construction
Chromium(as Cr6+)	mg/l	-	-	-	0.05	stage Samples should be taken from the underground lowest point.

Excavated soil (Amount)

Line	Excavated Amounttill date Approx.(m³)	Name of Disposed Site	Disposed Amount till date Approx.(m³)
Line-7	2	-	Used at site
Line-8	23650	DC-01	Used at Site
Line-8	12858	DC-06	12858
Line-10	16689	DC-04	15659
Line-10	15832	DC-26	15832

Ecological Monitoring (Flora Monitoring)

CPM	Permissio n to fell trees	No. of trees actually felled	No of trees planted	No of trees transpla nted	Location of plantation
CPM-2	2940	268	Compens atory	502	-
CPM-3	1339	0	Plantatio n in the ration of	0	-
CPM-4	1468	461	1: 10 i.e. 10 * no. of trees	775	-
CPM-5	2395	573	felled to be	593	-
CPM-6	1668	503	planted by Delhi Develop ment Authority on behalf of DMRC	97	-

2.2 During Operation

When a measured value exceeds the standards, the value is written in bold letters.

Air Quality (Ambient Air Quality)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Date:Location:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Date: Location:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Date:Location:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Date:Location:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Attachment 2

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Date:Location:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Date:Location:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Date:Location:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Air Quality (Ambient Air Quality)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours)	IS 5182 (Part 23)	48hours/time Once/month

(CPCB) For 3 years

Effluentat Depot Date:Location:Vinod Nagar

Item	<u>Unit</u>	Va (Mo	sured lue ean)	Measured Value (Max.)	Country's Standards	Referred Internationa l Standards	Remarks (Measureme nt Point,
		Inlet	Outle t				Frequency, Method, etc.)
pН	-			-	5.5-9.0	IS 3025(part-11) 1983- RA:2017	(Depot) Once/4mont hs For 3 years
TSS	mg/l			-	100	IS 3025(part-17) 1984- RA:2017	
BOD	mg/l			-	30	IS 3025(part-44) 1993- RA:2017	
COD	mg/l			-	250	IS 3025(part-58) 2006- RA:2017	
Oil/Greas e	mg/l			-	10	IS 3025(part-11) 1991- RA:2019	

Effluent at Depot

Date:July 2022 Location:Kalindi Kunj Depot

Item	<u>Unit</u>	Va. (Me	sured lue ean)	Measured Value (Max.)	Country's Standards	Referred Internationa 1 Standards	Remarks (Measurem ent Point,
		Inlet	Outlet				Frequency, Method,
							etc.)
pН	-					IS	(Depot)
				-	5.5-9.0	3025(part-11	Once/4mont
					0.0 0.0) 1983-	hs
						RA:2017	For 3 years
TSS	mg/l					IS	
				-	100	3025(part-17	
					100) 1984-	
						RA:2017	
BOD	mg/l					IS	
				_	30	3025(part-44	
					50) 1993-	
						RA:2017	
COD	mg/l			-	250	IS	

						Attachment 2
					3025(part-58	
					3025(part-58) 2006-	
					RA:2017	
Oil/Greas	mg/l				IS	
е			_	10	3025(part-11) 1991-	
			_	10) 1991-	
					RA:2019	

Effluent at Depot Date: July 2022Location:Ajronda Depot

Item	<u>Unit</u>	Measured Value (Mean) Inlet Outlet		Measured Value (Max.)	Country's Standards	Referred Internationa l Standards	Remarks (Measurement Point, Frequency, Method, etc.)
		IIIICU	Ounce				
рН	-		-	-	5.5-9.0	IS 3025(part-11) 1983- RA:2017	(Depot) Once/4months For 3 years
TSS	mg/l		-	-	100	IS 3025(part-17) 1984- RA:2017	
BOD	mg/l		-	-	30	IS 3025(part-44) 1993- RA:2017	
COD	mg/l		-	-	250	IS 3025(part-58) 2006- RA:2017	
Oil/Greas e	mg/l		-	-	10	IS 3025(part-11) 1991- RA:2019	

Ground Water Quality(Drinking Water Quality:IS 10500:1991)

Item	<u>Unit</u>	Measure d Value (Mean)	Measure d Value (Max.)	Country's Standards (IS 10500:1991	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
Turbidity,NTU, Max	-	-	-	5(10)	IS:3025(part-10)	
pH Value	-	-	-	6.5-8.5	IS:3025(part-11)	
Total Hardness (as CaCO ₃), Max	mg/l	-	-	300(600)	IS:3025(part-21	
Iron(as Fe) ,max	mg/l	-	-	0.3(1.0)	IS:3025(part-53	

						Attachment 2
Dissolved solids, Max	mg/l	-	-	500(2000)	IS:3025(part-16)	
Calcium(as Ca), Max	mg/l	-	-	75(200)	IS:3025(part-40	
Magnesium(as Mg), Max	mg/l	-	-	30(100)	IS:3025(part-46)	
Sulphate(as SO ₄), Max	mg/l	-	-	200(400)	IS:3025(part-24)	
Nitrate(as NO ₂), Max	mg/l	-	-	45(100)	IS:3025(part-34)	
Lead(as Pb), Max	mg/l	-	-	0.05	IS:3025(part-47	
Zinc(as Zn), Max	mg/l	-	-	5(15)	IS:3025(part-49)	
Alkalinity, Max	mg/l	-	-	200(600)	IS:3025(part-23)	
Aluminum(as Al), Max	mg/l	-	-	0.03(0.2)	IS:3025(part-)	
TSS	mg/l	-	-	600	IS:3025(part-)	

Noise / Vibration

Date: Location:

Item	Unit	$\begin{array}{c} \textbf{Measured Value} \\ \textbf{(L}_{eq}) \end{array}$	Meas ured Value (L _{Max})	Country's Standards		Occupancy	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Leq (d)- Leq (n)- Lmin-		National Standards AreaLeq(d)L Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40	5	Commerci al /residence	15locations 24hours/time Once/month

]

Date:Location:

Item	Unit	$\begin{array}{c} \textbf{Measured Value} \\ \textbf{(L}_{eq}) \end{array}$	Meas ured Value (L _{Max})	Country's Standards	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Leq (d)- Leq (n)- Lmin-		National Standards AreaLeq(d)Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40	Commerci al /residence	15locations 24hours/time Once/month

Date:Location:

Item	Unit	Measured Value (L _{eq})	Meas ured Value (L _{Max})	Country's Standards	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level				National Standards		15locations 24hours/time
(Leq) and Lmax	dB(A)	Leq (d)- Leq (n)- Lmin-		AreaLeq(d)Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40	Commerci al /residence	Once/month

Date Bot	201011					
						Remarks
		Measured	MeasuredRM	Country's	Referred	(Measure-
Item	Unit	RMS Value	S Value	Standards	International	ment Point,
		(Mean)	(Max.)	Max. PPV	Standards	Frequency,
				mm/s		Method, etc.)

Attachment	2
жиасинст	

					tttaemment 2
Vibration			Structures	Federal	As and when
level	mm/s		in:-	Transit	complaint
			Good	Administratio	arises at the
			condition =	n (FTA),	ground floor
			25	US	of building
			Fair		above the
			condition =		tunnel.
			12		
			Poor		
			condition =		
			5		
			Water		
			supply		
			structures		
			= 5		
			Heritage		
			structures		
			= 5		