

**Name of Project:** Inland Container Depot and Ware House (Logistic) Project located at Village-Janouli & Baghola, Distt. Palwal, Haryana by **M/s. Hind Terminals Pvt. Ltd.**

**Environmental Clearance Letter No.:** SEIAA/HR/2012/311 dated 8.10.2012 dated 08/10/2012.

**Period of Compliance:** October 2014 to March 2015

**PART I**

**Compliance of Stipulated Conditions of Environmental Clearance**

**Part A-Specific Conditions:-**

**I. Construction Phase:-**

S. No.	Specific Conditions	Reply
i.	"Consent for Establish" shall be obtained from Haryana State Pollution Control Board under Air and Water Act and a copy shall be submitted to SEIAA, Haryana before the start of any construction work at site.	We have obtained Consent to Establish from HSPCB vide letter no. HSPCB/TAC/2013/2807 dated 07/02/2013 and is enclosed as <b>Annexure-1(A)</b> . We have also applied for Consent to Operate and trial permission has been granted vide letter no. HSPCB/Consent/:2846015PALCTOHWM1989915 and HSPCB/Consent/:2846015PALCTO1989915 dated 15/04/2015 Copy is enclosed as <b>Annexure-1 (B)</b>
ii.	A first aid room as proposed in the project shall be provided both during construction and operational phase of the project.	A Separate first aid room at the site has been provided and is being used during construction phase of the project. Please refer to photographs attached as <b>Annexure- 2.</b>
iii.	Adequate drinking water and sanitary facilities should be provided for construction workers at the site. Provision should be made for mobile toilets. Open defecation by the laboures is strictly prohibited. The safe disposal of waste water and the solid waste generated during the construction phase should be ensured.	Drinking water and sanitary facilities are being provided to the workers and source of drinking water is hired water tankers. Waste water generation is approx 10 KLD and being disposed off using water for sprinkling and for soil formation work. Hence no disposal of waste water needed in construction phase.

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iv.	All the top soil excavated during construction activities should be stored for use in horticulture/landscape development within the project site.	Top soil excavated has been used for Green belt development, landscaping etc.
v.	Disposal of muck during construction phase should not create any adverse effect on the neighboring communities and be disposed of taking necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.	There is no muck generation at present. Finishing work is in progress. The Safety helmets and shoes, Mask have been provided to laborers to minimize dust inhalation. Most of the construction waste has been reused on site.
vi.	Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate water courses and the dump sites for such material must be secured so that they should not leach into the groundwater and any hazardous waste generated during construction phase, should be disposed off as per applicable rules and norms with necessary approval of Haryana State Pollution Control Board.	There is no construction spoils. No bituminous materials generated or used at the site, in present construction phase. All construction waste has been used within site itself for filling under floors; roads etc. to the extent feasible. Remaining waste is disposed as per applicable rules. Soil & Water Quality results are enclosed as Annexure-3.
vii.	The diesel generator sets to be used during construction phase should be of low sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.	Low sulphur diesel type DG sets have been used. Currently the temporary power supply of 63 KVA is taken from DHBVN. The DG details utilized for power already submitted with previous report.
viii.	The diesel required for operating DG sets shall be stored in underground tanks and if required, clearance from Chief Controller of Explosives shall be taken.	Quantity of Diesel used for D.G. Set is very small therefore no need to stored in underground tank & we are procuring from nearby sources and directly filling the DG tank for construction phase.
ix.	Ambient noise levels should conform to standards both during day and night. Incremental pollution loads on the ambient	Ambient Air and Noise level monitoring has been done and the results are enclosed as Annexure-4 & 5.

	<p>air and noise quality should be closely monitored during construction phase. Adequate measures should be taken to reduce ambient air and noise level during construction phase, so as to conform to stipulated residential standards.</p>	<p><b>Measures taken for reducing Air &amp; Noise pollution are as given below:</b></p> <ul style="list-style-type: none"> <li>✓ Dust suppression system (water spray) has been used at construction site and unpaved roads.</li> <li>✓ During transportation, materials are being covered by tarpaulin sheets</li> <li>✓ Dust generation is reduced by using sharp teeth for excavation machinery</li> <li>✓ Provision of silencer to modulate padding / noise isolators at equipment / machinery used for construction</li> <li>✓ Regular maintenance of vehicles &amp; machinery is being carried out</li> <li>✓ Construction activity limited up to Day time only</li> <li>✓ D.G. sets has been kept in acoustic enclosures.</li> </ul>
x.	<p>Fly ash should be used as building material in the construction as per the provisions of the Fly Ash Notification of September 1999 and as amended on 27th august 2003.</p>	<p>Ready Mix Concrete has been used as building material. Fly ash bricks have also been used. PPC is used in lieu of OPC for energy conservation.</p>
xi.	<p>Ready mix concrete must be used in building construction.</p>	<p>We have used ready mix concrete for building construction.</p>
xii.	<p>Storm water control and its reuse as per CGWA and BIS standards for various applications should be ensured.</p>	<p>Well planned Storm Water drainage has been designed upto the final phase and shall be executed in phased manner.</p>
xiii.	<p>Water demands during construction should be reduced by the use of pre mixed concrete, curing agents and other best practices as referred.</p>	<p>Ready mixed concrete has been used to reduce water demand. Construction chemicals are being used whenever needed.</p>
xiv.	<p>Permission from competent authority for supply of water shall be obtained prior to</p>	<p>The area falls under safe category as per the ground water assessment carried out by CGWA.</p>

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	operation of the project.	The total requirement of ground water is 123 Cum. The approval of CGWA regarding the same is enclosed as <b>Annexure-6</b> .
xv.	Roof should meet perspective requirement as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfill requirements.	Roof tops of building are designed with puffing/bricks bat coba for water proofing and thermal insulation. Roof tops will also have partly landscaped area/gardens in its final phase. RWH is also planned on roofs.
xvi.	Opaque wall should meet perspective requirement as per Energy Conservation Building Code which is proposed to be mandatory for all air conditioned spaces while it is apparitional for non air conditioned spaces by use of appropriate thermal insulation material to fulfill requirements.	This has been adequately dovetailed and executed while construction of façade and building interior works. DGU has been used to reduce heat and AC loads.
xvii.	The approval of the Competent authority shall be obtained for structural safety of the building on account of earthquake, adequacy of fire fighting equipments etc. as per National Building Code including protection measures from lightening etc. If any forest land is involved in the proposed site, clearance under The Forest Conservation Act shall be obtained from the competent Authority.	Building is designed on account of structural safety from earthquake, adequacy of fire fighting equipments etc. as per National Building Code including protection measures from lightening etc. A copy of Approved building plan is enclosed as <b>Annexure-7</b> . No Forest land is involved in proposed site and NOC from Forest department has been obtained and is enclosed as <b>Annexure-8</b> .
xviii.	The PP shall use water for construction phase only after getting prior permission from CGWA for using the bore well water for construction purposes.	Water from hired water tankers is being used for construction activity. For operation phase permission has already been obtained. Refer <b>Annexure- 6</b> .
xix.	The project proponent shall construct sufficient nos. rain water harvesting pits for recharging the ground water within the project premises. Rain water harvesting	16 No. of Rain water harvesting pits will be constructed in phased manner for recharging ground water within the project premises as per the RWH plan up to the final phase of the project.

	pits shall be designed to make provisions for silting chamber and removal of floating matter before entering harvesting pit. Maintenance budget and persons responsible for maintenance must be provided. Care shall also be taken that contaminated water do not enter any RWH pit.	RWH plan is enclosed as <b>Annexure-9(A)</b> . 5 nos. RWH pits are prepared at site in Phase-1 as planned. Location is as earmarked. <b>Annexure-9(B)</b>
xx.	The size of RHW pits particularly depth of the pit proposed is too much which shall make it difficult to maintain. Number of RHW pits shall be increased substantially (preferably as per norm of 1 pit per acre) by changing the size of the RHW pits.	Due to nature of industry it is not feasible to provide RWH pits in every acre, as it hampers the operational efficiency. The run-off water is collected through Storm Water Drain and collected into the RWH pits, which are deep enough to discharge into ground water. Please refer <b>Annexure -10</b> . This aspect was amplified during our presentation for environment clearance and in the report for Ground Water Withdrawal permission.
xxi.	The project proponent shall provide minimum one hydraulic ladder for escape of people in case of fire.	All buildings within the complex are planned with provision of fire management as per NBCC code. Since none of the buildings are more than 4 stories and hence Hydraulic ladder is not needed.
xxii.	The project proponent shall submit assurance from the DHBVN for supply of 2000 KVA power supply before the start of construction. In no case project will be operational solely on generation without any power supply from external power utility.	The approval from DHBVN has been obtained is enclosed as <b>Annexure -11</b> .
xxiii.	The project proponent shall seek clearance from Railway Authorities for construction of rail track in the premises.	DPR and ESP Approval from Northern Railway has been obtained and a copy of the same is enclosed as <b>Annexure - 12</b> . Land licensing has been received.
xxiv.	The project proponent shall not cut any	There are no plans to cut any tree in the project

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existing tree and project landscaping plan should be modified to include those trees in green area.	area as there are no tree existing. However for railway line outside the project area, necessary permission shall be obtained when work commences.
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## II. Operational Phase:

S. No.	Specific Conditions	Compliance Report
a.	The project proponent shall setup/ install STP of sufficient capacity for treatment of waste water for the treatment of sewage to the prescribed standards including odor and treated effluent will be recycled to achieve zero exit discharge. The installation of the STP should be certified by an independent expert and a report in this regard should be submitted to the SEIAA, Haryana before the project is commissioned for operation. Discharge of treated sewage shall conform to the norms and standards of HSPCB, Panchkula.	The proposed STP for phase 1 operation of the project is as given in <b>Annexure-13</b> . This shall cater for complete phase 1 operation. As and when subsequent phases are planned STP shall also be buildup and integrated accordingly. The treated water is being utilized for gardening and arboriculture purposes.
b.	Separation of the grey and black water should be done by the use of dual plumbing line. Treatment of 100% gray water by decentralized treatment should be done ensuring that the re-circulated water should have BOD maximum up to 10 ppm and the recycled water will be used for flushing, gardening and DG set cooling and running of fountain in the water body to achieve zero exit discharge.	Treated water quantity is just adequate for gardening/ arboriculture. Hence dual plumbing is not planned and treated water is proposed to be utilized for gardening/ maintenance/ cleaning purposes.
c.	For disinfection of the treated waste water ultra violet radiation or ozonisation process should be used.	Moving Bed Bio Reactor (MBBR) technology with aeration is planned for waste water treatment.
d.	The solid waste generated should be properly collected & segregated. Biodegradable waste shall be decomposed at site and dry/inert waste	Appropriate arrangement for the collection, segregation and disposal of solid waste will be done in phased manner for Complete

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	should be disposed off to approved sites for land filling after recovering recyclable material.	ICD for operation phase.
e.	Diesel power generating sets proposed as source of backup power for lifts, common area illumination and for domestic use should be of enclosed type and conform to rules under the Environment (protection) act, 1986. The location of the DG sets should be in the basement as promised by the project proponent with appropriate stack height i.e above the roof level as per the CPCB norms. The diesel for DG set should be of low sulphur contents (maximum up to 0.25%)	Provision of approx 4 No. of DG Sets of (4x500 KVA) 2000 KVA capacity is proposed for power back up (upto final phase of the project). DG sets will be of "enclosed type" and equipped with acoustic enclosures to minimize the emission and the adequate stack height for proper dispersion. The installation of DG sets shall be done in phased manner.
f.	Ambient noise level should be controlled to ensure that it does not exceed the prescribed standards both within and at the boundary of the proposed ware house complex.	<ul style="list-style-type: none"> <li>✓ Green belt has been developed for reduce Ambient Noise along periphery.</li> <li>✓ D.G. sets will be kept in acoustic enclosures</li> </ul>
g.	The project proponent should maintain at least 32.28% as green cover area for tree plantation especially all around the periphery of the project and on the roadsides preferably with local species so as to provide protection against particulates and noise. The open spaces 10.28% inside the plot should be preferably landscaped and covered with vegetation/grass, shrubs and herbs. Only locally available plants species shall be used.	Green belt has been developed as per the enclosed Green Belt development Plan as <b>Annexure-14.</b>
h.	Weep holes in the compound front walls shall be provided to ensure natural drainage of rainwater in the catchment area during the monsoon period.	The weep holes at adequate interval are planned along boundary wall along with filter & protection media. This shall be implemented in phased manner, wherever the formation work is completed alongside boundary wall. Phase-1 weep holes & filter media are complete.

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i.	Rain water harvesting for roof run off and surface run off, as per plan submitted should be implemented. Before recharging the surface run off, pre treatment through sedimentation tanks must be done to remove suspended matter, oil and grease. The bore well for ground water recharging should be kept at least 5 mts. above the highest ground water table.	As ensured, same will be developed as per submitted RWH Plan. Kindly refer above enclosed as Annexure-9(A) & (B).
j.	The ground water levels and its quality should be monitored regularly in consultation with Central Ground Water Authority.	The ground water level & quality samples will be monitored regularly.
k.	Sufficient parking should be provided within the project boundary and in no case loading, unloading, waiting etc. is allowed on public road/space outside project boundary.	Sufficient parking space has been developed in project boundary for loading, unloading, waiting etc. as per the terminal development plan. Please refer Annexure - 9 (A).
l.	A report on the energy Conservation measures conforming to energy conservation norms finalized by bureau of energy efficiency should be prepared incorporating details about building material and technology, R & U factors etc. and submitted to the SEIAA, Haryana in three months time.	The Energy Conservation report is under preparation and shall be submitted, earliest.
m.	Energy conservation measures like installation of CFLs/TFLs for lighting the areas outside the building should be integral part of project design and should be in place before project commissioning. Used CFLs & TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/ rules of the regulatory authority to avoid Mercury contamination. Use of solar panels must be adapted to maximum extent possible for energy conservation.	Energy conservation measures: <ul style="list-style-type: none"> <li>✓ Passive Solar designs refer to the use of Sun's energy for the heating and cooling of living spaces is dovetailed.</li> <li>✓ Public areas are cooled by natural ventilation as opposed to air conditioning</li> <li>✓ Feasibility for installation of solar photovoltaic cells for street lighting is being assessed.</li> </ul>



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		<ul style="list-style-type: none"> <li>✓ Use of CFL lamps instead of GLS lamps for street lighting is planned &amp; catered.</li> <li>✓ Use of CFL/LED lamps instead of HPSV lamps for High Mast is being implemented.</li> <li>✓ Use of Solar backed LED landscape lights instead of par lamps in standalone areas is planned.</li> </ul>
n.	The solid waste generated should be properly collected & segregated as per the requirement of the MSW Rules, 2000 and as amended from time to time. The biodegradable waste should be composted by vermi-composting at the site earmarked within the project area and dry/inert solid waste should be disposed off to the approved sites for land filling after recovering recyclable material.	Solid waste generation will be collected from designated locations and segregated into inorganic and organic wastes. The organic biodegradable wastes (waste vegetables, foods etc.) will be treated by Vermi composting in the project premises for conversion into manure. Alternatively the waste shall be disposed through authorized vendors.
o.	The provision of the solar heating system shall be as per norms specified by HAREDA and shall be made operational in each building block.	<p>Provision for Solar Heating system will be as per HAREDA specified norms.</p> <ul style="list-style-type: none"> <li>✓ Passive Solar designs refer to the use of Sun's energy for the heating and cooling of living spaces</li> <li>✓ The orientation of the building would be done in such a manner that most of glazed areas in north and east</li> </ul>
p.	The project proponent shall use the water from the already existing tube wells for domestic purposes only after getting permission from CGWA during operational phase.	The area falls under 'safe' category as per the ground water assessment carried out by CGWA. The total requirement of ground water is restricted to 123 Cum. The approval of CGWA copy regarding the same is enclosed as <b>Annexure-6</b> .
q.	The project proponent shall adopt adequate air	Appropriate traffic policy & parking plan

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	pollution control measures to mitigate the air pollution problems and also ensure to provide sufficient space for parking of vehicles to avoid any congestion on the road during peak season. Parking space should be calculated keeping in mind that much more space is required for trucks to turn and move as compared to smaller vehicles.	will be developed to avoid congestion as per the Traffic and parking Plan enclosed above as <b>Annexure-9 (A)</b> .
r.	The project proponent shall ensure that no dust is raised even during peak season operation phase. NAAQS standards must be maintained during both construction and operation phase.	We ensure that dust suppression will be done and NAAQS standards will be followed in both phases.
s.	The project proponent shall check the last 100 years highest flood level, so that facility is not prone to water logging.	The Project Site is at located in village janoli and Baghola which is at a distance of approx. 15 km in West from the Yamuna flood prone area and project will have proper drainage system and rain water harvesting system to accumulate rainfall website. Thus the facility shall not be prone to water logging issue. HFL as per records is 189.47m while the terminal level is 199.86 m. <b>(Refer Annexure-15)</b>
t.	The project proponent is proposing for the storage of many types of materials including perishable items, so proper arrangement for disposal of waste shall be made.	Proper arrangement for disposal of waste will be done as per procedure in vogue.
u.	Pollution control measures for oil/diesel waste due to large no of trucks involved in transportation shall be made.	Vehicles shall be ensured to have a valid PUC certificate.
v.	Scheme of fire fighting shall be got approved from the concerned authority and shall be completed before commissioning the project.	Approved plan attached. <b>(Refer Annexure-16)</b>
w.	All arrangements shall be made a per Hazardous waste (management & handling) rules, 2008 and manufacture & storage & import of hazardous	The Hazardous waste will be used oil from DG sets which will be stored in HDPE (High-density Polyethylene) drums in isolated

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	chemical rules, 1989 as amended up to date before commissioning of the project.	covered facility. This used oil will be disposed to authorized recyclers. Whenever we plan to handle hazardous cargo in the terminal separate permission shall be taken, Fire Safety arrangement and waste disposal shall be planned, as per the rules.
x.	Standard for discharge of environmental pollutants as enshrined in various schedules of rule 3 of Environment Protection Act, 1986 shall be complied with.	Standard for discharge of environmental pollutants is being complied while during construction and shall be followed during the operational phase as well.
y.	The project proponent shall ensure that road connecting national highway to the site is not damaged due to heavy (over loaded) traffic movement. All vehicles coming to ware house site shall be well maintained and their emission shall be within the CPCB norms.	It shall be ensured that Vehicles reaching to Warehouse site have valid PUC certificate and the Road connecting to Highways shall not be damaged due to heavy traffic movement.
z.	Monitoring of sound PM <sub>10</sub> , PM <sub>2.5</sub> , ground water and other emissions shall be done on monthly basis in the abadi area near the project site.	We are regularly monitoring all the mentioned parameters on monthly basis in the abadi area i.e; village Janouli near the project site. Refer Report as <b>Annexure-17</b> .
a	The project proponent shall avoid use of fresh ground water for horticulture purpose. Instead treated water shall be used with the help of drip irrigation and low water consuming species.	Treated water will be used for horticulture purpose and fresh water will not be used.
a	No leachate of chemicals is allowed on the project site.	Agreed and Noted.
b.		

**Part - B. General Conditions:**

S. No.	Conditions	Compliance Report
i.	The project proponent shall ensure the commitments made in Form-1 , form 1 A, EMP and other documents submitted to the SEIAA for the protection of environment and proposed environmental safeguards are	Noted & Agreed

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	compiled with in letter and spirit	
ii.	Six monthly compliance reports should be submitted to the HSPCB and Regional Office, MOEF, GOI, Northern Region, Chandigarh and copy to the SEIAA, Panchkula Haryana	Six monthly compliance reports will be regularly submitted to respective authority.
iii.	The SEIAA, Haryana reserves the right to add the additional safeguard measures subsequently, if found necessary. Environmental clearance granted will be revoked if it is found that false information has been given for getting approval of the project. SEIAA reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of SEIAA/MOEF.	Noted & Agreed.
iv.	The project proponent shall start construction only after getting NOC from the forest department that the area under consideration does not fall under section- 4 and 5 of PLPA- 1900	NOC from Forest department is already enclosed above as <b>Annexure-8</b> .
v.	All other statutory clearances such as the approval for the storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980, and Wildlife (Protection ) Act, 1972, Forest ACT, 1927 etc. shall be obtained, as applicable by proponents from the respective authorities prior to construction of the project.	NOC from Forest Department is already enclosed above as <b>Annexure-8</b> .
vi.	Under the provisions of Environment (protection) act, 1986, legal action shall be initiated against the project proponent if it is	Agreed

	found that the construction of the project has been started before taking environmental clearance.	
vii.	The project proponent should inform the public that the project has been accorded environmental clearance by the SEIAA and copies of clearance letter available with the State Pollution Control Board & SEIAA. This should be advertised within 7 days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region and the copy of same should be forwarded to SEIAA, Haryana.	A copy of Advertisement given in local newspaper is enclosed as <b>Annexure-18</b> .
viii.	Any appeal against the this environmental clearance shall lie with the national green tribunal, if preferred , within a period of 30days as prescribed under section 16 of The National Green Tribunal Act, 2010	Agreed.
ix.	The fund ear marked for the environment protection measures should be kept in separate account and should not be diverted for other purposes and year wise expenditure shall be reported to the SEIAA/RO MOEF GOI under rules prescribed for Environment Audit.	Noted & Agreed.

## PART II

### Environmental Monitoring Report

#### 2.1 AMBIENT AIR QUALITY MONITORING

##### 2.1.1 Ambient Air Quality Monitoring Stations

Ambient air quality monitoring has been carried out at four locations; one is at the project site (near Site Office) , Downwind Direction (near Main Gate) , Upwind Direction (near Logistic Tower) and another one is at Village- Janouli to assess the ambient air quality. This will enable to have a comparative analytical understanding about air quality and the changes in the air environment in the study area with respect to the condition prevailing. The locations of the ambient air quality monitoring stations are given in Table 2.1.

Table 2.1 Details of Ambient Air Quality Monitoring Stations

S. No.	Location Code	Location Name/ Description
1.	AAQ-1	Project Site (near Site Office)
2.	AAQ-2	Downwind direction (near Main Gate)
3.	AAQ-3	Upwind Direction (near Logistic Tower)
4.	AAQ-4	Village- Janouli

##### 2.1.2 Ambient Air Quality Monitoring Methodology

Monitoring was conducted in respect of the following parameters:

- Particulate Matter (PM 2.5)
- Particulate Matter (PM 10)
- Sulphur dioxide (SO<sub>2</sub>)
- Nitrogen dioxide (NO<sub>2</sub>)

The duration of sampling of PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>2</sub> was 8 hourly sampling per day. The monitoring was conducted for eight hours at each location. This is to allow a comparison with the National Ambient Air Quality Standards.

Ambient Air Quality monitoring was carried out as per the CPCB guidelines and analyze as per IS: 5182. The techniques used for ambient air quality monitoring and minimum detectable levels are given in Table 2.2.

**Table 2.2 Monitoring Method and Other Details**

Attributes	Sampling		Measurement
	Duration	Instrument Used	Method
Particulate Matter (PM10) µg/m3	8 Hourly	Repairable Dust Sampler along with gaseous attachment and fine particulate sampler.	IS: 5182 (P-23), 2006
Particulate Matter (PM2.5) µg/m3			PM 2.5 Sampler (Gravimetric)
Sulphur Dioxide (SO2) µg/m3			IS: 5182 (P-2), 2001
Nitrogen dioxide (NO2) µg/m3			IS: 5182 (P-6), 1975 Reffirmed-1998

**2.1.3 Results of Ambient Air Quality Monitoring**

The detailed on-site monitoring results of PM 2.5, PM 10, SO<sub>2</sub> and NO<sub>2</sub> are presented in

**Table 2.3**

**Table 2.3  
Ambient Air Quality Monitoring Results of current monitoring  
(Oct. 2014 to March 2015)**

S. No.	Locn. Code	Location	(PM <sub>2.5</sub> ) (µg/m <sup>3</sup> )	(PM <sub>10</sub> ) (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )
1.	AAQ-1	Project Site (near Site Office)	41.86	86.98	24.39	10.87
2.	AAQ-2	Downwind Direction (near Main Gate)	41.60	91.33	31.22	10.49
3.	AAQ-3	Upwind Direction (near Logistic Tower)	37.50	83.78	25.41	10.87
4.	AAQ-4	Village - Janouli	40.32	84.63	24.39	10.25
<b>*NAAQS</b>			<b>60</b>	<b>100</b>	<b>80</b>	<b>80</b>

\*NAAQS - National Ambient Air Quality Standards

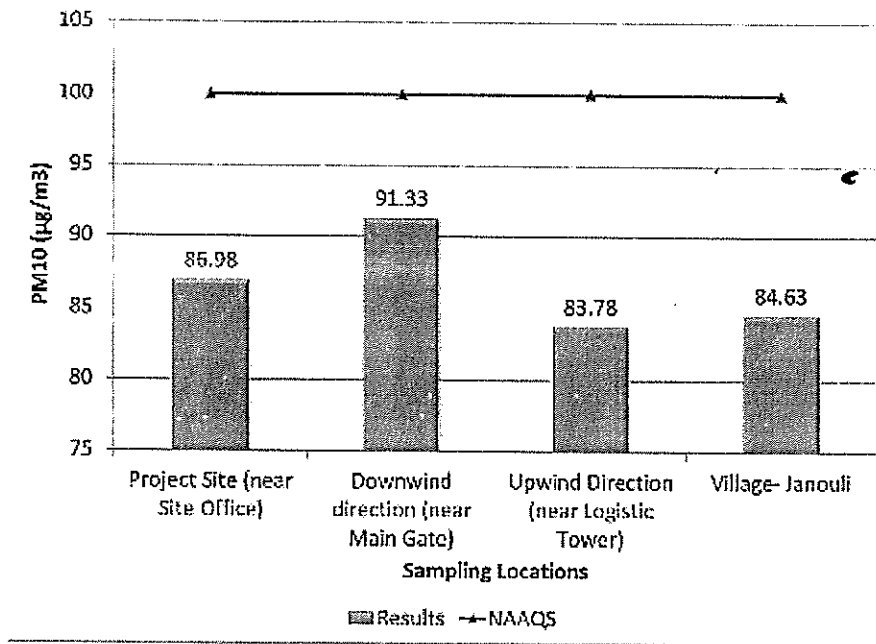


Fig: 2.1 Graph Showing the Results of Ambient Air Quality – PM10

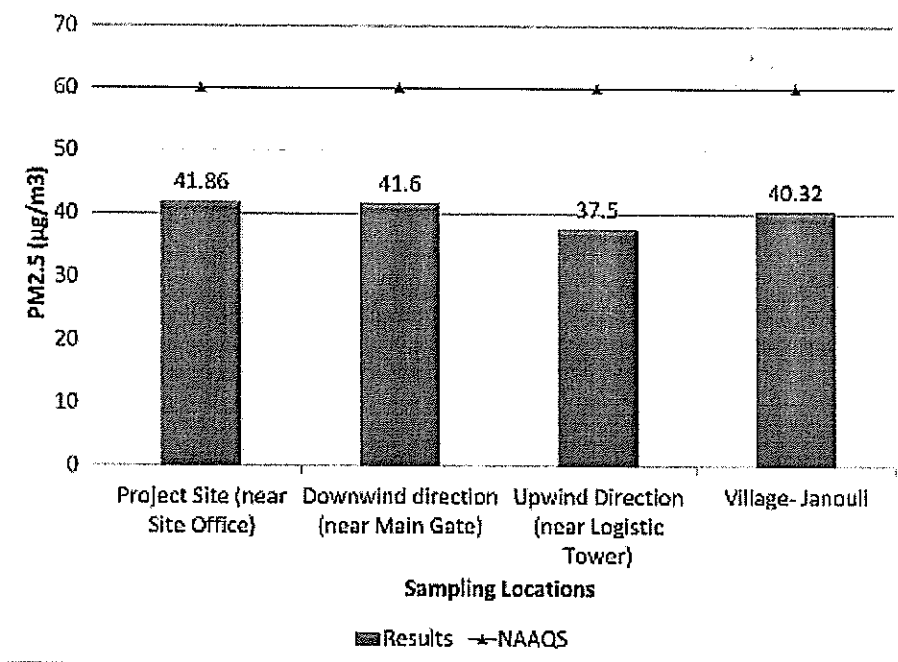
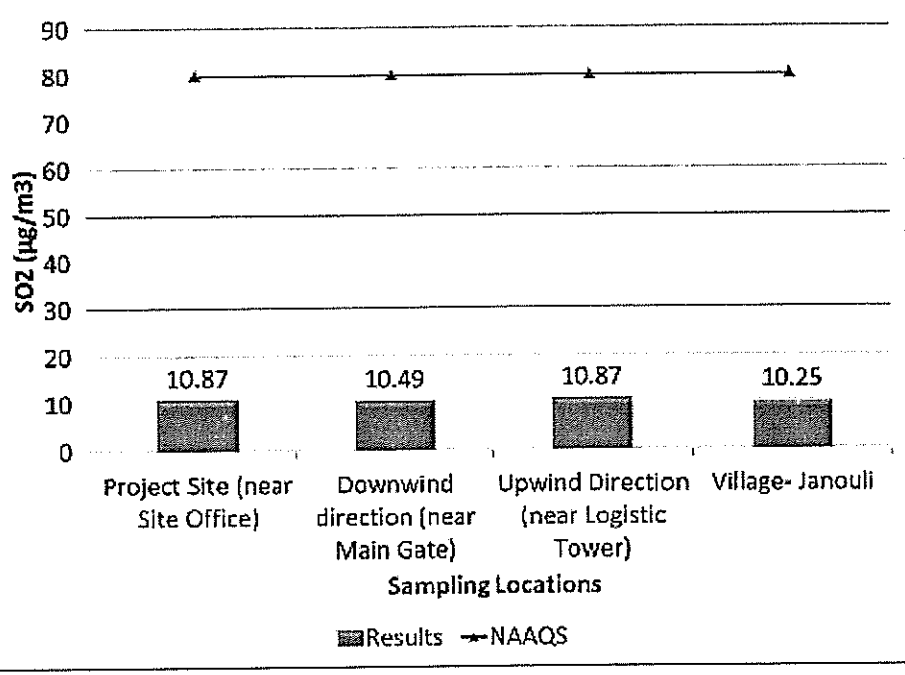
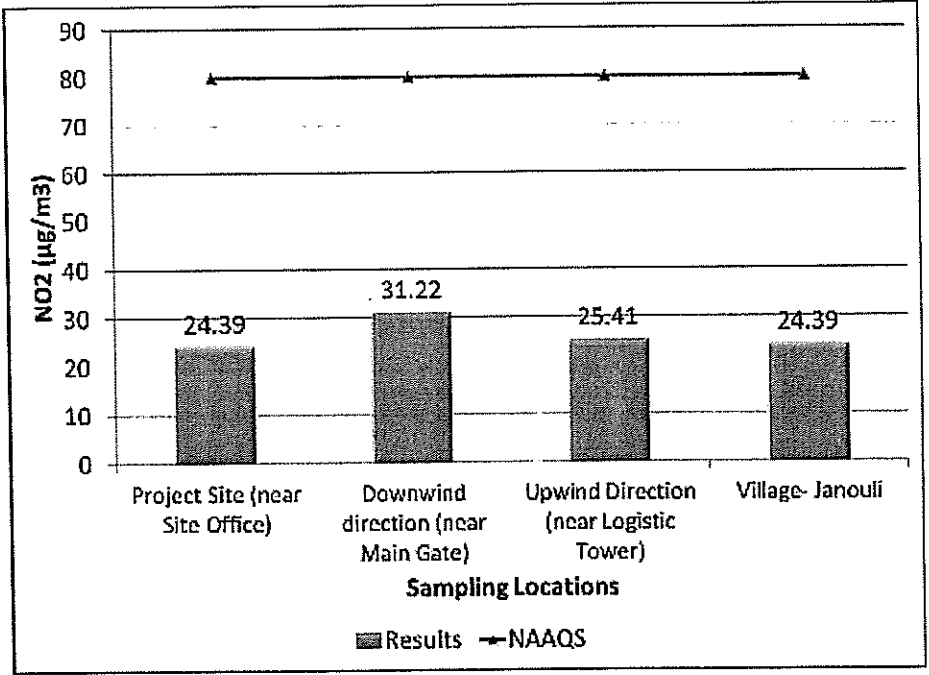


Fig: 2.2 Graph Showing the Results of Ambient Air Quality – PM2.5





**Fig: 2.3 Graph Showing the Results of Ambient Air Quality - SO2**



**Fig: 2.4 Graph Showing the Results of Ambient Air Quality - NO2**

**2.1.4 Discussion on Ambient Air Quality in the Study Area**

The air quality monitoring parameters (PM10, PM2.5, SO2, NO2) were observed within

the prescribed limits by NAAQS at all monitoring locations. Station wise variation of ambient air quality parameters has been pictorially shown in Fig, 2.1; 2.2; 2.3; 2.4

## 2.2 AMBIENT NOISE MONITORING

### 2.2.1 Ambient Noise Monitoring Locations

The main objective of noise monitoring in the study area is to assess the present ambient noise levels. A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the area. Ambient noise monitoring was conducted at 4 locations at the boundary of the project site as given in **Table 2.4**.

**Table 2.4 Details of Ambient Noise Monitoring Stations**

S. No.	Location Code	Location Name/ Description
1.	NQS-01	Project Site
2.	NQS-02	Near Construction Area
3.	NQS-03	Village - Janouli
4.	NQS-04	Residential Area (Colony)

### 2.2.2 Methodology of Noise Monitoring

Noise is defined as unwanted sound that create interferences in speech communication, causes annoyance, disturbance in work concentration and sleep, thus deteriorating quality of Noise environment. In the present study Noise monitoring undertaken at 4 locations.

Since loudness of sound is the important parameter to assess the effects of particular activities on human being, and for noise environment assessment that must be taken into the account. Hourly Sound Pressure Level (SPL) was recorded with Sound level Meter (Envirotech SLM 100) for 24 hours. The Leq value has been computed from SPL readings taken at uniform time intervals from the relation as under:

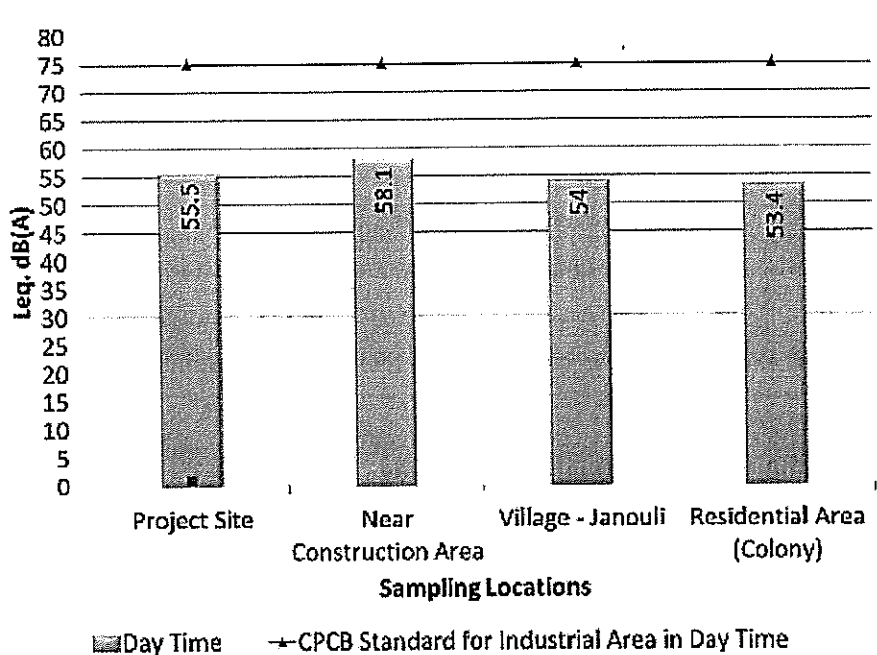
$$L_{eq} = 10 \log 1/n \sum_{i=1}^n 10^{SPL_i/10}$$

### 2.2.3 Results of Ambient Noise Monitoring

The location wise ambient noise monitoring results is summarized in **Table 2.5**. The location-wise variation of noise levels are graphically presented in **Figure 2.5& 2.6**

**Table 2.5**  
**Ambient Noise Monitoring Results of current monitoring (Oct. 2014 March 2015)**

Monitoring Location	Location Detail	Shift	Parameters		
			L <sub>max</sub>	L <sub>min</sub>	L <sub>eq</sub>
NQS-01	Project Site	Day Time	79.20	46.00	55.50
		Night Time	53.90	38.40	45.78
NQS-02	Near Construction Area	Day Time	76.00	46.10	58.10
		Night Time	54.20	40.30	47.30
NQS-03	Village - Janouli	Day Time	69.20	38.40	54.00
		Night Time	49.20	38.20	41.86
NQS-03	Residential Area (Colony)	Day Time	67.30	42.30	53.40
		Night Time	49.30	38.30	43.40
<b>CPCB Limits for Residential Area</b>		<b>Day Time</b>	-	-	<b>55</b>
		<b>Night Time</b>	-	-	<b>45</b>
<b>CPCB Limits for Industrial Area</b>		<b>Day Time</b>	-	-	<b>75</b>
		<b>Night Time</b>	-	-	<b>70</b>



**Fig: 2.5 Graph Showing the Results of Ambient Noise Monitoring during Day Time**

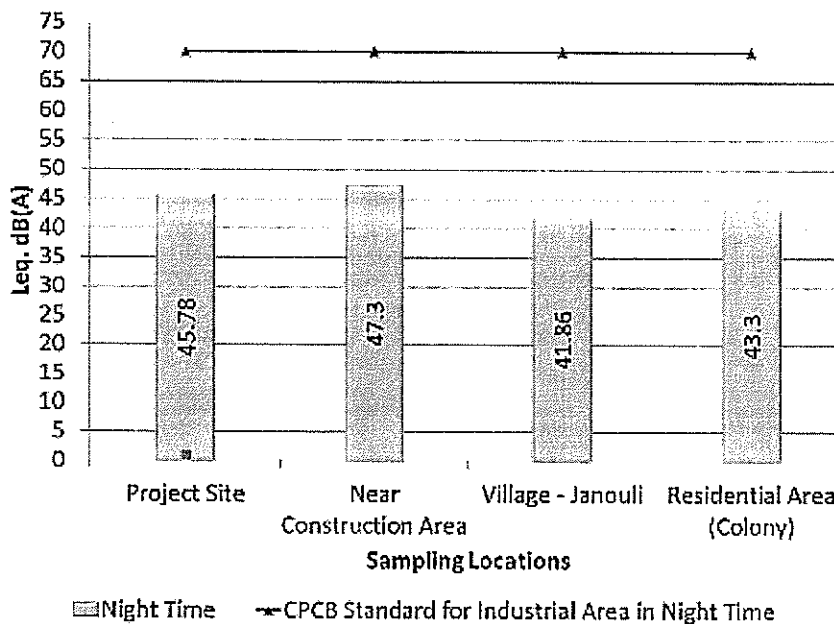


Fig: 2.6 Graph Showing the Results of Ambient Noise Monitoring during Night Time

#### 2.2.4 Discussion on Ambient Noise Levels in the Study Area :-

The location-wise variation of noise levels are graphically presented in Figure 2.5&2.6. It is observed that the  $L_{eq}$  values during day time and night time are within the prescribed limits by CPCB - Ambient Standards for noise.

### 2.3 WATER QUALITY ANALYSIS

Water is the most important natural resources. In order to assess the water quality, three water sample one from Bore well and another from RO, were collected from the Project site and Physico-Chemical examination was undertaken by Standard methods (American Public Health Association -APHA/ and the Bureau of Indian Standards -BIS). Bacterial examination was carried out to identify the microbiological contamination in source.

#### 2.3.1 Methodology of water Quality Monitoring

Sampling of water was carried out on March 2015. Samples were collected as grab sample and sampling forms are filled in as per the sampling plan. The preservative sample were properly added to preserve as per standard operating procedures (SOP) and stored immediately in ice boxes, which were ensured for appropriate temperatures. Sample for chemical analysis was collected in polyethylene carboys. Sample collected for metal

content were acidified to <2 pH with 1 ml HNO<sub>3</sub>. A sample for bacteriological analysis was collected in sterilized glass bottles.

The analytical techniques and the test methods & sampling results are enclosed as **Annexure-3**

## **2.3 SOIL MONITORING**

### **2.4.1 Soil Monitoring Locations**

The objective of the soil monitoring is to identify the impacts of ongoing project activities on soil quality and also predict impacts, which have arisen due to execution of various constructions allied activities. Accordingly, a study of assessment of the soil quality has been carried out.

To assess impacts of ongoing project activities on the soil in the area, the physico-chemical characteristics of soils were examined by obtaining soil samples from selected points and analysis of the same. Three samples of soil were collected from the project site, vill-Janouli & vill – Baghola for studying soil characteristics.

### **2.4.2 Methodology of Soil Monitoring**

The sampling has been done in line with IS: 2720 & Methods of Soil Analysis, Part-1, 2nd edition, 1986 of American Society for Agronomy and Soil Science Society of America. The homogenized samples were analyzed for physical and chemical characteristics (physical, chemical and heavy metal concentrations). The soil samples were collected in the month of March 2015.

The samples have been analyzed as per the established scientific methods for physico-chemical parameters. The heavy metals have been analyzed by using Atomic Absorption Spectro-photometer and Inductive Coupled Plasma Analyzer.

### **2.4.3 Soil Monitoring Results**

Three samples of soil were collected from the project site, vill- Janouli&vill – Bagholato check the quality of soil of the study area. The physico-chemical characteristics of the soil, as obtained from the analysis of the soil sample, are enclosed as **Annexure-3**

