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EXECUTIVE SUMMARY

The executive summary is an outline of the key outcomes in EIA (Environmental Impacts Assessment). The proponent intends to take environmental approval of the project from Environment Protection Agency (EPA) in order to comply with all the rules and regulations. The name of the project is M/s Trafo Link Pvt. Ltd. located at Kahna Industrial Area, Defense Road, Opposite Varioline Intercool Pvt. Ltd. Lahore. The project involves the transformers manufacturing unit over an area of 18-Kanal 12-Marla. The basic detail of the project is provided in this chapter.

Screening

According to projects categorization for environmental assessment studies, the project falls under **Schedule II** (list of projects requiring an EIA), **Category A** (Energy), as per the IEE/EIA Regulations 2022, established under Section 12 of the Punjab Environment Protection Act 1997 (Amended 2012).

Trafo Link (Pvt) Limited was established in 2003 with the objective to manufacture distribution transformers (Pole-Mounted & Pad-Mounted) and power transformers to fulfill requirements of the local market, however will have a vision to expand business and will export in future.

Presently, we are manufacturing 5KVA to 8000 KVA transformers for Area Electricity Boards, private sector. Furnace Transformers for Steel Mills Industry as well as purpose designed transformers for specific application. Our in house design capabilities an extensive. Our transformers are designed by a team of highly qualified engineers. The manufacturing process is supervised by experienced engineers and strict quality control is maintained at all stages. Tests according to relevant standards are carried out before dispatch ISO certification is ongoing at this time.

Title and location of the project

The proponent intends to establishment of transformers manufacturing unit by the title "M/s Trafo Link" at Kahna Industrial Area, Defense Road, Opposite Varioline Intercool Pvt. Ltd. Lahore over an area of 18-Kanal 12-Marla.

Name of the Proponent

The detail of the proponent is given below:

Table 1 Details of Proponent

Details of the Proponent

phase and around 30-35 people will be engaging during the operational phase of the project.

Table 2 Schedule of area

Schedule of Area		
I.	Total Area of Plot	18-Kanal 12-Marla
II.	Covered Area	39204 Sq. Ft.
III.	Total Open Area	47916 Sq. Ft.

1.5 Location

The project site is located at Kahna Industrial Area, Defense Road, Opposite Varioline Intercool Pvt. Ltd. Lahore. The coordinates of the project area are 31.385152, 74.340428.



4.2.5 Air Quality

Atmospheric pollution particularly in urban area has a strong impact upon daily life. Its economic growth, industrial progression & transport have increased which ground for rising energy consumption and ultimately consequences are increase in air pollution. The main sources of air pollution exhaust from motor vehicles and industries are SO₂, NO₂, CO, etc. Particulate Matter (PM) and noise which is inspected as the pollution indicators.

Dust particles along with oxides of nitrogen, sulphur and carbon are the major causes of air pollution in the ambient air quality. It was observed during the visit that petrol and diesel operated vehicles are emitting smoke and exhaust gasses in excessive quantity which are the leading sources of environmental pollution and responsible for the air quality worsening. Infact exhaust emissions (including dangerous gases such as carbon monoxide, oxides of nitrogen, hydrocarbons and particulates) and evaporative emissions (including vapors of fuel which is released into the atmosphere, without being burnt) are the prime sources for deterioration of air quality. Monitoring was conducted at the project site by using Fine Dust Sampler IPM-FDS 2.5/10 μ and Ambient Air Analyzer.

4.2.6 Noise Level Monitoring

Noise is described as an unwanted sound emitted from un-avoidable sources of anthropogenic activities. Daily based natural induced sources of noise are rare to none but human induced noise sources are plenty and un-avoidable. Physically, there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled noise, music, speech, low altitude airplane flying etc.

The affluent areas of City are quieter than rest of the city. The noise level in these areas is still far higher than the standards set by the World Health Organization and the Pak-EPA as the safe noise level; i.e. 60-85

A thorough survey of the field area was undertaken to collect pertinent data directly from the project site, ensuring a grounded understanding of the physical, ecological, and socioeconomic settings.

Interviews with the Public and Stakeholders:

Engaging with the public and project stakeholders provided valuable perspectives on the proposed project. These interactions offered insights into public opinion and expectations regarding the project's implementation.

Consultations with Organizations:

Meetings with various Governmental and Non-Governmental Organizations (NGOs) were conducted to gather additional relevant data. The views and feedback obtained from these organizations were documented to enrich the EIA report with diverse perspectives on the project's potential environmental impact.

The environmental baseline study focuses on three primary components:

- **Physical Environment**
- **Ecological/Biological Environment**
- **Socioeconomic Environment**

The comprehensive approach to data collection and analysis within the environmental baseline study ensures that all potential impacts of the proposed project are anticipated and addressed. This process not only aids in the responsible planning and implementation of the project but also aligns with regulatory requirements and community expectations, paving the way for sustainable development.

4.2 Physical Environment

The proposed project lies in Kahna Industrial Area, Defense Road, Opposite Varioline Intercool Pvt. Ltd. Lahore, over an area of 18-Kanal 12-Marla Ft. where proponent intends to develop the proposed project. There are different industrial units within the project area in operational, constructional, and planning phase. The project lies in lahore, and it has a detailed background history.

4.2.1 Geology

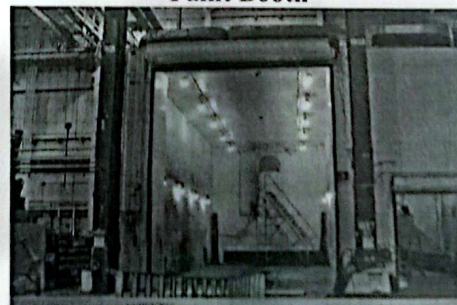
Core Loss after Dielectrics		ANSI C57.12.90 CAN/CSA-C88-M90	8 16.3.k	
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Test		Standard	Section	Engineering Instructions
Parallel Turns	No	EMT 200.011		
Ratio, Polarity, Core meg.	Std	EMT 200.011		
R.S.G.	Yes	EMT 200.011		
Non Linear Resisters	Std	EMT 200.011		
CT's & PT's	Std	EMT 200.011		
LTC Reactor	Std	EMT 200.011		
LTC Pretest prior to tank.	Std	EMT 200.011.1		
Dissipation	Std	EMT200.012.6 & ANSI	10.9	
Core Megger	Std	CSA & EMT 200.012.1		
CT Resistance	Std			
CT Ratio & Polarity	Std	CSA & EMT 200.012.4		
PT Ratio & Polarity	Std	CSA & EMT 200.012.4		
Hi-Pot: Panels, Fans, Pumps	Std	CSA & MI 355.021		
Hi-Pot: PT's & CT's	Std	CSA & EMT 200.012.4		
Hot Spot Calibration	Std	CSA & EMT 200.012.8		
Top Oil Calibration	Std	CSA & EMT 200.012.8		
GDR Alarm & Trip	Std	CSA & EMT 200.012.8		
Panel Operation	Std	CSA & EMT 200.012.7		
Line Drop Compensator	Std	CSA & MI 355.105		
Fan, Pump Losses;Klixon	Std	CSA & EMT 200.012.7		
Tapgear Operation	Std	CSA & EMT 200.012.7		
Pressure Tests	Std	CSA & MI 358.012		
Gas-in-Oil Samples				
PCB Oil Sample				
ADDITIONAL TESTS				

Test Unit



Paint Booth



- Shunt Packs

Tank Covers

- Raised flanges are provided to prevent water entry
- Cover is designed to prevent water collection
- High quality steel plate is cut by an automated waterbed plasma cutter



Re-Pack & Tanking

- After vapor phase unit is re-packed and undergoes final hydraulic clamping
- Maximum exposure time to atmosphere is limited to under 16 hours

Exciter and Series Transformer

Helix- Boomerang, Giron, Double Helix equally Transposed

Use(Varies from Manufacturer to Manufacturer):

- 1 or 2 layers
- Up to 325 kV BIL for single-layer windings
- Up to 200 kV BIL for two-layer windings
- Axial cooling ducts in the winding or with zigzag cooling depending on what kind of helix
- Preferably with at least one turn between successive transpositions

Advantages:

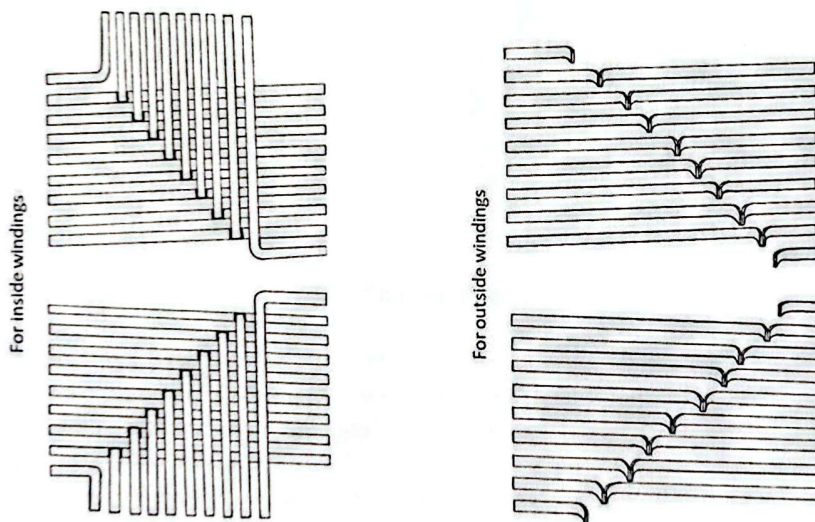
- Cheap winding
- No radial overbuild at the transpositions depends on Boomerang type

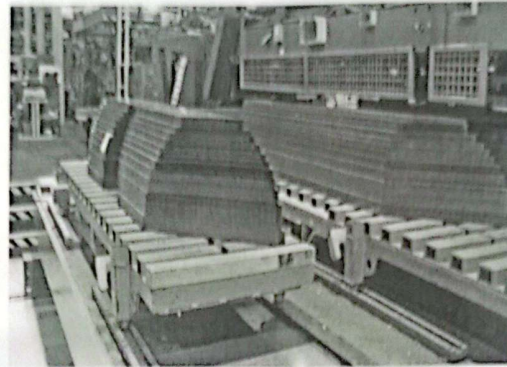
Disadvantages:

- One brazing per transposition on Boomerang type
- Cannot be used for zigzag cooling without radial overbuilds on Giron and Double helix type

Tapped helix MW / CTC

- Regulating winding(for LV)
- Easy to wind, high Cu cross-section possible
- Eccentric duct necessary if used as inside winding

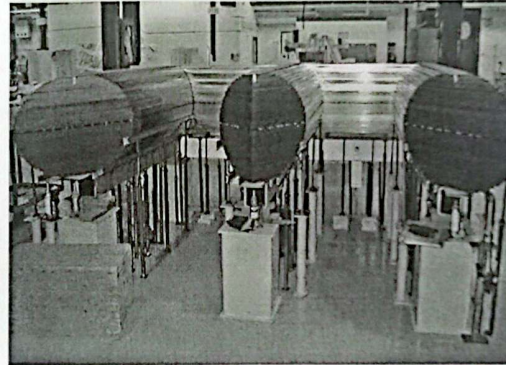




Core 'Logs' Stacked

Core Stacking

- Use of temporary bolt guides for stacking
- 2, 3, 4 & 5 leg cores manufactured for single & three phase units
- Oil ducts utilized to control temperature rise
- Temporary, Permanent or combination of banding



Mineral oil is used as a coolant and insulating medium in liquid-filled transformers, maintaining proper temperature and dielectric strength.

Final Product: Transformers of miscellaneous sizes upto 8000 KVA.

Transformer Manufacturing Process

Key Features

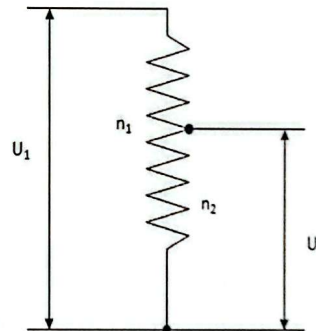
- Most common types of power transformers

i. GSU's (Generator Step-Up):

- 2 windings HV/LV
- 3 windings HV/LV1/LV2
- with D.T.C. in HV, typically $\pm 2 \times 2.5\%$ +5%
- normally no L.T.C. -5%
- Connection Wye/Delta
- typical LV: 10, 20, 25 kV
- typical HV: 33, 69, 115, 138, 161, 230, 345, 500 kV
- Single-phase
- Three-phase

ii. Auto-Transformers:

- 1 winding (series + common winding)
- 2 windings (series + common) + tertiary winding
- D.T.C. in HV
- L.T.C. in HV or LV
- Single-phase or three-phase
- Connection: always Wye/Wye
- purpose of tertiary winding
 - suppression of harmonics
 - can be buried (no bushings brought out)
 - sometimes brought out for station service
 - voltage 3% of rating



Auto-transformer has smaller frame size

Rating = 300 MVA
 HV = 230 kV
 LV = 115 kV

Frame size:
 $\frac{230-115}{230} \times 300 = 150 \text{ MVA}$

iii. Step-down transformers:

- 2 winding HV/LV + D.T.C.
- 2 winding HV/LV + L.T.C. winding
- 3 winding HV1xHV2/LV + D.T.C.

Connection: Delta - Wye (majority)
 Wye - Delta
 Wye - Wye

Three Phase